Proceedings of IYSC, (2022), vol. 11

Journal homepage: http://journals.sdu.edu.kz/index.php/iysw

FAST AND RELATIVELY ACCURATE SENTIMENT ANALYSIS FOR THE KAZAKH LANGUAGE

N. Manteyeva

Suleyman Demirel University, Kaskelen, Kazakhstan

Abstract

This paper constructs a fast and accurate sentiment analysis model for the Kazakh language. The main method for text classification is based on TF-IDF-based tokens trained with Logistic Regression. The processing and modeling stages are fully implemented in the PySpark framework. The proposed method has shown an accuracy level of 82% on an evenly distributed test dataset. As a byproduct of the work, we have collected a list of words in the Kazakh language that could signal the negativity/positivity of the given review.

Keywords: sentiment analysis, natural language processing, Kazakh language.

Introduction

Sentiment analysis [1] is a computational study of people's emotions and feelings towards a particular object. A popular problem in sentiment analysis lies in the classification of the text's sentiment as positive or negative. This problem could be viewed as a text classification problem [2]. In general, the problem of sentiment classification is well studied [1] for the English language. There is a wide variety of methods ranging from classical machine learning to deep learning-based methods. However, for certain classes of language, there is a very limited number of methods for sentiment classification. One example of such a language is the Kazakh language. There are some works on sentiment analysis for the Kazakh language [3, 4, 5]. Some of these works are based on rules and heuristics [3, 4], while some [5] are based on resource-hungry LSTM neural network architecture. There is a need for a classical machine learning method with relatively high accuracy and relatively low computational speed. A requirement for low computational speed comes from the needs of business applications. For real-time prediction, the speed of the model plays an important role.

It could be noted that sentiment analysis for texts written in the Kazakh language could be done indirectly by translating the text into the English language first. As there are plenty of sentiment analysis methods available for the English language, the solution seems pretty viable. The downside of the method lies in its financial cost. Solutions for automatic translation charge based on the number of characters/words translated. If one performs a machine translation on a large corpus of text, the financial cost of the process is going to be significantly high. For this reason, there is a need to construct fast and somewhat accurate sentiment analysis methods for the Kazakh language.

Methods

Dataset

The original dataset comes from the Amazon Product Review dataset [1]. The reviews in the given dataset are written in the English language. The dataset contains more than 142 million reviews and takes up more than 20Gb of volume. We have selected reviews from the category of Office products. This category contains more than 53,000 reviews. The reviews are divided into 5 categories according to the number of stars given, so the values range from 1 to 5.

Our process of data collection consisted of two steps:

Choosing a sample of positive and negative reviews.

Using Google Translate to translate the chosen reviews from English to the Kazakh language.

Let's discuss each step.

Firstly, we have selected a sample of positive and negative reviews. Since Google Translate has a limitation on the size of the input text, we could not select all reviews for translation. For this reason, we have selected 1000 positive and 1000 negative reviews. For our purposes, we considered reviews with 1 or 2 stars as negative reviews, while the reviews that had 5 stars were considered positive. We then randomly selected 2000 reviews from the each of two groups.

Secondly, we have used Google Translate to translate the selected reviews into the Kazakh language. To do that we have collected both positive and negative reviews as txt files, and passed these files into Google Translate to translate the given reviews from English to the Kazakh language.

In the end, there are 2000 reviews written in the Kazakh language.

Text Preprocessing

Before proceeding with building a sentiment analysis model, one needs to process the given dataset. There are three types of text processing steps performed:

Removal of digits

Changing the case into lowercase

Building tokenization dictionary

As we wanted to focus on the words only, we have removed characters corresponding to digits from the given texts. Next, all texts were transformed to lowercase. This step reduced the number of distinct words in the dataset. Finally, we have to build a dictionary of tokens and provided each word/token with its corresponding integer index. This step is done to prepare texts

for machine learning analysis.

Feature Engineering

TF-IDF terms

TF-IDF is a popular feature construction technique used for text data [6]. Term frequency-inverse document frequency (TF-IDF) is a feature vectorization method widely used in text mining to reflect the importance of a term to a document in the corpus. Denote a term by t, a document by d, and the corpus by D. Term frequency TF(t,d) is the number of times that term t appears in document d, while document frequency DF(t,D) is the number of documents that contains term t. If we only use term frequency to measure the importance, it is very easy to over-emphasize terms that appear very often but carry little information about the document, e.g., "a", "the", and "of". If a term appears very often across the corpus, it means it doesn't carry special information about a particular document. Inverse document frequency is a numerical measure of how much information a term provides:

$$IDF(t, D) = (log|D| + 1) \,/\, (DF(t, D) + 1)$$

where |D| is the total number of documents in the corpus. Since logarithm is used, if a term appears in all documents, its IDF value becomes 0. Note that a smoothing term is applied to avoid dividing by zero for terms outside the corpus. The TF-IDF measure is simply the product of TF and IDF

$$TFIDF(t, d, D) = TF(t, d) \cdot IDF(t, D)$$

There are several variants of the definition of term frequency and document frequency. In spark.mllib, we separate TF and IDF to make them flexible. It is worth noting that PySpark framework uses hashing technique to speed up the calculation of TF-IDF terms.

Selecting Significant Features

After the construction of TF-IDF tokens, there were 212 features in total. Considering the size of our dataset, there was an excess of features to work with. In order to reduce the number of features, we have performed a chi-square test [7] to leave only those features that showed statistical significance with respect to the target variable. After using the chi-square test we selected 52 features that showed statistical significance.

Feature Scaling

In general it is a good practice in machine learning to normalize features before applying any machine learning algorithm. In our case, scaling had a second benefit of allowing us to identify

important features. The feature importance provides a measure of the influence of the given feature on the target variable. In the case of Logistic Regression, feature importance could be measured by the absolute value of the corresponding weight coefficient. For the validity of this approach, the features need to be scaled.

We have used a min-max feature scaler. It works as follows

$$x' = (x - min(x)) / (max(x) - min(x))$$

After using this scaling technique all features range within [0, 1] interval.

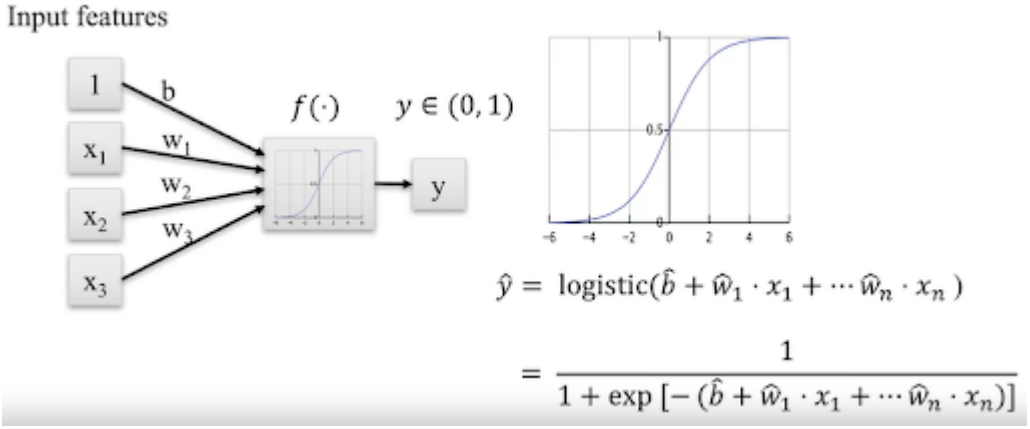
Machine Learning Modeling

Train/Test Data Split

As part of a standard technique for machine learning modeling we randomly split the dataset into training and testing datasets. The testing dataset comprised 20% of the original dataset. After we have trained the machine learning model on the training dataset, we could safely test its performance on the test dataset. As for the implementation in PySpark we have randomSplit() with input parameters of [0.8, 0.2].

Logistic Regression

Logistic regression is a popular and widely used machine learning model for classification problems.



Logistic regression offers the following advantages over rule-based heuristics

Statistical nature

Higher accuracy

Logistic regression offers the following advantages over neural network-based models:

Lower training and prediction speeds

Higher interpretability

PySpark offers its own implementation of logistic regression available as pyspark.ml. classification.LogisticRegression class. We have used this class for modeling our dataset.

Results

F1-Scores

We have computed the F1-score for all three modeling methods: Heuristics, Logistic Regression and LSTM. The results are given below.

Model	F1-score
Heuristics-based model	0.61
Logistic Regression-based model	0.81
LSTM based model	0.89

As we can see Logistic Regression-based model showed significantly higher results compared to the heuristics-based model

Train/Predict times

We have computed training and prediction times, in seconds, for all three modeling methods.

Model	Train Time (sec)	Predict Time (sec)
Heuristics based model	n/a	0.06
Logistic Regression based model	0.72	0.14
LSTM based model	24.3	0.85

As we can see the Logistic Regression based method showed significantly lower training and prediction times compared to the LSTM based approach.

Trigger Words

By calculating feature importance for the Logistic Regression model we could identify a list of words that highly affect the sentiment of the review. By using this list of words, it is possible to come up with a rule-based algorithm that judges the sentiment of a review by the inclusion of these highly influential/trigger words.

Conclusion

We have developed a sentiment analysis of review messages in the Kazakh language. We have used Logistic Regression to model the data, and PySpark as a computing environment for our experiments. Our study has shown that a Logistic Regression-based model could be significantly more accurate than heuristics-based models. Moreover, the Logistic Regression based model showed significantly faster train/prediction times compares to the LSTM based model. As a byproduct of our research, we have collected a list of trigger words that influence the final class of review messages the most.

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Proceedings of IYSC, (2022), vol. 11

Journal homepage: http://journals.sdu.edu.kz/index.php/iysw

MATHEMATICAL MODELING OF INFECTIOUS DISEASES AND IMPACT OF VACCINATION STRATEGIES

D. Bolatova[1], Sh. Kadyrov[2], A. Kali[3]

[1,2,3]*Suleyman Demirel University, Kaskelen, Kazakhstan*

Abstract

In this work, we consider mathematical time-varying Susceptible, Exposed, Infectious, and Recovered epidemic model to study optimal vaccination strategy to control excess death due to the epidemic. We model the periodic family of vaccination strategies based on vaccination days and gaps between two periods, where we assume that a government aims to vaccinate about 80% of its population within one year. This is a constraint optimization problem, and to find the optimal vaccination strategy we used a numerical analysis approach. The mathematical models are calibrated to COVID 19 situations in Kazakhstan. Findings of the experiments suggest that to control death tolls due to disease, the governments need to offer vaccinations at the maximum possible rate without any breaks until they reach the desired 80% goal.

Keywords: SEIR model, dynamical systems, vaccination, COVID, Optimal strategy, Death toll

Introduction

SARS-CoV-2, a new virus belonging to the Coronaviridae family, causes COVID-19, a Severe Acute Respiratory Syndrome (SARS). The epidemic was initially identified in December 2019 in the Chinese city of Wuhan, and shortly after it lost control turning to the worldwide pandemic. As of May 2022, COVID-19 pandemic has claimed the lives of over 6 million people with more than 500 million confirmed cases. While some countries were reluctant, most world countries reacted fast and implemented various measures to control the spread of the virus in their countries. In particular, various lockdown measures, social distancing rules, and PCR testing requirements are put in action. Yet, aside from partial success the pandemic continued to progress with new variants. Most countries believed that developing new vaccines against the virus would help to overcome the disease and various researchers were developing their version of vaccines and running clinical trials on safety and effectiveness.

In August 2021, the Pfizer–BioNTech vaccine became the first COVID-19 vaccine to be approved by the Food and Drug Administration in the United States. Soon after, various other vaccines including Moderna, AstraZeneca, Johnson & Johnson, Sputnik V, and Sinovac started publishing the effectiveness reports of clinical trials. All these required tremendous work and it was a huge success from researchers' side, and governments were very optimistic to be able to see the light at the end of the tunnel very soon. However, now governments face different tasks: allocating a budget to purchase vaccines, convincing hesitant individuals to get vaccinated, and developing

proper vaccination protocols. In other words, once the vaccinations are developed, the main challenge to governments is to establish effective vaccination strategies and programs. In this work, our purpose is to find the best vaccination strategy that minimizes the death toll due to the virus.

Related work

Rapid invasion and widespread coronavirus disease all over the world required the development of vaccines within a short period of time. After a year of investigation, there was significant progress in creating the vaccines in January 2021, and the first trials among Chinese students were tested within 11 days between 5 and 16 January (Chen et al., 2021). As of April 2021, Kumar et al. (2021), in their paper, claimed that more than 300 vaccines were being developed and 9 of them already were approved to apply among the population in different countries showing the promising effectiveness ranged between 50 and 95%. Such a big range can be explained by the following factors: the quality of vaccines, preexposure and age. Hence, to achieve the goals, every government should consider of particular cases of their own countries in choosing a vaccination strategy if it should be selective vaccination in cities with a relatively high population density, or applying two or more vaccines with two-dose schemes with different time intervals from 3 to 9 weeks, or age-specific vaccination which depends on the different categories of population: age, jobs, and preexposure.

Considering the strategy based on agent-based transmission, age characteristics, and demographics, a double shot vaccination model was implemented in Ontario, Canada (Vilches et al., 2021). This article provides an investigation of vaccine efficacy (Pfizer-BioNTech and Moderna vaccines) and its effect on the virus attack, critical cases, and the number of deaths. Vilches studied the relationship between daily contact of vaccinated individuals and the period of time that passed, which resulted in an increased immunity of the population to overcome the disease outbreak through the vaccination process. Furthermore, Vilches analyzed the case of Brazil in another article, with 2 two-dose vaccines which are CoronaVac and Oxford-AstraZeneca with different efficacy levels and time periods between the shots (Vilches et al., 2021). In Brazil, two vaccination strategies were taken into account, with a standard dosage and its double amount, whereas both of them have a positive impact on the further spread of the virus. Following the first strategy, the number of deaths decreases from 122 to 99 for CoronaVac and to 80 for Oxford-AstraZeneca, likewise for the number of critical cases in hospitals. While the second strategy

suggests a lower number of deaths by 74.4% and hence considerably stops the infection spread.

Different vaccine efficacy rates (0.75, 0.85, 0.95) were considered in Malaysia through a modified SIR model leading to a slight virus spread, when the rate of vaccination is higher than 0.75 (Wong et al., 2021). According to simulation results, decreasing the reproduction number leads to a low level of an infection graph both with vaccination and without it. However, Wong states that gradual vaccination procedure helps to achieve the herd immunity and make the population susceptible to a removed state.

According to Moghadas et al. (2021), a two-dose vaccination program was implemented for Moderna and Pfizer-BioNTech studying the agent-based model of the Coronavirus case. Regarding the effectiveness of Moderna, it was computed that during a 9-week gap, a maximum can be obtained in contrast to the suggested 4-week gap. While Pfizer-BioNTech was proved to be more effective in a 9-week period instead of recommended 3-week period between the two dosages. By carrying out a suggested campaign and designing a plan with 30 vaccines in one day per 10,000 individuals, this pace corresponds to a goal of 100 million vaccine doses prescribed in the first 100 days. Furthermore, an immunization ratio per day was analyzed for 45 doses per 10,000 people meaning 1.5 million vaccines in the US during on day period. Whereas, the priority was given to healthcare workers who comprised 5% of all individuals, patients with chronic diseases and old people aged 65 or more.

Vaccination implementation strategies in South Korea were reviewed by Shim to control incidence, critical cases, and the number of deaths by constructing the age-based model with respect to the Korean demography situation during the fourth wave of the global pandemic (Shim, 2021). The results of this paper suggested that the proper vaccination approach decreases the virus transmission from 3.9% to 6.9% without offering vaccines in the period of 150 days, whereas the most considerable outcome of 50% was detected among the older population of 50-59 years old. Moreover, vaccines play a significant role in decreasing the number of deaths by 43% and critical cases resulting in hospitals by 45%.

Similarly, the agent-based model was suggested to understand the optimal vaccination strategy by considering two types of vaccines: Moderna and Pfizer-BioNTech with a 28-day gap and 21-day gap between the first and second dosages, respectively (Sah et al., 2021). The results illustrate the substantial decrease in the virus spread according to the parameterized model of accelerating the delivery of both vaccines. Moreover, applying the vaccination efficacy contributes

to halting the upcoming COVID-19 waves.

As a result of literature review, this study is guided by the following research question: What is the best vaccination strategy for governments to reduce the death toll due to a virus?

Methodology

Epidemic Model

We consider the SEIR epidemic model which groups the entire population into four compartments, Susceptible (S), Exposed (E), Infectious (I), and Recovered (R). The model flow diagram is given in Figure 1.

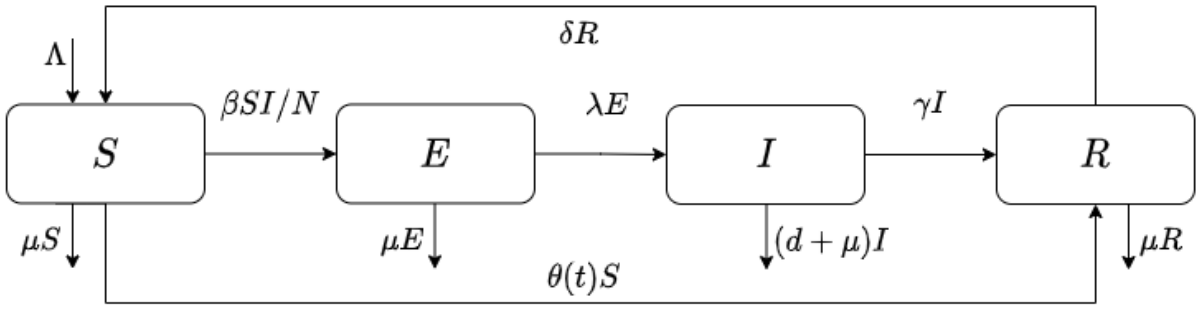

Figure 1. Flow diagram of the epidemic model

It follows that the system of ordinary differential equations (ODE) governing the epidemic dynamics is given by the following system of four equations.

$$\frac{dS}{dt} = \Lambda + \delta R - \beta SI/N - (\theta(t) + \mu)S$$

$$\frac{dE}{dt} = \beta SI/N - (\lambda + \mu)E$$

$$\frac{dI}{dt} = \lambda E - (\gamma + \mu + d)I$$

$$\frac{dR}{dt} = \gamma I + \theta(t)S - (\mu + \delta)R$$

This is a non-autonomous system as we allow the vaccination parameter $\theta(t)$ depending on time. The details of model parameters and their calibrated values are given below in Table 1. When the vaccination rate is taken to be constant, we can provide formulas for basic reproduction

numbers. To this end, the disease free equilibrium (DFE) solution is obtained by setting each equation equal to zero and solving yields

$$(\bar{S}, \bar{E}, \bar{I}, \bar{R}) = \left(\frac{\Lambda(\mu+\delta)}{\mu(\theta+\mu+\delta)}, 0, 0, \frac{\Lambda\theta}{\mu(\theta+\mu+\delta)}\right).$$

It follows from next generation matrix method (Van den Driessche & Watmough, 2002) that the basic reproduction number is given by

$$R_0 = \frac{\beta\lambda\bar{S}}{N(\lambda+\mu)(\gamma+\mu+d)},$$

where $\bar{S}$ is given in the previous equation. In particular, when $R_0 < 1$ the DFE is locally asymptotically stable in which case the disease is controlled. On the other hand, when $R_0 > 1$ we have unstable DFE and the infectious disease turns into an epidemic. Since, θ appears in the denominator of the basic reproduction number formula, we see that the disease can be controlled with the increase of the vaccination rate.

