THE EFFECTIVENESS OF USING LECTURE FORMS IN THE FRAMEWORK OF TRADITIONAL AND CONTEXTUAL LEARNING FROM THE EXPERIENCE OF THE TRANSPORT UNIVERSITY

¹Ekaterina Nurpiisova, ²Oleg Astrakhantsev, ³Natalya Kuznetsova

^{1,2,3}Irkutsk Branch of Moscow State Technical University of Civil Aviation, Irkutsk, Russia https://doi.org/10.5281/zenodo.7605534

Abstract. The article examines the effectiveness of the formation of legal skills among students of the Irkutsk branch of the Moscow State Technical University of Civil Aviation (MSTU GA) of technical areas of training through the comparative use of lectures in the educational process of the traditional form and the innovative form of active contextual learning.

Keywords: Contextual Learning, Lectures, Lectures of Traditional Form, Efficiency, Assimilation of Lecture Material, Innovative Form.

Introduction

Graduates of any university to have not only professional knowledge and skills, but also to know legal norms and be able to apply them in practice that modern life requires. For example, it is possible to make an apartment purchase and sale transactions without consulting a lawyer, protect your rights, exchange or reject of purchased low-quality goods by having legal skills and knowing the rules of law. Graduates also need legal knowledge in their professional activities for concluding an employment contract, for processing professional documents and so on.

The process of legal competency formation among students of technical specialties and areas of training proceeds is less intensively than in a law school. Students of non-legal faculties can get legal knowledge only during studying the academic discipline "Law" [13]. A qualitatively new approach to teaching students of modern universities is required. The problem is that classical lectures belong to passive forms of conducting classes. It is difficult to transmit information to students due to every student has his own peculiarities in new information processing [2]. As a whole, the effectiveness of the educational process depends on the method for transferring new knowledge.

Through a course of lectures of the academic discipline "Law", as an example, a study was conducted to determine the effectiveness of the formation of legal skills among students of the Irkutsk branch of the Moscow State Technical University of Civil Aviation (hereinafter the Irkutsk branch of the Moscow State Technical University of Civil Aviation) of technical training areas through the comparative use of traditional lectures and innovative forms of active contextual learning in the educational process.

Research tools and Methods

By conducting the lectures in both groups, there were set the same educational and cognitive objectives: to teach students to master legal terms and apply them in real-life situations and in professional activities; to orient themselves in the current system of labor legislation, to be able to analyze and apply it in practice.

The position of the teacher presenting the lecture material, his reflexive activity is an equally important condition in this experiment. In modern conditions of modernization of domestic

education, the lecturer's reflection is of particular importance. Without a reflexive view of himself, his activity and its effectiveness, a teacher cannot develop personally, identify and comprehend the reasons for his successes and failures, and therefore successfully teach [4]. Therefore, the tasks of the teacher included not only an interesting presentation of lectures, the disclosure of the topic considering the modern vision of the problem, but also self-analysis and self-assessment from the viewpoint of the students' results. Also, the task of the teacher was to include such information in the lecture, which is difficult to find independently.

By conducting lectures in group A, the following principles of traditional teaching were used:

The principle of developing and educating training aimed at the comprehensive development of the student's personality used by the lecturer, considering the students' level of training. The teacher gave life examples that develop causal relationships between the theoretical material presented and real life, which ultimately contributed to the education of students, the development and formation of their analytical skills.

The principle of conscious activity of students was implemented through cognitive examples from real life, creative tasks aimed at developing students' mental activity, the ability to make decisions independently and defend their perspective. All that contributed to the most conscious understanding of the educational material.

The principle of systematicity and consistency was realized in a logically constructed system of material; the use of structural and logical plans, diagrams and tables; the fragmentation of educational material into components, units; the use of generalizations for the systematization of knowledge.

The principle of visibility used by the teacher in the study of the norms of the Labor Code of the Russian Federation, implemented through training on specific legal tasks. Here, visual court documents and technical training tools were used.

The principle of scientific approach was embodied using scientific terms, best practices in teaching; the formation of a dialectical approach to the discipline studied by students; encouragement of students' research work.

The principle of accessibility was implemented through the preparation of lecture material and its presentation by the teacher, considering the intellectual and age characteristics of students, as well as the gradual increase of more complex educational material. Examples and tasks were given using the analogy method.

The principle of the strength of the teaching material was applied in practical consolidation of the lecture material by solving legal situational problems and included the use of logical relationships in teaching; as well as in the application of testing students' knowledge.

The principle of the theory and practice relationship provided by the evidence of scientific knowledge through examples of the application of law practice.

The principle of completion of the learning process was implemented through the application of theoretical legal knowledge in solving real legal problems and the control of students' knowledge.

