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The formation of research competence as a professional skill in future teachers of English

Формування дослідницької компетенції як професійного вміння у майбутніх учителів англійської мови

Summary. *Research competence is an important component of the professional competence of a foreign language teacher, is a condition for its development and implementation of the teacher to work. The problem of preparing students for research activities is very relevant. The study of students' readiness to carry out research reveals significant shortcomings: insufficient knowledge of the methodology of research activities, the role of research work*

in the process of becoming a teacher's personality. The predominant use of information-receptive, reproductive methods in working with students and the insufficient use of active ones leads to the fact that students cannot apply knowledge in an unfamiliar situation when solving research tasks that require a non-standard approach. Cognitive interests and motives of research activity are not purposefully formed either.

The formation of students' research competence is based on the optimally acceptable levels of formation of all components of research competence: students' motivational readiness for research activities; students' theoretical readiness for research activities; students' technological readiness for research activities; students' productive readiness for research activities.

The model of formation of the research competence of future foreign language teachers and the program of its implementation, tested experimentally, have shown high efficiency and can be used in the pedagogical process of the university.

Thus, the results of the study of the formation of research competence in future teachers of a foreign language allow us to consider its tasks solved, and the hypothesis confirmed. At the same time, the conducted research does not pretend to solve all the issues related to this problem. These are, first of all, issues of continuity of students' training at different levels of research activity.

Key words: research competence, model, skill, creative activity, pedagogical education, experiment.

Анотація. Формування дослідницької компетенції як складової частини професійної компетенції є важливою умовою підготовки майбутнього вчителя англійської мови до діяльності. Формування дослідницької компетентності майбутніх учителів англійської мови можливе у разі розробки і впровадження її моделі в освітній процес, що являє собою сукупність цілей, принципів, змісту, технологій і результатів.

Вивчення готовності студентів до проведення дослідження виявляє суттєві недоліки: недостатнє знання методики дослідницької діяльності, ролі науково-дослідної роботи в процесі становлення особистості вчителя. Переважне використання інформаційно-рецептивних, репродуктивних методів у роботі з учнями та недостатнє використання активних призводить до того, що учні не можуть застосувати знання у незнайомій ситуації під час розв'язання дослідницьких завдань, які потребують нестандартного підходу. Цілеспрямовано не формуються і пізнавальні інтереси та мотиви дослідницької діяльності.

Метою цієї статті є вивчення формування дослідницьких навичок майбутніх учителів англійської мови. Об'єктом дослідження є засоби формування дослідницьких навичок, а предметом – розробка системи оцінювання досягнутих результатів.

Таким чином, результати дослідження формування дослідницької компетентності у майбутніх учителів іноземної мови дозволяють вважати його завдання вирішеними, а гіпотезу підтвердженою. Водночас проведене дослідження не претендує на вирішення всіх питань, пов'язаних з цією проблемою. Це насамперед питання наступності підготовки студентів на різних рівнях дослідницької діяльності.

Ключові слова: дослідницька компетенція, модель, уміння, креативність, педагогічна освіта, експеримент.

Introduction. Research competence is an important component of the professional competence of a foreign language teacher, is a condition for its development and implementation of the teacher to work. Under the research competence of future foreign language teachers, we will understand the formation of students' knowledge system about research activities at a pedagogical university (cognitive component), mastering research strategies (behavioral component), mastering the experience of creative research activities (creative component) and the formation of value-emotional relationships in the process of research activities (emotional-volitional component) [1, p. 45; 2].

Methodology. To diagnose the level of formation of students' research competence, we have developed criteria and indicators of the levels of formation of the main components of research competence. The formation of motivational, theoretical, technological and productive readiness for research activities can be assessed on a scale of "0–5" using tabulated qualitative characteristics (norms of samples) of the process of developing research knowledge, skills and abilities, which are determined by the following levels: high, medium and low.

Diagnostics of the level of formation of the main components of research competence was determined in the process of preparing students for research activities through the organization of an analysis of their own activities and the organization of an analysis of student activity by experts (teachers). Diagnostic sections were carried out before the introduction of the model of formation of research competence in the educational process, during and after. Let's analyze the results of experimental work on each criterion and indicators.

Results and Discussion. The level of formation of students' motivational readiness for research activities was determined by the attitude of students to research activities, by the degree of awareness of the importance of mastering the necessary knowledge and skills, as well as by the presence of their research activity. The data obtained were summarized in percentage terms in Table 1.

Table 1

Levels of formation	Groups			
	Control		Experimental	
	Before the experiment	After the experiment	Before the experiment	After the experiment
High	23.8	28.6	19.1	42.9
Medium	47.6	52.4	57.1	57.1
Low	28.6	19.1	23.8	0

Expert assessment of the level of formation of students' motivational readiness for research activities (in % of the number of respondents).