Modeling Vaccination Strategies

While there can be various vaccination strategies, we will consider one family of vaccination strategies $\theta(t)$ with three parameters, constant vaccination rate θ, vaccination period π, and gap between two vaccination periods τ. The proposed family of strategies for vaccination is given by

$\theta(t) = \theta$ if $t \in [(\pi+\tau)k, (\pi+\tau)k+\pi]$ for some integer k, and $\theta(t) = 0$ otherwise. Graphically, we have the following periodic function, Figure 2, where $\theta(t)$ is illustrated for $\pi = 30, \tau = 10$, and $\theta = 0.00414$.

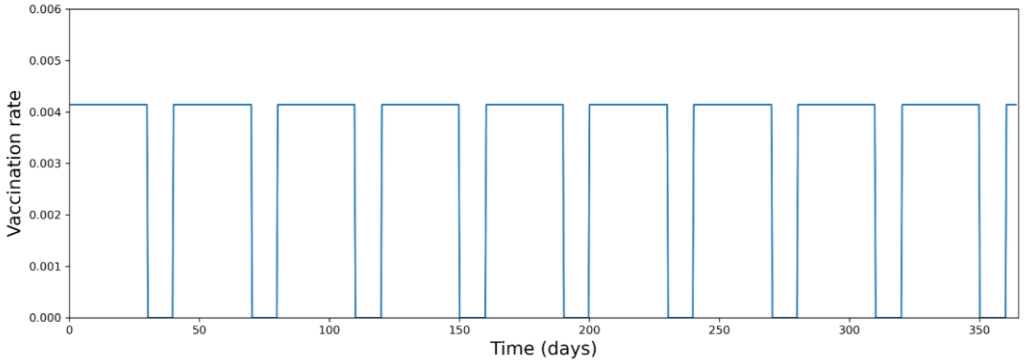

Figure 2. Graph of a vaccination strategy $\theta(t)$ when $\pi = 30, \tau = 10$, and $\theta = 0.003$

Since we want to test the strategies for one year, we restrict t to [0,364]. This family of vaccination strategies captures various real life scenarios. For example, taking $\tau = 0$, we get constant vaccination θ which if often the case. If we take $\pi = 5$ and $\tau = 2$, we are assuming that vaccinations are provided during the weekdays and weekends there are no vaccinations.

Model Calibration and Numerical Analysis

In our experimental work, we consider various vaccination strategies for the case of Kazakhstan. To calibrate the model we fix the parameters as described in Table 1.

Parameter	Meaning	Calibration
Λ	Daily birth	1134
μ	Natural death rate	0.000025
β	Transmission rate	0.1
λ	Incubation rate	0.1
d	Death rate due to virus	0.01
γ	Recovery rate	0.07
θ	Vaccination rate	Depends on the strategy
δ	Rate of loosing immunity	0.005

N	Initial total population	18700000
S_0	Initial susceptible population	18500000
E_0	Initial exposed population	171650
I_0	Initial infectius population	17165
R_0	Initial recovered population	160000

Table 1. Model parameters and their values

Kazakhstan started its vaccination program in February 1, 2021. Therefore, in our simulations we take initial time zero as this date. In particular, initial conditions (S_0, E_0, I_0, R_0) reflects the Covid projections from Februrary 1, 2021.

When $\theta = 0$, we see that the basic reproduction number is $R_0 = 3.15$ which is within acceptable range for COVID-19.

Since the SEIR model is nonlinear, it has no closed form solution. Hence, to carry the simulations and find the best strategy to minimize the death toll we implement numerical methods in python.

To make the strategies comparable, for each positive integers π and τ we fix θ so that at the end of one year the total individuals received at least one vaccination is 80%, that is $0.8N$. This is done using bisector method for finding roots of the continuous functions. Here, we can compute the vaccinated individuals $V(t)$ up to date using

$$\frac{dV}{dt} = \theta(t)S.$$

However, θ cannot be too high due to limited vaccination resources at a given time, so we only consider those parameters π and τ for which $\theta \leq 0.02$ which is to say that an entire population cannot be vaccinated in less than $1/0.02 = 50$ days. With these limits for the parameters, finding the best strategy to decrease the death toll can be formulated as

$$arg\ \min_{\pi,\tau} D(365)$$

where $D(t)$ represents the total death due to virus up to time t, given by

$$\frac{dD}{dt} = dI.$$

Results of experiments

In this section we summarize the findings of the numerical analysis. Figure 3 and 4 provides the graphs of death toll due to the epidemic for various vaccination strategies, where in each graph π is kept fixed and τ is allowed to vary between 0 and 364.

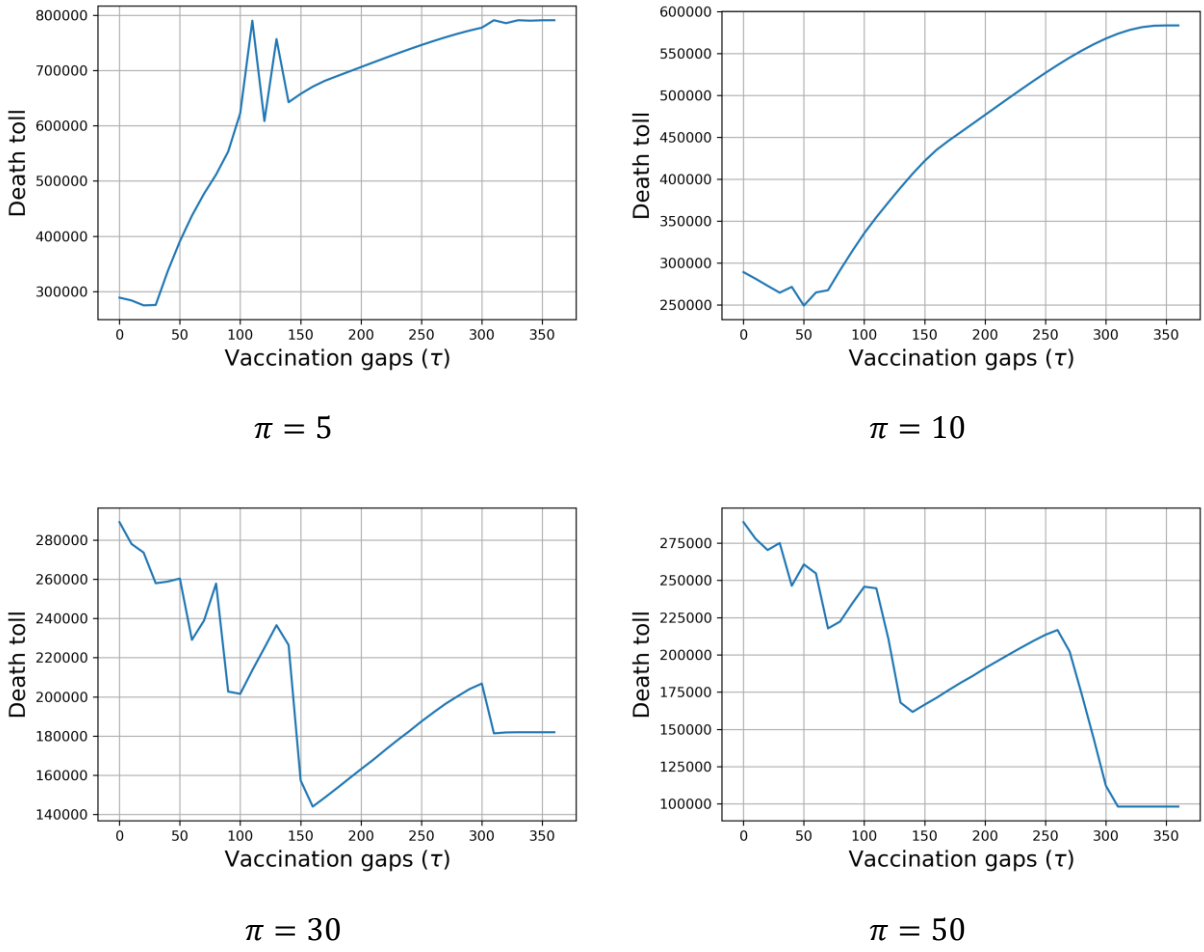

Figure 3. Death toll dynamics for various vaccination strategies with fixed π

Our analysis implemented in Python showed that the optimal strategy is reached with $\pi = 71$ and $\tau = 293$. In this case, vaccination rate reaches maximum allowed $\theta = 0.02$. Figure 4(a) shows how death toll varies with the gaps τ when vaccination day π is kept fixed 71. Indeed, we see that death toll is minimal once τ reaches 293. When the optimal strategy is applied, the death

toll remains around 78447.

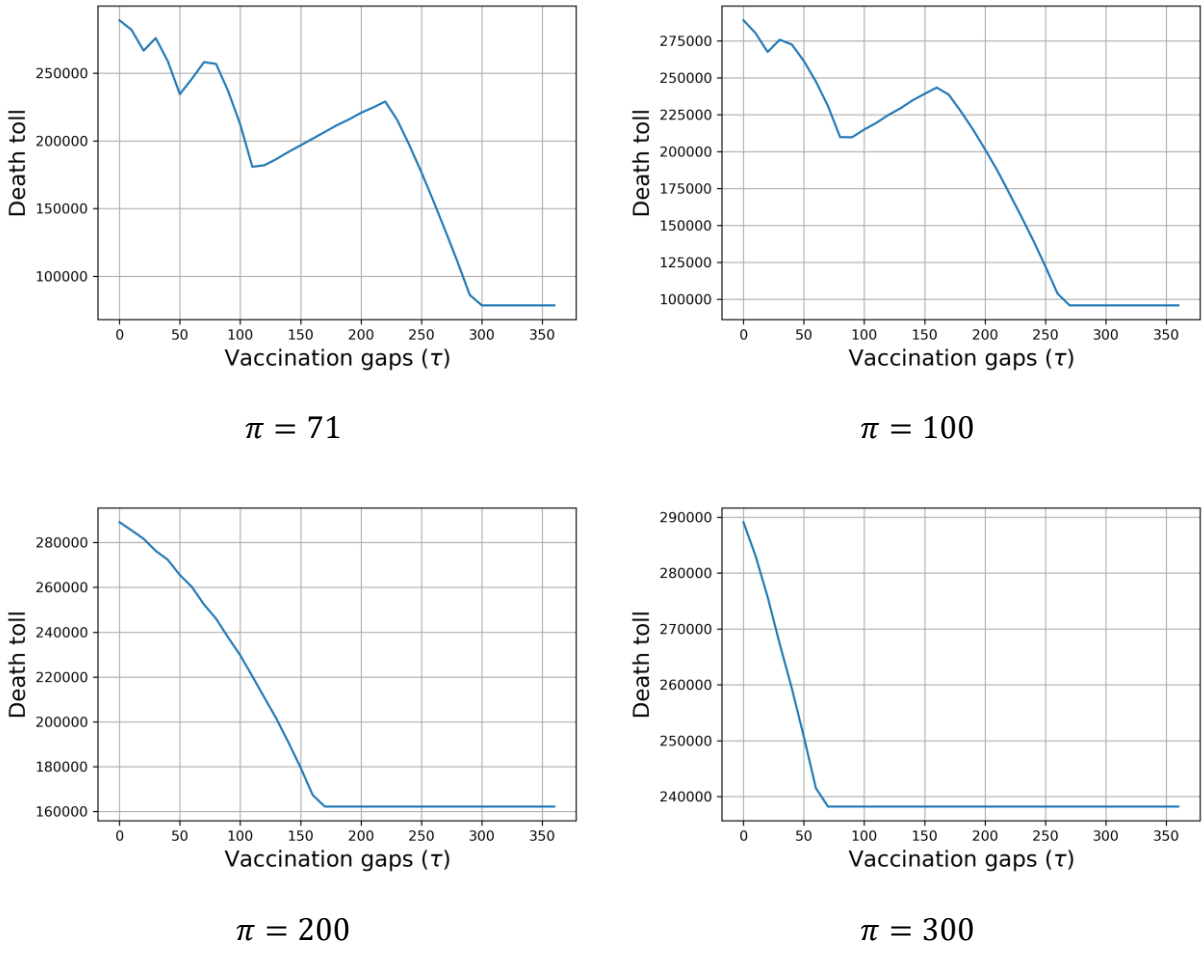

Figure 4. Death toll dynamics for various vaccination strategies

The death toll of 78447 can be compared for other situations in Figures 3&4. When there is no vaccination, the epidemic dynamics are depicted in Figure 5. In this case, we see that the death toll is exceeding 1 million, showing the important of vaccination.

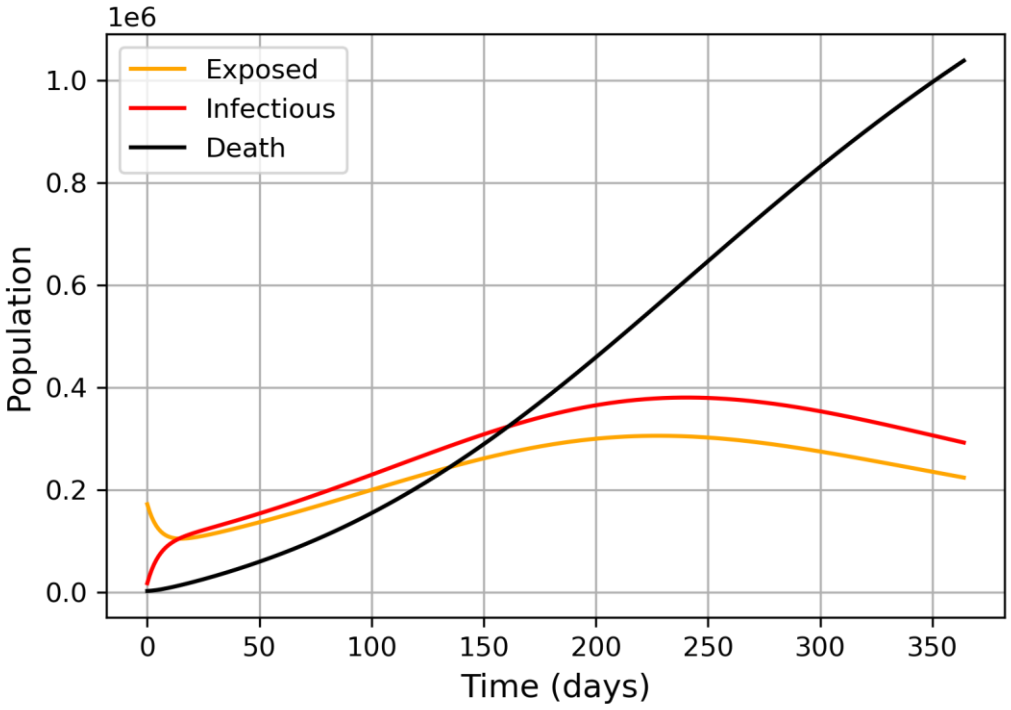

Figure 5. Dynamics without any vaccination, $\theta = 0$

In Figure 6, we illustrated disease dynamics for an arbitrary vaccination strategy, namely, when $\pi = 30, \tau = 10, \theta = 0.00414$. In this occasion, the death toll is 277983 which is clearly better than the case without vaccination. However, compared to the optimal vaccination strategy we see that the death toll is $277983/78447 \approx 3.5$ times higher, while in both situations the total population vaccinated reaches 80% within a year.

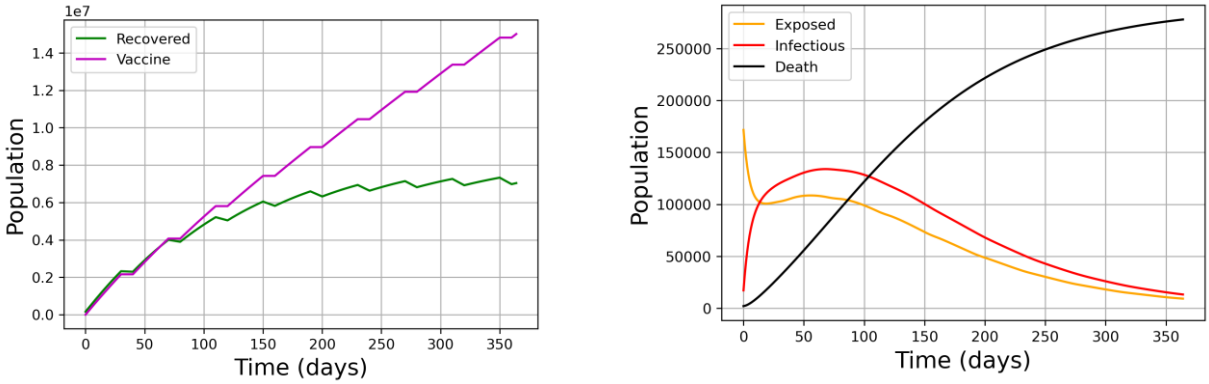

Figure 6. Disease dynamics when $\pi = 30, \tau = 10, \theta = 0.00414$

In Figure 7, we provide the disease dynamics when the optimal vaccination strategy is

applied.

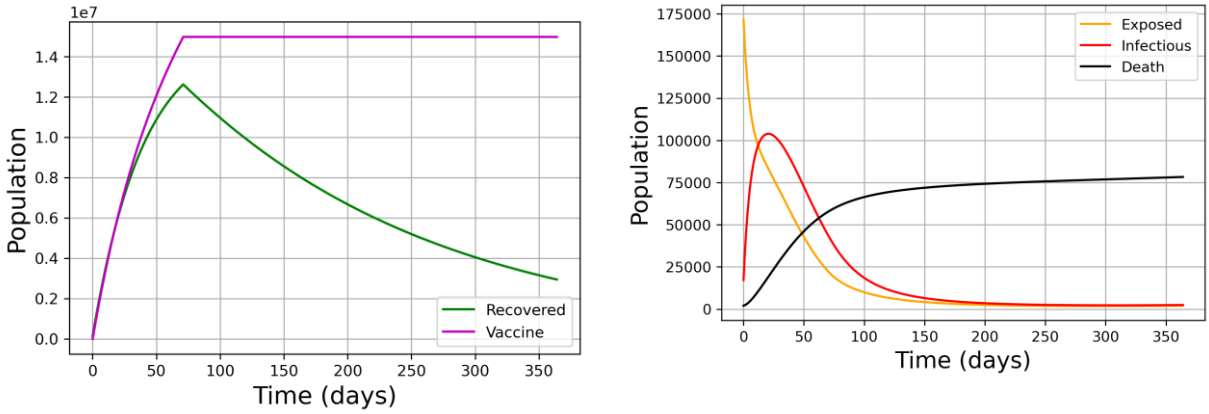

Figure 7. Dynamics with optimal vaccination stargey $\pi = 71, \tau = 291, \theta = 0.02$

Discussion and Conclusion

This paper studies the modified mathematical model of SEIR depending on time to find out the optimal strategy for vaccination during the epidemic to reduce the number of deaths. In order to understand the best vaccination option, periodic family of different strategies was constructed taking into account days of applying the vaccine and period of time between the two doses with the condition that a government has a goal of vaccinating 80% of people during 365 days. Since the given research problem is about a constraint optimization question, the numerical methods tools were applied to control excess death rate. Considering the COVID-19 dynamics in Kazakhstan, the corresponding epidemic model was investigated for computational analysis. With the given constraints, our analysis show that in the first 71 days the individuals should be vaccinated ata daily rate of 0.02 (2%) without any breaks.