Some principles of contextual learning developed by A.A. Verbitsky were used by conducting lectures in group B, let's consider them:

The principle of ensuring the student's personal inclusion in educational activities [17]. On the one hand, under the conditions of this experiment, the personal inclusion of students, their interest in learning, depended on individual and physiological characteristics and was caused by

the individual motivation of each student to get a prestigious and highly paid profession. On the other hand, involvement in the educational process undoubtedly depended on the creative abilities of the teacher, the fascination of the presentation of educational material, as well as the emotional state of participants in the educational process, the personal location of each, feelings of self-relation to the study material and solidarity with others, the logical relationship of the lesson and the synergetic impulse built by the lecturer [8].

The principle of modeling the comprehensive content, forms and conditions of professional activity in educational activities [17]. The content of professional activity was imitated in the process of applying elements of game technologies by presenting conclusions and justifying the legal assessment for controversial situations that are in real life.

The principle of problematic content and the process of its assimilation by students in educational activities [17]. The implementation of this principle occurred through the selection of educational material for compliance with the declared topic "Fundamentals of Labor Law" with the current level of development and application of legislation, the systematization of lecture material and the structural integrity of its content, considering the individual characteristics of students.

The principle of the leading role of joint activity [17]. The joint activity of the teacher and the students were built through the presentation of information by the lecturer, and then the students found the information they needed to solve situational problems in the norms of the Labor Code of the Russian Federation. In our experiment, the teacher acted as a mentor, participating together with students in solving legal problems. The assimilation of educational material occurs best when the student discovers the necessary information by his own means in an environment similar to a professional one [11].

The principle of unity of training and education of a professional [17]. Educational activity involves combining the educational process and learning into one whole. Within the framework of the considered classes of discipline "Law", the pedagogical influence of the lecturer contributed to the upbringing and development of the personality of students because a function of any branch of law is the educational content. By solving and discussing examples of legal problems, students gained knowledge that will further form their legal behavior and awareness.

The principle of continuity of traditional and new pedagogical technologies [17]. In this study, traditional lectures were the basis for innovative contextual learning, but more flexible and dynamic, with the use of game forms and considering the individuality of students [10]. Special attention was paid to the formation of students' motivation to acquire new information.

By introducing the lecture material, the main idea was the teacher's desire to form a legal basis of knowledge among students for the subsequent deeper assimilation of the educational material. Therefore, in both groups, lectures were organized in a form that students could understand. Simultaneously, the legal information was clearly systematized and methodically worked out. New definitions and terms were explained and supported by real-life examples, clearly presented to students in presentations, diagrams and tables [1]. The judgments expressed by the teacher were reasoned, had logical conclusions.

During the experiment, an emotional contact was established between the teacher and the students of both study groups through dialogues, direct questions to the audience and thinking aloud together to allow students to take an active position in the learning process and adapt to learning [7].

At the end of the lessons in both groups, the teacher conducted an anonymous survey of students to receive feedback on the assimilation of educational material, whether they liked the lesson and what they liked and what they didn't. Such interaction of the teacher and students allows responding promptly to emerging problems in the learning process and contributes to improving the efficiency of the educational process [3].

Investigation

The study involved students of two groups of the 3rd year of full-time education in the areas of training 25.03.01 "The technical maintenance of aircraft and engines" (group A) and 25.05.03 "The technical maintenance of aviation equipment and flight navigation systems" (group B). The age contingent of students in both groups is 19-20 years old. The lectures in group A were held using traditional lectures. The students of group B were taught using the theory of contextual learning. The duration of the experiment included 6 lecture hours on the topic "Fundamentals of labor law" of discipline "Law". The content of the lectures includes the concept of an employment contract, its essence and difference from a civil contract (2 hours); the procedure of concluding and termination an employment contract (4 hours).

In group B, elements of a problem lecture were included in the first 2-hour lesson. The students had to determine independently how an employment contract differs from a civil contract, substantiate their assumptions with examples. During the lesson, an imitation-training model of contextual learning was used. The students discussed the lecture material outside the framework of symbolic information, recalled the material of lectures already passed on the topic "Fundamentals of Civil Law", correlated the information with examples of real life and future professional activity.

The next 4-hour lecture was conducted with pre-planned mistakes and provocations of the lecturer. The students were invited to act as experts, giving a legal assessment of the teacher's situations as an example. They had to step up their attention, think independently, look for ways to solve legal problems, determine their attitude to work, to legal norms, realize their own level of knowledge on this topic and attitude to future professional activity.

Summing up the results of the training session occurred in the form of a discussion of the answers to the students' remaining questions; the teacher drew the students' attention to the ambiguity and multidimensional nature of the proposed legal situations, showed the possibility of a "turn of events" in another direction. Such lectures are a socio-educational model of contextual learning.

In group A, lectures on the above-mentioned topics were conducted by presenting lecture material with colorful examples and vivid presentations by the teacher.