The results of the first cut showed that 71.4% of students in the control group and 81% of students in the experimental group are aware of the value of research activities in the educational process, show research activity. The discrepancy between the indicators of all levels in these groups is insignificant. Thus, the data on the high level in the control group is 4.7% higher than in the experimental group. The indicator of the average level is lower than in the experimental by 9.5%. The data on the low level in the control group is 4.7% higher than in the experimental group.

The results of the second cut indicate positive changes in both groups. In the control group, the increase in indicators at a high level was 4.8%, and in the experimental group – 23.8%. In the control group, there was an increase in indicators at the average level by 4.8%, the indicators of the average level in the experimental group remained unchanged. Changes at a low level in the experimental group are higher than in the control group. The results of the final cut indicate the absence of students in the experimental group who did not comprehend the importance of research activities for their further professional activities. In the control group, there is a decrease in low-level data by 9.5%, but 19.1% of students have a negative attitude to research activities. The results of the cross-sections showed that the increase in indicators reflecting the degree of awareness of the importance of mastering research skills and abilities in the experimental group exceeds that in the control group.

The results of the first cross-section presented in Table 2 indicate minor discrepancies between the self-esteem indicators of students in the control and experimental groups. The indicator of self-esteem at a high-level in the control group is 4.7% higher than in the experimental group. The data of the average level in the experimental group is also 4.7% lower than those in the control group. There were no discrepancies in self-esteem at a low-level.

The data of the final cut indicate an increase in self-esteem in both groups. The increase in high-level indicators in the control group was 14.3%, in the experimental group – 23.8%. The indicators of the average level decreased in both groups by 9.5% due to an increase in the indicators of the high-level. Low-level indicators decreased in both groups: in the control group by 4.7%, in the experimental group by 9.5%.

The analysis of the data of the expert assessment of the level of development of students' motivational readiness for research activities and students' self-esteem indicates a discrepancy in indicators of all levels both in the control and experimental groups.

The results of the first cut indicate discrepancies in the expert assessment and self-assessment of the control group students. The

self-assessment index of students at a high level is higher than the real assessment by 9.5%, at an average level – by 4.8%. At a low level, the self-assessment index is 19.1% lower than the real assessment.

Levels of formation	Groups			
	Control		Experimental	
	Before the experiment	After the experiment	Before the experiment	After the experiment
High	33.3	47.6	28.6	52.4
Medium	52.4	42.9	57.1	47.6
Low	9.5	4.8	9.5	0

Students' self-assessment levels of formation of motivational readiness for research activities

The data of the first cross-section indicate discrepancies in the expert assessment and self-assessment of the students of the experimental group. The indicator of self-esteem at a high level is higher than the real estimate of 9.5%. There are no discrepancies at the average level. The low-level self-assessment index is 14.3% lower than the expert assessment data.

As a result of the analysis of the data of the final cut in the control group, significant discrepancies were revealed in the data of expert assessment and self-assessment of students at a high and low level. Thus, at a high level, students' self-esteem is 19% higher than the expert assessment, and at a low level, the self-esteem index is 14.3% lower than the real assessment.

Based on the results of the final cut, we found that the discrepancies in the experimental group were not so significant. At a high level, self-esteem is 9.5% higher than expert assessment, at an average level, self-esteem is 9.5% lower than real assessment. No discrepancies were found at a low level.

Comparing the data of expert assessment and self-assessment of students, it is possible to note positive changes in the development of students' motivational readiness for research activities in both experimental and control groups. However, a slight increase in the indicators of high and medium levels in the control group and the presence in this group of students with a low level of development of motivational readiness for research activities, significant discrepancies in the indicators of expert assessment and self-assessment of students do not allow us to speak about the high dynamics of the development of this component of the research competence of students in the control group.

All of the above allows us to judge the higher dynamics of the development of the motivational readiness of students of the experimental group for research activities.

The level of development of theoretical readiness for research activity was determined by indicators reflecting the degree of proficiency in the methodology of scientific research, the depth of understanding of the essence of research activity in professional training.

The level of knowledge was determined by both the teacher and the students themselves. The data obtained were summarized, converted into percentages and were summarized in two tables. Table 3 reflects the level of research knowledge identified based on the assessment of students' responses by the teacher. The results of the self-assessment of knowledge are presented in Table 3.