While we considered a two parameter family of vaccination strategies, there are other kind of strategies not necessarily periodic ones that governments implemented. For example, age-dependent strategies applied in certain countries, where elderly were given priority to get vaccinated. As a future work, different strategies can be satudied.

In our model, our main goal was to reduce death toll. With limiting ourselves to vaccinate 80% of the people withina year we were implicitly assuming the budget constraints. However, as another future direction, one may try to incorporate government cost with explicit formulas that involves vaccination costs, hospital costs, taxation and so on.

Finally, we point out that there are many other more complex mathematical models that may better

explain the epidemic dynamics that may be studied in the future.

As a policy recommendation, the findings suggest that governments should aim to vaccinate people at a maximum rate possible without any brakes such as holidays, weekends, and so on until the number of vaccinated individuals reach 80%.

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Proceedings of IYSC, (2022), vol. 11

Journal homepage: http://journals.sdu.edu.kz/index.php/iysw

TEACHING STUDENTS TO SOLVE PROBLEMS THEORY OF PROBABILITY AND MATHEMATICAL STATISTICS

Zh. Nurgaliyeva[1], A. Dauletkulova[2]

[1,2]*Suleyman Demirel University, Kaskelen, Kazakhstan*

Abstract

Nowadays, probabilistic-statistical methods are now used in a wide range of disciplines, including physics, chemistry, pedagogy, psychology, linguistics, archeology, and geology, as well as probability theory in medicine and biology, military science and cosmonautics, linguistics, psychology, and teaching theory. Citizens have to overcome their deterministic thinking and recognize the existence of fundamental randomness in nature in order to perform effectively in society. Simultaneously, individuals should learn tactics and methods of reasoning that will assist in making appropriate judgments in everyday and professional circumstances involving risk. The importance of probability literacy has been acknowledged by educators in many nations by including teaching probability and mathematical statistics at various levels of education. The main purpose of this research is to build theoretical foundations for teaching probability and statistics in secondary school that are appropriate for their broad educational value, and to discover how to apply them in middle school mathematics classes.

Keywords: teaching probability and statistics, theoretical foundations, secondary school, mathematic classes

Introduction

In the XXI century knowledge plays a significant role in education and art, technical progress where mankind has made great strides. The main requirement for education as a key factor in the modern development of the country is to provide quality educational services at the level of world standards. Since education is both a measure and a mechanism of civilization, the spiritual and social status of any state is assessed depending on the level of education.

One of the key issues in the development of the education system of the country is to improve the quality of education in line with the requirements of the times, education at the level of world standards. The main task of Kazakhstan to become one of the 50 most competitive countries in the world can be achieved only if highly specialized, skilled and educated people can easily master science and technology, self-govern in a market economy and apply their knowledge.

Indeed, the education system in the developed countries of the world is not a mechanical transfer of knowledge, but the ability to independently find, analyze and use information and intellectual resources, rapidly changing technological progress, self-disclosure in the face of

innovative growth, free to market demands. It is known that it gives priority to the formation of an adaptable personality. It is up to the family and the school to develop a well-rounded, creative individual who is able to work creatively and choose the path of self-education. The task of the family is to detect the child's talent at an early age, while the task of the school is to support the child and further discover and develop that talent. Especially at school the foundation of the student's own creativity is laid. That is why it is necessary to guide the student, to help him with his life plans and dreams at school. Such students should be involved in various creative works, research projects, participate in Olympiads and competitions. Mathematics also plays an important role in educating students as individuals.

There is no doubt that a comprehensive study of the content of mathematics at school and its appropriate application has a direct impact on the overall level of cultural development and knowledge of students. Problem solving in mathematics is the most important type of learning process. After all, by solving problems, the student learns mathematical theory and develops creative thinking with logical thinking.

The introduction of elements of probability theory and mathematical statistics into the current state compulsory standards of general secondary education of the Republic of Kazakhstan is the result of deep research by mathematicians, methodologists and teachers.

Elements of probability theory and mathematical statistics are selected according to age characteristics from elementary school. Collection and analysis of statistical data, their presentation in the form of various tables, charts and graphs, simple combinatorial calculations, finding the arithmetic mean, modes, medians of data were gradually introduced in the mathematical classes. These materials had a positive effect on the development of combinatorial thinking, the development of practical research activities, rather than mathematical abstraction. General educational updated curricula, including curricula for the subjects "Mathematics" for grades 5-6, "Algebra" and "Geometry" for grades 7-11, are correct.

In the 2017-2018 academic year, the 5th and 7th grades, in the 2018-2019, the 8th grades are taught according to the standard curriculum and curriculum of the updated educational content. The content differences of the updated or curricula are:

* the principle of helicity in the design of the content of the subject, that is, the gradual increase in knowledge and skills both vertically and horizontally (complication of skills by topic and by class);

* hierarchy of learning goals according to Bloom's taxonomy, based on the laws of cognition and classified according to the most important types of subject operations;

* pedagogical goal-setting according to the levels of education throughout the entire course of study, which allows or maximum to take into account intra-subject communications;

* the presence of "cross-cutting topics" between subjects both within one educational area and in the implementation of inter-subject communications;

* correspondence of the content of the sections and the proposed time requirements, with an emphasis on the formation of social skills;

* technologization of the educational process in the form of long-term, medium-term and short-term plans (Abylgazina, 2017).

Also, a distinctive feature of the new curricula is their focus on the formation of not only subject knowledge and skills, but also skills of a wide range. A built-in system of learning goals is the basis for the development of the following broad spectrum skills: functional and creative application of science, critical thinking, implementation of research work, using information and communication technologies, use of various ways of communication, the ability to work in a group and individually, problem solving and decision making. Thus, the flexibility and versatility of the updated curricula should be noted.

Teaching the course "Theory of Probability and Statistics" includes the organization of discussions in the classroom, intensive oral work, as well as expanding one's own horizons in the fields of other sciences, such as biology, geography, history, literature and many others, in addition to the established methods and learning approaches.

Approaches to the study of the elements of probability theory can be borrowed from the course of geometry, where, also, it is often necessary to solve several problems that are completely different from each other. At the same time, the tasks that stand side by side in the textbook are not similar, and the solution of one of the tasks does not mean that the next one will be easily solved. Therefore, the main condition for the growth of a teacher's professionalism in the field of teaching probability theory and mathematical statistics is a change in the technology of teaching activities in teaching this course.

Materials and methods of research

The question of modernizing mathematical education at school was raised in the early 1960s by the outstanding mathematicians B.V. Gnedenko (2001), I.I. Kikoin, A.N. Kolmogorov,

A.I. Markushevich, A.Ya. Khinchin. B.V. Gnedenko addresses a wide variety of readers, including mathematicians, teachers, and methodologists, because the topic of incorporating probabilistic-statistical information into school mathematics is long overdue and cannot be delayed any longer. The laws of strict determination, the study of which is entirely focused on school education, only one-sidedly reveal the essence of the surrounding world. The random nature of many phenomena of reality is beyond the attention of schoolchildren. As a result, their ideas about the nature of many natural and social processes are one-sided and inadequate to modern science. Gnedenko suggests that school children should be taught statistical rules that reveal the complex relationships between the existence of things and phenomena (Mansurova, 2014).

Levin claims that the statistical culture necessary for activity must be instilled from an early age. It is no coincidence that much attention is paid to this in developed countries. Students are introduced to elements of probability and statistics from their early days at school, learn probabilistic and statistical approaches to the analysis of general situations through education, and encounter life on a daily basis. (Kaiyngbayeva et al., 2018).

By the reform of the 1980s, elements of the theory of probability and statistics were included in the programs of specialized classes, particularly in physics, mathematics and natural sciences, as well as in the optional course in the study of mathematics. The process of introducing elements of probability theory and mathematical statistics into the compulsory course of school mathematics turned out to be a specific and difficult matter (Kaiyngbayeva et al., 2018).

There is a thesis that in order to assimilate the principles of probability theory, a preliminary stock of ideas and habits is needed that are fundamentally different from those that schoolchildren develop in traditional education. Therefore, according to a number of mathematicians, the stochastic line should enter school mathematics as an independent line that would ensure the formation, systematization and development of ideas about the stochastic nature of the phenomena of the world around us (Abramova, 2018).

Since the study of probability theory and mathematical statistics was recently introduced into the school curriculum, there are currently problems with the implementation of this material in school textbooks. Also, due to the specificity of this course, the amount of methodological literature is also still small. According to the approaches outlined in the vast majority of literature, it is believed that the main thing in the study of this topic should be the practical experience of students, so it is advisable to start training with questions in which it is required to find a solution

to the problem posed against the background of a real situation. In the learning process, one should not prove all the theorems, since a large amount of time is spent on this, while the task of the course is to form useful skills, and the ability to prove theorems does not apply to such skills.

One of the most important aspects of the modernization of the content of mathematical education is the inclusion of elements of statistics and probability theory in school curricula. This is due to the role played by probabilistic-statistical knowledge in the general education of a modern person. Without a minimum probabilistic-statistical literacy, it is difficult to adequately perceive social, political, economic information and make informed decisions based on it. The whole modern set of socio-economic sciences, such as physics, chemistry, biology, is based on the probabilistic-statistical base, and without proper preparation it is impossible to fully study it.

The elements of statistics are an integral part of the new content line of the school course of mathematics, which includes combinatorics and the basics of probability theory. The relevance of the study of statistics is due to the fact that statistical representations are the most important component of the intellectual baggage of a modern person. They are necessary both for everyday life in modern civilized society, and for the continuation of observance of human activity, for example, in human beings, such as sociology, economics, and medicine.

The course in probability theory and mathematical statistics is new to the modern school. The preparatory course of basic concepts at the intuitive, visual level is expected in grades 5-6, and in grades 7-9 - the construction, study and application of basic probability-statistical models. Thus, the first two stages of work on the concepts and methods of stochastics are defined. In 2003 It was decided to include elements of probability theory and statistics in the school mathematics course of secondary school. By this time, elements of probability theory and statistics had been present in fragmented form in well-known school textbooks of algebra for different classes and in the form of separate textbooks for more than ten years. However, the presentation of probabilistic and statistical material in them, as a rule, was not systematic, and teachers, more often than not, did not refer to these sections, did not include them in the curriculum. The document adopted by the Ministry of Education in 2003 provided for the gradual, phased inclusion of these sections in school courses, enabling the teaching community to prepare for the corresponding changes. In 2004–2008 A number of textbooks were published to complement existing algebra textbooks. Their authors are Abylkasymova A.E. and Shynybekov A.N. Teaching aids are also available to help teachers. For a number of years, all these teaching aids have been tested in schools. In

conditions when the transitional period of introduction into school curricula has ended and sections of statistics and probability theory have taken their place in the curricula of grades 7–11, it is necessary to analyze and comprehend the consistency of the main definitions and designations used in these textbooks. Note that all these textbooks were created in the absence of traditions of teaching these sections of mathematics at school. This absence voluntarily or involuntarily provoked their authors of textbooks to compare them with existing textbooks for universities.

From 2012 to 2016, the Ministry of Education of the Republic of Kazakhstan adopted new Republican textbook sets for various subjects. The content of a set of textbooks in mathematics for grades 8-11 is selected taking into account modern trends in the development of school mathematics education. These textbooks include a course in combinatorics, elements of statistics and probability theory. An important feature of the methodological apparatus is the underlying technology of level differentiation, which makes it possible to work in classes of different levels of mathematical training and individualize the learning process within this set.

These textbooks are compiled and written based on scientific facts and life experience of students. According to them, students learn to estimate the probability of random events at a qualitative level and perform quantitative calculations of probabilities, analyze statistics and use combinatorial formulas for calculations. These textbooks introduce a number of basic concepts of probability theory.

Random, reliable, impossible, more probable, less probable, unlikely, equally probable events are considered. New terms are associated with well-known words from life - often, rarely, always, never, "it is very possible", "it will happen", "it is unlikely", "it never happens" and others, which often determine the most common cases.

Textbook	Long-term plan	Contents of the long-term plan	Number of hours
7 algebra	Elements of statistics	Variation series. Absolute frequency and relative frequency. Frequency table. Frequency field.	6 hours (3 hours per week, total 102 hours)
8 algebra	Elements of statistics	Frequency field, frequency histogram. Average value. Dispersion. Standard	6 hours (3 hours per week, total 102

		deviation.	hours)
9 algebra	Elements of combinatorics	Basic concepts and rules of combinatorics (rules of addition and multiplication). Solve problems using combinatorial formulas. Newton's binomial and its properties.	8 hours (3 hours per week, total 102 hours)
	Elements of probability theory	Fundamentals of probability theory. Output of text reports.	

Table 1. *Thematic planning of algebra lessons of 7-9 grades*

Literature Review

The studies of psychologists (J. Piaget, E. Fishbein) show that a person is initially poorly adapted to a probabilistic assessment, to the recognition and correct interpretation of probabilistic information. The works of psychologists claim that the age of 10-13 years is most favorable for the formation of probabilistic representations. Experimental work in grades 5 and 6 on propaedeutics of probabilistic representations, conducting experiments with random outcomes and discussing their results at a qualitative level showed that this period, not fixed by formal "mandatory results", gives a good development of probabilistic intuition and statistical representations of children (Gnedenko, 2001). Experience has shown that at the age of primary school, in a large number of ideas of the student in the world, there is not enough development, there is not enough mathematical apparatus (primarily simple fractions) to explain the ideas about probability. At the same time, the basics of descriptive statistics, tables and bar charts, may and even need to be introduced into the course of the national school. According to the data of scientists physiologists and psychologists, in the middle level of the school there is a noticeable drop in interest in the learning process in general and in mathematics in particular. At the math lesson in primary school, in the fifth and ninth grades, conducted according to the usual scheme and on traditional material, the student often feels an impenetrable wall between the objects being studied and the surrounding world. It is the probabilistic-statistical line, or, as it has recently been called, the stochastic line, the study of which is impossible without relying on the processes observed in

the surrounding world, on the real life experience of the child, that can contribute to the return of interest in the subject "mathematics" itself, the promotion of its significance and universality (Serikova, 2015).

In the CIS countries, the issue of introducing elements of statistics and the theory of probability into the content of mathematical education in general education classes is decided by such authors as E.A. Bunimovich, V.A. Bulychev, S.B. Suvorova, A.G. Mordkovich, P.V. Semenov, V.D. Celyutin, M.V. Tkacheva, N.E. Fedorov. In their dissertation dissected questions studied combinatorics in schools were interested in I. O. Belyaeva and E. P. Vinogradova. In the work of Belyaeva, combinatorial problems and the methodology for their study in middle classes were considered (Belyaeva, 1971). The work of Vinogradova is aimed only at primary classes. In his study "Stochastics at school as mathematics in the stages of creation and as a new class of mathematical and general education", A. Plotsky also considers depriving the content side of the belief-the statistical line in secondary school, without resorting to its methodology, is revived in specialized classes (Plotsky ,1992). Frantseva N.F. in the work "Development of methods for teaching elements of probability theory in grades 8 and 9 of secondary school" examines the features of teaching elements of probability theory and mathematical statistics as part of the mathematics course of secondary school. In their research, E.P. Mansurova and I.N. Sergeeva pay attention to the problem of continuity of studying probability theory and statistics at school and at university, identify the features of studying the topic at school and at university, and provide a comparative analysis of the content of these sections in school textbooks of various profiles. Also attached are schemes for introducing concepts, formulas, theorems on the topic, helping the teacher in reviewing the orientation in the material being studied (Mansurova, 2014).

In everyday life, we often have to deal with randomness, and the theory of probability teaches us to act rationally, taking into account the risk associated with making individual decisions. Familiarity at one level or another with the laws of the case is necessary for everyone. The application of the theory of probability in science, technology, economics and so on is gaining increasing importance. That is why, for more and more people in the process of work, there is a need to study the theory of probability. A modern educated person, regardless of profession and occupation, should be familiar with the simplest concepts of probability theory. Nowadays, when the weather forecast contains a message about the likelihood of rain for tomorrow, everyone should know what, in fact, this means. The main task in studying the elements of probability theory and

mathematical statistics is the education of the user, i.e. its formation of the ability to understand and interpret the statistical results presented, for example, in the media. What is needed is not so much a formal learning of new terms, but an initial acquaintance with the conceptual apparatus of this field of knowledge, an idea about which is necessary to every modern person.

The place and scope of the course of probability theory and mathematical statistics for children under 15 years of age vary in different countries, but the amount of material is significant in all countries and differs in some general basic elements taught in schools of all countries. In world practice, stochastic material is studied on an equal footing with numbers, functions, planimetry and stereometry throughout the entire course of primary, secondary and high school. In 1999, elements of probability theory and mathematical statistics were introduced into the practice of schools in Kazakhstan in the curriculum (project) of mathematics in secondary schools. The mandatory state standard of secondary education of the Republic of Kazakhstan, approved in 2002 and currently in force, defines the range of requirements for students on the elements of probability theory and mathematical statistics in the content of basic knowledge of the subject "Mathematics".

Conclusion

The idea of introducing elements of probability theory into the secondary school curriculum dates back to the ninth century. At the beginning of the XX century, advances in science and technology, molecular physics, necessitated the teaching of elements of probability theory in school.

In teaching probability theory and mathematical statistics, students help to connect with different fields, improve their knowledge, develop probability intuition, combinatorial thinking skills. Teaching the field of stochastics by sorting in each direction, implementing a professional-applied direction, promotes the formation of knowledge, skills, abilities of students, critical thinking of high school students, increasing their cognitive interest in mathematics in general.

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Proceedings of IYSC, (2022), vol. 11

Journal homepage: http://journals.sdu.edu.kz/index.php/iysw

DRAMATIZATION" IS ONE OF THE WAYS TO INCREASE SECONDARY SCHOOL STUDENTS' FLUENCY

A. B. Sadykova

Suleyman Demirel University, Kaskelen, Kazakhstan

Abstract

The purpose of this study is to analyze how the dramatization method might help students improve their fluency. A group of secondary school students has been chosen to conduct the study in order to attain this goal. The group was evaluated to determine their fluency level before beginning the investigation. The research group then followed a learner-centered lesson plan that included a dramatization method. The research group was evaluated again at the end of the experiment to determine their fluency progress. The outcomes of the data analysis show that the fluency investigation has been improved. Despite the short research period, the respondents had better results.

