Efficiency of Individual and Differentiated Approach in Teaching English in Kazakhstani Higher Schools

Madina Zhanbirbayevna Tussupbekova

Candidate of Pedagogical Sciences, L. N. Gumilyov Eurasian National University, Mirzoyana Str. 2, Astana, 010008, Republic of Kazakhstan

Natalya Anatolievna Ustelimova

Candidate of Pedagogical Sciences, L. N. Gumilyov Eurasian National University, Mirzoyana Str. 2, Astana, 010008, Republic of Kazakhstan

Perizat Zhanatovna Balkhimbekova

PhD Student, Kazakh National Pedagogical University named after Abai, Dostyk Str. 13, Almaty, 050010, Republic of Kazakhstan

Kuralai Kadirovna Kulanova

Master of Sciences, L. N. Gumilyov Eurasian National University, Mirzoyana Str. 2, Astana, 010008, Republic of Kazakhstan

Kaziza Murzashevna Akhmetkarimova

A Senior Teacher, L. N. Gumilyov Eurasian National University, Mirzoyana Str. 2, Astana, 010008, Republic of Kazakhstan

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Abstract

This article deals with the efficiency of the implementation of an individual and differentiated approach in teaching English to high school students. The author undertakes theoretical and practical analysis of the studies of the problem. Based on the works of domestic and foreign scientists, the article defines the relationship of the English language to special subjects. The results of the study confirm the efficiency of the implementation of an individual and differentiated approach and help to improve the English proficiency of high school students.

Keywords: *individual and differentiated approach, efficiency, implementation, English language.*

1. Introduction

Currently a broad range of science-based educational research aimed at the implementation of the President's education program and contributing to the establishment and development of secondary and higher education is carried out in Kazakhstan.

The basic direction of the development of higher education in the Republic of Kazakhstan is the solution of the problem of teaching English. Individual and differentiated approach in teaching English serves as an important organizing principle and is expedient in all areas where the regulation of human activities is carried out. Without an individual approach, one cannot understand the essence and the laws of regulation of human activities and, therefore, organize effective management of individuals' activity in various spheres of public life, including education.

The need to improve the methods of teaching the English language, to renew the content of education, find out new forms and techniques making it possible to implement modern concepts of education and development, is evident in light of the rising status of the English language and the change of educational priorities.

Teaching English in high school for students of non-language majors must contribute to education for a profession

and to developing ability to use knowledge and skills in the workplace and in continuing vocational education. In each direction (specialty) English language should be taught with regard to the education profile, i.e., in a differentiated way. Any education has its goals and objectives, the achievement of which is carried out by using certain technologies and methodologies.

2. Literature Review

A study of the implementation of an individual and differentiated approach in teaching English to students of non-language majors implies the consideration of this approach in terms of didactics and methodology of teaching a foreign language.

Against this background, we addressed the existing research by Kazakh and foreign scientists and teachers.

The beginning of the development of pedagogical views on the problem of implementation of an individual and differentiated approach in teaching within the framework of general pedagogical theories is associated with the works by J.A. Comenius [Comenius, 1955]. The first proposals on the need to apply in the pedagogical practice an individual approach in conditions of group training were put forward by him in "The Great Didactic". J.A. Comenius was the first to theoretically justify the combination of group training with individual training. In his view, an individual approach should not come down to adapting educational tools and methods to the level of competence, but it should contribute to promoting a student to a new level of development.

The theoretical heritage of K.D. Ushinsky, related to the implementation of an individual approach, is till now used by modern teachers as a guideline in their work [Ushinsky, 2002].

Later the problem of implementation of an individual and differentiated approach in teaching appears in the writings by I. Pirogov [1985]. He believed that the effectiveness of the educational process depends on the personality and the degree of development of a student. In his work he cites one of the basic principles of pedagogics: "...to conform in each case to a pupil's disposition, temperament and abilities."

The most prominent research of the problem of individual training in the context of combating academic failure was carried out by Y.K. Babansky [1977]. When applying an individual approach to underachievers he took into account the factors that cause academic failure (knowledge gaps, defects of thinking, lack of studying skills, negative attitude to learning, reduced working capacity, etc.). Russian teachers A.A. Kirsanov [1985], M.U. Lomonosov [1991] also emphasized the need to focus on the individual abilities of students in the education process.

