INTEGRATION OF THE CASE STUDY IN ENGLISH LANGUAGE TEACHING FOR DEVELOPING FUTURE PILOTS' PROFESSIONAL RELIABILITY

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The article focuses on studying the formation of such a competence as professional reliability among pilot-cadets in the process of studying aviation English at aviation universities. Scientific works of researchers who have explored similar subject are analized here. It examines the application of the case study in the education process as an effective pedagogical teaching method in the history of education across various specialties. The authors also pay special attention to the effectiveness of the case study in the process of distance learning. The article asserts that the use of the case study in the educational process for aviation specialists is a necessary didactic component and contributes to the development of critical thinking, which helps enhance stability and reliability skills for performing flight tasks in both normal and emergency situations.

The article describes the application of case studies in theoretical aviation English lessons and directly during training on flight simulator systems. It presents a plan for using the case study in simulator-based training sessions. The authors analyze the possibility of sustainably developing reliability among pilot-cadets during simulator training sessions. An experimental study of this aspect confirms that it requires careful study and development of organizational aspects and methods to achieve a common goal, how to effectively build a reliable level of knowledge in aviation English language for future flight operations professionals.

Key words: *case study, critical thinking skills, professional activity, professional reliability and sustainability, Aviation English, aviation specialists' simulator training.*

Півень В. В., Чередниченко Н. Г., Мельниченко Т. Є. Застосування кейс-методу у навчанні англійської мови для розвитку професійної надійності майбутніх пілотів

Стаття присвячена дослідженню формування у курсантів-пілотів такої компетентності, як професійна надійність, у процесі вивчення англійської мови в авіаційних навчальних закладах та аналізується роль кейс-методу в дидактичному наповненні дисципліни «Авіаційна англійська мова». Розглянуто застосування кейсів у навчальному процесі як ефективного педагогічного методу навчання. Використання кейсів у навчальному процесі авіаційних фахівців є необхідним дидактичним складником, що стимулює розвиток критичного мислення, сприяє підвищенню стійкості та надійності навичок виконання льотних завдань як у звичайних, так і в надзвичайних ситуаціях.

У статті розглянуто застосування кейсів під час теоретичних занять з англійської мови та безпосередньо в процесі моделювання польотних ситуацій на авіасимуляторах. Особливу увагу автори приділяють ефективності кейс-методу під час дистанційного навчання. Також проаналізовано можливості сталого розвитку професійної надійності у курсантів-пілотів під час навчання на тренажерах. Експериментальне вивчення цього аспекту підтверджує, що формування і розвиток професійної надійності вимагає розробки організаційних параметрів і використання відповідних методів (у нашому випадку кейс-методу) для досягнення такої мети, як ефективне забезпечення надійного рівня знань з авіаційної англійської мови у майбутніх авіафахівців.

Ключові слова: *кейс-метод, навички критичного мислення, професійна діяльність, професійна надійність і стійкість, авіаційна англійська мова, тренажерна підготовка авіаційних фахівців.*

Introduction. In the modern world the knowledge of the English language confirms the high competence of any specialist and approves the promotion of the specialist in the sphere of his profession. We consider a case study using in education of aviation specialists as an integral part of improving their professional level, specifically in developing reliable skills in future pilots. The case study method in education was developed in the 1920s for management training at Harvard Business School. The term "situation" had previously been widely used in legal studies; however, at Harvard, professors began assigning students real-life business or management scenarios containing a problem for discussion after lectures. This was followed by lively debates and the students themselves finding solutions. A crucial aspect of this approach was the collective discussion of the proposed solutions among students [9].