Keywords: dramatization method, fluency, speaking skills, secondary school students

Introduction

Dramatization is a teaching strategy used by teachers to promote and strengthen English language fluency and decrease the language barrier. According to Comajoan (2014), teaching the English language through dramatization benefits listening and meaningful interaction where learners use their language resources during the teaching and learning process. Stephanie (2011) indicated that dramatization effectively motivates learners and promotes self-esteem through non-threatening environments for improved learner fluency. Study findings concur with the views of Prasad (2011), who argued that teaching the English language using dramatization motivates learners to learn and provides them with a relaxing and challenging study environment. Further, the study supports the views of Barbu and Lucia (2007), who reaffirmed that dramatization employs the use of role-playing as an activity; for example, learners develop a story and act in class, hence boosting oral skills for improved learner fluency. According to Heather (2011), learning the English language is greatly influenced by role play as learners' language acquisition processes are stimulated and supported. This proposition is further supported by Zyoud (2010), who argued that the dramatization method could be considered as a blanket covering a wide range of oral activities. Zyoud (2016) supported these points of view, asserting that dramatization facilitates learning of oral skills, manifests innovations, empowers imaginative prowess, and assists learners in exploring new horizons of knowledge. Desialova (2009) supported these opinions and argued that drama activities promote the acquisition of new concepts that benefit both learners and teachers in the learning process. Dramatization presents the learner as an active

participant in learning the English language in the classroom. It allows the student to use language with confidence and develop fluency in speaking. According to Astrid (2005), dramatic features such as role-play, simulation, mime, and language games promote self-learning, group interaction, and fluency in authentic situations.

Additionally, Ulas (2008) asserts that concepts that are difficult to master can be dramatized for effective internalization and acquisition of English language skills. It is possible to integrate dramatization into learning the English Language. Maley (2005) explained that language skills such as speech work, reading, and pronunciation are acquired when learners present a short play to the class.

Kempe (2002) supported using the dramatization method in developing oral communication among the learners. Moreover, Koppett (2013) supported the use of drama in developing oral communications among the learner. The author affirmed that drama stimulates natural spontaneous spoken English, grammatically correct and appropriate, as defined by place and mood.

Dramatization makes the learner active and an equal partner in his learning. The learners are encouraged to express themselves and ask questions. According to Desialova (2009), the idea of inclusivity affirmed that drama assists learners from both good and poor academic backgrounds in improving and developing fluency. While practising role-play, the learner uses sight, ears, taste, feeling, and physical body gestures. Therefore, the language will "enter" through the most appropriate channel for each learner.

Research questions

- to what extent does the fluency of students have changed after dramatization has been used in teaching the English Language

Methodology

The research instruments

A pre- speaking test was conducted to the participant group to determine their first level of fluency(Appendix II). Students participated in conversations about various themes that were recorded. They were given some time before starting to read the questions and think of possible answers. A post-speaking test was also conducted with the group in order to assess any potential improvements in fluency. Each participant provided a short oral presentation on a particular subject. There were three main types of conversation topics available,such as discussion,making a

case and storytelling.(AppendixIII)

Research site and participants

Fifteen students of a secondary school participated in the study. Participants were nine graders who taught English as a foreign language. The educational area where the study was done and the students' identities will not be mentioned throughout the research in terms of the confidentiality agreement between the researcher and the subject. The participants' names were changed to alias (Student number,1.2 3....).

Study area: Karagandy secondary school

Procedure

The first phase took place before starting the lessons with the group. Pre-speaking tests were held in pairs with students to evaluate their starting level. After with the help of rubrics, the researcher assessed students and gave points.The implementation process was the second phase. It included the group being exposed to the experimental didactic unit. It was divided into four 45-minute sessions. Students have a different lesson plan for each lesson in which they seek to improve their fluency,such as games, telephone conversations, dramatic poems, and dialogues are all included. (Appendix IV) The teacher took on the role of a guide, assisting the learning process and encouraging pupils to be creative and express their points of view, thoughts, and feelings while having their expression monitored. As a result, the lessons were learner-centred, as the students were given responsibility for their learning. The teacher assumed the role of a guide facilitating the learning process and encouraging the students to be creative and to speak out their own points of view, ideas and feelings, while their expression was being monitored in the process. Therefore, the lessons were learner centered, as the students were given responsibility for their own learning.

Results

Research methods

Student Number	Fluency. max (9 points)	Percentage(%)
1	4	44%
2	6	66%
3	5	55%

4	4	44%
5	4	44%
6	3	33%
7	5	55%
8	6	66%
9	6	66%
10	5	55%
11	3	33%
12	6	66%
13	6	66%
14	4	44%
15	5	55%
Average		53%

Table 1. Pre-speaking test analysis

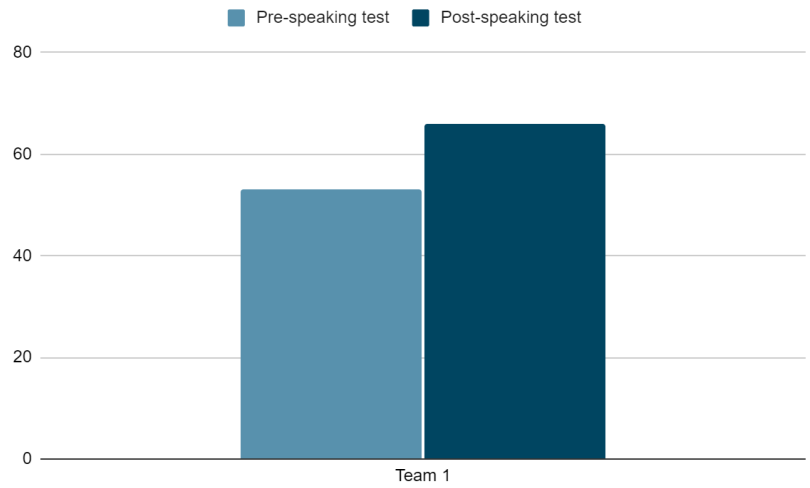
According to the pre-speaking test results (table 1), most students got from 3 to 6 points from the maximum of 9 points. The average percentage of fluency among 15 students is 53%.

Student Number	Fluency. max (9 points)	Percentage (%)
1	5	55%
2	6	66%
3	5	55%
4	5	55%

5	6	66%
6	6	66%
7	7	77%
8	6	66%
9	6	66%
10	6	66%
11	7	77%
12	6	66%
13	8	88%
14	5	55%
15	6	66%
Average		66%

Table 2. Post-speaking test analysis

The percentage of students who had a higher score on their post-tests increased, as shown in table 2. According to the findings of the pre and post tests, the average fluency of pupils increased from 53% to 66%. This reveals that dramatization activities lasting four weeks assist students improve their fluency by 13%. The purpose of the post test was to see how the dramatization method affected learners' fluency who had been exposed to experimental treatment while learning English. The follow-up test was conducted two days after the instruction.



Conclusion

This study aimed to show how helpful dramatization could be implemented for secondary school students. Drama activities, with their focus on imitating real-life scenarios, have the potential to bridge the gap between the classroom environment and the language used in regular human interactions (Dougill, 1987). Students have demonstrated their readiness and desire to communicate while working on the drama project. Students had the opportunity to work in groups in this setting and participate in cooperative learning. The participants enjoyed the pleasant atmosphere generated by the activities, and the majority of them were able to improve their fluency. Drama approaches have been effective tools for developing contextual and realistic language use, critical thinking, and creativity. It can be stated that dramatization method make learning a more enjoyable and productive experience by improving the fluency of the students and bringing real life into the classroom.

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Appendix I

Fluency evaluation rubric

Fluency	Needs improvement 0-3 points Speech was very slow, stumbling, nervous, and uncertain with response, except for short or memorized expressions. It was difficult for a listener to understand.	Satisfactory 4-6 ponts Speech was slow and often hesitant and irregular. Sentences may be left uncompleted, but the student was able to continue.	Good 7-8 points Speech was mostly smooth but with some hesitation and unevenness caused primarily by rephrasing and groping for words.	Excellent 9 points Speech was effortless and smooth with speed that comes close to that of a native speaker

Appendix II

Speaking pre test

Sample 1

You are going to discuss STUDYING ENGLISH ABROAD.

Talk to your partner(s) about the topic. You can include your own ideas.

You are going to study English in the UK, USA or another English- speaking country.

Discuss your plans.

How will you travel there?

What do you need to take with you?

What will you do with your free time?

What other plans do you have?

Sample 2

You are gong to discuss A SCHOOL PARTY. Talk to your partner(s) about the topic.

You can include your own ideas.

You are going to hold a party to celebrate the end of the school year. Discuss your plans.

Where are you going to celebrate?

Will you have music?

What food and drink will you have?

What other plans do you have?

Sample 3

Having a conversation: Shopping

Do you enjoy shopping?

What sort of things do you buy?

Where do you do most shopping? In market, a shopping centre or in small shops?

Who is responsible for shopping for food in your family? Do you ever help with the food shopping?

Tell me about the most expensive thing you have bought.

I would like to buy some new clothes, which shops would you recommend?

Internet shopping is very popular now, have you ever bought anything online?

When is the best time to go shopping?

Would you like to work in a shop? Why/not?

Sample 4

Having a conversation: Holidays

Tell me what kind of activities you enjoy doing on holiday. Where did you go on holiday last year?

What did you do and see on your holiday?

Have you got any holiday plans for the summer?

Will you go with your family or with friends?

Would you rather go to the beach or to the countryside?

Have you ever been camping? Was it fun?

Do you like sightseeing and visiting monuments?

Have you ever been abroad? Where to?

Which country would you like to visit? Why?

Appendix III

Speaking post test

Sample 1

Discussion topics

Choose ONE topic to discuss. You should mention pros and cons, or advantages and disadvantages:

The Internet is the best way to do your shopping.

All young people should stay at school until they are 18.

Young people under 15 shouldn't use mobile phones.

Sample 2

Discussion topics

Choose ONE topic to discuss. You should mention pros and cons, or advantages and disadvantages:

Young people under 15 shouldn't use mobile phones.

Young people should start working earlier, for example while they are studying.

Cultural places, such as museums and monuments, should be for free for students.

Sample 3

Make a case

Choose ONE option to discuss and give your reasons. Be persuasive:

People should choose a job they really enjoy.

Living in a big city is way better than a little town.

Studying a foreign language is really important nowadays.

Sample 4

Make a case

Choose ONE option to discuss and give your reasons. Be persuasive:

Living in a little town is way better than a big city.

Practicing sports constantly is really important.

Men and women should have the same job opportunities.

Sample 5

Storytelling tasks

Choose ONE story to tell:

Tell me about a holiday you had.

Tell me about a difficult journey you had.

Tell me about a perfect day you've had.

Tell me about a special event in your life.

Appendix IV

LESSON PLAN 1-4 weeks

Lesson plan one

Objectives

1. Students should be able to recite the game loudly in class.
2. Students should be able to write their own language game.
3. Students should be able to answer oral and written questions from the game play

Game

Step 1: The teacher introduces an interesting game to the class

Step 2: The teacher divides the class into teams and explain how to play character game

Step 3: Students engage in a lively discussion and each team gives one member of the other team a chance to mention a title of a book.

The student who has volunteered is requested to list any five titles of set books.

Step 4: The teacher guides the class on easy titles to mime. Only one member of the team is shown the title and he is to mime it without mouthing any of the words for his own team members who have to guess it.

Step 5: All the guesswork is noted down by members of the team. Step 6: The actors indicate the number of words in the title. There are common gestures for articles and prepositions which will be Discussed later.

Step 7: Actors mime various words and they identify rhyming words.

Step 8: The teacher asks oral questions on the game.

Step 9: The students did an exercise based on the content of the game.

Lesson plan two

Objectives

1. Students should be able to read the dialogue in pairs.
2. Students should be able to dramatize the dialogue in class.

3. Students should be able to answer oral and written questions from the dialogue.
4. Students should be able to identify the parts of speech used in the dialogue.

Dialogue

Step 1: Introduce the topic/aim of the activity.

Step 2: Display any relevant materials.

Step 3: Give clear instructions on dialogue

Step 4: Check instructions by asking checking questions.

Step 5: Briefly demonstrate the activity with a student/or get students to do as an example/model

Step 6: Put students into relevant pairs/grades.

Step 7: Monitor students and help them as necessary.

Step 8: Give tests on content dramatized.

Lesson plan three

Objectives

1. Students should be able to act the dialogue in class
2. Students should be able to dramatize the dialogue in their respective groups
3. Students should be able to answer oral and written questions from the dialogue

Telephone conversation

Step 1: The teacher introduces the importance of telephone conversation, it enables the learner to react quickly, communicate and sustain a meaningful telephone conversation. This technique enables the learner to acquire writing, reading, speaking and listening skills in the English language.

Step 2: The class is divided into groups of two learners. The learners sit down with their backs to each other so that they can only hear their telephone conversation from their partner.

Step 3: The students in each group imagine that they are two different characters.

Step 4: A particular situation from a set-book used in literature is taken for which every pair has to build up a telephone conversation.

Step 5: The teacher merges the groups and forms groups of five students (for larger classes) students are asked to role play the major event and characters.

Step 6: The students take notes on important events and characters covered in the role-play.

Step 7: The conversation can be later written down by all the students. These conversations are exchanged and read by different pairs.

Step8: The teacher uses the skills learnt to teach students on dialogue as stipulated in the secondary school English syllabus.

Step 9: Students are tested on speech work, gapped conversation and grammar.

Lesson plan four

Objectives

1. Students should be able to dramatize the poem.
2. Students should be able to act and analyze the poem critically
3. Students should be able to answer oral and written questions from the poem

Dramatized poetry

Step 1: Teacher introduces oral poetry. Types of songs examples birthday, marriage and initiation ceremonies. Teachers make prior arrangements with six students to present their work to class before the lesson ends.

Step 2: Teacher divides the class into groups of four students.

Step 3: Students practice games and simulation as guided by the teacher.

Step 4: Student uses miming technique through non verbal communication to act various characters in the poem.

Step 5: The teacher instructs a certain group of students to present their work to the class. The actors communicate mood, tone and new information to the rest of the class.

Step 6: Teacher guides the class in note-taking and asking oral questions.

Step 7: Teacher highlights features of oral poetry learnt through drama.

Step 8: Teacher gives an evaluation task from the performance made by the students.

Proceedings of IYSC, (2022), vol. 11

Journal homepage: http://journals.sdu.edu.kz/index.php/iysw

OUT-OF-SCHOOL ENGLISH LANGUAGE LEARNING AND ACADEMIC ACHIEVEMENT IN KAZAKHSTANI HIGH SCHOOLS

A. Tlepbergenova

Suleyman Demirel University, *Kaskelen, Kazakhstan*

Proceedings of IYSC, (2022), vol. 11

Journal homepage: http://journals.sdu.edu.kz/index.php/iysw

Abstract

The aim of this article is to describe the influence of out-of-school English language learning on academic achievement in Kazakhstani high schools. English language acquisition plays a pivotal role in Kazakhstan, as English is not only an international communication language, but also the foreign language for obligatory study in state schools and higher education. Approximately 130 representatives of various ethnic groups populate Kazakhstan, thus it is considered as the multi religious and multiethnic state. Currently, the society development is altering Kazakhstan from bilingual to multilingual , integrating Kazakh, Russian and English languages into the educational system embedding policy of multilingualism at state schools all over the country. However, second language learners tend to demonstrate poor performance and low average points in foreign language examinations. Factors affecting low performance in school and entrance exams, the trend among students preferring private and extracurricular foreign language teaching for various educational purposes will be considered in this paper. Study is going to dissect the relationship between extracurricular foreign language learning and poor performance at state schools. Flaws in the educational system and methods of teaching in public schools and the benefits and positive impact of private education will be discussed in a future paper. This article is the systematic review of the scientific literature related to poor performance in EFL at schools and influence of out-of-school learning to academic performance of high school students.

Keywords: academic achievement, out-of-school learning, poor academic performance in EFL.

Introduction

English as an international language, is spoken in mostly all the countries all over the world, both as a native and as a foreign language. Nowadays, nearly a quarter of the world's population speaks in English, using it in science, education, politics, world trade, media and commerce. As Kachru and Smith (2008) states, in the time of globalization, all the countries need to qualify citizens' performance in the English language in order to be competitive, so they will be able to function well in means of international communication, trade and areas of science and education. The English language has a decisive role not only as a means of international communication but also as the second language of learning in state schools. Educational system of Kazakhstan is making an effort to ensure that all school students achieve literacy in their second

language. However, the majority of public schools have been posting dismal results in the examinations. According to Stefanson (2012) excluding more complicated, subject-specific programs until excellence of the English language has been reached and fixing any mistakes made by the students are some of the reasons restricting the progress of foreign language learners resulting in low results in examinations. The reasons limiting the progress may be related to the teachers, students or schools. Qualification, teaching methods, evaluation methods, approach and encouragement of instructors might be related to limitations. Students' involvement in learning, classroom and home environment, age and cognitive abilities are related to restriction. Access to learning resources and policy of schools in language teaching, and learning are school related factors.

Nowadays, the majority of high school students tend to prefer extracurricular English language learning, in pursuance of advancing academic performance. The option of high school students is influenced by several factors regarding out-of-school education. Convenience, teaching method, quality and approach to learning lead to enhanced results for university admissions within the country and abroad. However little research has been done to measure the impact of out-of-school foreign language learning on the academic achievement of high school pupils. As a result, it is challenging for high school students to make decisions concerning their preparation for tertiary education.

The factors that lead to poor performance in English as a second language are many, such as school language policy, the availability of instructional resources, the method and approach to teaching a second language. Moreover, a second language learning at schools has a significant impact on academic achievement in tertiary education. This paper focuses on the effect of out-of-school English language learning in academic achievement and identifies major issues of poor performance in foreign language learning in state schools. In the middle of the 20th century, many scholars investigated the formal and informal foreign language learning environments by comparing them (Krashen, 1981). Oates and Hawley (1983) proposed engaging native speakers of the target language in extracurricular learning, meetings, interviews, thematic weekends and role playing. The role of out-of-school learning tightly depends on the approach or method integrated in language teaching. This study will measure the reasons leading to issues related to poor academic performance in high schools and influence of out-of-school learning to academic achievement.

Literature review

Integrating multilingualism in Kazakhstan: EFL in the educational system of Kazakhstan.

Pilot mode of teaching Kazakh, Russian and English languages was integrated into the educational system in the 2013-2014 academic year and included 35 schools. English language acquisition was planned for preschool education and elementary school students. Moreover, natural sciences were planned to be taught in the English language. In order to achieve goals, Kazakhstan altered its academic policy towards the execution of modern technologies in the teaching way for development of foreign language skills (Kubeev et al., 2008).

