EXPERIMENTAL VERIFICATION OF METHODOLOGY OF DEVELOPING PRODUCTIVE GRAMMATICAL COMPETENCE OF PROSPECTIVE TEACHERS LEARNING ENGLISH AFTER GERMAN THROUGH INDIVIDUAL WORK

The article dwells on the results of the experimental verification of the effectiveness of the suggested methodology of developing productive grammatical competence of prospective teachers learning English after German in the process of independent work. The process of organization and the stages of the experimental teaching have been described, the obtained results have been analyzed, interpreted, and verified with the help of mathematical methods of statistics.

We formulated the hypothesis, which was verified through the experimental study. The hypothesis states that the process of developing productive grammatical competence of students learning English after German will improve under the conditions of using the suggested methodology, which implies: 1) gradual development of grammatical competence in speaking and writing (preparatory, stereotypical, variational stages); 2) the possibilities for positive transfer of knowledge, skills, linguistic and learning experience from the first foreign language and the prevention of interference from the first foreign language; 3) the development of students’ grammatical awareness by means of the exercises with the reflective component and the exercises aimed at the development of students’ learning and strategic competence; 4) giving students greater autonomy within the individual work under the less rigid control of a teacher.

The two variants of the methodology were suggested: model A and model B. The obtained data provided the effectiveness of model A. The students demonstrated higher results in grammatical accuracy and fluency in speaking and writing. The results of the experimental study proved the suggested hypothesis.

Keywords: grammatical competence, English as a second foreign language, transfer, experimental teaching, prospective teachers, individual work.
стереотипний, варіативний етапи); 2) врахування можливостей для переносу знань, навичок, мовленнього і навчального досвіду студентів з першої іноземної мови і забезпечує попередження інтерференції з першої іноземної мови; 3) формування граматичної усвідомленості за допомогою вправ з рефлексивним компонентом і вправ, спрямованих на розвиток навчально-стратегічної компетентності; 4) надання студентам більшої автономії у процесі самостійної роботи при менш жорсткому управлінні викладачем.

Розроблено два варіанти методики (варіант А та варіант Б), за якими навчалися експериментальні групи. На основі порівняння результатів навчання в експериментальних групах за допомогою кутового перетворення Фішера зроблено висновок про більшу ефективність варіанта методики А, який передбачає вищий рівень автономії студентів та менш жорстке управління з боку викладача. Доведено, що збільшення рівня автономії у процесі постійного формування продуктивної граматичної компетентності дозволяє покращити граматичну точність у формулюванні студентами усних і письмових висловлювань, розвиває рефлексивні уміння та навчально-стратегічну компетентність студентів.

**Ключові слова:** граматична компетентність, англійська мова як друга іноземна, перенос, експериментальне навчання, майбутні учителі, самостійна робота.

Educational and professional programs for prospective teachers of foreign languages in Ukrainian universities presuppose mastering two or three foreign languages. The Bachelor’s program “The German Language and Literature” at Ternopil Volodymyr Hnatiuk National Pedagogical University provides training for teachers of the German language and the English language as a second foreign language. So, students enrolled on this program are treated as multilinguals whose native language (L1) is Ukrainian, first foreign language (L2) is German, and second foreign language (L3) is English. As far as the study of English begins later, during the second year of studies, there is the necessity to optimize the process of teaching English in order to make it as effective as possible for all the students to reach the level of mastering English presupposed by the educational program. During the survey of the ways to improve students’ grammar acquisition and enhance their grammatical accuracy in speaking and writing, we developed a methodology containing a model of teaching grammar and a subsystem of exercises for the development of productive grammatical skills of prospective teachers learning English after German. In order to verify the effectiveness of the proposed methodology the experimental study was conducted.

The purpose of the article is to describe the experimental verification of the proposed methodology of developing prospective teachers’ productive grammatical competence through independent work while learning English after German, represent the analysis and interpretation of the results obtained during the experimental study.

