ИНТЕНЗИФИКАЦИЯ НА ПРОЦЕСА НА ОБУЧЕНИЕ ЧРЕЗ ТЕСТОВЕ ЗА САМОПОДГОТОВКА В СМЕСЕНО ОБУЧЕНИЕ

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INTENSIFICATION OF THE LEARNING PROCESS THROUGH SELF-STUDY TESTS IN BLENDED LEARNING

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Abstract**:** *The process of learning English at the Faculty of Mathematics and Informatics at Plovdiv University Paisii Hilendarski is described in the article. The need for intensification of the learning process is explained and a definition of the term is offered. There is outlined the application of blended learning in the education of English at FMI. The supplemental model of blended learning is applied, which retains the basic structure of the traditional course and uses technology resources to supplement traditional teaching in the classroom. There is defined the construction and use of tests in English for self-study, which are developed on the basis of every textbook unit studied in class, with the purpose of obtaining long-term knowledge and skills in the foreign language.*

Key words: *intensification, blended learning, information technologies, tests, learning, teaching, assessment*

Introduction

Nowadays it is becoming more and more important to learn English as a foreign language, especially for young people. One of the reasons for that need is that English is the most commonly used language among foreign language speakers so it assists communication with people coming from different backgrounds, cultures and languages. Speaking English makes people bilingual and therefore more employable in every country in the world [5]. Moreover, English is widely used in science and in the fields of technical innovation and economic development so in order to make a career in these spheres young specialists need to be fluent in the language or at least have an excellent command of its basics.

Upon graduation from the Faculty of Mathematics and Informatics (FMI) at Plovdiv University students often start work in software companies where excellent language knowledge and skills are a must. Undergraduates at FMI study English between forty and one hundred and thirty academic hours depending on the form of study (full time or part time) and speciality of the students. Consequently, there is a large amount of learning material that needs to be covered within a limited time in order to make the students competitive. This brings forth a demand for an intensification of the learning process to achieve long term memorization and provide practice in English to master the language.

1. Intensification of the learning process

At the heart of the concept of intensification lies the use of information technologies which offers new possibilities for the process of learning English including, among others, the following:

- Increasing the speed of the process by providing a greater amount of study material for a short time;
- Interactivity: Information technologies provide feedback to both the teacher and the student about the results of IT tests – students check whether/where they have made mistakes and work to correct them, and teachers can make the necessary corrections in their syllabi. As stated by Cheng [2], “a well-developed test can encourage students to apply their knowledge and skills in order to perform a certain language task and if students receive adequate feedback, this test can serve as a valuable learning tool”;
- Partial or full automation of the process of generating tests;
- Partial automation of the process of evaluating student projects;
- Parameterization of tests, wherein on the basis of preset options a large number of different test items are generated randomly;
- Significant increase of the number of conducted tests and hence of their evaluation;
- Building skills in students to use IT in order to enlarge their knowledge of English;
- Continuous monitoring of the process of learning a foreign language.

English language learning at FMI is assisted by a dedicated website [6], which contains information about the language classroom policy, English classes schedule, tasks and deadlines for self-study project assignments and others. Communication between teachers and students is achieved through announcements, email and discussion forums as well as online debates and real-time chats.

2. Blended learning

The process of education at FMI makes use of the blended learning approach. According to a definition given by Heather Staker and Michael B. Horn, blended learning is “a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path, and/or pace and at least in part at a supervised brick-and-mortar location away from home” [10].

The purpose of incorporating face-to-face teaching in class with online instruction is to optimize the learning process as the number of in-class meetings is insufficient for students to master the language units that have been taught during the seminars and to practice the skills they would need in their future jobs.

Some of the advantages of blended learning courses are that they strike a balance between face-to-face and individual work and use a variety of approaches. Also, they are solutions-focused rather than problems-focused and students get to experience different learning tools while working at their own pace and using the internet which they do a lot at home and at work anyway. In addition, blended learning prevents students from feeling isolated or ignored as can happen in pure online education, in which students do not communicate with their peers and can find difficulty in obtaining answers to questions that may arise during the course. However, in blended learning students need to be more self-motivated than if they studied only in a classroom, stick to deadlines and not let distractions interfere with the outcomes of their course of studies.

2.1. Chosen model of blended learning

At FMI the supplemental model of blended learning is used which retains the basic structure of the traditional course and uses technology resources to supplement traditional lectures and/or seminars and textbooks.

The supplemental model of blended learning incorporates technology into the instructional approach of the course but does not alter its basic structure. Students at FMI are required to complete online readings and do various activities or prepare and deliver PowerPoint presentations and reports. However, there is no reduction in course meeting time and students are supposed to attend classes as per schedule – for four or five academic hours a week.