English language teaching in Kazakhstan

Secondary school students and undergraduates English language proficiency on an average was advanced as a result of new system integration. However , according to the studies of Yeskeldiyeva, B. Y., and Tazhibayeva, S. Z. (2015), there were approximately 8,2 % unsatisfied students, their English language proficiency was not advanced and the system seemed not beneficial for students. Moreover, according to the studies there were several reasons causing poor academic performance in foreign language learning. Major reasons by school students was defined as "undeveloped material technical base (27,0%), weak motivation of students (37,5%), weak qualification of teachers and weak level of teaching (10,5%), old methods of teaching (18,5%), lack of reliable material (47,5%)", in sociolinguistic research (Yeskeldiyeva, B. Y., and Tazhibayeva, S. Z., 2015).

Poor academic performance in EFL

Foreign language learning and acquisition is the process of learning language which differs from native language. Foreign language acquisition consists of several stages and a long process (Nordquist,2018). Swarts (2002) defines that efficiency of learning and teaching is restricted by the fact that exposure to English in the community is low for learners and instructors. Simasiku (2006) claims that the acquisition of communication skills needs an engagement of students to study listening, speaking, and writing not only in the English lessons but also out-of-school activities. Learning English in typical classrooms is mostly instructed by teachers, students are told what and how to learn. Therefore, school policy plays a crucial role, and exposure to English is poor because of limits to students.

Textbooks, exercise books, slides, films, and electronic media are facilities which play a significant role in implementation of the academic purposes and objectives by responding

cognitive and psychological needs of the learners. "Textbooks as resource materials being the basic tools that enable effective teaching and learning, their absence or inadequacy make the teacher handle subjects in an abstract manner thus portraying it as dry and non-exciting" (Moore, 2008)

ocus of learning should be on ideas and content rather than on linguistic abilities, as they should be encouraged to take part in collaborative work with speaking and other skills. Lewis-Moreno (2007) claims that instructors should avoid providing feedback too much by fixing every error students do, due to the negative effect of this to students' learning progress.

Academic achievement

Reeves (2008) determines students' achievement as a degree in which students obtain moderate and achievable educational aims according to activities the students took part in. Students academic performance is measured by grade point averages, standardized tests and their active participation in extracurricular activities. Extracurricular activities do not directly affect the average scores of students, as it is "external to the core curriculum" (Shulruf, 2010). As Gardener (2010) states, extracurricular activities are academic and nonacademic activities which are held at schools but conducted outside of normal classroom time and are not included in syllabus of course. According to the studies of Melnick, Sabo, and Vanfossen (1992), high school athletic involvement and being evolved in youth groups, was not essentially related to test scores and grades of students. Thus, findings of study on African-American and Hispanic boys and girls haven't shown results of participation.

However, although involvement in out-of-school activities, which might be sport clubs or educational courses were not assessed in curriculum, other studies have defined the positive influence on the increasing of students' grade point averages. Scholars have measured how involvement in such activities is advantageous for students. More studies have defined that involvement in sports and youth groups is associated with the development of students' encouragement, regular participation in the classroom, academic performance, social skills and self-confidence of the students ((Marsh & Kleitman, 2002; McCarthy, 2000; Silliker & Quirk, 1997).

Out-of-school learning

According to Hymes (1971), the significance of out-of-school learning in foreign language teaching was strengthened by the demands of communicative competence, which consists of grammatical, strategic and sociolinguistic competence. Majority of school students lack the ability

to communicate, express themselves naturally in target language, even if their foreign language proficiency is in (B-C) levels in high school. Reasons for their failure in communication and language usage might be studying environment, cultural background and individual psychological characteristics. School policy, which in some cases might fit all students into the frame and traditional teacher-centered learning approach negatively affect students' second language acquisition, mostly creating an inconvenient learning environment for the students. As advancing communication in second language learning was the main purpose, the one way for communicating and acquiring cultural experience in depth was out of school (Andreeva,1958). Unrestricted learning environment, without limitations of evaluation and open space for sharing and creating ideas is considered to be the appropriate learning space for school students, and out-of-school learning tends to be that space for them.

Out of school learning underlined similarities and differences between the second language and native language, emphasizing connections with different aspects such as literature, science, arts or economics. All students with different backgrounds in higher education with a wide range of topics showed their involvement (Slastenin, 1997). Extracurricular learning might be identified as free space to share, experience and challenge students' foreign language learning, where they are able to integrate the language learning process to creative works, demonstrating their own methods of delivering knowledge, without hesitation and fear evaluation of their work, thus preferable environment without restricting rules and with flexible study curriculum.

Extracurricular English language learning. Extracurricular activities in learning foreign languages have a pivotal role in reaching educational purposes. These activities develop awareness of students to understand the natural aspects of target language and to define local and global environmental issues, and to integrate the school curriculum in an applied, scientific way to reach the objectives of the contemporary education system. Language clubs, as they were called, in Soviet schools consisted of different language-oriented extra - curriculars organized and well-developed in schools.

One of the most significant features of ECA is the integration of different areas, such as art or science to language learning. Similarities and differences between source and target languages are underlined in ECA and connected with literature, science, arts, economics. Mostly, in higher education, there are a wide range of topics, because students of various professions and educational backgrounds might be involved (Slastenin, 1997). The aim of language learning ECA were

reinforcing the knowledge of foreign language class, widening the horizons of students in aspects of culture and communication competency, increasing students encouragement to study second language, personal and social development of students. Unfortunately, extracurriculars for language learning at Kazakhstani schools did not have success and were not beneficial for students and teachers. Mostly, teaching material and methods, approach to teaching foreign language needed to be modernized and updated. In the beginning of 2000s, extracurricular English language learning, language centers, educational courses appeared in the Kazakhstani educational system and have quickly become popular innovation among the language learners.

As extracurricular activities can be organized any time in convenience for students, the freedom of choice was an excellent opportunity for students, to help them to discover their talents and abilities (Slastenin, 1997). Moreover, Tyabina (2011), suggested that the chance to choose topics for discussion and their variety, videos and books to learn helped students to establish their knowledge of culture of foreign languages and develop their organizational and management skills.

Conclusion

The importance of English language learning in the educational system has started from pilot mode integration in the beginning of 2000s and has become one of the major challenges in academic policy of schools and tertiary education systems. Findings of sociolinguistic research was the evidence of implementation and dissatisfaction of foreign language learning at schools. Systematic review of the literature has shown the main flaws causing poor performance which in result influence the academic achievement of the students. Role of out of school language learning in developing foreign language proficiency is remarkable. Moreover, beneficial impacts to the students' average points and academic performance was emphasized.

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Proceedings of IYSC, (2022), vol. 11

Journal homepage: http://journals.sdu.edu.kz/index.php/iysw

FINDINGS IN ADAPTATION OF FORMATIVE ASSESSMENT TO ONLINE EDUCATION IN EFL CLASSES: SECONDARY SCHOOL TEACHERS' EXPERIENCE

G. Mussina[1], Kh. Delovarova[2]

[1,2]*Suleyman Demirel University, Kaskelen, Kazakhstan*

Proceedings of IYSC, (2022), vol. 11

Journal homepage: http://journals.sdu.edu.kz/index.php/iysw

Abstract

Prior to the COVID-19 crisis, all modalities of learning assessment had been strongly dependent on students' physical presence – either for administration or for observing the learners' daily progress. Current school closures necessitate development of alternative approaches to delivering the critical feedback function of learning assessment. While all types of assessment of student learning are important, the need for formative assessment right now is particularly critical because learning needs to take place outside of the physical classroom, and teachers and parents-turned-teachers need to understand whether students are absorbing the content that is delivered to them in formats that differ from business-as-usual.

Keywords: formative assessment, EFL teachers, secondary school, COVID-19.

Introduction

The educational process and its evaluation are related to each other as educators combine them for establishing the already set learning objectives. With the rise of modern technologies, as well as with the further development and popularity spread of EFL method, educators now have possibility to track their students' scores using online formative assessments. According to Boston the score is determined as a diagnostic process that provides feedback of the course, and the ending score is the final assessment of an individual's capability (Boston, 2002). Besides, Stiggins and Pantiwati & Husamah indicate that assessment provides the information about the success during the learning process, providing necessary information for both teachers and students on what to pay special attention to in order to enhance the educational process and to meet the learning objectives (Stiggins, 2002). Also, assessment is an important and integral process that helps teachers provide feedback on the quality of the material studied by students, how much of the material was learned and understood (Dabbs, 2015).

It is necessary to indicate the difference between the formative and final assessment, based on the above. The formative assessment and its main idea is to identify ways to properly guide students in improving their language competence, while also identifying improvements and achievements from the measures applied, as well as individual approach and needs. [2] The final grade is a resultant variable that allows you to identify the final knowledge of individuals at the end of the course to evaluate all applicable teaching methods and identifying achievements. [2]

Studies conducted among EFL teachers have shown that the results and conduct of the

assessment significantly depend on the teacher's initial belief in the methods of this formative assessment. [5] On the one hand, the overwhelming number of teachers are of the opinion that this type of assessment helps to evaluate the intermediate result in order to improve language competence, while some often incorrectly used the results of these assessments.

Recently there has been increase in the usage of new tools that help formulate the scores in the context of secondary schools which was dictated by the realms of COVID-19 pandemics. For instance, Saudi Arabian government totally replaced offline classes by online ones, as well as assessment procedure (Akhter, 2020). One of the most convenient ways to evaluate the students' scores is to use Google Forms platform, a survey tool which was initially used as an online processor of information, including tables, documents and slides which help to generalise the data. Up to now, taking into consideration the new conditions, it has been used as a digital tool to formulate the assessment (Thuan, 2018). Considering that there are a lot of alternatives to Google Forms, this platform is a more convenient option for teachers, which is distinguished by its versatility, types of questions, administrative tools, automatic counting function and many other elements useful in this process. Thus, a formative assessment can be easily done throughout this platform with the user-friendly interface.

Summarizing the above, it becomes obvious that formative assessment is an important part of the educational process, especially in EFL programs, and the adaptation of the traditional format to the new online, due to the dictated conditions of the coronavirus, is a new trend and trend among middle school teachers. This article will focus on whether formative assessment is really a demonstration of how much students are aware of the material being studied during a survey and interview among secondary school teachers in Uralsk.

Research questions:

How effective was formative assessment in the realities of the pandemic for assessing students' understanding of the material in EFL middle classes?

What shortcomings have been identified in the use of this method of formative assessment?

Methodology

Research Design

For this research work, a mixed approach was used using both qualitative and quantitative methods, which includes conducting a survey and semi-structured interviews in order to obtain more accurate results. Thanks to the combination of the two research methods, it will be possible

to conduct a deeper analysis and identify the results.

Participants

The following criteria were taken into account when selecting participants: mandatory qualifications and at least five years of teaching experience. Moreover, teachers were required to have at least a bachelor's degree in education in English. Teachers of only secondary schools from the city of Uralsk were considered. Since this research work combines both qualitative and quantitative research methods, 30 teachers participated in the survey, and 10 teachers were involved in the semi-structured interview.

Data Collection

Several methods were used in data collection, which included semi-structured interviews and surveys. Semi-structured interviews were used for the ultimate purpose of collecting data related to the effectiveness of formative assessment and applied methods in order to establish the academic performance and level of language competence of secondary school students. The interview was conducted in one stage, including questions that aimed to determine the attitude of teachers to the adaptation of formative assessment, the effectiveness of using formative assessment to understand the material learned and teaching methods, as well as the importance of this process in teaching among EFL high school students. The surveys focused on revealing how often teachers resorted to formative assessment, and also the main goal was how difficult this method was to implement in the new realities of online learning.

Data Analysis

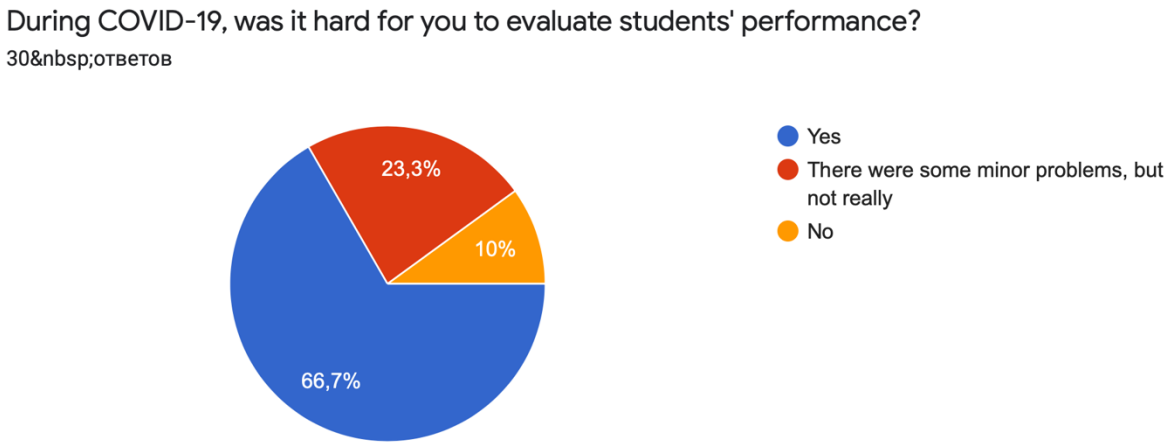
The collected survey data was analyzed using the Google Forms platform, and subsequently it will be interpreted by thematic analysis of semi-structured interviews.

Findings

After conducting an online survey among the 30 teachers who took part, it is necessary to elaborate on each of the sections in order to draw a general conclusion and answer the first research question posed, which seeks to confirm or refute the effectiveness of the formative assessment method.

In general, according to the survey results, among the 30 surveyed, the majority of teachers, namely 14 people had a class of 20 to 25 people, which is 46.7% of the total, while 11 people led classes of 25 and above people (36.7%) and only 5 people (16.7%) had relatively small classes of 15 to 20 people. 20 of the interviewed teachers replied that it was difficult for them to assess the

progress of students during the pandemic, 7 people noted that there were insignificant problems and only three people did not experience any difficulties (see Picture 1).

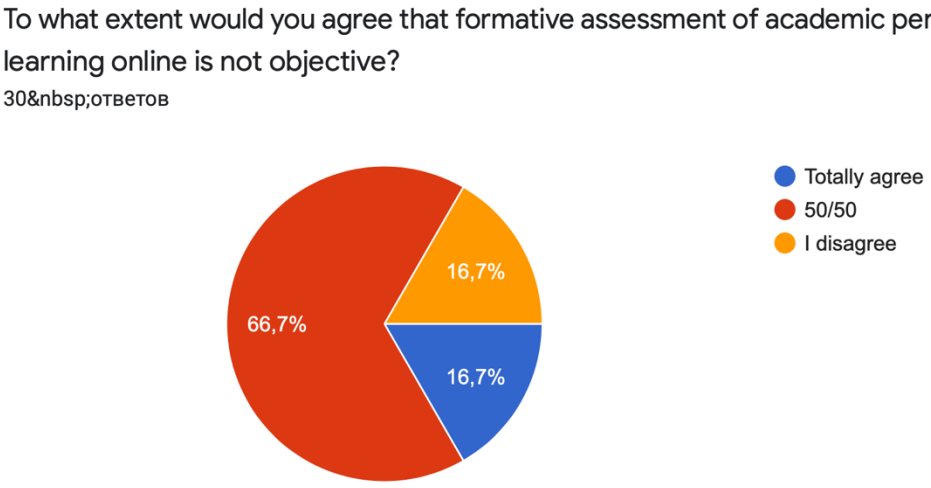


Picture 1. Number of teachers who experienced or not any difficulties evaluating students' performance.

The majority of respondents, namely 12 people, answered during the survey that they had not previously resorted to formative assessment before the start of online training, where 11 people also replied that they had used this method and 7 people answered negatively. As for the main parameters that are used in this assessment method, 17 teachers evaluated reading, writing, speaking and listening skills. At the same time, 12 teachers assessed active participation in lessons even without significant possession of language skills. Only one person in the survey replied that one of the language skills was evaluated.

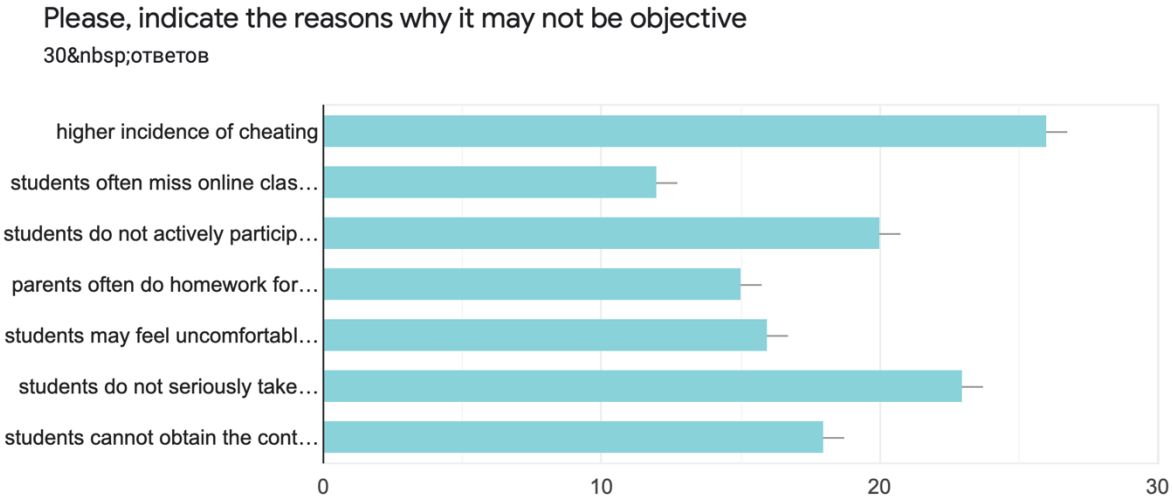
For the most part, 19 teachers replied that parents were interested in their children's academic performance, and only three confirmed that there was no interest on the part of parents at all. At the same time, 8 teachers noted that only half were interested in their child's academic performance.

The survey also revealed an ambiguous opinion about the objectivity of formative assessment for EFL students studying online, where 20 people noted the "50/50" option, which contrasts between their agreement and disagreement (see Picture 3).



Picture 3. Teachers' opinion regarding objectiveness of formative assessment.

Based on this, the following reasons were identified, reflected in Picture 3 (see Picture 3).



Most of the teachers noted that the traditional format of lessons is superior to the online format – 15 people, 14 people noted the "50/50" option, which correlates between the option of full agreement and disagreement, where in the second case only 1 person held the opinion that online lessons are superior to the offline format. In addition, there is also an ambiguous opinion of parents about the evaluation of formative.

As for conducting a semi-structured interview and its results, the analysis will be given below.

Answering the first question about whether teachers were satisfied with conducting lessons in an online format, 6 respondents answered negatively, and 4 people answered positively. In addition, almost all participants noted that there was low activity in the lessons, and that the material was absorbed late. Since the middle classes are taught according to the EFL program, 8 of the teachers surveyed noted that they noticed a deterioration in the language skills and competence of a foreign language among students, and only two noted that there were no obvious changes.