The aim of our experimental research was to examine the effects of the proposed methodology of developing productive grammatical competence of prospective teachers learning English after German through independent work, to test the hypothesis predicting that the use of exercises with reflective component and pre task study tips explicating the possibilities of transfer and the enhancement of students’ autonomy level through individual work activities will make the process of developing productive grammatical skills of students mastering English after German more effective in terms of optimizing the time of covering curriculum and enhancing students’ grammatical accuracy and fluency in speaking and writing.

Surveying the theoretical prerequisites to the problem of teaching grammar of the second foreign language we resorted to the works by R. Ellis [7; 8], D. Larsen-Freeman [10], J. Harmer [9], D. Nunan [11], M. Pawlack [12], L. Orlovska [4], O. Trendak [17], O. Vovk [1], P. Ur [18], and others.

The analysis of studies in the field of teaching grammar of English as a second language or as a foreign language shows the trend for scientists to explore the issue of form focused instruction with regard to understanding whether it can provide the most effective way of teaching grammar [7; 17, p. 5].

In the field of teaching grammar, researchers differentiate between form-focused instruction and meaning-focused instruction depending on the type of grammar syllabus, whether it is synthetic or analytic. As far as at the Ukrainian universities teaching English grammar for students majoring in German is usually integrated in the course of “Second foreign language (English)” and is presented in a synthetic layout, we are interested in the form-focused type of instruction.
The design of the suggested methodology was elaborated taking into account the elements of output theory and form-focused instruction.

According to the Common European Framework of Reference for Languages (CEFR), grammatical competence is defined as “knowledge of, and ability to use, the grammatical resources of a language” [5, p. 112]. CEFR treats grammatical competence also as “the ability to understand and express meaning by producing and recognising well-formed phrases and sentences” [5, p. 112–113].

The development of productive grammatical competence presupposes the development of students’ grammatical skills in speaking and writing. The development of productive grammatical skills is the question of debate in the theory of language teaching and learning which resulted in the formation of the theories of output-instruction and production-based instruction. Productive grammatical skills responsible for the ability of students to represent their own ideas and thoughts in speaking and writing [3, p. 239–240]. The level of the development of productive grammatical skills defines the quality of students’ speaking and writing. The structure of productive grammatical skills presupposes the operations of choosing grammatical structures that are relevant to the given situation, the processing of the chosen grammatical structures through the norms of a certain language and performing them in speaking or in writing [3, p. 240].

J. C. Richards states that “all language users have greater receptive competence than productive competence” [13, p. 4]. Usually, students deal with language and after that they perform certain learning activities. J. C. Richards contemplates that theory proposed by Krashen, that only receptive competence should be deliberately developed, and productive competence will be developed naturally from the receptive one, is not supported by practical experience when we observe the inability of students to use their knowledge of language rules in their speech or writing. So, J. C. Richards considers the arise of noticing hypothesis and output hypothesis which the author considers necessary to facilitate the development of productive competence. Noticing of language features in the input is important for understanding of the language material and for turning the linguistic knowledge into linguistic competence. Thus, with the development of the theory of noticing hypothesis the notion of intake arises which constitutes “that part of the input that learners notice” [13, p. 5]. The author emphasizes the necessity of noticing activities in teaching speaking skills.

The theory of output hypothesis was introduced by M. Swain, and it stated the importance of output for facilitating “the complete grammatical processing needed for accurate production” [16, p. 99]. The output hypothesis suggests the use of certain target language forms to develop learners’ language knowledge. Hence that knowledge needs to be restructured with the help of practice in using these language forms. So, the grammatical materials used in the tasks for the development of receptive skills should be used in the tasks for productive activities. J. C. Richards suggests the continuity or succession when the language items from the material of receptive tasks become the material for productive tasks. In this way the author suggests the way for the development of the knowledge the students gained during the receptive activities and turning it into the practical use [13, p. 6]. Thus, developing our exercises, we included the vocabulary items from the conversational topics the students were to learn and the grammatical items which were not only demanded by the syllabus, but also provided in the texts.