Results

A necessary and important condition for the effectiveness of training is the control over the assimilation of the study material by students [9]. The control of students' knowledge in both groups was performed in the form of an oral survey, control work and testing. The results of the control and measuring materials were summarized within the designated study groups and the average value of the study group was output. In this study, the characteristics of the levels of assimilation of educational material contain the following requirements:

the reproductive level is the perception of new information, comprehension and memorization;

the basic level is the application of legal norms and other related knowledge according to a given pattern, the solution of such tasks;

the advanced level is an independent analysis of legal acts, searching for the required information from the array of current legislation and its application in practice;

the creative level is an independent application of the current legislation in practice in atypical situations, possession of elements of creative (research) activity, drafting of statements of claim, various types of contracts and other legal documentation.

The qualitative assessment of students' assimilation of educational material combines the effectiveness or awareness, consistency and strength of acquired knowledge [17]. Thus, a student should be able to navigate the current legislation, retain knowledge in memory and apply it in practice. The control of students' knowledge showed the following results of students' mastering of educational information by levels of assimilation of educational material, presented in Table 1.

Table 1.

The results of students' mastering of educational information by levels of educational material assimilation

N⁰	Levels	Indicators of students' mastering of educational information by groups	
		Group A	Group B
1.	Reproductive	87%	93%
2.	Basic	80%	81%
3.	Advanced	56%	68%
4.	Creative	40%	51%

According to the results, it can be seen that the indicators of mastering lecture information on the topic "Fundamentals of labor law" at all levels of educational material assimilation by students in both groups are high. Note that the indicators of group B where lecture forms of contextual learning were used are higher than the indicators of educational material assimilation of group A. At the reproductive and basic levels, where students must memorize and reproduce information, the gap in exponential values is small, from 1 to 6%. When testing knowledge of advanced and creative levels of information assimilation, the difference in exponential values exceeding 11-12%. It is not significant, but it still affects the quality of training of graduates future specialists.

The results of the assimilation of information on the topic "Fundamentals of labor law" in general by study groups are presented in Fig. 1.

Fig. 1.





The analysis of feedback and control of students' knowledge showed that in the study group, where students took an active part in educational activities, namely, expressed their opinions, systematized and analyzed information, looked for ways to solve legal situations (group B), the percentage of assimilation of lecture material was higher and amounted to 73%.

In group A, where lecture material in the traditional form, supported by examples and conclusions of the teacher was presented, the assimilation of information on the topic was 66%.

Thus, these results confirm the effectiveness of problem-oriented learning, compared with the traditional acquisition of fundamental scientific knowledge. A contextual approach to teaching can give students with the knowledge necessary for their subsequent education and development in general [6].

However, the difference in the results of the experiment is not statistically significant. The analysis of the feedback results of the students showed that the students preferred contextual learning because of the possibility of the practical application of the rules of law, because of which their interest and increased motivation for learning were observed.

Conclusion

Based on the obtained data, it can be concluded that the contextual study of the topic and discussion of real-life examples contributed to the rapid assimilation of legal information by students, the formation of a certain lexical stock of legal terms, a mechanism for protecting their rights and implementing legal norms.

Through the research conducted within the framework of this work, the positive features of the use of lecture forms in contextual learning are revealed, which consist of the following:

- using methods of nonstandard knowledge control, for example, reproduction of practical (production) situations, business games [12];

forcing the student to make decisions independently or in a group or to analyze the existing situations;

informing students about professional skills by modeling the activities of a future specialist. The student is directly introduced into the framework of his competence, participates in the functioning of the so-called workflow, studies and understands its problems [18];

- establishing skills of successful cooperation and partnership between students - future specialists [19];

- realization of a student's right to his own activity, to perceive himself as the creator of his own knowledge and, as a result, in understanding the options for career advancement [15];

- the development of students' sense of belonging to the profession and their own usefulness, including expressed in public recognition within the study group [16];

- increasing the level of mastering knowledge, skills and abilities of students.

The use of lecture forms of contextual learning provides positive indicators of such factors as the following: individual professional focus of each student; creative approach in solving practical problems; students' desire for independence of their own opinion [14].

Despite numerous advantages, the implementation of contextual learning technology has some disadvantages. They consist in a labor-intensive process of curriculum revision to ensure the increasing complexity of the educational process, from the beginning to its completion.

Nevertheless, the use of lecture forms of contextual learning in higher education is effective and has its right to exist.

REFERENCES

1. Aly, M., Elen, J., Willems, G. (2004) Instructional multimedia program versus standard lecture: a comparison of two methods for teaching the undergraduate orthodontic curriculum.

European Journal of Dental Education. Vol. 8. 1: 43-46. https://doi.org/10.1111/j.1600-0579.2004.00315.x.