In the context of the reasonable consideration of students' interests during individualized training it is interesting to mention the point of view of S.L. Rubinstein, who wrote: "The deliberate use of interests in the pedagogical process in no way means that education should be adapted to the existing interests of students" [Rubinstein, 1989].

A great contribution to the solution of the problem of implementation of an individual and differentiated approach in teaching was made by M.A. Danilov and B.I. Esipov, who determined that this approach "implies individual acquisition of knowledge, skills and abilities by students" [Danilov, & Esipov, 1957].

New aspects of the problem of implementation of an individual and differentiated approach in teaching were considered in the research by N.O. Verbitskaya, V.Yu. Bodryakov [1998]. The authors address the implementation of the principle of individualized management. They note that the concept of "education" makes sense only if we are referring to a particular person with individual values, psychological and psychophysiological characteristics, interests, inclinations. In the management of education, account should be taken of the unbiased individual information concerning a person's advance along the educational path and reaching certain stages in accordance with individual needs.

The practical application of the individual and differentiated approach in teaching began since the second half of the 19th century as a result of intensive searching of ways of individualization and differentiation of the teaching process.

One of the ways of organizing educational work on the basis of the individual and differentiated approach in teaching is the experience of Helen Parkhurst [Svadkovsky, 1940]. She attempted to apply a differentiated approach in teaching by developing a system of individualized education. Helen Parkhurst worked in Dalton, Massachusetts, so the system of individualized education became known as the Dalton plan. The key feature of the Dalton plan was that Helen Parkhurst tried to individualize the teaching process and to adapt the pace of training to every student's abilities. In the centerpiece of Helen Parkhurst's experimental system was the students' own activity. Each student received individual tasks in various subjects to be done during a month and concluded a contract with a teacher [Slastyonin, Isaev, Mishchenko, et al., 1997].

Having examined the research and views of scientists, we came to the conclusion that it is individual and differentiated approach that ensures elaborate organization of the educational process with regard to human resources and close cooperation between a teacher and a student to solve the tasks at hand.

3. Methods and Results

The experiment was carried out on the basis of Gumilyov Eurasian National University (Chair of foreign languages).

When choosing a venue for experimental work, we were guided by the interest of the administration and the teachers of English in solving the addressed problem.

To test the efficiency of the individual and differentiated approach in teaching, we have determined a certain number of students required for the participation in the experiment.

In order to determine a sample number of students participating in the experiment that would correctly reflect the general population of students, we used the method of calculation of the sample size according to the following formula [Venetsky, & Kildishev, 1963]:

$$n = \frac{t2 * w * (1 - w) * N}{N * \Delta 2 + t2 * w(1 - w)},$$

where n is the sample size; W is the sampling fraction of the studied phenomenon; N is the size of the general population; Δ is the maximum sampling error, indicating the accuracy of the sample with a certain probability, which is determined by the value of the significance factor.

At t = 2, the probability of deviation of the sampling fraction of the studied characteristic from the general population is approximately 5%. To determine the numerical value of n in the absence of information about the sampling fraction the value of the maximum expression of W * (1-W) is usually taken, which is 0.25 (if W = 0.5 and 1-W = 0.5).

In our study N = 3010, it is the averaged value of the number of first-year and second-year students of non-language faculties according to the data provided by the Department of curriculum planning of Gumilyov Eurasian National University. After plugging all the values into the formula, we get:

$$n = \frac{4 * 0.25 * 3010}{3010 * 0.005 + 4 * 0.25} = 188.$$

In our experiment took part 188 students. In the course of the experimental work, the students were divided into subgroups; each subgroup consisted of 15-16 students. The participants of the experimental and control groups were the students of the faculty of economics. The results of work of the control group were evaluated using conventional parameters of knowledge evaluation; the results of work of the experimental groups were evaluated with regard to all the aspects of speech activity (speaking, reading, and writing). According to the schedule the students of the experimental group and the control group attended classes 3 times a week.

With individual and differentiated approach in teaching English the subject of tasks aimed at the development of speaking skills is varied by the teacher depending on the students' individual abilities and with regard to the studied grammatical and phonetic material.

The preparation of the experiment was based on the theoretical provisions of the earlier studies, the results of studying pedagogical experience of the implementation of an individual and differentiated approach in teaching English, as well as on conclusions and recommendations on the methodology of experimental work in higher education.