Materials and methods. Let's revise some aspects from the world history of case-study development. In global educational practice, the case study method became widely adopted in the 1970s and 1980s. Its significance in modern education is reflected in the following data: on average, 35–40% of instructional time in Western universities is dedicated to analyzing typical cases. At the University of Chicago Business School, case studies account for 25% of the curriculum, at Columbia Business School – 30%, and at the renowned Wharton School – 40%. The leader in case study hours remains its pioneer, Harvard. An average student at Harvard analyses up to 700 cases during their studies [18]. Among international scholars, contributions have been made by Fowler Christine, Carr Leslie, C.J. Gutteridge, S. Hitchcock, P. Simpson, J. Hey, and others. Studies on the use of case method have been conducted by E. Duval, X. Ochoa, Daniel Gelaw Alemneh, and others. Ukrainian researchers such as O. Sydorenko, Yu. Surmin, V. Chuba, P. Sheremeta, L. Shtefan, Novytska T., Katerenchuk I. and others, have developed the theoretical foundations of the case method as an innovative approach that promotes critical thinking. This method teaches students to systematically address current educational and professional challenges by integrating theory and practice in a close interconnection. But nobody has studied this approach in the sphere of aviators' education and in Ukraine and abroad.

The use of such method of teaching in the educational space of aviation English is carried out on the basis of an integrated approach, where knowledge from the research and professional fields is transferred to the real oral presentation by means of English. Such projects contribute to the creation of an enabling environment for the development of critical-thinking skills and English-speaking skills in the professional sphere. In the result of the study, the article describes the structure of case study, its content, in relation to the stated conditions, lists certain difficulties arising and possible approaches of overcoming them. It is concluded that case study tasks related to the professional activity of future aviation specialties motivate to learn English and bring the educational process closer to real communication in professional field. The practical experience gained during the training will be considered a valuable asset for building a successful career in the future [11]. We will consider this issue from the perspective of professional training for future pilots, specifically in developing reliable skills in learning aviation English. Modern scientific and technological progress in the form of the Fourth Industrial Revolution has fundamentally changed the requirements for the development of the aviation industry worldwide, including in Ukraine. The significance of the reliability of professional skills for a modern aircraft pilot has increased immeasurably.

Discussion. In recent years, the issue of developing organizational parameters and didactic content for pilot training in English communication according to ICAO standards has become increasingly relevant in the aviation sector and professional education. The situation with professional training has become more complicated in our country due to Russian invasion of Ukraine. The teaching process had to be adopted to the stressful conditions, but in spite of this case study in the process of future pilots teaching is one of the main for pilots' professional skills development [7; 17]. While classroom and simula-

tor-based learning have traditionally and classically played a crucial role in forming reliable knowledge, skills, and competencies in future pilots, distance learning technology is now considered a relatively new approach. It requires thorough study and the development of organizational aspects and methods to achieve a single goal such as effectively forming a reliable level of knowledge in aviation English for future flight operation specialists. The specifics of simultaneous activities of piloting an aircraft and conducting radio communication in English must be considered. Currently, organizational, technological, and didactic foundations have been developed exclusively for the traditional training approach. However, given the modern stressful situation in our country due to the war, the integration of classroom, distance, and simulator training technologies has become particularly critical. The integrative effect should be achieved through the completeness and adequacy of connections, as well as the focus of training goals and objectives on the final result such as ensuring reliable radio communication in English under both standard and non-standard flight conditions, as well as achieving a free command of English at a level no lower than ICAO Level 4.

Let's revise some methods for Aviation English training. The most relevant distance learning methods for training future pilots in aviation English include:

– **Case Study.** It is based on using sets (cases) of text, audio visual, video and multimedia instructional materials, which are distributed for independent study, supplemented by regular consultations with an instructor.

– **Internet-Network Method.** This method is aimed on using the Internet and telecommunications to provide instructional materials and enable interactive interaction between cadets and instructors.

In our article we will focus in details on the case study, which is the leading approach in training future pilots. This method has been widely used even in traditional learning as an element of distance learning technology.

A case is a description of a specific situation or event in any field – social, economic, medical, or, in this case, aviation. Typically, a case contains not only a description but also a problem or contradiction and is based on real facts. The case method is a teaching technology based on analysing a specific real-life situation. We have to identify the goals of case study.