- Afanasyeva, T.S., Grishakina, N.I. (2019) The use of representative systems as a means of teaching students. The European Proceedings of Social & behavioral Sciences EpSBS: CIEDR 2018. Future Academy: Published by the Future Academy. p. 924-932. https://doi.org/10.15405/epsbs.2019.04.100.
- 3. Bensky, T.J. Computer-controlled in-class feedback system for interactive lectures. American Journal of Physics. Vol. 71. 11: 1174.
- 4. Biktagirova, G.F., Roza, A. Valeeva, Roman, S. Nagovitsyn (2021) Reflexive Teacher: Main Difficulties of the Reflexive Activity of Teachers with much Pedagogical Work Experience. European Journal of Contemporary Education. 10 (1): 18-28.
- Enarson, C., Cariaga-Lo, L. (2001) The influence of curriculum type on student performance in the United States Medical Licensing Examination Step 1 and Step 2 exams: problem-based learning vs. lecture-based curriculum. Medical Education. Vol. 35. 11: 1050-1055. https://doi.org/10.1046/j.1365-2923.2001.01058.
- Eremeeva, G.R., Khamisovna, I.F. (2020). Dialogic communication between teachers and students as a condition for interacting subjects of the higher school educational process. International Journal of Higher Education. Vol. 9. 8: 46-51. https://doi.org/10.5430/ijhe.v9n8p46.
- 7. Comerford, S.A. (2005) Engaging through Learning Learning through Engaging: An Alternative Approach to Professional Learning about Human Diversity, Social Work Education. 24:1. 113-135. https://doi.org/10.1080/0261547052000325017.
- 8. Kankulova, S.H. (2011) The levels of assimilation by students of educational material in mathematics. Bulletin of SUSHPU. № 5.https://cyberleninka.ru/article/n/urovni-usvoeniya-uchaschimisya-uchebnogo-materiala-po-matematike.
- 9. Kolomiets, O.M., Kondakchyan, N.A., Karpova, O.Y., Matienko, I.V. (2020) Teaching activities in higher education institutions based on the psychological theory of the assimilation of educational material by the student. Andamios. Vol. 17. 43: 175-189. https://doi.org/10.29092/uacm.v17i43.770.
- 10. Levesque, J.E. (2014) A comparison of problem-based learning and traditional lecture methods on medical student performance. https://doi.org/10.1016/j.nedt.2005.11.002.
- 11. Liu, Z.Y., Shaikh, F., Gazizova, Z.A. (2020) Using the concept of game-based learning in education. International Journal of Emerging Technologies in Learning. Vol. 15. 14: 53-64. https://doi.org/10.3991/ijet.v15i14.14675.
- 12. Northcott, J. (2001) Toward an ethnography of the MBA classroom: a consideration of the role of interactive lecturing styles within the context of one MBA program. English for Specific Purposes. 2001. Vol. 20. 1: 15-37.
- 13. Nurpiisova, E.M. (2016) Formation of legal competencies of students of technical specialties and training areas: implementation experience. Modern problems of vocational education: experience and solutions. Materials of the First All-Russian scientific and practical conference with international participation. p. 640-643.
- Pauline-Graf, D., Mandel, S.E., Allen, H.W., Devnew, L.E. (2021) Assumption validation process for assessing technology-enhanced learning. Contemporary Educational Technology. Vol. 13. 4: 316. https://doi.org/10.30935/cedtech/11071.

- Ryabova, M.Y., Filatova, E.V. (2020) Didactic Methods and Approaches of Formation of Professional Communication in Foreign Languages for Students of Engineering Specialties. Integrating Engineering Education and Humanities for Global Intercultural Perspectives: Proceedings of the Conference "Integrating Engineering Education and Humanities for Global Intercultural Perspectives," St. Petersburg. St. Petersburg: Springer Nature. p. 21-27. https://doi.org/10.1007/978-3-030-47415-7_3.
- 16. Tuma, F. (2021) The use of educational technology for interactive teaching in lectures. Annals of Medicine and Surgery. Vol. 62: 231-235. https://doi.org/10.1016/j.amsu.2021.01.051.
- 17. Verbitsky, A.A. (2006) Contextual learning in a competency-based approach. Higher education in Russia. No. 11: 39-46.
- Wang, C.A., Huang, L. (2021) Systematic Review of Serious Games for Collaborative Learning: Theoretical Framework, Game Mechanic and Efficiency Assessment. International Journal of Emerging Technologies in Learning. Vol. 16. 6: 88-105. https://doi.org/10.3991/ijet.v16i06.18495.

Wu, T.T. (2021) Analysis of the effects of a game-based review system integrated with the hierarchy of learning on learning outcomes in an elementary social science course. InterActive Learning Environments. https://doi.org/10.1080/10494820.2021.1948870