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METHODOLOGICAL E-CASE CLASSIFICATION TO FORM THE ENGLISH LEXICAL COMPETENCE OF SENIOR SCHOOL STUDENTS

The article considers the theoretical background of the e-case-based remote teaching and learning, substantiates the expediency of its employment in the context of English lexical competence formation and suggests a framework for methodological e-case classification with consideration of its implications for senior school students. Based on the criterion of the exhaustiveness of the solution, this paper identifies, characterises, compares and illustrates three types of e-cases: those of solution selection, of solution generation and of solution realization. Each type is considered in terms of its structure, instructional approach and examination procedure including the sequence of exercises and anticipated cognitive processes involved in the solution search. The article suggests the criteria for content selection and proposes sources for e-case creation for the English lexical competence formation among senior school students.

Key words: lexical competence, electronic case, e-case, e-case classification, e-case content selection, case-based learning, e-case-based learning, senior school students, the English language.

стання кейс-технології у контексті формування англомовної лексичної компетентності старшокласників та пропонує методичну класифікацію відповідних електронних кейсів для учнів старших класів з поясблением вивченням іноземних мов. На основі критерію вичерпності рішення, у статті визначено, охарактеризовано, порівняно та проілюстровано три типи електронних кейсів: кейси вибору рішення, генерації рішення та реалізації рішення. Кожен тип розглядається з точки зору його структури, підходу до організації навчання та процедури дослідження, включаючи поспідовність вправ та передбачені когнітивні процеси, які запушені до пошуку рішення. Стаття пропонує критерії відбору змісту та джерела для створення електронних кейсів для формування англомовної лексичної компетентності учнів старших класів.

Ключові слова: лексична компетентність, електронний кейс, класифікація електронних кейсів, відбір змісту електронних кейсів, метод кейсів, метод електронних кейсів, учні старших класів, англійська мова.

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МЕТОДИЧНА КЛАСИФІКАЦІЯ ЕЛЕКТРОННИХ КЕЙСІВ ДЛЯ ФОРМУВАННЯ АНГЛОМОВНОЇ ЛЕКСИЧНОЇ КОМПЕТЕНТНОСТІ СТАРШОКЛАСНИКІВ

Стаття розглядає теоретичні засади навчання за допомогою електронних кейсів, обґрунтовує доцільність викори-

Statement of the Problem. As it is postulated by the conceptual principles of general secondary school reform passed by Ministry of Education and Science of Ukraine (*The New Ukrainian School*, 2016; Державний стандарт профільної середньої освіти, 2024), the ability to communicate in a foreign language at levels B1-B2 is one of the key competences, which senior students are supposed to develop. The integral part of developing the English communicative competence of senior school students is the English lexical competence (ELC) formation (Bihych et al., 2013, p. 95). Another key competence specified by the conceptual principles of general secondary school reform (*The New Ukrainian School*, 2016) is ICT and digital competence; it is also postulated that students of senior classes are supposed to develop critical thinking, creativity, decision making and collaboration skills. Hence there is a need for examining educational methods in the context of the ELC formation, which em-

ploy digital tools and are conducive to fostering the skills mentioned above.

There is some evidence to suggest that the e-case-based learning yields positive results in language learning and in developing critical thinking, creativity, decision making and collaboration skills. According to Roell (2019) case-based-learning facilitates the development of linguistic skills in the course of authentic communication, which also involves the application of analytical and interpersonal skills. Lee et al. (2009) hold the view that cases facilitate discussion of the problem with consideration of its context. Graham (2014) claims that e-cases entail the deep processing of learning material. According to the findings of Kawulich (2011), multimedia cases have a positive effect on students' intrapersonal, problem-solving and presentation skills. In addition, there is some evidence to suggest that the simultaneous development of the aforementioned skills and the ELC formation is enhancing the latter: Takač (2008) claims that due to lexical knowledge having a comparatively great predisposition to attrition, lexical competence formation has to occur, *inter alia*, in compliance with the principles of cognitive and affective depth, personalisation, imaging, and conscious attention. All of that can be achieved in the course of the e-case-based learning.