Following from the interview, 5 teachers replied that they had previously used formative assessment and 5 noted that they had not had to resort to such an assessment method.

Discussion

The main issue of the semi-structured interview was to identify the main disadvantages of conducting this assessment, among which it was noted that there were problems with understanding the operation of online platforms, since 4 teachers were closer to the advanced age from 40 to 55 years, which did not allow them to fully master computer technology. Of the significant disadvantages, it was also noted that due to the large number of people, it was quite difficult to assess their involvement without conducting real interaction and evaluating from the outside in real time, since many of the students were in the mode of disabled cameras, despite the strict requirement to be visible during the lesson. In addition, all 10 teachers noted that assessing skills through online testing for formative assessment was the only alternative, but this did not guarantee an accurate result, since it is quite possible that students used third-party help and did not answer the questions themselves.

During the survey, it was also found that many teachers experienced difficulties with conducting a formative assessment, where only a small number noted that there were no difficulties at all, or they were insignificant. This may be due to several criteria: this is the fact that most teachers had large classes, which made it difficult to implement this assessment, especially considering that previously a relatively small number of teachers conducted knowledge assessment through formative assessment.

Many have noted that language skills are important criteria, and this, in my opinion, is the most relevant answer, since EFL learners, in order to fully master the material, must have a language minimum to understand and master the lessons. Regardless of the fact that almost half of the teachers also evaluated activity in the lesson, which should also be encouraged, without

having at least basic skills, the assessment of knowledge can vary significantly.

Since many teachers have noted that the most common reasons for the lack of objectivity of this assessment of the online learning format is a high degree of probability of cheating, as well as a low level of responsibility in relation to the perception of classes in an online format, this may also justify ambiguous answers about the assessment of the objectivity of formative assessment. Moreover, another most popular reason was noted that students do not have the opportunity to fully learn the material in an online format, which also justifies the answer that traditional learning, at least in high school, is the most productive and effective compared to online learning.

The survey showed that only 9 parents were completely satisfied with the results of the formative assessment, while the majority noted that parents were completely dissatisfied and complaints were observed, namely 11 people. 10 people held the opinion "50/50".

Conclusion

Summing up the results of this research work, it was found that among the 40 teachers who participated in the qualitative and quantitative analysis with regard to formative assessment and adapting to it among EFL secondary school learners, most experienced some problems and had no previous experience in using this assessment method.

In addition, the results remained unsatisfactory, as shown by the responses of both teachers and parents, based on the practice of evaluation. All sorts of minuses and shortcomings were listed, and the formative assessment among Uralsk secondary school students could not be accurate for sure due to the fact that the assessment is not objective enough.

However, for future research, it is worth taking into account another age group, for example, high school or university students, which may show different results and compare them, comparing whether age affects these criteria.

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Proceedings of IYSC, (2022), vol. 11

Journal homepage: http://journals.sdu.edu.kz/index.php/iysw

EXPLORATION OF THE INFLUENCE OF ESOTERIC PROGRAMMING LANGUAGES ON THE INVOLVEMENT IN THE LEARNING PROCESS

E. Nabigazinova[1], B. Meraliyev[2]

[1,2]*Suleyman Demirel University, Kaskelen, Kazakhstan*

Abstract

In this paper several types of esoteric programming languages have been chosen to analyze whether they can help to learn programming and arouse interest of non-programmers. Esoteric programming languages were designed to explore the possibilities of developing any ideas with programming languages, in other words, to implement an idea in any human-understandable way. We chose programming languages which were as close as possible to the spheres of real life, such as cooking - to write the code as a recipe of any dish, literature - the code format looks like a literary work, movies - using quotes from movies to write the code, painting - the written code looks like a picture and also jokes - using slang to make the code more understandable to a certain people. During the work we used observational research methods to understand the influence of esoteric programming languages on students' involvement. Also the selected esoteric programming languages helps to understand whether it is worth learning programming and whether learning one of the esoteric programming languages facilitates the learning process.

*Keywords***:** Esoteric programming languages, esolangs, meme-based learning, education methods

Introduction

Many esoteric languages have now been created to help prove, create and understand conceptual things. They can help to represent how human intellect can be creative, while building new esoteric programming languages. Also, esoteric languages can be radically different from each other and be multidimensional. Esoteric programming languages can be divided into four different classes:

Recreational

Comedy

Computationally interesting

Transgressive programming or Multi Coding

Let's describe each class, Recreational esolangs created by inspiration of another language or esoteric language, as an example for the recreational esoteric language can be yaball. It is inspired by the Brainf**k, yaball has a 2-dimensional code flow and 2 different flow modes.

```
++++++++++[>+++++++>++++++++++>+++>+<<<<-]>++
.>+.+++++++..+++.>++.<<+++++++++++++++.>.+++.
------.--------.>+.>.
```

Figure 1. Example for print "Hello World" on Brainf**k

The machine, which is controlled by Brainf**k commands, consists of an ordered set of cells and a pointer to the current cell, reminiscent of a tape and Turing machine head.

Most of the already created and used esoteric languages were created in Comedy style. Usually esolangs in this class used memes and slangs to make the languages funnier. Examples for the joke esolangs, LOLCODE, yoptascript, Chicken, ArnoldC and Ook!.

```
HAI 1.2
CAN HAS STDIO?
VISIBLE "HAI WORLD!"
KTHXBYE
```

Figure 2. Example for print "Hello World" on LOLCODE

LOLCODE is the turing complete esolang, and it is based on the lolcat meme, that's why its syntax looks like this (figure 2) [6]. Another class is the computationally interesting, they called like that because to solve the problems need to find extraordinary way to solving it, that's why it called like this. Example of it can be Brainf**k and Befunge languages. Befunge is the two dimensional stack language. The Creator's purpose was to develop a language that was as difficult to compile as possible. Last class is the Transgressive programming or Multi Coding, language can be a combination of the multiple languages from different classes. Examples for Transgressive programming are Chef, Shakespeare, Pit. Shakespeare is intended to disguise the source code of the software as Shakespeare's plays. Also an extraordinary esoteric language is the Orca, which was developed for live coding music performances. It is used for creating music with coding.

Literature Review

Esolangs are a family of programming languages in which a basic language concept, such as a theme or design concept, takes precedence over usability [1]. This means that esoteric languages are an art and writing code in them and creating new esoteric languages is also an art. There are some related works which describe concepts of the different esoteric languages and their advantages. The first related work is "Esolangs as Experiential Art" by Daniel Temkin. Author

describes the usage of the esoteric languages and their performance on art of code. This work used three strategies to express an idea with the esoteric languages. The first, and perhaps more obvious given that much of the code is a form of text, lies in their vocabulary. The other two we can think of as logically oriented esolangs and conceptual languages [2]. As an example for the esoteric language itself, the author used LOLCODE, Befunge, Piet, Chef and Brainf**k languages. He describes their usage and tracks the performance for comparison. Let's list some details for the esoteric languages used in the work. LOLCODE is the esoteric programming language which was created by influence of the lolcat meme. The language uses elements of English Internet slang, so a person familiar with this slang can understand software code even without knowing the syntax of the language. Befung is one of the older esoteric languages which used only two dimensions for representing code. Initially, its cells are filled with programme commands. Befunge allows you to modify the program code at runtime, so the field cells can also be used as random access memory. Brainf**k characterized by its particular minimalism, it consists of eight commands, each written with a single character. As a conclusion, the author presents the idea that all the esoteric languages help to represent creativity of the esolangs creators, and are useful for easily understanding the main concept of the problem which needs to be solved. Another work "Esoteric Programming Languages" by Sebastian Morr, tries to define five categories of the esolangs. On this work also used esoteric languages like Brainf**k and Befunge. As a minimal esolang type chosen Brainfuck, the weird one was Intercal esoteric languages, as a multidimensional esolangs defined Befunge, as the category of the hard one used Malbolge, and the poetic esolang used Shakespeare [3]. Also on work used unexpected examples of Turing complete systems which are best viewed as a subset of "discovered" or "found" esoteric programming languages. The languages were checked on Turing completeness and described the origin of the languages. Turing completeness is a fundamental concept in computer science. It helps to answer many key questions, such as why it is impossible to create a perfect anti-virus program. But at the same time it is a strikingly common phenomenon. Conclusion of the work is that esoteric languages present language users with interesting, thought-provoking puzzles that can sharpen their minds and help them better understand different ways of approaching and solving problems.[3] Next work on education and joke programming languages, how they can improve the interest on learning programming languages. "I CAN HAS SUPERCOMPUTER? A Novel Approach to Teaching Parallel and Distributed Computing Concepts Using a Meme-Based Programming Language" by David A. Richie and James A. Ross.

This work used LOLCODE esolang to teach parallel computing approaches. Authors solve computationally demanding problems with distributed systems and parallel computing and the main problems on solving problems by using LOLCODE was, identifying and using the extensions on LOLCODE which were created for just demonstrating the algorithms not for solving it. They created the PGAS memory model (figure 3), which will allocate memory while doing some computational operations. The PGAS programming model with symmetric memory in the system may be one of the simplest distributed computing models.[4]

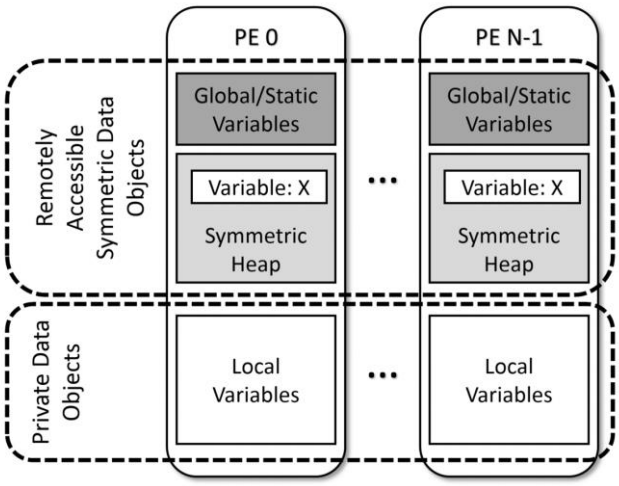

Figure 3. PGAS memory model

Also, authors used OPENSHMEM and other APIs for parallel computation, which would be helpful on writing implementation. Result of the work was the implementation of parallel computing and distribution by using LOLCODE esoteric language, and the authors wanted to create a compiler with examples to make teaching easier. LOLCODE is a meme-based slang esoteric language which can be understandable for young learners [4].

Methods and Results

After understanding different classes of esoteric languages we can divide them into two categories, for programmers and for non programmers. Esolangs for programmers can be used to train their brain to solve extraordinary problems. Esolangs for the non-programmer can be used to help them to understand programming by already known concepts. There criterias for choosing esoteric programming language for non programmers:

Readability

Writability

Reliability

Cost

Also, while selecting esoteric programming language the main point was the Turing completeness of the language. Turing completeness is the property of a system, with some simple input and output representation, to realize any computable function.

By using them selected LOLCODE, reMorse, ArnoldC, Piet, Aheui, Code Golf and Velato esoteric programming languages. But five of them are for learners with specific knowledge on music and must know Morse alphabet. That means that if they already know specific terms it would be easier for them to learn programming by this way.

In this work as a method of teaching programming is language oriented with a combination with the instruction oriented. Language oriented is not enough to learn programming, and for learners it would be hard to learn another language. But in combination with other teaching methods it can be more complete and useful [5]. While learning programming students have huge amounts of difficulties, which help us to know strong and weak students, and find methodologies for teaching. As a measurement of the tracking students influence used monitoring and tracking methods. Which shows us influence on the learning process.

Discussion

During the work described types and classes of the esoteric programming languages. This is where these questions come from.

How to choose an esoteric language?

How can they help to learn programming languages?

How can they be used in education?

Outcome of the questions above is the complex combination of the teaching and learning methods in the educational process. For the selecting language on work described categories and classes of the esoteric languages. Understanding the advantages of esolangs in learning programming was a huge part of the research. As the answer for the last question, work described a complex of teaching methods.

Conclusion

Work as a result provided a combination of teaching methods and esoteric programming languages. Also given description for the esoteric languages concept, understanding how esoteric languages work. The usage of the specific esoteric languages for the non-programmer will be

helpful to understand the concepts of the programming. Not all the esoteric languages can be used as a first programming language, and not all the esoteric languages can be really interesting to understand the basic concepts of coding. But only with the right combinations of the teaching methods and life related esoteric languages can be supportive.

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Proceedings of IYSC, (2022), vol. 11

Journal homepage: http://journals.sdu.edu.kz/index.php/iysw

THE IMPACT OF THE USE OF INTERNET MEMES IN THE PROCESS OF TEACHING INFORMATION TECHNOLOGY DISCIPLINES ON STUDENTS OF HIGHER EDUCATIONAL INSTITUTIONS

B. Meraliyev[1], E. Nabigazinova[2]

[1,2]Suleyman Demirel University, Kaskelen, Kazakhstan

Proceedings of IYSC, (2022), vol. 11

Journal homepage: http://journals.sdu.edu.kz/index.php/iysw

Abstract

This work is about exploring the possibility of using internet memes (funny illustrations) in such an important aspect as learning process in higher educational institutions. At the present time, when nonstop content consumption has become commonplace, modern people have begun to better perceive new information and knowledge through social media networks including humor, interesting comparisons and coincidences with real daily life. It is necessary to take into account associative thinking, which comes to the fore in the study of new disciplines. The authors consider the prospects of using memes in the process of obtaining new knowledge and consolidating the material covered. Also, all the advantages and disadvantages of such a modern and non-standard approach are studied based on the data obtained in the survey of students. The materials of this work are the survey, analysis and experience of the teachers of the Suleyman Demirel University (Kazakhstan) with a specialization in ”Data Analytics”.

Introduction

The current generation of people are so accustomed to Internet memes that they no longer think about the fact that memes are found at every turn. But does everyone remember how it all began? How did memes move from local imageboards to the global network? The authors of this work asked themselves the question of the emergence of the first Internet memes in online communities. An Internet meme in the usual sense is consistent with the second definition of a meme from the Oxford Dictionary: ”A meme is a picture, video, piece of text, usually humorous in nature, that is copied and quickly distributed by Internet users.” [1]

In a broad sense, the term ”meme” can refer to any idea, symbol, manner or mode of action transmitted from person to person, sometimes unconsciously, through speech, writing, video, audio, etc. The term was first used in the book by Richard Dawkins ”The Selfish Gene” [2], written back in 1976. But the internet memes were first mentioned back in 1996 in a collection of articles [3] by scientists from the Massachusetts Institute of Technology edited by Peter Ludlow.

Taking into account the development of IT technologies, globalization and the characteristics of a new generation of students, there is a need to improve educational processes. From authors' point of view, one of the solutions to this issue can be Internet memes, which occupy a special place in modern culture.

The object of this study is teaching Information Technology disciplines with using Internet memes as a special kind of visualization of modern culture. Their peculiarity lies in the ability to attract attention and remain in memory for a long time through their unusualness and uniqueness (many Internet memes have their own style, recognizable by many Internet users), brevity, in the ability to evoke a response both in content and design. Also, Internet memes are a completely new phenomenon in folklore (folk art, which includes not only the oral aspect, but also other activities). They can express people's reaction to certain events in various spheres of society and bring their own humorous character.

The relevance of this study lies in the fact that the younger the students, the less time they can be focused on one task. And social networks have built modern trends, visual content is easier to perceive than content in text format. And short videos on instagram and tik tok have significantly reduced the time of focused attention on something serious, since for the most part it is entertaining.

In addition, many educational institutions are currently forced to switch to distance learning due to the COVID-19 pandemic, which makes it necessary to:

- introduction into educational processes of an increasing number of ways of conveying knowledge that would effectively help memorize new and repeat old information and increase students' interest in learning;
- identify the best way for students to perceive information.

Related Works

In "Losing Your Voice" article, James DiGiovanna defines Internet memes as "talk snippets" that display a common phrase or idea that is released and works in its own way in many discourses. In his article, James DiGiovanna defines Internet memes as "talk fragments" that display a common phrase or idea that is released and begins to work in its own way in many discourses. According to DiGiovanna, the entire Internet is essentially a collection of memes, just as a letter or speech can be viewed as a collection of rhetorical expressions. [4]

The Usenet community created in those years, which was part of the wider NSFNet (National Science Foundation Network), for the exchange of information between research centers and universities became the place where the first Internet memes appeared. It was not yet the modern Internet with sites connected to the global network - it was more like a forum or a mailing list, and instead of the Internet browsers, special software was used for each community.

The very first Internet meme, many consider the famous ”Godwin's Law”. Mike Godwin made his observation about one of the basic properties of Internet communication on the Usenet network already in 1990. [5] It is formulated as follows: ”As the Usenet discussion grows, the probability of a comparison that mentions Nazism or Hitler tends to one.” That is, the hotter and more active the dispute on the Internet becomes, the more likely it is that one of the opponents will compare his interlocutor with the Nazis or immediately with Hitler.

”Memes” have become widely used in popular culture as they have become more entertaining. As noted by T.E. Savitskaya in her work ”Internet memes as a phenomenon of mass culture”, the meme is currently becoming a complex phenomenon, including the mass turnover of edited photos, photo montages and videos and has the ability to instantly spread. [6]

Methodology

The purpose of the study is to substantiate the effectiveness of Internet memes as an additional tool for memorizing new information in the educational process. To achieve it, the following tasks were set:

- to conduct the final exam on the subject ”Introduction to the Python programming language” with a bonus task, in the form of a task where students need to draw a memorable meme that was shown during lectures, and explain the topic where that same meme was encountered.
- conduct a survey to get feedback from 40 students on the use of memes in the course of classes.

Data Collection

Throughout the whole semester, 2 teachers of IT disciplines actively added popular memes on the topics of classes to their lectures. Over 30 thematic memes about programming and course topics according to the curriculum were shown, reviewed and discussed over 15 weeks. Authors would like to note that memes are an auxiliary materials and the educational process should not include the presentation of information exclusively through Internet memes, but be used to draw attention to the most important points of the theory part.

The survey, in which 40 university students participated, consisted of 3 sections. First of all, the authors of this work introduced the respondents to the objectives and informed that the survey is anonymous. Very interesting questions were asked in the survey, the answers to which can show the general trend of the current situation among young people.

Thus, in the first section, questions were asked about the general nature of the use of social

networks. The first question of provided survey was do students use social media networks?

The authors also asked the respondents about how much time do they spend on social media networks per day and the most important question about the purpose of using social media networks - do students use social media networks for humorous content or not.

Ending the first section was decided by the question of the number of active social networks. How many social media platforms do they use every day (e.g. Instagram, Facebook, VK, Twitter, Tiktok, Youtube, Pinterest, Mail.ru, Telegram, etc.)

In the second section, the authors included questions about previous semester experience and asked more specific questions. To begin with, it was necessary to understand whether students knew the meaning of the word meme and how they understand this word itself, so an open question was posed where students could fully disclose this term.