Table 3

Levels of formation	Groups			
	Control		Experimental	
	Before the experiment	After the experiment	Before the experiment	After the experiment
High	9.5	19.1	14.3	38.1
Medium	52.4	57.1	42.9	61.9
Low	38.1	23.8	42,9	0

Expert assessment of the level of formation of students' theoretical readiness for research activities (in % of the number of respondents)

The data in Table 3 indicate that the results of the first cut did not reveal significant discrepancies in the level indicators in the control and experimental groups. Thus, the high-level indicator in the experimental group is 4.8% higher than in the control group. The data on the average level in the control group is 9.5% higher than in the experimental group. The low-level indicator is 4.8% higher in the experimental group than in the control group.

The results of the final cut indicated an increase in the indicators of high and medium levels in the experimental group. Thus, high-level indicators increased by 23.8%. The increase in the average level was 19%. The final section stated the absence of students with a low level of development of theoretical readiness for research activities. In the control group, it is also possible to note an increase in indicators at medium and high levels. At a high level, it is 9.6%, at an average level – 4.7%. The results of the final cut indicate a decrease in data on the low level by 14.3%, but 23.8% of students have not improved their level of research knowledge. A comparative analysis of the data obtained revealed discrepancies in indicators

of all levels in the control and experimental groups after the experiment. A significant discrepancy was revealed at a high level. The difference in growth here is 19%.

The self-assessment indicators presented in table 10 differ significantly from the data in table 3, representing an expert assessment, in terms of high- and low-level indicators. The results of the first cross-section show that in the control group more than half of the students noted an average and high level of research knowledge. The high-level indicator in this group was 23.8%, and the average level indicator was 47.6%. 28.6% of students noted a low level of development of research knowledge. In the experimental group, only 9.5% of students indicated a high level of proficiency in research knowledge, the average indicator is the same as in the control group. However, in the experimental group, the percentage of students who indicated a low level of proficiency in research knowledge was 14.3% higher than in the control group. The high-level indicator in the control group (23.8%) also exceeds this indicator in the experimental group (9.5%) by 14.3%. Thus, the first section revealed that the students of the experimental group are characterized by a more critical attitude to the level of their knowledge.

Table 4

Levels of formation	Groups			
	Control		Experimental	
	Before the experiment	After the experiment	Before the experiment	After the experiment
High	23.8	33.3	9.5	28.6
Medium	47.6	57.1	47.6	61.9
Low	28.6	9.5	42.9	9.5

Students' self-assessment of the level of formation of theoretical readiness for research activities

The results of the final cut in the control group indicate a decrease in the low-level indicator by 19.1% and an increase in the indicators of medium and high levels by 9.5%.

The final cut in the experimental group revealed an increase in self-esteem at all levels. The increase in indicators at the high level was 19.1%, on average 14.3%. The decrease in the indicator at the low level is significant, it is 33.4%. It should be noted that the self-esteem of students in this group is lower than the expert's assessment by 9.5% at low and high levels.

According to the self-assessment of the level of knowledge of both groups, it is possible to note a stable increase in indicators in the experimental group. In the control group, an increase in indicators was also

detected, but it is less pronounced, in addition, there is a discrepancy between the assessment and self-assessment in the direction of overestimation of the latter.

The level of development of technological readiness for research activity reflects the degree of formation of students' research skills and abilities. This level was determined by both the teacher and the students. The data in Table 5 reflect the level of development of research skills identified on the basis of expert assessment.

The results of the first cut indicate slight discrepancies at all levels in the control and experimental groups. The low-level indicator in the control group is 4.8% less than this indicator in the experimental group. In the control group, the average level is higher than that in the experimental group by 9.5%. High-level indicators differ by only 4.8%.

Table 5

Levels of formation	Groups			
	Control		Experimental	
	Before the experiment	After the experiment	Before the experiment	After the experiment
High	9.5	9.5	14.3	33.3
Medium	57.1	66.7	47.6	66.7
Low	33.3	23.8.	38.1	0

Expert assessment of the level of formation of technological readiness of students for research activities (in % of the number of respondents)

Table 5 shows that the results of the second slice indicate a relatively large increase in the high-level indicator in the experimental group compared with this indicator in the control group. In the experimental group, the high-level indicator increased by 19%, and in the control group, no changes at a high level were detected. The average level in the experimental group also increased by 19.1%. This indicator in the control group increased by 9.6%. In the experimental group, a low-level indicator indicates the absence of students with such a level of development of research skills after the experiment.

The data in Table 6 reflect the level of development of students' research skills, identified on the basis of self-assessment. The results of the first cross-section showed that most of the students of both groups noted an average level of development of research skills. The indicators of self-esteem at a high level in the control and experimental groups were the same. The average level in the control group exceeds this indicator in the experimental group by 4.7%. The indicator of a low-level in the control group is less than that in the experimental group by 4.8%. Thus,

in the process of data analysis, it was revealed that the self-assessment indicators slightly differ from the expert assessment data on indicators of all levels of the first cut in the control and experimental groups.