3. Self-study tests

One of the methods for achieving an intensification of the learning process in blended learning is through self-study tests. These tests are based on the material covered in class and their objective is to give students an opportunity to consolidate their knowledge and review their own progress. It is important that self-study tests include a comparatively small amount of the learning material and that they are conducted shortly after students have been exposed to it.

At FMI the self study tests in English are non-standardized achievement tests – they are devised by the teachers on the basis of every textbook unit studied in class and students are expected to do each test at their own time and location within a week before their next in-class meeting.

In the test creation there are followed the principles and stages for test construction and evaluation as described by Alderson in [1]. The standards apply not only to testing instruments but also to test use, particular applications and administrative procedures.

3.1. Stages in the development of a test

There is no total agreement of experts about the precise steps for test construction. Nevertheless, when developing a test, it is necessary to go through a number of stages in order to ensure its good quality [3]:

3.1.1. Drawing an overall plan

This is a very important preliminary stage, when test authors need to consider in detail what exactly they wish to measure, which its manifestations are, and which circumstantial factors could influence the results of the measurement. It is especially important to define clearly the purpose of the test because that increases the possibility for achieving high validity of the test. Test authors also need to make a decision about the test format, which would be most appropriate for their purposes.

3.1.2. Determining the test content

At this stage, test authors have to determine what content is to be tested.

Based on the textbook contents, there is made a list of the most important grammatical structures and tenses and English vocabulary elements covered in the textbook unit, which is included in the specification from the next step.

3.1.3. Making a test specification

A test specification represents a plan of the test. It is a detailed, practical document indicating what the test will contain, and is intended to assist test construction. Test specifications include information about [1]:

- The purpose of the test;
- The sort of learner who will be taking the test;
- The number of sections the test will have, how long they will be and in what manner they will be differentiated;
- What language skills should be tested, are distinctions made between items, testing main idea, specific detail, inferences, etc.;
- What language skills should be included – will there be a list of grammatical structures and lexis, etc.;
- What sort of tasks are required – objectively assessable, integrative, simulated “authentic”, etc.;
- How many items are required for each section, and what their relative weight will be – equal weighting or extra weighting for more difficult items;
- What test methods are to be used – multiple choice, gap filling, matching, transformations, picture descriptions, essay writing, etc.;
- What rubrics are to be used as instructions for students – will there be included examples to help students know what is expected, and should the assessment criteria be added to the rubric;
- What assessment criteria will be used – how important is accuracy, spelling, length of written text, etc.

3.1.4. Item development

At this stage test authors need to consider the test specifications in order to make an initial set of test items. Some of them consult past papers but in doing so they need to make sure that the test objectives and purposes do not get shifted.

The initial set of test items should comprise a larger number of questions than those that will be present in the final test as some items will be removed after the pretest because of poor quality. The recommended ratio of the total number of items and the number of items included in the final test is 3:2 [12].

3.1.5. Test design and assembly

During this stage, all the test items, their order and visualization are made final.

There are two main issues that need to be considered here: one relates to the validity of the test, and the other to its formatting. Test authors have to make sure that the content actually tested corresponds to the content of the specification.

3.1.6. Test production

This stage includes the production and publication of tests. It deals with security issues as now the test is available to more individuals than at any prior time during its development.

3.1.7. Test administration

This is the most public aspect of the testing. The test administration conditions such as time limits should be standardized to ensure that there are no irregularities during the test taking and that the conditions are uniform and identical for all students.

3.1.8. Scoring test responses

At this stage absolute accuracy of the testing scores must be ensured by using the correct scoring key and checking the correspondence of the scoring rules with the stated purpose of the testing. A final item analysis should be completed and reviewed, including the raw score mean, the standard deviation, the mean item difficulty, the mean item discrimination, range of raw score, some indices of overall test quality, etc. Also, a distractor analysis needs to be performed, in which the results of the distractors are examined. During the test development, multiple choice items can be improved depending on these results. [4] For example, if some distractors have not been chosen by any student, they have to be changed or removed from the test.

3.1.9. Establishing passing scores

In norm-referenced tests each student is compared with other students who have taken the test at the same time as them. Test takers are rank-ordered in terms of their scores, and an arbitrary number or percentage of students is considered to have passed [1]. In criterion-referenced tests a standard or criterion is defined before the test is administered, and any student, reaching that standard, is considered to have passed.

3.1.10. Reporting test results

When reporting test results to students, certain issues need to be considered, such as

- accuracy of the score;
- contents and format of the reported scores – whether students are given their scores as a percentages of the total maximum score or simply the grade corresponding to it;
- avoidance of score misunderstanding and misuse;
- issues of test retake for failing students.

3.1.11. Item banking

Item banking is the process of securely storing test items for potential future use. [3] Effective test items that perform well are difficult to develop so it is a good idea to store such questions, together with all the relevant performance data, to reuse in the future.