Literature review. According to Lee et al. (2009), e-cases have the potential to provide students with a greater context owing to the employment of multimedia, and electronic tools can make up for working memory limitations, thereby streamlining the search for solutions. Tawfik et al. (2020) hold the view that the case-based learning leads to a better indexation of the gained knowledge scores, which results in an easier retrieval process. The study of Çam & Geban (2010) reveals evidence of the case-based learning being conducive to developing students' epistemological beliefs. The findings of Lee & Choi (2008) suggest the same for the e-case-based learning. Graham (2014) claims that e-cases enable more extensive instructor and peer feedback. Morrison (2001) holds the view that e-cases facilitate the learning process by providing the following: content visualisation, diagnosing weak skills and rehearsing students on them, supporting systematic reflection, selective and focused memorisation, dynamic variation of the scaffolding level, knowledge integration, universal access, independent and self-paced learning, synchronous and asynchronous group work including competitive, collaborative and complementary activities.

According to Koehler and Ertmer (2016), the employment of digital tools is conducive to case examination due to facilitating the development of students' metacognitive strategies, problem-analysis and communication skills.

Henrike et al. (2022) differentiate between the case method, which entails instructor-led discussion and general-principles deduction, and the case-based collaborative learning, which entails student-led discussions with faculty-led debriefs and general-principles application.

Based on the criterion of learning environment, Georgiou et al. (2008) distinguish live cases and classroom-confined cases. According to the criterion of case presentation form, Carroll & Rosson (2005) discern the following case types: critical narrative and document collections; while by the criterion of expected students' activity the researchers discriminate between the cases for analysis and discussion and the cases for decision-making and problem-solving. The classification suggested by Jonassen (2006) is based on case functions and includes the following types: cases as exemplars/analogies, cases as analogues, cases for study, cases as problems to solve and student-constructed cases. Morrison (2001) distinguishes "dead" and "alive" cases: the former can be solved using the information available to students, whereas the latter requires gradual assimilation of new data.

The purpose of the Research. The research aimed to theoretically justify the methodological classification of e-cases for the ELC formation among senior school students, to practically apply it in developing ELC of 10th grade senior school students as a particular case. It was meant to offer a systemic framework for e-case-based classroom experiential learning and to provide a reliable information that can be helpful in generating hypotheses on the preliminary stages of broader investigations.

Summary of the main content of the study. The study utilizes theoretical research methods such as analysis of academic and pedagogical literature connected with the issue of this research. It also comprises the results case study of applying e-cases to develop the ELC of senior school students. The data were gathered with scientific literature analysis method with the elements of content analysis, thematic analysis and trial teaching reflective analysis.

This study dwells on the e-case implementation under the conditions of a virtual environment due to many Ukrainian students being obliged to study remotely: according to the latest data, almost 1 million attend school exclusively virtually ("Школа онлайн", 2024).

The subjects of the research were twenty-two 10th-grade students of the municipal institution Sumy specialized school №9 in 2023-2024 academic year. They were all Ukrainians belonging to the same class with in-depth study of languages and literature, with English being the first foreign language, females and males of 15-16 years old.

The trial teaching took place within the English course. The teaching and learning process was carried out remotely in synchronous mode on the ZOOM platform with a targeted use of the specially developed e-case teaching materials in the course of two weeks. The students worked with the suggested teaching materials on the topics "Science and Technology" and "Society: Inclusion and Accessibility" in class and independently.