Levels of formation	Groups			
	Control		Experimental	
	Before the experiment	After the experiment	Before the experiment	After the experiment
High	19.1	23.8	19Д	38.1
Medium	57.1	57.1	52.4	61.9
Low	23.8	19.1	28.6	0

Students' self-assessment of the level of formation of technological readiness for research activities

The analysis of the results of the second cut indicates significant changes in the self-esteem of the students of the experimental group in terms of high and low levels. The increase in the high-level indicator was 19%. The decrease in the low- level indicator in the experimental group was 28.6%.

In the control group, changes occur at high and low levels. So, at a high level, the increase in indicators was 4.7%, the decrease in the low-level indicator is 4.7%.

The level of formation of students' productive readiness for research activity was determined by both teachers and students themselves. The results obtained were summarized, converted into percentages and summarized in two Tables 7 and 8.

Levels of formation	Groups			
	Control		Experimental	
	Before the experiment	After the experiment	Before the experiment	After the experiment
High	19.1	23.8	19.1	38.1
Medium	47.6	52.4	52.4	61.9
Low	33.3	23.8	28.6	0

Expert assessment of the level of formation of students' productive readiness for research activities (in % of the number of respondents)

An analysis of the data presented in Table 7 indicates minor discrepancies between low and medium levels in the control and experimental

groups. The indicators of the average level in the control group are 4.8% lower than in the experimental group. The low-level data in the control group is 4.7% higher than that in the experimental group. Thus, we can talk about an approximately equal level of formation of the effective readiness of students of the control and experimental groups. The results of the second slice indicate a relatively large increase in the high-level in the experimental group, compared with the control group. The high-level indicator increased by 19% in the experimental group. In the control group, the increase was 4.7%. The difference in the growth of the high-level indicator in the experimental group is 14.3% higher than in the control group. The increase in the average level in the experimental group is 4.8% more than in the control group. The results of the final cut indicate a significant decrease in the low-level indicator in the experimental group by 28.6%. The low-level indicator in the control group decreased by 9.5%.

Table 8

Levels of formation	Groups			
	Control		Experimental	
	Before the experiment	After the experiment	Before the experiment	After the experiment
High	28.6	33.3	19.1	33.3
Medium	47.6	57.1	57.1	61.9
Low	23.8	9.5	23.8	4.5

Students' self-assessment of the level of formation of effective readiness for research activities

The results of the analysis of the data presented in Table 8 indicate minor discrepancies between the self-esteem indicators of students in the control and experimental groups at high and low levels.

According to the results of the second cross-section, significant changes in the self-esteem of the students of the experimental group in terms of high and low levels can be noted. The increase in the high-level indicator in the experimental group was 14.2%, and in the control group 4.7%. In the experimental group, the decrease in the low-level indicator was 19%, in the control group – 14.3%.

When comparing students' self-assessment and expert assessment of the development of students' evaluative and reflexive skills, we found discrepancies in the assessments. The self-assessment of the control group students according to the results of the first high- and low-level cut is 9.5% higher than the expert assessment.

Minor discrepancies are also observed when analyzing the data of the self-assessment of students in the experimental group and the real

assessment. Thus, the self-esteem of the students of the experimental group at a low level is 4.8% higher than the expert assessment. There were no discrepancies at a high level.

The results of the final cut in the control group indicate a discrepancy in the indicators of students' self-esteem and expert assessment. The difference in indicators at the high level is 9.5%, at the average level – 4.7%, at the low-level – 14.3%.

A comparative analysis of the results of the expert assessment of the final section and the self-assessment of the students of the experimental group indicates minor discrepancies. Self-assessment indicators at high and low levels are 4.8% lower than the indicators of these levels of expert assessment.

Thus, the data obtained on the final cut by evaluating and self-evaluating students, indicate a higher dynamics of the development of the effective readiness of students of the experimental group for research activities. In the control group, there is also an increase in indicators, but these changes are less pronounced.

Conclusions. Experimental work to identify the effectiveness of the model we developed for the formation of students' research competence confirmed the hypothesis we put forward. The study of the features of the existing practice of professional training, conducted at the preparatory stage, revealed an insufficient level of formation of students' research competence. During the formative experiment, a model of the formation of the research competence of future foreign language teachers was introduced into the educational process. The analysis of the obtained data revealed an increase in indicators for the period between the first and final slices in the experimental group according to all criteria. The dynamics of the development of motivational readiness for research activities in this group is observed in the growth of the high-level indicator by 23.8% and the decrease of the low-level indicator to 0%. In the control group, the increase in indicators at a high level was 4.76%. According to the results of the second cross-section in the control group, we noted the presence in this group of students with a low level of development of motivational readiness.

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