J. Harmer presents “a basic methodological model for teaching productive skills”. In this model, first, the teacher introduces the topic to the students and involves them into the contemplation over the subject, then the task itself is set and students receive instructions how the activity is to be done, all the necessary information for the activity completion is provided. The next stage begins when students start doing the task. The teacher monitors the task completion and helps students with difficulties they encounter. At the next stage, the teacher’s feedback follows the completion of the activity, the students’ strong and weak points are shown. After the task has been finished, the teacher may use the follow-up activity related to the previous task [9, p. 275–276].

Another aspect related to the issue of productive skills is the correlation between explicit and implicit knowledge. Researchers demonstrate the importance of production for converting explicit knowledge into implicit and in other terms “turning of declarative knowledge into procedural knowledge” [6, p. 529]. Production is also important for further explicit knowledge acquisition and the development of new declarative knowledge.

J. C. Richards suggests that learners whose native language is German will easier understand the essence of the definite and indefinite article in the English language [14, p. 273–274]. This
observation is very important for our research because we consider that the knowledge of German will create the basis for acquiring the grammatical concepts of the English language. We consider that the morphological and syntactical skills from the German language can be transferred in the process of learning English morphology and syntax.

The comprehensive analysis of linguistic transfer and current state of investigations dedicated to the problems of transfer from the third foreign language was presented by J. Rothman et al. [15]. Building the Typological Primacy Model J. Rothman [15, p. 154–155] emphasizes the importance of initial stages of interlanguage grammars and the stages where transfer takes its source from. Transfer is more likely to occur if the previously studied language is the most similar in structure to the next studied language.

The scientific data provided by J. Rothman et al. shows that “typological / structural similarity” determines the source language for L3 transfer [15, p. 159]. The mechanism of transfer is regarded as subconscious and driven by parser in order determined by The Typological Primacy Model and its hierarchy of cues when the similarity is firstly examined on the level of lexicon, then the level of phonology is examined, functional morphology and syntactic structures [15, p. 162–163].

The subsystem of exercises was developed presuming that the similarity of English and German predicts that German is the source of transfer for the acquisition of English. Thus, our task was to promote the positive effects of transfer from German by means of specially elaborated tasks and procedures, their implementation and production in a particular order according to the model of the methodology of developing productive grammatical skills of prospective teachers in English after German.

We conducted the experimental study using the developed subsystem of exercises. The purpose of the experimental research is to verify the efficiency of the suggested methodology of forming prospective teachers’ productive grammatical competency through the individual work in teaching English after German.

Before the experimental study the pre-test took place when we assessed students’ speaking and writing tasks. During the experimental study students were taught using the suggested subsystem of exercises. At the end of the experimental study the post-experimental test was conducted, and the results of pre-test and post-test were compared.

The speaking tasks were represented by communicative situations for monologues and dialogues respectively. We assessed the correctness of grammatical structures usage and the diversity of grammatical structures used by the students.

The students’ performance in writing was tested by means of writing a letter.

The independent variables were members of experimental groups, teaching materials, tasks of pre-test and post-test, the duration of experimental teaching, the quantity of classes and assessment criteria. The dependent variable of the experiment is the extent of individual work and the level of students’ autonomy. In variant A of the suggested methodology students were allowed to perform the tasks without special teacher’s intervention at the stereotypical and variational stages of productive grammatical competence formation.

In variant B of the suggested methodology the students performed all the tasks under teacher’s control throughout all the stages of productive grammatical competency formation.