The goal of this method is to develop the following skills in cadets:

– independent or group analysis and structuring of information;

– identifying key problems and exploring alternative solutions;

– evaluating the effectiveness of solutions and choosing the optimal course of action;

– developing action plans based on the chosen solutions [4].

For aviation training, case materials are typically based on real emergency or non-standard situations in aviation. During training, pilot-cadets are given an emergency situation to analyse and propose optimal solutions.

And what way is the case study implemented? A thematic case is sent to each cadet in advance, allowing time to study the material. In some cases, an executive case (Executive Case) is presented directly during an online session. Using the brainstorming method, cadets solve the case within a time limit, which is extremely useful for developing reliable decision-making skills in professional tasks.

Typically, case situations are presented in the form of:

– a video clip featuring a real emergency (e.g., YouTube videos);

– a documentary video (e.g., "Air Crash Investigations");

– a real photograph from the crash site.

Cadets are required to complete the case analysis by:

1) describing the image;

2) identifying the possible cause of the emergency;

3) analysing the hypothetical actions of the pilot and air traffic controller;

4) modelling an alternative outcome if the pilot had acted differently;

5) proposing their own algorithm of actions for a similar situation.

Without doubt the case study has its own advantages in distance learning. Compared to traditional training methods, especially in a distance

learning format, the case-study offers several key advantages:

1. Practical orientation. The case study allows cadets to apply theoretical knowledge to practical tasks. This approach compensates for purely academic education and provides a broader understanding of real-world scenarios.

2. Interactive format. The high emotional engagement and active participation required in the case-study contribute to more effective knowledge retention. Cadets "immerse" themselves in the situation by taking on the role of key figures such as the pilot-in-command or first officer and solving the problem from their perspective. The focus of learning shifts from acquiring ready-made knowledge to developing decision-making algorithms in emergency situations.

3. Development of specific skills. The case-study enhances soft skills, which are essential in real-world aviation operations. Through case-based training, cadets develop structured decision-making models for various emergency situations. This reduces response time under stressful conditions and enables them to apply the developed algorithms in actual flights [11].

Results. Given the force majeure conditions of modern education, the instructors of the Department of Professional and Aviation Language Training at the Ukrainian State Flight Academy have developed an additional special course in the discipline "Aviation English" for simulator training. This course takes into account the specifics of the subject, with the primary goal of teaching pilot-cadets to handle various situations during flight using their knowledge of aviation-oriented English. The priority method in this course is the case-study, which is specifically aimed at achieving this objective. In the distance learning system, this course has become a priority for developing competencies such as resilience and reliability, which are essential for the professional training of pilots.

Such themes with appropriate cases were included into the program of the special course for simulators:

Unit 1. Peculiarities of pilot's job and responsibilities**. Case***: The Tragic tale of Air Algérie Flight 6289, March, 2003.*

Unit 2. Navigational equipment breakdown. **Case***: Pilot Ignored The Warnings (Vietnam Airlines Flight 815) – disaster breakdown.*

Unit 3. Weather problems. ***Case: How UPS Flight 1354 Ended in Disaster.***

Unit 4. Communication problems. ***Case: BOEING 787 Delivery – very special approach into Cairo.***

Unit 5. Risk of the bird strike on the ground and in the air. ***Case: MD-82 Crash Immediately After Take Off Because Of Bird Strike.***

Unit 6. Pressurization problems and emergency descent. ***Case: Terrible Emergency Landing of A380, November, 2010.***

Unit 7. Engine failure. ***Case: British Airways flight 9, B-747, June, 1982.***

Unit 8. Fire on board. ***Case: Tenerife airport disaster. March, 1977.***

Unit 9. Landing Gear Problems. ***Case: The Incredible Story of Singapore Airlines. Flight 319, October, 2022.***

Unit 10. Unlawful Interference. ***Case: Malaysia Airlines. Drain the Ocean.***

Conclusion. Thus, the case study is one of the most effective training approaches for preparing pilot cadets through distance learning technologies. By simulating real-world aviation incidents and emergency situations, the method ensures that future pilots develop the essential competencies required for safe and efficient flight operations. The special course of Aviation English with case studies has already been integrated into the program for future pilots' education and showed the positive and stable results. It proves that case study provides transforming knowledge from the real situation to the real oral presentation by means of English and developing reliability of future pilots' professional activity.