During the trial teaching we suggested organizing group work for solving e-cases, for this form of learning allows one to fulfil all stages of the ELC formation

by engaging students in discussion both before and after presenting the solutions: owing to their problem-based nature, e-cases provide students with the opportunity to analyse the learning situation while communicating, therefore enhancing their linguistic production (Ansarin & Teoh, 2018). We proposed the interaction enabled by the use of both synchronous and asynchronous communication tools, namely video calls and Web 2.0 collaborative tools, for two reasons. The first one is providing students with the opportunity to resort to different compensation strategies, e.g. non-linguistic signals like gestures or prefabricated patterns, which are more easily used in text communication; this learning practice is likely to reduce students' communication apprehension, what is conducive to the ELC formation (Kruk & Zawodniak, 2021). The second reason is conditioning the practice of both written and spoken speech for the comprehensive ELC formation.

In this article, we treat the e-case as the events and/or circumstances represented via digital tools and concerned with a certain problem, which requires finding a solution, *inter alia*, by engaging in problem identification, critical and creative thinking, troubleshooting and decision-making. We use the following definition of the ELC: "an ability to formulate one's utterances correctly and to understand the speech of others, which is based on the complex and dynamic interaction of corresponding skills, knowledge and lexical awareness" (Bihych et al., 2013, p. 215).

Cases in a virtual environment require a more directive style of instruction (Henrike et al., 2022, pp. 49-50). This circumstance calls for creating for students a more structured and lucid procedure of examining and discussing an e-case. This aim can be achieved with the use of the following optimum sequence of exercises for the ELC formation: semantisation of new lexemes, imitating speech models, giving laconic answers to alternative questions, inserting the lexemes into speech models, completing and expanding speech models, answering questions of different types, independent use of the lexemes in a phrase / sentence, merging speech models and using them in speech (Bihych et al., 2013, pp. 224, 229). Let us dwell on how this optimum sequence of exercises can be realised depending on a specific e-case type.

In accordance with the criterion of the anticipated level of students' independence and with the criterion of the exhaustiveness of the solution to the problem, we

suggest the following **methodological e-case classification to form ELC of senior school students**:

- the e-case of solution selection;
- the e-case of solution generation;
- the e-case of solution realization.

1. The e-case of solution selection

The e-case of solution selection prescribes several solution options being at students' disposal. Thus, the task lies in selecting an already formulated solution and substantiating one's choice. Let us exemplify this e-case type below:

Some view space exploration as a necessity, since in the long run it may enable interstellar travel, let us discover alien life and even save the humanity from being wiped out by an asteroid or from the Sun's death. However, other people argue that we should focus on Earthly problems, and thus, cut the space exploration budget in favour of solving the urgent problems of social injustices and global warming. So, are space programmes really worth it? In order to learn about the state of the problem, familiarise yourselves with the information you can access by opening the links below:

<https://www.planetary.org/articles/space-exploration-is-always-worthwhile>

<https://theperennial.org/2763/opinion/stop-spending-money-on-space-exploration/>

Compared to other e-cases, this type entails a smaller share of productive speech on the part of students. As a corollary of the above, it is expedient to employ the e-case of solution selection to form the ELC among the students with lower language proficiency.

Let us consider the peculiarities of exercises for the e-case of solution selection at the individual stages of the ELC formation.

With regard to the nature of the goal set for students, at the stage of semantisation of new lexemes, it is expedient to select the text model, which provides enough speech models for further substantiation of each offered solution; i.e. the text model has a sufficient amount of arguments "for" and "against" for each solution, as it has been demonstrated by the above example: the video makes a case for financing space exploration, whereas the article gives arguments against that.

Giving laconic answers to alternative questions can entail solution selection based on its advantages in that or other aspect of the problem:

Arguments for Space Exploration

Table 1

Space exploration	may	benefit humankind	anytime soon
Space research	help(s)	fuel technology advancements	in the long run
Knowledge about the universe	will	fight social injustices	in the near future
Studying space	won't	support highly skilled jobs	all the time

What can solve humanity's urgent problems: space exploration or fighting poverty?

What can lead to a giant leap for humanity in the long run: space exploration or fighting global warming?

Inserting the lexemes into speech models can be realised by using a table suggesting a certain grammar structure and vocabulary, an example of which is provided by Table 1 below.