The experiment took place in Ternopil Volodymyr Hnatiuk National Pedagogical University, the participants were 36 students of the Department of foreign languages, whose major was German. The experiment was conducted for one semester from February to May 2018 and one more from February to May 2019. The students were subdivided into four experimental groups. Experimental group 1 (EG1) and experimental group 2 (EG2) had 10 students each. Experimental group 3 (EG3) and experimental group 4 (EG4) had 8 students each. EG1 and EG3 were taught according to the model A. EG2 and EG4 were taught according to the model B.

The model A presupposed the use of heuristic conversation about the typological similarities peculiar to a certain grammatical structure in English and German at the preparatory stage. The task of this conversation was to motivate students for conducting comparisons between grammatical systems of English and German and their independent work in search of possible cases for transfer and interference. At the first stage the students focused on the practice aimed at connecting grammatical form and meaning it conveys, producing short monologues and dialogues, composing sentences. At the following stages, stereotypical and variational, they practiced grammatical structures in
монології, диалоги і письмові активності, і вони могли переговорювати або мозаїку і вибір тем для цих активностей, що збільшило прибутковість студентів. Вчителя відповідь була коригувальним характером на індивідуальну роботу студентів в контексті завдання, коригувати помилки після того, як студенти виконували свої спілкувальні або письмові активності.

У моделі В, вчителя відведення у вигляді непосредніх пояснень можливих випадків інтерференції та переносу використовувалося до максимуму, все, що було зроблено студентами, виконувалося під контролем вчителя за попередньо вибраними темами.

Експеримент складався з таких стадій: розвиток гіпотези, здійснення критерій для оцінки продуктивного граматичного компетентності майбутніх вчителів, поділення студентів на експериментальні групи; експериментальне тестування для встановлення існуючого рівня продуктивної компетентності майбутніх вчителів; експериментальне навчання за допомогою розвинених матеріалів; пост-експериментальне тестування для визначення впливу експериментального навчання; аналіз інтерпретація результатів експерименту.

Гіпотеза нашого експерименту полягає в тому, що майбутні вчителі можуть покращити свої продуктивні граматичні знання в англійській мові у умовах використання запропонованої методики, яка заснована на: 1) постепеному розвитку граматичного компетентності в говоренні і письмових (попередній, стереотипний, варіаційні стадії); 2) можливостях позитивного перенесення знань, навичок, лінгвістичного та навчального досвіду з першого іноземного, а також профільтрування впливу першого іноземного; 3) розвитку граматичного відчуття студентів за допомогою навчальних уроків і гурткових навчальних дій; 4) наданні студентам більшої ініціативи в індивідуальній роботі під менш жорстким контролем вчителя.

Обіцянка першої фази експерименту полягає в підтвердження ефективності запропонованої субсистеми із використанням моделі А і моделі Б методики формування продуктивного граматичного компетентності майбутніх вчителів, що навчаються англійською мовою через індивідуальну роботу.

Обіцянка другої фази експерименту полягає в визначенні оптимальної моделі методики формування продуктивного граматичного компетентності майбутніх вчителів, що навчаються англійською мовою через індивідуальну роботу.

Перша задача була проведена із здійснення експериментального тестування для визначення існуючого рівня продуктивної граматичності майбутніх вчителів та порівняння його з рівнем, досягнутим після експериментального навчання. Тестування включало ситуації для монологів і диалогів і завдання для письмового написання. Студентам було надано п'ять хвилин на усну пропозицію.

Завдання 1. Спілкування. Скажіть на відміну від того, що ви мали зробити, романту вчора, бо ви мали складати відповідь. Скажіть, чому ви були зайняті вчора. Скажіть, які дії ви робили вчора.

Завдання 2. ваша матір’я просить вас купити щось, але ви були зайняті. Скажіть їй, що ви робите в цей момент.

Завдання 3. ви і ваш груповик приготовляєте проект у Лінгвістиці. Скажіть вашому груповику, що ви вже зробили.

Друга задача представляє ситуацію для спілкування.