Bibliography

1. Anderson T., Elloumi A. Theory and Practice of Online Learning. / Eds. T. Anderson, F. Elloumi. Athabasca University. 2009. 454 p.

2. Börje Holmberg. Status and Trends of Distance Education. London : Kogan Page, 1990. 200 p.

3. Dean P. Effectiveness of combined delivery modalities for distance learning and redent learning. *Quarterly Review of Distance Education*, 2001.2(3), P. 247–254.

4. Shanks G., Bekmamedova N. Research Methods: Information, Systems, and Contexts. Chandos Publishing, 2018. 644 p.

5. Keegen D. Foundations of distance education / D. Keegen. London and New York : Routleage. 3rd revised edition, 1996. 224 p.

6. Paul R. W. Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World. 3-rd edition revisited. Santa Rosa, CA. 2013. P. 97–98.

7. Piven V. Modern Conception of Teaching Aviation English. *Психологія і педагогіка на сучасному етапі розвитку наук: актуальні питання теорії і практики* : тези доповідей Міжнародної науково-практичної конференції. м. Одеса. 2021. С. 183–186.

8. Ruggiero V. R. Beyond feelings: A Guide to Critical Thought. 9th ed. McGraw-Hill. 2012. 238 p.

9. Rule P., Vaughn M. John. Handbook of Case Study Research in the Social Sciences. South Africa, 2024. 368 p.

10. Сисоєва С. О. Інтерактивні технології навчання дорослих : навчально-методичний посібник. НАПН України, Ін-т педагогічної освіти і освіти дорослих. Київ : ВД «ЕКМО», 2011. 320 с.

11. Ситуаційна методика навчання: теорія і практика / Упор. О. Сидоренко, В. Чуба. Київ : Центр інновацій та розвитку, 2001. 256 с.

12. Терно С. О. Світ критичного мислення: образ та мімікрія. *Історія в сучасній школі.* 2012. № 7–8. С. 27–39.

13. Терно С. О. Теорія розвитку критичного мислення (на прикладі навчання історії). Запоріжжя : Запорізький національний університет, 2011. 105 с.

14. Тягло О. В. Критичне мислення : навчальний посібник. Харків : Вид. група «Основа», 2008. 192 с.

15. Тягло О. Післямова до статей Метью Ліпмана і Марка Вайнстейна. *Вісник програм шкільних обмінів.* 2006. № 27. С. 26–27.

16. Хачумян Т. І. Формування критичного мислення студентів вищих навчальних закладів засобами інформаційних технологій : дис. … канд. пед. наук : 13.00.09. Харківський національний педагогічний ун-т ім. Г. С. Сковороди. Харків. 2005.

17. Чередниченко Н. Г., Шевченко В. Б. Педагогічні аспекти організації самостійної роботи в процесі вивчення професійної англійської мови. *Управління високошвидкісними рухомими об'єктами та професійна підготовка операторів складних систем :* збірник тез доповідей V Міжнар. наук.-практ. конф. Кіровоград : КЛА НАУ. 2016. С. 160–161.