Having interviewed a number of teachers of English with various teaching experience, we attempted to clarify the teachers' attitude to the studied problem and to identify the difficulties in implementation of an individual and differentiated approach in teaching. 30 teachers of the chair of foreign languages took part in the survey. The results of the survey are presented in Table 1.

Table 1 – The results of the analysis of the questionnaire survey of teachers

Questionnaire for teachers	Number of teachers (%) who answered the questions
1. Which methods do you use to implement an individual and differentiated approach in teaching English?	
1.1. Selection of methods used for explaining and consolidating the new material	55
1.2. Organization of work in sub-groups	45
2. What is your attitude towards using an individual and differentiated approach in teaching English?	
2.1. Positive;	80
2.2. Negative;	20
3. Do you experience any difficulties in implementation of an individual and differentiated approach in teaching?	
3.1. Yes	65
3.2. No	35
4. Do you think that it is possible to effectively implement an individual and differentiated approach in teaching English by special training of teachers in methods and techniques of individual and differentiated approach in teaching?	
4.1. Yes	75
4.2. No	25

The results of the survey show that 55% of teachers use the individual and differentiated approach for selection of the methods of explaining and consolidating the new material, 45% use it for the organization of work in subgroups, 80% of teachers have a positive attitude towards the individual and differentiated approach in teaching English, and 20 percent have a negative attitude towards it. 65% of teachers have difficulties in implementing an individual and differentiated approach in teaching, while 75% of them consider the implementation of an individual and differentiated approach in teaching to be efficient under condition of the special training of teachers in the necessary methods and techniques. Most of the difficulties are, in our view, related to the lack of time, lack of methodological and teaching aids, work programs, learning packages for the credit system of education, etc. The aforementioned difficulties in teaching English often lead to decreasing quality of education.

Thus, the analysis suggests that the interest in the individual and differentiated approach in teaching English is considerable, and that this approach is to some extent applied by teachers of English, despite the difficulties.

In addition, we have conducted a questionnaire survey of the students of the faculty of economics to determine their attitude towards learning English. The results of the survey are presented in Table 2.

Table 2 – The results of the analysis of the questionnaire survey of students

Questionnaire for students	Number of students (%) who answered the questions
1. How would you evaluate your English proficiency?	
1.1. High	20
1.2. Medium	56
1.3. Low	24
2. For how many years did you study English in school?	
2.1. From 4 to 11 grades	35
2.2. From 6 to 11 grades	55
2.3. From 1 to 11 grades	10
3. What forms and types of work do you prefer to be used at English language classes?	
3.1. Independent work guided by the teacher	8
3.2. Work in pairs	12
3.3. Work in small groups	30
3.4. Group work	15
3.5. Individual work	10
3.6. Using various playing methods of teaching	25
4. Do you study English on your own in your spare time?	
4.1. Yes	60
4.2. No	
4.3. I would like to, but I have no time	10
What do you consider to be necessary in teaching English?	
5.1. Increasing the number of hours of study	60
5.2. Organization of meetings with foreigners	10
5.3. Increasing the number of educational and entertainment activities in English	30
What aspect, in your opinion, should be given the highest priority at the lessons of English language?	
6.1. Spoken language	40
6.2. Reading texts	20
6.3. Study of grammar	25
6.4. Listening	15
What kind of control do you prefer?	
7.1. Oral report at the blackboard	35
7.2. Written test	16
7.3.Mini test in the studied material	25
7.4.Multiple-choice tests	24

The survey results show that the level of English proficiency among first-year students is assessed as "high" – 20%, “medium” – 56%, “low” – 24%. This percentage shows that students are able to work with texts in English related to their specialty from the first year of studies. It was important for us to find out for how many years students have learned

English in school: only 10% of students studied English from 1 to 11 grades, 35% – from 4 to 11 grades, 55% – from 6 to 11 grades. These data suggest the need in individualization and differentiation of lessons. Most students prefer working in small groups (30%), which helps to reveal the student's abilities, using various playing methods of teaching (25%) and group work (15 %), contributing to the group cohesion, which is important in learning English. Choosing work in pairs (12 %), individual work (10%) and independent work guided by the teacher (8%) indicates that students have not yet fully understood the essence of the credit system of education at the University. The students ' desire to learn English and striving to master it are evident from the next section. 60% of students study English on their own, outside the classroom. Many of them prepare independently for various English proficiency tests like TOEFL (Test Of English as a Foreign Language), IELTS (International English Language Testing System), GMAT (Graduate Management Admission Test), in order to travel to Europe on summer vacation, etc. Almost 60% of the students are interested in increasing the number of hours of study of English. This can be explained by the fact that within the framework of the credit system of education one academic group has only 90 hours of practical training per one academic year. That means 30 hours in one semester, i.e. three 50-minute lessons in a week.