Результати експериментального тестування розраховувались за формулою студентів’ї результати K=Q/N, яка поширюється в сучасному науковому навчанні з іноземних мов [2, с. 347], де Q - кількість набраних балів і N - максимальні бали, які міг набрати студент. Коефіцієнт повинен бути не менше 0,7 для рівня студентів’ї результати, щоб бути достатні [2, с. 347; 4, с. 146].

Навички в спілкуванні, спілкуванні і письмові були оцінені за відповідною критеріальної граматичного правильності та різноманіття граматичних структур, що використовувалися студентами.
In general, the results of the pre-experimental testing demonstrated the low level of productive grammatical competence. The errors were caused by incorrect grammatical usage. Students tended to use similar grammatical structures.

At the preparatory stage of the productive grammatical competence formation the students trained according to the model A were supposed to trace the differences and similarities in English and German in inductive way in the form of heuristic conversation supported by the teacher’s feedback.

At the following stages when the skills are activated and stereotyped the autonomy was enhanced by brainstorming topics the students wanted to talk about or to write about. Students were allowed to give their own suggestions for the exercises. At the variational stage students could suggest their own situations for speaking or writing.

The results of post-experimental testing show that all the experimental groups demonstrate improvement in using English grammar in speaking and writing.

The values of obtained learning coefficient in the pre-test and post-test, the increase of learning coefficient as the result of experimental teaching are presented in table 2.

<table>
<thead>
<tr>
<th>Experimental group</th>
<th>Learning coefficient</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>EG-1</td>
<td>0.55</td>
<td>0.89</td>
</tr>
<tr>
<td>EG-2</td>
<td>0.55</td>
<td>0.77</td>
</tr>
<tr>
<td>EG-3</td>
<td>0.55</td>
<td>0.92</td>
</tr>
<tr>
<td>EG-4</td>
<td>0.54</td>
<td>0.75</td>
</tr>
</tbody>
</table>

We observed the improvement in the students’ ability to choose the appropriate grammatical form to express the required meaning. Students constructed better utterances producing monologues and dialogues. Besides the quality of speaking increased due to the variety of grammatical structures used by the students. The students’ written tasks became better in cohesion and accuracy.

We observed that some students trying to be accurate in the usage of grammatical forms and used a very scarce range of forms, basic sentence structures and verb phrases.

To prove the efficiency of one model of the methodology over the other we used Fisher’s angular transformation which is conventional for the research in the field of the methodology of teaching foreign languages [2, p. 347–350; 4, 166–170]. Firstly, we compared the post-test results of EG-1 and EG-2. Secondly, the post-test results of EG-3 and EG-4 were compared. This means the comparison of two models, since students in EG-1 and EG-3 were taught according to model A, while students in EG-2 and EG-4 – according to model B.

First of all, we determined the percentage of students who demonstrated the threshold level of the development of productive grammatical competence (“There is effect”) and the percentage of students who did not achieve the threshold level (“No effect”).

As far as almost all students demonstrated the post-test results higher than 0.7, the threshold level of the development of productive grammatical competence was shifted to 0.8.

Two hypotheses were formed. Null hypothesis (H_0) declares that the level of the development of productive grammatical competence of students in EG-1 is equal to the level in EG-2. Alternative
hypothesis \( (H_1) \) declares that the level of the development of productive grammatical competence of students in EG-1 is higher than the level in EG-2.

The comparison of post-test results of EG-1 and EG-2 is presented in table 3.

**Table 3**

<table>
<thead>
<tr>
<th>Experimental group</th>
<th>“There is effect”</th>
<th>“No effect”</th>
<th>Total number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of students</td>
<td>Percentage</td>
<td>Number of students</td>
</tr>
<tr>
<td>EG-1</td>
<td>8</td>
<td>80 %</td>
<td>2,214</td>
</tr>
<tr>
<td>EG-2</td>
<td>3</td>
<td>30 %</td>
<td>1,159</td>
</tr>
<tr>
<td>Total number of students</td>
<td>11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Traditionally, to calculate \( \phi^*_{emp.} \), the following equation is used:

\[
\phi^* = (\phi_1 - \phi_2) \cdot \sqrt{\frac{n_1 \cdot n_2}{n_1 + n_2}}
\]

where \( \phi_1 \) (80%) = 2,214, \( \phi_2 \) (30%) = 1,159, \( n_1 \) – the amount of students in EG-1, \( n_2 \) – the amount of students in EG-2.

