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ORGANIZATION AND METHODOLOGY OF EXPERIMENTAL WORK ON TEACHING ENGLISH ON THE BASIS OF A DIFFERENTIATED APPROACH IN GENERAL SECONDARY SCHOOLS

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Abstract. The article describes the organization and methodology of experimental work aimed at testing the effectiveness of teaching English to fifth-grade pupils of a general secondary school on the basis of a differentiated approach. The research design, participants, stages of the experiment, diagnostic instruments, assessment criteria and methods of statistical processing are presented. The results of the ascertaining stage are analysed, a three-level system of tiered tasks for the formative stage is proposed, and the conditions for the reliable evaluation of the approach are discussed.

Keywords: differentiated approach, pedagogical experiment, experimental group, control group, ascertaining stage, formative stage, tiered tasks, CEFR, assessment criteria, Student's t-test.

INTRODUCTION

Raising the quality of foreign language education is one of the priorities of the educational policy of the Republic of Uzbekistan. Presidential Resolution No. PQ-1875 of 10 December 2012 introduced English from the first grade of general secondary school, and Resolution No. PQ-5117 of 19 May 2021 set the task of bringing the popularization of foreign language learning to a qualitatively new level and of aligning teaching and assessment with the CEFR [1; 2]. These reforms have considerably increased the number of learners, but they have also made English classes highly heterogeneous: in the same class there are pupils who attend private courses and pupils who have serious gaps in basic vocabulary and reading skills.

The differentiated approach, which adapts the content, process and products of learning to pupils' readiness, interests and learning profile, is widely recognized as an effective response to such heterogeneity [3; 4]. Its psychological basis is L.S. Vygotsky's concept of the zone of proximal development, according to which instruction should be directed slightly beyond the learner's current level [5]. International research reports positive effects of differentiated instruction on achievement and motivation in mixed-ability classes [6; 7]. However, the effectiveness of a methodology can only be proved by a properly organized pedagogical experiment with clear criteria, reliable instruments and comparable experimental and control groups [8; 9].

The aim of this article is to describe the organization and methodology of the experimental work carried out to test the effectiveness of teaching English on the basis of a differentiated approach in a general secondary school, and to present the results of its ascertaining stage. The research hypothesis is as follows: if English lessons in the fifth grade are organized on the basis of diagnostic level grouping, a system of tiered tasks for all four language skills and continuous formative assessment, the level of pupils' communicative competence and learning motivation will be significantly higher than with traditional uniform teaching.

METHODS

Research design. The study used a quasi-experimental design with a pre-test and post-test and a non-equivalent control group, since in a school setting pupils cannot be randomly redistributed between classes [8]. Two parallel classes taught under the same curriculum and the same state-approved textbook were selected; the experimental group was taught according to the differentiated methodology, while the control group followed the traditional approach.

Participants. The experimental work was conducted at general secondary school No. 5 of Qiziltepa district, Navoi region. Class 5-A (28 pupils) was designated as the experimental group (EG), and class 5-B (30 pupils) as the control group (CG); 58 pupils aged 10–11 took part in total. Both classes have the same weekly number of English lessons and study the same units, which ensures the comparability of the conditions.

Stages of the experiment. The experimental work was organized in three stages (Table 1).

Table 1

Stages of the experimental work

Stage	Aim	Main content and methods
1. Ascertaining (diagnostic)	To determine the initial level of pupils' English and learning preferences	CEFR-oriented placement test; questionnaire; observation of lessons; distribution of pupils into levels
2. Formative	To implement the differentiated methodology in the EG	Flexible level grouping; tiered tasks for listening, reading, speaking and writing; formative assessment; digital tools
3. Control (summative)	To evaluate the effectiveness of the methodology	Post-test parallel to the pre-test; repeated questionnaire; statistical comparison of EG and CG

Instruments. To diagnose the level of proficiency, a placement test oriented to the Pre-A1, A1 and A2 levels of the CEFR was developed on the basis of the fifth-grade curriculum and the CEFR descriptors [10]. The test consisted of four sections – listening, reading, writing and speaking – each worth 25 points (maximum 100 points). The speaking section was assessed individually with an analytic rubric (fluency, vocabulary, grammatical accuracy, pronunciation, interaction). In addition, a questionnaire of 15 items was used to identify pupils' motivation, interests and preferred ways of learning, and a structured observation sheet was used during lessons.

Assessment criteria. On the basis of the total score, three levels of communicative competence were distinguished: high (75–100 points; the pupil performs tasks independently and uses language creatively), medium (50–74 points; the pupil performs typical tasks with partial support) and low (below 50 points; the pupil performs tasks only with constant support of the teacher).

Formative methodology. In the EG each unit was taught with three variants of tasks corresponding to the identified levels. All pupils worked towards a common lesson objective, but with different degrees of complexity, support and independence. Groups were flexible: pupils were moved between levels according to the results of short weekly checks. Pair and group work regularly combined pupils of different levels so that stronger pupils could act as peer helpers.