According to the students (30%), educational and entertainment activities in English and organizing meetings with foreigners (10%) are necessary for studying English, as they help to overcome the language barrier. Speaking English (40%), as shown in the table, plays a special role during the lesson and is more important than study of grammar (25%), reading of the texts (20%) and listening (15 %). During the English language lessons, students prefer an oral report (35%), a mini test in the studied material (25%) and least of all a written test (16 %).

Thus, the analysis of the obtained data shows that the students aspire to master English and improve their knowledge for using it in their professional activity and for studying subjects "Microeconomics" and "Economic policy", which are taught in English at the University, as well as for further education at universities abroad.

Implementation of an individual and differentiated approach in teaching English involves not only the development of knowledge, skills and abilities, but is also aimed at improving the quality of knowledge and the students' performance.

In order to obtain reliable and well-grounded information on the efficiency of the implementation of an individual and differentiated approach in teaching English, we have carried out tests, individual tasks, surveys, writing essays in the experimental and control groups.

We conducted the test in the experimental and control groups, which consisted of 30 questions relating to the studied lexico-grammatical material, in order to determine the students' level of proficiency. The results of the test in the control and experimental groups are shown in the Table 3.

Table 3 – The results of the test in the control and experimental groups

Control group				Experimental group			
A student's sequence number	Number of correct answers, Xi	Deviation from the arithmetical mean, IXi – MI	Squared deviation from the arithmetical mean, IXi – MI²	A student's sequence number	Number of correct answers, Xi	Deviation from the arithmetical mean, IXi – MI	Squared deviation from the arithmetical mean, IXi – MI²
1	2	3	4	5	6	7	8
1	20	0.21	0.05	1	21	2.68	7.19
2	18	1.79	3.19	2	26	2.32	5.38
3	18	1.79	3.19	3	24	0.32	0.10
4	19	0.79	0.62	4	25	1.32	1.74
5	21	1.21	1.47	5	21	2.68	7.19
6	22	2.21	4.90	6	20	3.68	13.55
7	18	1.79	3.19	7	23	0.68	0.46
8	21	1.21	1.47	8	27	3.32	1.02
9	21	1.21	1.47	9	21	2.68	7.19
10	18	1.79	3.19	10	24	0.32	0.10
11	21	1.21	1.47	11	22	1.68	2.83
12	21	1.21	1.47	12	24	0.32	0.10
13	18	1.79	3.19	13	27	3.32	11.02
14	20	0.21	0.05	14	23	0.68	0.46
15	20	0.21	0.05	15	25	1.32	1.74
16	21	1.21	1.47	16	23	0.68	0.46
17	18	1.79	3.19	17	22	1.68	2.83
18	19	0.79	0.62	18	28	4.32	8.66
19	20	0.21	0.05	19	21	2.68	7.19
20	19	0.79	0.62	20	28	4.32	8.66
21	20	0.21	0.05	21	20	3.68	13.55
22	22	2.21	4.90	22	22	1.68	2.83
23	18	1.79	3.19	23	21	2.68	7.19
24	21	1.21	1.47	24	21	2.68	7.19
25	18	1.79	3.19	25	25	1.32	1.74