Completing speech models can entail giving arguments against the chosen solution using the beginning of sentences as a model. Let us illustrate that by considering the following examples:

The disadvantage of investing in space exploration is ...

The money spent on space exploration could be ...

Some space discoveries are absolutely ...

While expanding speech models, students are expected to expand the antecedent statements so as to counter the arguments "against" or to demonstrate their irrelevance for the overall picture. This exercise helps students prepare for the questions from other groups, which will follow after the presentation. Let us demonstrate how expanding speech models can be realized below:

The 1st student's answer at the stage of completing speech models: *Some space discoveries are absolutely impractical.*

The 2nd student's answer at the stage of expanding speech models: *Some space discoveries are absolutely impractical at the moment, but that will change in the long run.*

The stage of answering questions of different types can involve formulating the advantages of the chosen solution for various social groups or certain spheres of human activity. Let us give an example of such questions below:

How does space spending pay off?

How does space research impact Earthly problems?

What social problems could be solved at the expense of the space exploration budget?

Independent use of the lexemes in a phrase / sentence can presuppose the preparation of questions for other groups, which have to be asked after the presentation.

Merging speech models can entail putting sentences in the correct order for their further usage as the introduction to a speech in order to outline the current state of the problem underlying the e-case.

The last stage of ELC formation can be realised while making preparations for and while actually presenting a speech dedicated to substantiating the chosen solution.

2. The e-case of solution generation

The e-case of solution generation involves creating, substantiating and describing a solution to the problem.

Let us give an example of this e-case type below:

Audrey is an artistic fourteen-year-old, who likes to stand out and express herself in everything, including her possessions. Her parents are going to buy a computer for her birthday, so Audrey's friends (who have a bud-

get of 500\$) would like to buy accessories and peripherals like a mousepad, headphones, speakers, a keyboard, custom keycaps, a microphone, etc. Here is the information about Audrey's interests and preferences, which can help her friends choose useful, memorable gifts with a personal touch:

- her favourite colour combinations are blue and pink, purple and yellow;
- her hobbies include listening to music, singing, watching cartoons and playing video games;
- she prefers wireless devices and thinks that backlit keyboards are very practical.

Let us consider the ELC formation stages using the aforementioned example.

The stage of giving laconic answers to alternative questions can be aimed at determining students' views regarding this or that issue for further splitting into groups. Let us exemplify the alternative questions below:

Is it better to buy fewer peripherals of high quality or more peripherals of average quality?

What does Audrey need more: speakers or headphones?

Inserting the lexemes into speech models can include the brainstorm for defining the general outline of the idea for solution generation, as it is demonstrated in Table 2 below.

Table 2
Ideas for gifts

<i>Audrey would like to get</i>	<i>(a) custom</i>	<i>keycaps.</i>
<i>Audrey's friends should buy</i>	<i>(a) wireless</i>	<i>mouse.</i>
<i>It would be the best solution to buy</i>	<i>(a) backlit</i>	<i>keyboard.</i>

For completing speech models, it is expedient to transition to searching and suggesting the components of the future solution. In the provided example, the exercise consists in examining specific products on such platforms as Amazon (<https://www.amazon.com>) and Etsy (<https://www.etsy.com>). Students have to complete the sentences, the examples of which are listed below:

This ... is convenient to use in the dark.

The ... matches Audrey's preference for ...

These ... are practical, because there are no wires to tangle.

The logical continuation of the previous exercise is expanding speech models, in the course of which the students are expected to comment on the previously voiced ideas, for instance:

The 1st student's answer at the stage of completing a speech model: *The keyboard matches Audrey's preference for blue and pink combination.*

The 2nd student's answer at the stage of expanding a speech model: *The keyboard matches Audrey's preference for blue and pink combination, but it isn't backlit.*

The 3rd student's answer at the stage of expanding a speech model: *The keyboard matches Audrey's preference for blue and pink combination, but it isn't wireless.*

In the course of answering questions of different types, students are expected to determine the advantages and disadvantages of separate voiced ideas. To clarify, let us consider the following example:

Which peripheral/accessory will probably become the most memorable gift?