3.1.12. Test technical report

Every test should be systematically documented and summarized in a technical report describing all the important aspects of its development, administration, scoring, reporting, and test analysis and evaluation. This report is especially useful for the institution, administering the test. It serves as a record of the test, as well as a guide for future test developments. Also, the report is important for the teacher, who prepares students for the final test at the end of the course of studies.

3.2. Types of self-study test tasks

At the Faculty of Mathematics and Informatics the Distributed eLearning Center (DeLC) is used for test construction, administration and evaluation in a variety of subjects.

When a teacher composes a test in DeLC, he or she can choose options from a Library with a set of questions and a set of Templates.

The set of questions includes the following types:

- multiple choice questions with one correct answer;
- multiple choice questions with more than one correct answer;
- strict matching (the number of questions corresponds exactly to the number of answers);
- non-strict matching (the number of questions does not correspond exactly to the number of answers; dichotomous items belong here too with the answers being only “True” or “False”);
- open questions (these can require either a short answer consisting of a word or two in the case of which the questions can be scored automatically, while long-answer ones must be evaluated by the teacher after the test has been submitted). Students at FMI have excellent typing skills so they easily take advantage of the editing possibilities of the testing system when composing a long-answer text.

The templates are a set of predefined content typed in by the teacher. They are used to dynamically select a set of questions, based on criteria specified by the teacher. A different test can be generated for each student by using the templates included in the test.

The self-study tests at FMI comprise mostly closed test tasks such as multiple-choice questions (MCQ) or matching tasks, and short-answer open questions with structured response. Usually not more than one long open question per test is included which requires the test taker to produce a written language response.

As a rule, multiple-choice questions consist of a stem – a question or an incomplete statement, which presents the problem, options (called distractors), given to provide possible solutions to the problem, and a key.

The number of distractors is arbitrary but experts recommend that all test questions contain the same number of distractors, and they point out that the quality of the distractors is more important than their number. [12]

The goal of the multiple-choice item format is to present students with a task that is both important and clearly understood, and that can be answered correctly by anyone who has achieved the intended learning outcome.

The closed test tasks are very precise and objective so they are especially useful for assessing particular aspects of language, such as certain grammar rules, functions, and vocabulary. These types of tasks take longer time to create compared to open questions because they need to cover all the studied material in the textbook unit of the respective week and care must be taken that the distractors are well designed and not ambiguous or misleading.

The reliability of a test is directly related to its objectivity and the number of items it contains. Within the same amount of time a student can complete a larger number of structured-answer questions than open ones so multiple choice items have higher reliability than open questions.

After a test has been administered teachers have access to the test statistics and can review all the individual scores and types of mistakes students have made, if any.

3.3. Advantages of using self-study tests

The perspective of using self-study tests is twofold.

First of all, they help students to remember the study material for a long time. According to a number of research papers [1], [3], repeated retrieval of information is more likely to be accessible in the future and this can be achieved via studying by self-tests. The authors claim that a longer-term memorization of learning material is accomplished through self-study tests rather than multiple readings of the same matter. Although there hasn't been a very pronounced difference in the obtained results by using different types of test questions in self-study tests, short answer open questions generate slightly better results than multiple choice ones. This is explained with the greater retrieval effort required to produce information as opposed to passively recognizing it among the distractors in a multiple-choice question.

Secondly, which is no less important, is the immediate feedback of the tests and the possibilities to adjust the learning process accordingly. If an individual student has demonstrated gaps in his/her knowledge and skills, the teacher can include similar tasks in the following tests to assess their progress in the same area. In case a large group of test takers have manifested difficulties with the same language structures or communicative skills the teacher can choose to do additional activities and provide students with further instruction and related practice in class.

The blended learning approach combines online discussions with offline activities that students complete at their own pace, which proves beneficial for achieving the teachers' learning goals. During the course of education using the blended learning approach students develop a greater interest in the subject matter of the course. The learning environment is more flexible and the teaching methods are responsive to the diverse needs of the students so they become more motivated and active in class. The self-study tests taken during the trimesters of study increase the likelihood of achieving a high score on the final test which in turn improves the motivation of learners.

3.4. Conclusion and future plans

In conclusion it can be said that blended learning provides an opportunity for students to enrich their knowledge and practice the communication skills, which are laid down in the curriculum, on the basis of additional work online. Self-study tests check the acquisition of comparatively small units of learning material which makes it easier to master the necessary knowledge and skills and ensure steady progress in the language education.

The authors' future plans include transferring the learning material from paper to online format while maintaining the standards for structuring the teaching units and keeping the supplemental model of blended learning with regular student meetings in-class and additional self-study tests.

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