26	20	0.21	0.05	26	23	0.68	0.46
27	19	0.79	0.62	27	26	2.32	5.38
28	19	0.79	0.62	28	21	2.68	7.19
29	22	2.21	4.90	29	23	0.68	0.46
30	18	1.79	3.19	30	26	2.32	5.38
31	21	1.21	1.47	31	20	3.68	13.55
32	18	1.79	3.19	32	22	1.68	2.83
33	20	0.21	0.05	33	21	2.68	7.19
34	19	0.79	0.62	34	21	2.68	7.19
35	18	1.79	3.19	35	25	1.32	1.74
36	18	1.79	3.19	36	23	0.68	0.46
37	19	0.79	0.62	37	26	2.32	5.38
38	21	1.21	1.47	38	21	2.68	7.19
39	18	1.79	3.19	39	23	0.68	0.46
40	22	2.21	4.90	40	26	2.32	5.38
41	20	0.21	0.05	41	20	3.68	13.55
42	22	2.21	4.90	42	21	2.68	7.19
43	20	0.21	0.05	43	23	0.68	0.46
44	18	1.79	3.19	44	28	4.32	18.66
45	20	0.21	0.05	45	22	1.68	2.83
46	19	0.79	0.62	46	28	4.32	8.66
47	21	1.21	1.47	47	26	2.32	5.38
48	21	1.21	1.47	48	24	0.32	0.10
49	19	0.79	0.62	49	21	2.68	7.19
50	19	0.79	0.62	50	25	1.32	1.74
51	19	0.79	0.62	51	23	0.68	0.46
52	18	1.79	3.19	52	21	2.68	7.19
53	18	1.79	3.19	53	24	0.32	0.10
54	20	0.21	0.05	54	22	1.68	2.83
55	22	2.21	4.90	55	28	4.32	18.66
56	19	0.79	0.62	56	24	0.32	0.10
57	21	1.21	1.47	57	25	1.32	1.74
58	18	1.79	3.19	58	24	0.32	0.10
59	20	0.21	0.05	59	23	0.68	0.46
60	22	2.21	4.90	60	26	2.32	5.38
61	20	0.21	0.05	61	25	1.32	1.74
62	19	0.79	0.62	62	23	0.68	0.46
63	22	2.21	4.90	63	28	4.32	18.66
64	18	1.79	3.19	64	26	2.32	5.38
65	19	0.79	0.62	65	23	0.68	0.46
66	20	0.21	0.05	66	21	2.68	7.19
67	18	1.79	3.19	67	22	1.68	2.83
68	22	2.21	4.90	68	25	1.32	1.74
69	21	1.21	1.47	69	25	1.32	1.74
70	22	2.21	4.90	70	24	0.32	0.10
71	22	2.21	4.90	71	27	3.32	11.02
72	18	1.79	3.19	72	21	2.68	7.19
73	21	1.21	1.47	73	27	3.32	11.02
74	20	0.21	0.05	74	23	0.68	0.46
75	19	0.79	0.62	75	21	2.68	7.19
76	22	2.21	4.90	76	25	1.32	1.74
77	19	0.79	0.62	77	24	0.32	0.10
78	18	1.79	3.19	78	28	4.32	18.66
79	22	2.21	4.90	79	21	2.68	7.19
80	21	1.21	1.47	80	24	0.32	0.10
81	18	1.79	3.19	81	26	2.32	5.38
82	19	0.79	0.62	82	21	2.68	7.19
83	20	0.21	0.05	83	25	1.32	1.74
84	18	1.79	3.19	84	22	1.68	2.83
85	22	2.21	4.90	85	24	0.32	0.10
86	21	1.21	1.47	86	23	0.68	0.46
87	19	0.79	0.62	87	28	4.32	18.66
88	19	0.79	0.62	88	22	1.68	2.83
89	21	1.21	1.47	89	24	0.32	0.10
90	20	0.21	0.05	90	23	0.68	0.46
91	19	0.79	0.62	91	21	2.68	7.19
92	21	1.21	1.47	92	26	2.32	5.38
93	22	2.21	4.90	93	21	2.68	7.19
94	18	1.79	3.19	94	28	4.32	18.66
Total	Sum of correct answers		Sum of squared deviations from the arithmetical mean, SS	Total	Sum of correct answers		Sum of squared deviations from the arithmetical mean, SS
94	1860		189.74	94	2226		516.43
Arithmetical mean M			19.79	Arithmetical mean M			23.68
Variance σ^2			2.04	Variance σ^2			5.55
Standard deviation S			1.43	Standard deviation S			2.36

The analysis of test results was calculated on the basis of the calculation of arithmetical means [Grabar, & Krasnyavskaya, 1977], indicators of variation [Novikov, 2004] (the variance and standard deviation) and the Fisher criterion. The arithmetical means (M) were calculated according to the formula:

$$M = \frac{\sum_{i=1}^{N} Xi}{N},$$

where X_i is the total test result of the i^{th} student, N is the number of students (table 19).