Data analysis. The results of the pre-test and post-test were processed by methods of mathematical statistics: mean scores and standard deviations were calculated for each group; the

significance of differences between the EG and CG was checked with Student's t-test for independent samples at the significance level $p<0.05$; the distribution of pupils by levels was compared with Pearson's χ^2 test; the effectiveness of the methodology was additionally expressed by the coefficient of efficiency (the ratio of the EG mean gain to the CG mean gain) [9].

RESULTS

The ascertaining stage made it possible to establish the initial level of the pupils' English and to confirm that the experimental and control groups were comparable before the experiment. The distribution of pupils by levels is shown in Table 2.

Table 2

Distribution of pupils by levels at the ascertaining stage

Level	EG (n = 28)	CG (n = 30)
High (75–100)	4 (14.3 %)	5 (16.7 %)
Medium (50–74)	11 (39.3 %)	12 (40.0 %)
Low (below 50)	13 (46.4 %)	13 (43.3 %)
Mean score (M ± SD)	51.6 ± 13.8	52.3 ± 14.2

The analysis of the pre-test showed that in both groups the majority of pupils were at the medium and low levels, while only a small number reached the high level. The difference between the mean scores of the EG and CG was $t = 0.19$; $p = 0.85$, i.e. statistically insignificant, which confirms that the groups were equivalent at the beginning of the experiment. The results by language skills are given in Table 3.

Table 3

Mean scores of pupils by language skills at the pre-test

Skill (max 25)	EG, M	CG, M
Listening	14.2	14.5
Reading	14.8	15.0
Writing	11.0	11.1
Speaking	11.6	11.7

The lowest results in both groups were recorded in speaking and writing, i.e. in the productive skills, whereas receptive skills were developed better. The questionnaire revealed that pupils differ considerably in their preferred ways of learning: some prefer visual materials and games, others songs and listening, and others individual written work. These data confirmed the need for differentiation not only by level, but also by interests and learning profile.

On the basis of the diagnostic data, a system of tiered tasks was developed for the formative stage. An example for the unit on daily routines is presented in Table 4.

Table 4

Example of tiered tasks (unit "My day")

Skill	Level 1 (low)	Level 2 (medium)	Level 3 (high)

Reading	Match pictures with short sentences	Answer true/false questions on a short text	Answer open questions and give a title to the text
Speaking	Describe one's day using a model and picture cards	Ask and answer questions in pairs using prompts	Interview a classmate and report the results to the class
Writing	Fill in gaps in a text with the help of a word bank	Write 5–6 sentences about one's day following a plan	Write a short paragraph comparing a weekday and a weekend

Thus, the results of the ascertaining stage provided a reliable basis for forming flexible level groups in the EG, for selecting the content of tiered tasks and for comparing the results of the two groups at the control stage.

DISCUSSION

The organization of the experiment takes into account several requirements emphasized in the methodological literature. First, the use of a pre-test and a parallel post-test with identical structure and scoring makes it possible to measure the real gain of each group rather than only its final level [8; 9]. Second, the CEFR-oriented instruments and descriptors link the experiment with the national standards of foreign language education and make its results interpretable for teachers [2; 10].

The finding that pupils of the same class differ substantially both in level and in learning preferences agrees with C.A. Tomlinson's view that differentiation must be based on readiness, interests and learning profile simultaneously [3; 4]. The predominance of difficulties in productive skills corresponds to the observations of Uzbek methodologists about the need for more communicative practice in English lessons [11]. The use of flexible rather than fixed groups is intended to avoid the negative effects of permanent labelling of pupils, which was one of the main criticisms of early forms of ability grouping [12].

At the same time, the quasi-experimental design has limitations: the sample is small and drawn from one school, and the groups are intact classes. To reduce these limitations, the equivalence of the groups was checked statistically at the ascertaining stage, the same teacher and textbook were used in both groups, and several sources of data (test, questionnaire, observation) were combined. A significant difference in favour of the EG at the control stage would therefore give sufficient grounds to confirm the hypothesis, while further research with larger samples would make the conclusions more generalizable [6; 7].

CONCLUSION

The experimental work on teaching English on the basis of a differentiated approach was organized in three stages – ascertaining, formative and control – with an experimental group (5-A, 28 pupils) and a control group (5-B, 30 pupils) of a general secondary school in Qiziltepa district. A CEFR-oriented placement test, a questionnaire and lesson observation were used as diagnostic instruments; high, medium and low levels of communicative competence were identified as assessment criteria; Student's t-test, Pearson's χ^2 test and the coefficient of efficiency were selected for statistical processing. The ascertaining stage showed that the groups were equivalent at the start and that pupils differ considerably in level and learning preferences, which justified the development of a three-level system of tiered tasks. The described methodology can be used by English teachers and researchers to organize and evaluate differentiated instruction in general secondary schools.

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