Since the main contingent of respondents are 3rd year students, the survey included a question about students' previous experience of perceiving new academic information through memes - Have they seen lectures or teaching materials that contained memes in their courses at the university

If the answer to the last question was "yes", then the next question was whether they remember the content of lectures in those courses.

It was very important to understand whether memes really help to remember important parts of the lectures, so the question was asked whether they think they remember the content of those lectures thanks to the memes used in them and whether, in general, memes specifically helped the respondents themselves in understanding IT disciplines at the university. Students also gave their answers to the relevance of the memes that were used in their classes, which is a very important component in the selection of memes by teachers.

And at the end of the survey, there was a final section where the following question was: To what extend would you recommend your teachers to use memes in their lessons? (1 - would not recommend; 2 - would recommend only for some and/or specific courses; 3 - would recommend for all courses (in this semester))

Well, the final criterion for evaluating the use of memes in lectures at higher educational institutions is a bonus task during the session exam. The students were asked to get a bonus point by drawing their favorite meme from the lecture presentations. Looking ahead, this is what led the authors of this paper to draw a positive conclusion about the use of memes on the lectures.

Results and Discussions

Based on the survey responses, the authors were able to show and prove that first of all, students develop associative memory by linking the image of a well-known meme with useful information in class. Thus, this information is easier to remember, and a person feels more confident - almost the same when using a computer at home for entertainment purposes. Immersion in a familiar environment makes memorizing the material more interesting and motivates for further work.

To begin with, let's look at the answers of the respondents to the questions of the first section, with general questions. Thus, it can be seen that all 100% of students use social networks.

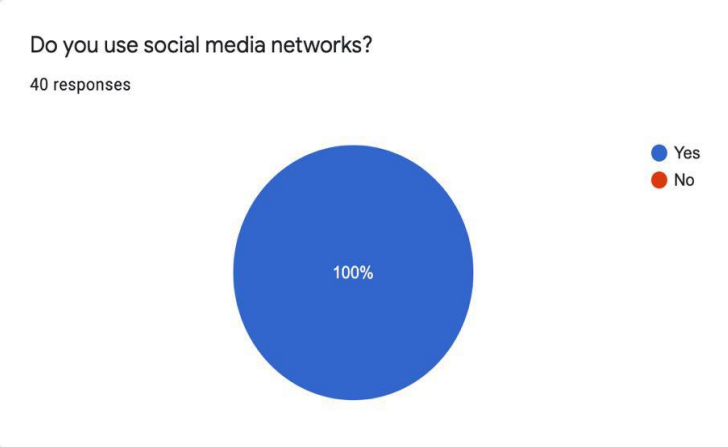

Figure 1: 100% are users of social media networks

Because of Covid-19 and pandemic situation, it is very understandable that all respondents use social networks, but the amount of time spent is scary. Almost 70% of respondents answered that they spend more than 3 hours on social networks per day - this is almost 46 full days a year. And only 7.5% noted that they are in social networks for less than 1 hour.

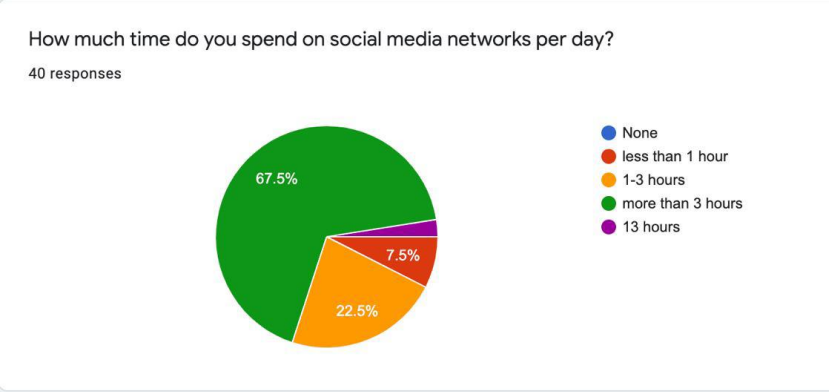

Figure 2: Spending time on social networks in hours per day

A very important aspect is familiarity with popular and relevant memes. Therefore, it was important to understand what goals respondents are pursuing on the Internet. And 80% confirmed our idea of popularizing memes in social networks. Most people search, find and share liked memes.

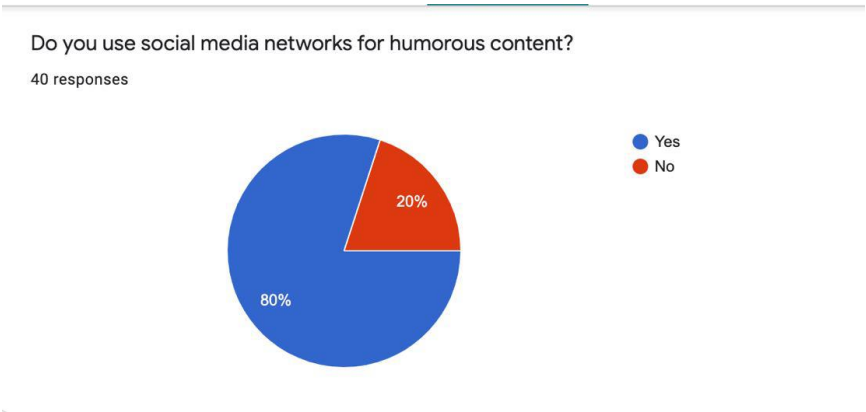

Figure 3: Humor or something else?

It has already become normal - such a wide variety of different social networks, which have their own characteristics and distinctive qualities. Thus, the average student now has 3-4 or even more than 5 active social networks to which he or she spends their time every day.

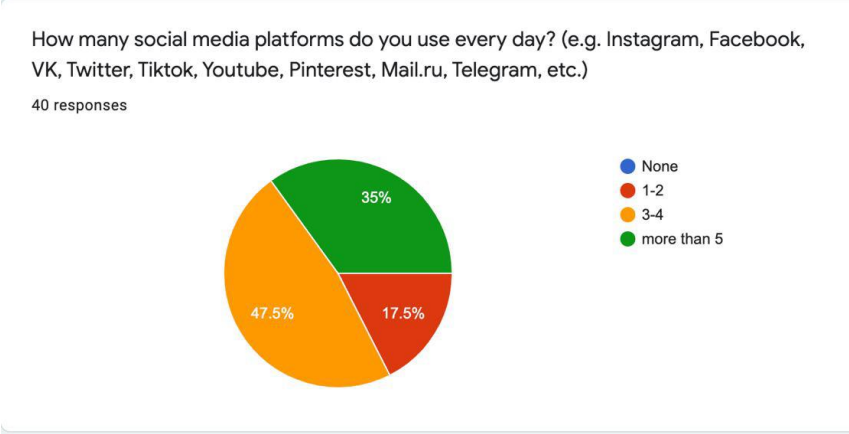

Figure 4: 3-4 different social networks every day

88 percent of those surveyed have encountered memes in class in one way or another, which is a surprising number. More than half answered that they remember most of the material covered, where the supporting material was memes. Only 5% answered negatively that they could not remember a single topic covered.

80% noted that memes helped memorize new material during lectures, associative thinking played a major role in the perception of information. This is an excellent result, which tells the

authors that memes really have a positive effect on the educational process of IT disciplines.

The final topic of discussion is that 98% of those who passed this survey recommend that teachers use memes as an auxiliary material to consolidate

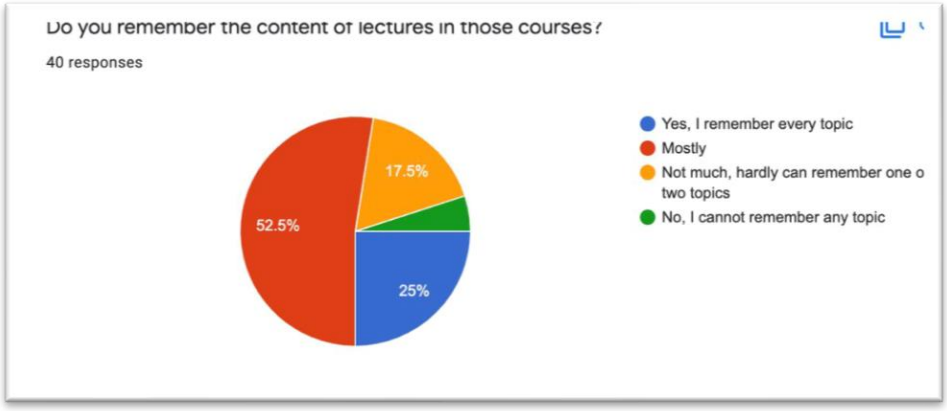

Figure 5: More than half remember the content of the lecture by the memes

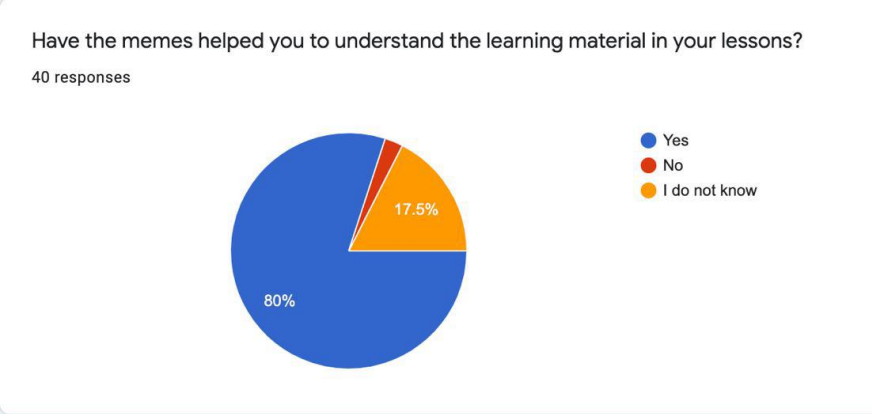

Figure 6: 80% mentioned that memes helped them to understand materials

the understanding of a new topic, as well as for students' associative memory. This method becomes very relevant in the new and modern realities. The influence of social networks, the Internet and the process of digitalization are changing the psychology and essence of people. People change, which means that the approach to their education also changes.

Conclusion

This work confirms the thesis that it is always necessary to look for new solutions to attract the attention of students. Teachers should always be adaptive and find all sorts of opportunities to be on the same wavelength with students, thereby involving them in teaching a new subject. Therefore, the use of memes is highly recommended for use in the learning process, especially for adult students in higher academic disciplines, especially in the IT world and disciplines that are

directly related to the computer and the Internet.

Internet memes that have lost their relevance can cause misunderstanding and a negative reaction in the classroom. The teacher is required to clearly monitor the novelty of the material that he presents to the audience. It is important to note that for students with increased activity

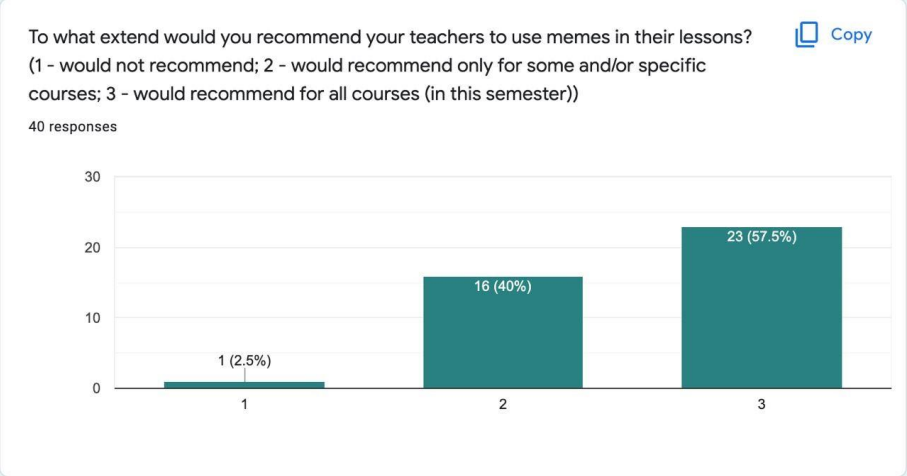

Figure 7: Recommendations to use memes

In the future, it is planned to conduct a survey for a larger audience, at least 1000 students should participate.

It is also planned to analyze students' drawings for bonus points to find the so-called excellent student's style. Using computer vision and machine learning techniques, build models to predict an approximate final result based on a drawn meme. Due to the fact that with this work, the authors were able to confirm that the students who scored the best final scores for the final exam drew a meme and revealed a related topic for the highest mark.

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Proceedings of IYSC, (2022), vol. 11

Journal homepage: http://journals.sdu.edu.kz/index.php/iysw

EFL TEACHERS' PERCEPTIONS AND CHALLENGES OF USING MOBILE LANGUAGE LEARNING APPLICATIONS

T. Z. Temirbek

Suleyman Demirel University, Kaskelen, Kazakhstan

Abstract

This paper explores English language teachers' perceptions of mobile applications and challenges in using them. The study uses data from 10 English languages teachers working in secondary schools and universities in Kazakhstan. Thematic analysis is employed. The findings suggest that teachers value availability and student engagement offered by mobile apps. The challenges of using mobile apps tend to be beyond teachers' control and include internet issues or lack of equipment. Policy implications for teacher training and professional development are discussed.

Keywords: mobile applications, English as a foreign language, teacher cognition, perceptions, challenges.

Introduction

Mobile technology, which offers a revolutionary approach to teaching, is one of the most appealing technologies. Mobile devices have been gradually included into studying in recent years. The widespread usage of smartphones and other portable and Wi-Fi devices has transformed the conventional teaching approach and learning process (Kukulska-Hulme, 2009). The widespread use of mobile devices has resulted in a plethora of mobile applications for English language teaching. There are several applications accessible for language learners to download via convenient internet access. Because of the mobility and accessibility of mobile devices, learning materials may be conveniently accessible.

Mobile learning refers to the use of mobile and portable technology in the teaching and learning process, such as PDAs (Personal Digital Assistants), smartphones, tablets and etc. With the advancement of wireless gadgets and technology, this is expected to be an increasing trend. The next wave of mobile learning will be widespread, with learners becoming more mobile and capable of studying across several devices (Ally & Prieto-Blázquez, 2014).

Review of literature

Mobile assisted language learning (MALL)

Mobile-assisted language learning is considered as one of the units of M-Learning and computer-assisted language learning (CALL). According to Kukulska-Hulme (2009), Computer assisted language learning (CALL) is a phrase used to describe a group of technologies intended

at increasing creativity and cooperation, notably through social networking. The growing usage of mobile devices in recent years has resulted in the creating MALL, which differs from CALL in its use of personal, portable devices that enable new modes of learning, stressing continuity or spontaneity of access across multiple contexts of use. The researchers also claimed that MALL possess with these major characteristics: portability or mobility; social interaction; individuality; context sensibility.

Mobile language learning applications

Mobile phone usage has changed dramatically, beginning with the download of a ringtone and progressing to the use of many software on a single phone. Though mobile learning is not a new concept, the latest mobile devices with enhanced functionality have piqued the curiosity of many instructors in using this new technology into their classrooms. The iPhone, iPod, and iPad, as well as other new portable devices, are fueling the mobile app fever (Godwin-jones, 2011).

A mobile app is a type of software which are designed to operate on iPhones, tablets, and other mobile devices. The number of mobile language learning applications are increasing day-to-day. They can be downloaded from the App Store (IOs), Google play (Android) Windows Phone Store (Windows), and BlackBerry App World (Gangaiamaran & Pasupathi, 2017).

Some of the mobile language learning apps are free to download, while others need payment. The most popular mobile language learning applications are Duolingo, Preply, Memrise, Rosetta Stone and etc (Parr, 2021).

Positive sides of using mobile applications

Since mobile applications became one of the teachings and learning instrument for learning English, the researchers around during their research about mobile applications identified the advantages of mobile applications which can influence positively to the learning process. One of these benefits is considered to be mobility of mobile phones. According to the study by Kukulska-Hulme (2009), mobility is believed to be one of the minor advantages of mobile phones. The device gives both teachers and learners an opportunity to study at any place (home, café, outside, outside of the classroom and etc.). Despite to the fact that the researcher described the mobile phones, the mobile applications run with the help of mobile devices and the users can use their mobile applications wherever they want (Kukulska-Hulme, 2009).

Another possible benefit might be entertaining lessons. Given the importance of motivating English learners (Nurshatayeva, 2011; Nurshatayeva & Page, 2020), making the kessons more fun

and enjoyable has considerable importance. With the help of mobile applications, it is usually easy to make the learning process entertaining. Moreover, it is possible to make competitions between the learners, since majority of the applications are game based. As an example, the teachers can use Kahoot, because this application is based on providing lessons with attractive design and games which this application possess.

Since majority of people in the world possess with at least one smartphone, usually there is no issues with using mobile applications. Mobile phones are easy to use, as the learners are familiar with the gadget and teachers do not always spend their time on instructing how to use mobile applications correctly.

The various choice of mobile applications on the internet help both the teachers and learners to choose the right application which is useful and comfortable for all themselves. According to Gangaiamaran and Pasupathi, the number of mobile applications in the world are increasing nowadays. In addition to their statement, they claimed that despite to the fact that premium version of mobile application has benefits, the free version of those applications are effective too (Gangaiamaran & Pasupathi, 2017).

Negative sides of using mobile applications

In spite of the positive sides of mobile applications, using mobile applications in both teaching and learning process have negative sides. One of the main issues is considered to be the weak internet connection. Since all modern mobile devices have the internet access, the mobile applications for teaching and learning English are required to be used with the internet connection. The issue usually arises when the teachers want the learners to use mobile applications to do an assignment and learners do not have an access to the internet. The reason for that might be the fact that the learners at school are not provided with the internet connection, despite to the fact that each school use an internet connection. As an example, Michael Onyema conducted study on the pros and cons of utilizing mobile applications in Nigeria, and in his research report, he stated that learners and teachers frequently suffer with network troubles. Teachers sometimes struggle with planning activities for students since students must wait a certain amount of time in order to connect correctly, as online learning necessitates a high-speed internet connection. (Onyema, 2019).

Next challenge might be lack of mobile phones or outdated mobile phones. Despite to the fact that most of individuals possess at least one device, there are cases when the learners do not

possess with mobile phones. This is because, some parents are not always able to provide their children with mobile applications. According to Onyema (2019) buying mobile gadgets are affordable in the present era, most families cannot afford to buy mobile phones to their children, as some families in underdeveloped countries might still live in poverty (Roe et al. 2008; Nurshatayeva, 2020; Weidman & Nurshatayeva, 2018). Even if the learners possess with mobile phones, some learners are not provided with the latest models of mobile phones. Despite to the fact that out-of-date mobile devices are able to run on mobile devices. There might be some issues when these gadgets are used during the process. For instance, the oldest models of mobile phones have small screen size, which gives troubles to the learners as the keyboards in this phone are small sized and it is difficult to type. In addition, these mobile phones have issues with memory storage, since the numbers of mobile applications are increasing and they are updated regularly. Since they are updated the size of the applications are increasing, too. Due to insufficient memory capacity, it is sometimes difficult to install the applications on these phones (Cervantes, 2021).