Having determined the arithmetical means, we determined a variation of the calculated data, which points to a quantitative difference of values. In order to determine the value of the variation, it is necessary to sum up not the deviations themselves, but the squared deviations. The greater are the deviations of the values from the arithmetical mean, the greater will be the sum of squared deviations. In order for the measure of spread of numbers not to depend on their number in the set, as such measure is taken take the arithmetic mean of the squared deviations. This value is called variance [Tyurin, Makarov, & Yashchenko, 2004].

The variance (σ^2) is calculated according to the formula:

$$\sigma^2 = \frac{SS}{N-1},$$

where SS is the sum of squared deviations from the arithmetical mean, which is calculated according to the formula:

$$SS = \sum (X_i - M)^2.$$

For the purposes of calculating let us denote the sum of the squares of the control group by SS_1, the sum of the squares of the experimental group by SS_2.

For the interpretation of the variation indicator, we have determined another measure of variation, which is called standard deviation.

The standard deviation (s) is calculated according to the formula:

$$s = \sqrt{\frac{SS}{N-1}}.$$

From the obtained results we find the value of the Fisher criterion.

$$F = \frac{s_1^2}{s_2^2} = \frac{5.55}{2.04} = 2.72.$$

The obtained ratio of variances is 2.72, which is more than the table-value of the Fisher criterion F (0.05, 91, 90) = 1.4, therefore, the variances differ significantly. The analysis of the obtained results suggests that the control and experimental groups differ in their qualitative level.

Next, we conducted a qualitative analysis of the results of the experiment (table 4).

Table 4 – The proficiency level of the students of the faculty of economics

Control group			Experimental group		
Number of correct answers	Number of students with the given number of correct answers	Proficiency level of students	Number of correct answers	Number of students with the given number of correct answers	Proficiency level of students
18	24	C	18		
19	20	C	19		
20	17	B	20	4	B
21	18	B	21	20	B
22	15	B	22	9	B
23			23	15	B
24			24	12	B
25			25	11	A
26			26	10	A
27			27	4	A
28			28	9	A
Total	**94**			**94**	

For a more complete and explicit analysis of the results, we have identified the proficiency level of students as low (C), medium (V), high (A) in following ratio: level A (the number of correct answers is more than 25), B – (the number of correct answers is more than 20), C – (the number of correct answers is more than 15) (table 5).

Table 5 – The results of the knowledge evaluation in the control and experimental groups

Proficiency level	Control group (CG)	Experimental group (EG)
A	-	34
B	50	60
C	44	-
Total:	94	94

As it is evident from the table, the proficiency level of students of EG is much higher than in CG. The result of the comparative analysis of the proficiency level in the control and experimental groups has shown that the proficiency level of students of the control and experimental groups differs significantly (Figure 1).

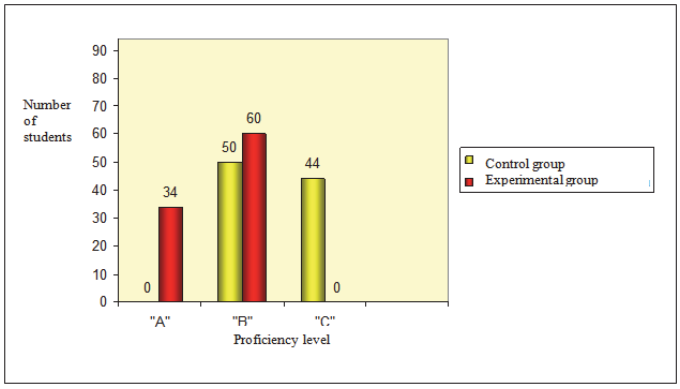

Figure 1: Bar chart of the proficiency level of the students of the control and experimental groups

4. Discussion

On the basis of the tests taken by the students of the experimental group we have determined the relationship of teaching English to the subjects of "Microeconomics" and "Political economics", which are studied by students of the faculty of economics in English. The relationship was determined by means of the correlation analysis [Glass, & Stanley, 1976].

Using the correlation analysis, we have established the cross-curriculum relationship between the English language and the special subjects taught to the students of the faculty of economics.

The task of the correlation analysis is to establish two directions: a positive (direct relationship) and negative (inverse relationship). The values of the correlation coefficient vary over the range from -1 to +1, which are later interpreted (Table 6).