The correlation between \( \phi^*_{emp.} \) and \( \phi^*_{cr.} \) was established

\[
\phi^*_{cr.} = \begin{cases} 
1,64 & (\rho \leq 0,05) \\
2,31 & (\rho \leq 0,01) 
\end{cases}
\]

\( \phi^*_{emp.} = 2,359 \)

\( \phi^*_{emp.} > \phi^*_{cr.} \).

Figure 1 represents the obtained \( \phi^*_{emp.} \) as significant.

**Figure 1. Correlation between \( \phi^*_{emp.} \) and \( \phi^*_{cr.} \)**

Thus, \( H_1 \) is assumed which shows that after the experiment the level of students’ productive grammatical competence in EG-1 is higher than in EG-2. This proves that model A of the suggested methodology is more effective than model B.

In the same way we compared the post-test results of EG-3 and EG-4.

The hypotheses were formulated.

\( H_0 \): the level of the development of productive grammatical competence of students in EG-3 is equal to the level in EG-4.

\( H_1 \): the level of the development of productive grammatical competence of students in EG-3 is higher than the level in EG-4.

The following table 4 shows the comparison of post-test results of EG-3 and EG-4.

**Table 4**

<table>
<thead>
<tr>
<th>Experimental group</th>
<th>“There is effect”</th>
<th>“No effect”</th>
<th>Total number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of students</td>
<td>Percentage</td>
<td>Number of students</td>
</tr>
<tr>
<td>EG-3</td>
<td>7</td>
<td>87,5 %</td>
<td>2,419</td>
</tr>
<tr>
<td>EG-4</td>
<td>2</td>
<td>25 %</td>
<td>1,047</td>
</tr>
<tr>
<td>Total number of students</td>
<td>9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Therefore, \( H_1 \) is assumed, and we can state that after the experiment the level of students’ productive grammatical competence in EG-3 is higher than in EG-4. So, the results obtained in the second phase of the experiment prove that model A of the suggested methodology is more effective than model B.

Groups EG-1 and EG-3 were taught according to the model A of the proposed methodology and demonstrated better results than students in EG-2 and EG-4. Thus, the results of post-experimental testing allow us to state that variant A of methodology of forming productive grammatical competence of prospective teachers learning English after German in the process of individual work is more effective. Besides, the results of the experimental study prove the suggested hypothesis that the use of exercises explicating the possibilities of transfer and enhancing individual work throughout the stages of developing grammatical competence makes the process of forming productive grammatical skills of students learning English after German more effective. The model A optimizes the time for covering grammatical issued given in the curriculum and enhances students’ grammatical accuracy and fluency in speaking and writing. The developed subsystem of exercises used according to the model of forming productive skills within the methodology of forming productive grammar skills in English after German through independent work activities provides vast opportunities for the enhancement of acquiring English grammar after German by prospective teachers of foreign languages.

The implementation of the model in which the level of students’ autonomy is enhanced at all stages of forming productive skills in speaking and writing demonstrates the increase of the efficiency in learning English grammar after German and time necessary for the acquisition of grammatical phenomena is shortened and allows to cover more grammatical aspects prescribed in the curriculum of English as a second language for students mastering German over a shorter period of time. This allows to develop accuracy and fluency in English grammar usage.

Further research can be dedicated to the development of methodological recommendations for teachers on forming productive grammatical competence of prospective teachers learning English after German through independent work.

ЛІТЕРАТУРА

REFERENCES