18. Williams Ch. Strategic Business Case Analysis. Taylor & Francis Publishing, 2023. 208 p.

References

1. Anderson, T., & Elloumi, A. (2009). Theory and Practice of Online Learning. / Eds. T. Anderson, F. Elloumi. Athabasca University, 454. [in English]

2. Börje Holmberg. (1990). Status and Trends of Distance Education. London: Kogan Page, 200. [in English]

3. Dean, P. (2001). Effectiveness of combined delivery modalities for distance learning and redent learning. *Quarterly Review of Distance Education.* 2 (3), 247–254. [in English]

4. Shanks, G., & Bekmamedova, N. (2018). Research Methods: Information, Systems, and Contexts. Chandos Publishing, 644. [in English]

5. Keegen, D. (1996). Foundations of distance education. London and New York: Routleage. 3rd revised edition, 224. [in English]

6. Paul, R. W. (2013). Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World. 3-rd edition revisited. Santa Rosa, CA, 97–98. [in English]

7. Piven, V. V. (2021). Modern Conception of Teaching Aviation English. *Psihologija i pedagogika na suchasnomu etapi rozvitku nauk*: aktual'ni pitannja teorії i praktiki. Zbirnik naukovih robit. Mizhnarodna naukovo-praktichna konferencija, m. Odesa, 183–186. [in English]

8. Ruggiero, V. R. (2012). Beyond feelings: A Guide to Critical Thought. 9th ed. McGraw-Hill, 238. [in English]

9. Rule, P., Vaughn, M. John. (2024). Handbook of Case Study Research in the Social Sciences. South Africa, 368. [in English]

10. Terno, S. O. (2012). Svit krytychnoho myslennia: obraz ta mimikriia [The world of critical thinking: image and mimicry]. *Istoriia v suchasnii shkoli.* (7–8), 27–39. [in Ukrainian]

11. Sydorenko, O. (2001). Sytuatyvna pidhotovka v osviti: teoriia ta praktyka [Situational training of education: theory and practice]. Kyiv: Tsentr innovatsiy ta rozvytku, 256. [in Ukrainian]

12. Sysoieva, S. O. (2011). Interaktyvni tekhnolohii navchannia doroslykh [Interactive adult learning technologies]: navchalno-metodychnyi posibnyk. NAPN Ukrainy, In-t pedahohichnoi osvity i osvity doroslykh. Kyiv : VD «EKMO», 320. [in Ukrainian]

13. Terno, S.O. (2011). Teoriia rozvytku krytychnoho myslennia (na prykladi navchannia istorii) [The theory of development of critical thinking (on the example of teaching history)]. Zaporizhzhia : Zaporizkyi natsionalnyi universytet, 105. [in Ukrainian]

14. Tiahlo, O. V. (2008). Krytychne myslennia: navchalnyi posibnyk [Crirtical Thinking: Study Guide]. Kharkiv : Vyd. hrupa «Osnova», 192. [in Ukrainian]

15. Tiahlo, O. V. (2006). Pisliamova do statei Metiu Lipmana i Marka Vainsteina [Afterword to articles by Matthew Lipman and Mark Weinstein]. *Visnyk prohram shkilnykh obminiv*. (27), 26–27. [in Ukrainian]

16. Khachumian, T. I. (2005). Formuvannia krytychnoho myslennia studentiv vyshchykh navchalnykh zakladiv zasobamy informatsiinykh tekhnolohii [Formation of critical thinking of students of higher educational institutions by means of information technologies]: dys. kand. ped. nauk: 13.00.09 Kharkivskyi natsionalnyi pedahohichnyi un-t im. H. S. Skovorody. Kharkiv. [in Ukrainian]

17. Cherednychenko, N. H., & Shevchenko, V. B. (2016). Pedahohichni aspekty orhanizatsii samostiinoi roboty v protsesi vyvchennia profesiinoi anhliiskoi movy [Pedagogical aspects of organizing independent work in the process of teaching professional English]. *Upravlinnia vysokoshvydkisnymy rukhomymy obiektamy ta profesiina pidhotovka operatoriv skladnykh system* : zb. tez dopovidey V Mizhnar. nauk.-prakt. konf. Kirovohrad: KLA NAU, 160–161. [in Ukrainian]

18. Williams, Ch. (2023). Strategic Business Case Analysis. Taylor & Francis Publishing, 208. [in Ukrainian]