Table 6 – Correlation calculation

Value	Interpretation
up to 0.2	very weak correlation
up to 0.5	very weak correlation
up to 0.7	moderate correlation
up to 0.9	high correlation
more than 0.9	very high correlation

Thus, the task of the correlation analysis is to establish a positive or negative direction and to check the level of significance of the obtained correlation coefficients. By means of choosing the method of calculation of the coefficient we have determined the variables X and Y, where X is a variable of a special subject, Y is a variable of English (Table 7, 8).

Table 7 – The students' marks in the subjects "Microeconomics" and "English language"

No.	Name of student	Mark in microeconomics, percentage, x	Mark in English, percentage, y	x2	y2	xy
1	Abdrasilov A.	95	97	9025	9409	9215
2	Tuyakbayeva A.	96	98	9216	9604	9408
3	Ryabukha R.	95	97	9025	9409	9215
4	Tuhvatulina D.	95	100	9025	10000	9500
5	Darmesheva A.	93	98	8649	9604	9114
6	Maratova S.	96	97	9216	9409	9312
7	Ayazbayev N.	95	95	9025	9025	9025
8	Egamberdiyeva D.	88	96	7744	9216	8448
9	Zhunisova A.	96	95	9216	9025	9120
10	Mutalif S.	94	97	8836	9409	9118
11	Nurlybayev Zh.	68	83	4624	6889	5644
12	Amangeldiyeva A.	85	90	7225	8100	7650
13	Dzhumagaliyev E.	85	90	7225	8100	7650
14	Zhalmaganbetov	88	91	7744	8281	8008
15	Irzhanova B.	78	87	6084	7569	6786
16	Kadyrbaev D.	85	83	7225	6889	7055
17	Makhmetova A.	92	92	8464	8464	8464
18	Mukanov A.	75	86	5625	7396	6450
19	Rayev I.	86	91	7396	8281	7826
20	Sultangazin A.	88	91	7744	8281	8008
21	Akhmarova A.	95	90	9025	8100	8550
22	Ashamanova A.	86	90	7396	8100	7740
23	Eskendirova R.	87	91	7569	8281	7917
24	Karibzhanova M.	95	98	9025	9604	9310
25	Seytzhanov A.	95	96	9025	9216	9120
26	Kozhageldiyev A.	95	100	9025	10000	9500
27	Khayerbayeva A.	93	97	8649	9409	9021
n = 27		**Σ x = 2 419**	**Σ y = 2 516**	**Σx^2 = 218 047**	**Σy^2 = 235 070**	**Σxy = 226 174**

Table 8 – The students' marks in the subjects "Economic policy" and "English language"

No.	Name of student	Mark in the special subject, % content, x	Mark in English, % content, y	x2	y2	xy
1	Aynabekov K.	86	98	7396	9604	8428
2	Erbaykyzy A.	94	96	8836	9216	9024
3	Kozhabayeva F.	95	100	9025	10000	9500
4	Kozhdan A.	90	92	8100	8464	8280
5	Nauryzbayev D.	95	98	9025	9604	9310
6	Tileuberdy Ye.	90	92	8100	8464	8280
7	Aydaulov D.	96	100	9216	10000	9600
8	Almakhanova A.	95	96	9025	9216	9120
9	Bekov A.	95	98	9025	9604	9310
10	Zhumataeva A.	96	97	9216	9409	9312
11	Nurgeldina Zh.	96	97	9216	9409	9312
12	Esembekov S.	93	93	8649	8649	8649
13	Musabekov Ye.	95	92	9025	8464	8740
14	Sabirkulova D.	79	91	6241	8281	7189
15	Suindykova D.	96	97	9216	9409	9312
16	Tusupzhanova M.	96	98	9216	9604	9408
17	Dosaliev S.	90	97	8100	9409	8730
18	Abilova A.	93	96	8649	9216	8928
19	Asilin A.	78	91	6084	8281	7098
20	Eslyamgaliyev B.	76	75	5776	5625	5700
21	Isimova D.	92	93	8464	8649	8556