Another challenge might be not knowing how to use mobile applications correctly. In spite of the fact that majority of student possess with mobile phones and know how to use them correctly, there were some cases when the learners did not know how to use the mobile application, and teachers had to spend their time on instructing the learners how to use the applications.

According to the researchers, overusing mobile applications can be disadvantage for the eyesight. Since the screens of mobile phones produce rays, they damage the eyesight if they use them too much (Green,2019).

Methodology

Because this research is qualitative, the researcher will explore instructors' perceptions and obstacles of adopting mobile applications in the methodology section of this research. For this study, the researcher used qualitative research. This technique allows participants to consider their responses and contribute more information than would be gathered only through quantitative methods (Mollaei & Riasati, 2013).

Research questions:

To explore teachers' perceptions, their experiences and challenges of using mobile applications, the researcher used these research questions:

What are EFL teachers' general perceptions of using mobile applications?

What are the advantages of using mobile application by the EFL teachers' points of view?

What are EFL teachers' challenges of using these mobile applications?

Data collection and analysis

The main objectives of this research were: to examine EFl teachers' perceptions of using mobile applications in teaching process, explore teachers' perceptions of advantages of these technological tools, and to learn about the challenges that the teachers experienced in utilizing the mobile apps. To explore EFL teachers' perceptions, the researcher used the semi-structured interview.

After sending the invitations to participate in the research along with the consent letters, the researcher met with participants face-to-face and the interviews were conducted one-to-one. Audio recordings were made of each interview.

Thematic analysis was used as a data analysis in this research (Miles, Huberman, & Saldana, 2018). While and after transcribing the interview recordings, salient themes were examined and synthesized.

Participants

10 EFL teachers in Kazakhstan were invited to participate in interviews. The main criterion for choosing participants was their level of English – above intermediate and their experience of using mobile applications in the teaching process. Among participants, there were 7 secondary teachers working in both state and private schools and there were 3 university level teachers.

Findings

Recognition of the potential of mobile apps to enhance student engagement

To check teachers' perceptions of using mobile applications in teaching process, the teachers were asked about their attitudes towards them. The findings revealed that the majority of the teachers, specifically 7 of them, were positive about using mobile languages; however, three respondents were negative towards using mobile applications in teaching process.

The majority of the respondents claimed that using mobile language learning applications in teaching process can bring benefits to both teachers and learners too, as the mobile applications can make the teaching process and engaging; however, some respondents claimed that despite positive sides of using mobile applications, using them in teaching process is difficult.

Apps that are more familiar are most in use

During the interview the teachers were asked about their preference of mobile applications which they use or used in their teaching process. The majority of the respondents claimed that they

use Kahoot, Quizziz, and Quizlet on their lessons, as these applications are well designed and easy to create assignments and tasks. Some applications also claimed that they used social network applications for the teaching process. The vignettes below illustrate this point:

Mostly I use Quizlet in my teaching process, since with the help of this application I usually save my time and with its functions I can create interesting quizzes to my students, since they like using this application (participant 8)

Especially I really love quizzes as it has an automated feedback function. When I was a student, I always wanted to get immediate feedback as I was eager to know why a particular answer was correct. So, first students tick the answer and after they get feedback with an explanation (participant11).

The respondents claimed that they selected specific applications to use in their teaching based on various rationales. Most commonly, they were using the applications they knew how to use. The know-how came from either learning from colleagues or from teacher training seminars they attended in the past. This suggests that teacher-training professional development is an important channel through which policy-makers may influence technology use by English teachers. This also suggests that there is an unmet need in technology training among EFL teachers.

An advantageous mobile app combines availability with student engagement

The teachers who participated in this study found that the availability of mobile apps made them so advantageous to use. Being easily and freely downloadable, having an easy interface, and features that are easily usable in teaching were valued by all participants. Thus, availability is what mattered most to the participants.

Next, all teachers highlighted that availability alone doesn't make mobile apps useful in teaching English. Rather, it is a combination of availability and opportunities to enhance student engagement that turn mobile apps into powerful tools teachers choose to use in class and beyond. The extracts below demonstrate this:

I got such benefits from using mobile applications as observing the progress of my students, assessing students according to their performances, making students to speak and conducting interesting and inspiring lessons (participant 4)

For me mobile applications are great in terms of using them whenever you want. The learners can do the assignments while they are at home, and the teachers can give them assignments with the help of mobile applications. As an example, I used a mobile application called Quizizz and asked

my student to accomplish the task. The students reported me that only some of them completed the task inside the class, whereas the others completed them outside of the classroom (participant 5)

Tech issues major challenge in using mobile apps

The challenges teachers experienced in using mobile apps turned out all to be related to technology issues. The most commonly mentioned ones were the internet connection issues and some students not having mobile phones.

All teachers who participated in the study experienced internet connection or access issues. Even mobile data passes wouldn't solve these difficulties. Interruptions caused by the slow or intermittent internet often disrupted class or even forced teachers to switch away from mobile apps.

Yet all teachers would still continue using mobile apps despite the internet issues. Most often, they would simply ask students use the mobile app for homework where students and their mobile app use wouldn't be constrained by the school lesson duration. That is, even the slow internet and interruptions would allow students use the mobile app in the quiet of their homes while benefiting from the advantages offered by mobile apps.

Another tech challenge was simply that some students didn't have or bring their phones to class. In such cases, the lesson could not go as planned. Often teachers would ask students to share phones or give their own phones to the student/s who didn't have the phone. The vignettes below illustrate these points:

Since all these mobile applications work only via the Internet, respectively, the most difficult part is the problems with Internet access or connection. Also, as we know, it's no secret that we can't always provide our students with a good quality Internet connection. This can affect the teaching and learning processes (Participant 10).

There were cases when I allowed my learners to work in teams and do online research on a particular topic. Unfortunately, some students distracted others by using mobile for peripheral purposes and checked their social media, like Instagram, tiktok (Participant 6).

Discussion and conclusion

This study qualitatively examined EFL teachers' perceptions of mobile applications and their advantages and investigated their challenges in using mobile applications in teaching English.

The thematic analysis showed that teachers recognize the student engagement potential of mobile apps. That is, if mobile apps are not used as much as the policy-makers expect, it is

definitely not because teachers do not understand the value of mobile apps. Their perceptions of availability along with engagement potential indicate that tecahers are also very practical in utilizing apps in teaching, that is, they are far from using mobile apps just for the sake of using them. Rather, they are considerably savvy about what they expect from mobile apps. Further, the fact that teachers select apps they know something about or know how to use indicates that teacher training is key in promoting the use of mobile apps in teaching English.

The exploration of challenges teachers faced suggests that tech issues pose the biggest challenges. This is quite surprising as it's not teachers' lack of training or tech expertise but really the tech issues beyond their control that make the use of mobile apps difficult. This also suggests that teacher training programs are likely doing a good job in preparing teachers to use the apps. It is the tech infrastructure that fails to support their efforts in utilizing the apps.

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Proceedings of IYSC, (2022), vol. 11

Journal homepage: http://journals.sdu.edu.kz/index.php/iysw

MANAGING STUDENT ENGAGEMENT IN THE ELT CLASSROOMS

T. Belgibay[1], Kh. Delovarova[2]

[1,2]*Suleyman Demirel University, Kaskelen, Kazakhstan*

Abstract

This research work focuses on new methods and approaches for involving ELT students in the learning process using new technologies. The Google Classroom platform, as well as the use of interactive whiteboards, have earned their honourable attention and have firmly entered into modern ways of training teachers, significantly helping to progress performance and contribute to greater motivation of students. This was also established during a survey in which 15 secondary school teachers from Almaty took part, where it was revealed that teachers find the use of these technologies convenient and productive.

Keywords: student engagement, online learning, ELT teachers, interactive whiteboards, Google Classroom.

Introduction

Classroom management is said to be one of the major concerns for most of the teachers who want their students to be engaged in the educational process. Evertson & Weinstein (2006) indicate that this has caused a lot of debates and has issues due to the fact that both students and beginning teachers face challenges managing classroom engagement. Taking into account that one complex component, like foreign language, may be added, this engagement becomes harder to realise. Cazden (1986) also indicates that establishing communication in the context of ELT classrooms is perceived as a complicated phenomenon.

Besides, having set that classroom management, especially in terms of ELT, implying a complex process, teachers' preparation that involves classroom management field study, is often neglected (Johnson, 2005). At the same time, in the absence of proper training and additional training, teachers are often criticised for using excessive conversation time, and many have been told to significantly reduce it. Thus, this led to the fact that the emphasis was not on the quality, but on the number of teacher's speeches, and this is contrary to the opposite desired effect that the ELT program seeks to achieve (Walsh, 2002).

Also, at the moment, the role of the use of high-tech equipment and systems in the learning and teaching process is increasing, which allows classes to be conducted using an unconventional method using presentation slides, a visualizer, audio and video materials. An important application of technology is to study a large number of subjects, which also include language subjects (Mishra & Koehler, 2006). Mishra and Koehler (2006) also argue that the use of digital technologies in the

context of ELT has proven its effectiveness, having become widespread. Shyamlee & Phil (2012) notes that EFL education has become more diverse and productive thanks to the introduction of new technologies. The very recent situation caused by the coronavirus also opened up new opportunities in distance learning, which was conducted through online platforms in real time. These technological processes have proven to be effective in teaching the material and retaining attention among students (Sukmawati & Nensia, 2019). The actual fact is that it is extremely difficult to keep the attention of each of the students, especially when studying complex material in a foreign language, when the curriculum is monotonous and is not subject to innovations and any changes. In this paper, we want to focus the attention on conducting a study that will seek to answer the following questions:

1) What methods can be used to diversify the learning process in the ELT classroom in order to focus the attention of students?

2) How effective were these methods in the context of secondary schools in Almaty city?

Experimental part

This research will be done using mixed method research, both quantitative and qualitative methods that will cover the theoretical basis to answer the first research question and conducting a survey consisting of 15 ELT teachers of secondary schools in Almaty city.

Quite recently, the use of interactive whiteboards in the process of teaching in ELT classes has become widespread. Smart boards have a number of advantages that contribute to rapid and productive language learning in the classroom. According to Elaziz (2008), thanks to the introduction of smart boards, the teaching atmosphere is more conducive to learning, making it creative and interesting. The experience of using the interactive whiteboard varies depending on the countries (see Table 1):

The UK	The USA	Australia
Both physical and visual effects are useful for students (Beeland, 2002).	Satisfy multisensory needs in the learning process; Promotes genuine interaction and discussion in the classroom; Lessons are completer and	Improving motivation; Greater potential for interactive interaction; Improving the ELT lesson plan (Jelyani, Janfaza & Soori, 2014).

	more filled; Awakening of creative abilities; Increased motivation (Gerard & Widener, 1999).	

Table 1. Using smart boards in language classrooms (the UK, the USA, Australia).

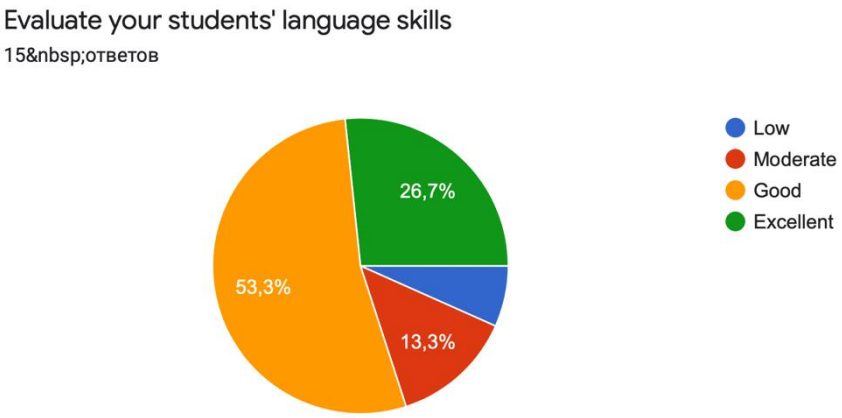
The interactive whiteboard promotes progressiveness in teaching a foreign language through: support for interaction between students and conversations; presents cultural and linguistic elements; develops oral skills. An interactive whiteboard is not just a material that can be obtained from a computer screen. The user has the ability to move from the blackboard, and the teacher saves time during the learning process, which helps to keep the student's attention and continue the interaction continuously. When using an interactive conversation, the process of focusing on a specific topic at the same time is simplified, which can be difficult to implement in the traditional format of lessons (Alsaleem, 2021).

Not only smart boards can be used to enhance students' engagement, but such platforms as Google Classroom and Moodle are widespread among ELT teachers. The research of Sukmawati & Nensia shows that students who studied using this platform were more involved and satisfied with their learning process. Moreover, each of the students can have access to this platform via a mobile phone, computer or laptop. This platform allows you to upload tasks for students with full familiarisation and instructions for it, setting a certain time for which the student needs to meet the deadline. According to the results of the study, these time limits supported students' interest, since these tasks can be attached with accompanying audio and video materials, and also help to keep the student motivated and not start the learning process. In addition, this platform allows you to maintain communication between a student and a teacher on a specific topic directly without someone else's interference. A big advantage is that students have access to the uploaded materials, which allows them to return to them at any time and repeat the material. Most students note that this helps them save time and quickly return to the material they have studied in order to remember it and improve their progress (Sukmawati & Nensia, 2019).

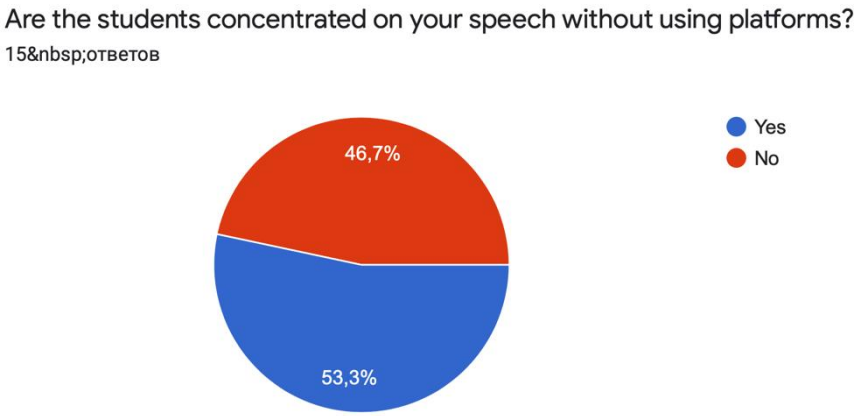
Thanks to these methods, the learning process at ELT is not only diverse, but also effective, as it helps to focus students' attention on certain information with the help of visual and audio and video materials that help students to be more involved in the process than listening to a lecture

without accompanying information.

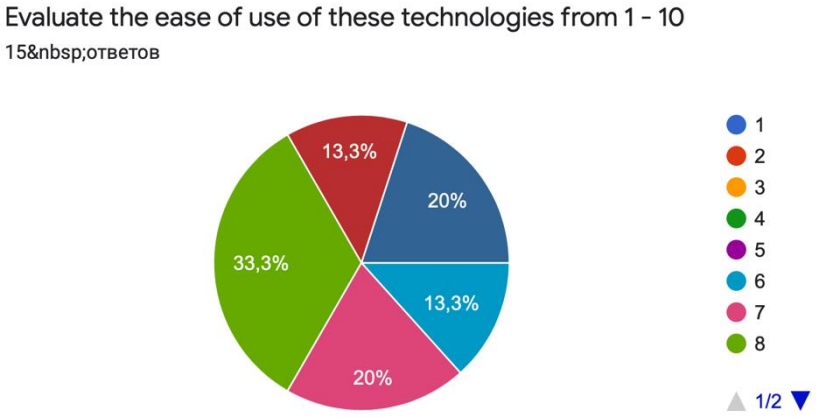
15 ELT teachers from secondary schools in the city of Almaty participated in this survey. The main purpose of this survey is to establish how effectively students in the classroom were involved in using Google Classroom and an interactive whiteboard.



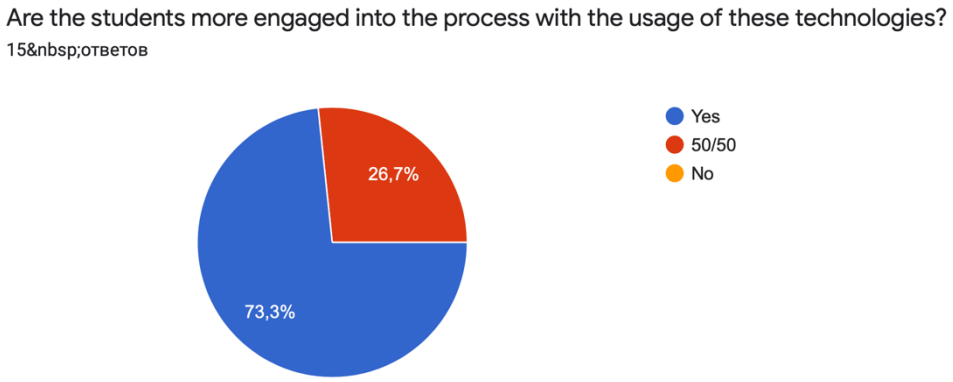
Picture 1. Language skills of EFL students.



Picture 2. Concentration on a traditional format of classes.



Picture 3. Engagement of students into the process with the usage of technologies.



Picture 4. Evaluation of technologies' usability.

The results state that 6 teachers teach classes of more than 30 people, 5 teachers from 20 to 25, and 4 teachers from 15 to 20 children in the class. The majority of students have good language skills – 53.3%, 26.7% - excellent, 13.3% - moderate and only 6.7% - low. Most of the teachers, which are 9 people, use Google Classroom and an interactive whiteboard in the process of teaching 3-4 times a week. 8 teachers also answered that students without the use of technology are concentrated on the teacher's speech, and 7 teachers answered that students are not concentrated. Basically, it was influenced by the number of people in the class, which makes it difficult for the teacher to hold the attention of each of them. This is also confirmed by the fact that 11 teachers noted that students are more involved in the learning process when using these technologies, and only 4 people answered vaguely – 50/50. Based on the assessments that were offered to teachers in order to essentially assess the usability of these technologies, the ranking

starts from 6 (13.3% of the answers) and ends with 10 (13.3%), showing that overall teachers' perceptions of using technologies in the classrooms is positive.

Conclusion

Based on the results of the study, it becomes obvious that one of the most common and effective methods of involving ELT students in the learning process is the use of an interactive whiteboard and platforms like Google Classroom, analogues of which are being created in many schools and universities. This helps to keep students motivated and result-oriented, significantly reducing the teacher's workload, since there is an access to more materials than without the use of these technologies. In addition, the use of additional visual and audio and video material implies that the training proceeds more efficiently.

The conducted research states that the majority of teachers noted these technologies as convenient to use and most of them use them more often than 1-2 times a week. Also, during the survey, it became known that with a larger number of students, it is much easier to conduct lessons in such an updated format, helping the teacher to hold the attention of students and conduct lessons productively, fulfilling the curriculum.

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