22	Ismail D.	97	96	9409	9216	9312
23	Kadyrkhan D.	94	95	8836	9025	8930
24	Kadyrkhanova A.	92	98	8464	9604	9016
25	Kaliyev R.	93	90	8649	8100	8370
26	Kozhakhmetova A.	92	96	8464	9216	8832
27	Kurmanov A.	92	97	8464	9409	8924
28	Makenova Zh.	92	96	8464	9216	8832
29	Nuralin A.	94	95	8836	9025	8930
30	Onayeva G.	98	100	9604	10000	9800
31	Sabiyeva A.	94	95	8836	9025	8930
32	Umertayev D.	90	93	8100	8649	8370
33	Esimova N.	90	96	8100	9216	8640
34	Myrzekova Sh.	91	98	8281	9604	8918
35	Alipbayeva N.	96	96	9216	9216	9216
36	Akhmetov S.	90	92	8100	8464	8280
37	Kasymova D.	97	100	9409	10000	9700
38	Orazymbetova	88	90	7744	8100	7920
39	Syrmanova L.	92	99	8464	9801	9108
40	Khalitova A.	95	100	9025	10000	9500
41	Sharipbayeva K.	87	94	7569	8836	8178
42	Kubayeva K.	76	85	5776	7225	6460
n = 42		**Σ x = 3 846**	**Σ y = 3 988**	**Σx^2 = 353 410**	**Σy^2 = 379 524**	**Σxy = 365 952**

The coefficient of correlation between marks in English and marks in the special subject was calculated according to the following formula [Pismenny, 2004]:

$$r = \frac{\sum yx - \frac{\sum y \sum x}{n}}{\sqrt{\left[\sum x^2 - \frac{(\sum x)^2}{n}\right]\left[\sum y^2 - \frac{(\sum y)^2}{n}\right]}}.$$

1. The coefficient of correlation between marks in English and marks in Microeconomics:

$$r = \frac{226174 - \frac{2516*2419}{27}}{\sqrt{\left(218047 - \frac{2419^2}{27}\right)\left(235070 - \frac{2516^2}{27}\right)}} = 0.840$$

2. The coefficient of correlation between marks in English and marks in Economic policy:

$$r = \frac{365952 - \frac{3988*3846}{42}}{\sqrt{\left(353410 - \frac{3846^2}{42}\right)\left(379524 - \frac{3988^2}{42}\right)}} = 0.74725$$

Thus, the coefficient of correlation of English with “Microeconomics” is equal to 0.747 and the coefficient of correlation of English "Economic policy” is equal to 0.840. The values of the coefficients of correlation of 0.747 and 0.840 suggest that there is a direct and complete relationship between the proficiency in English and proficiency in special subjects.

High correlation coefficients confirm the correctness of organization, conducting and analysis of the results of the experiment. Implementation of an individual and differentiated approach in teaching English to students of non-language majors helps to improve the students’ performance in special subjects, especially if special subjects are also taught in English.

5. Conclusion

The results of the experiment confirm the advantages and the efficiency of the implementation of an individual and differentiated approach in teaching English.

Summarized research data allow making the following conclusions:

1. Significance of the problem of implementation of an individual and differentiated approach in teaching English to students of non-language majors is determined by a number of reasons:
   - First, currently the individual and differentiated approach in teaching practice is considered to be a part of and a prerequisite of humanization and democratization of education;
   - Secondly, in the context of scientific, technical and cultural changes, the democratization of the society and the development of information technologies, as well as the focus on the universal human values, the problem of implementation of an individual and differentiated approach in teaching began to attract attention of scientists and practitioners;
   - Thirdly, based on the analysis of the experience of teachers and scientists in the implementation of an individual and differentiated approach in teaching, it can be stated that this problem is recognized by most researchers as urgent, but it requires in-depth theoretical justification in pedagogical practice.
2. An individual and differentiated approach in teaching is a process aimed at promoting the students' training activity, all-round development of an individual within the group, reducing the number of underachievers and setting the stage for the development of practical experience in dealing with various problems, development of the world outlook and of self-sufficiency.
3. As a result of the experimental work we have carried out a qualitative analysis of the results of the test, which is 2.72; the analysis of the implementation of individual tasks, which is 96% in the experimental group and 64% in the control group; correlation analysis of the relationship of English with special subjects, where the values of the coefficients are 0.747 and 0.840.

Theoretical analysis and experimental work show that the implementation of an individual and differentiated approach in teaching English leads to increase study motivation and to improve the English proficiency.

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