Which peripheral/accessory is not likely to serve long to her?

During the independent use of the lexemes in a phrase/sentence, the selection of solution components and the final solution formulation takes place.

Merging speech models occurs identically to the same stage of the e-case of solution selection.

Using speech models in speech presupposes a procedure similar to the one at the corresponding stage of the e-case of solution selection, however, as it pertains to the e-case of solution generation, the presentation and the following discussion are also concerned with the solution description.

3. The e-case of solution realization

The e-case of solution realization presupposes direct implementation of the solution to a problem, which lies in creating a text. The realisation of the ELC formation stages varies greatly depending on the content of a specific e-case. Let us mention and briefly describe some of the possible variations of this e-case type:

1) transforming a text calling for correcting misleading, distorted, outdated information, replacing hate speech and offensive terminology with politically correct terms – the stage of semantisation of new lexemes involves the search for additional information, which simultaneously realises the stage of imitating speech models by entering a search query containing the new lexemes;

2) creating a post for social media, e.g. for promoting a certain Ukrainian cultural phenomenon or a Ukrainian artist among the foreign audience; for this e-case type, it is expedient to select several text models for the stage of semantisation of new lexemes, so that students can choose that text model, which resonates with them the most and which is the closest to their writing style.

In this paper we assume that e-cases have to satisfy the criteria of interactive learning: to be interdisciplinary, relevant, authentic and problematic in nature, challenging but feasible for students, approximated to real situations, to have a clear learning goal and a place in the educational process (Podosynnikova, 2022, p. 100; Podosynnikova & Ohiyenko, 2020, p. 197).

In our study we applied the following **criteria for e-case content selection to develop ELC** of senior school students: 1) accuracy; 2) topical appropriacy; 3) language proficiency level; 4) lexical range.

1. Accuracy. The information that forms the basis of an e-case has to originate from credible sources and be truthful.

2. Topical appropriacy. The students of senior classes fall into the age group of 15-18 years (Savchyn & Vasylenko, 2005, p. 239). This age is a sensitive period for the worldview formation (Kutishenko, 2010, p. 60). This process is grounded in the available knowledge (Serhyeyenkova et al., 2012, p. 227). As a corollary of the above, low awareness and/or insufficiently developed critical thinking can negatively affect students' self-determination by assimilating misinformation. Therefore we suggest selecting the e-case content, which would touch upon socially significant scientific, cultural and political phenomena and which would foster media literacy by conditioning critical examination of news, articles and advertisements from different media outlets. In addition, in order to create a level-playing field, one should not select a topic which would require extensive scientific or other kinds of background knowledge.

3. Language proficiency level. The language complexity of e-case materials has to correspond to students' proficiency level. The programme of the external independent evaluation in effect stipulates that the students will have mastered English at the level of B1 or B2, i.e. at the level of Independent User by the time of graduation (Prohrama zovnishn'oho nezalezhnoho otsinyuvannya, 2018). At level B1 students are expected to express and explain their opinions briefly, describe events, experiences and dreams, hold a conversation on a topic of personal interest or related to everyday life (Common European Framework, 2001, p. 26). At level B2 students are expected to express their opinions on a wide range of topics while pointing out the advantages and disadvantages of various options and hold a conversation in a familiar context while substantiating their opinions (Common European Framework, 2001, p. 27). Thus, the appropriate e-case types for B1-level students would be limited to cases of solution selection and of solution generation; whereas B2-level students are capable of successfully solving a case of solution realisation.

4. Lexical range. The e-case itself has to be packed with lexical units pertinent to the discussed topic so as to provide students with a sufficient amount of speech models for discussing and presenting various solutions, while ensuring that neither of them stands out by a more extensive lexical representation in the text model.

Based on the aforementioned criteria and in accordance with the topics and lexical range of students' vocabulary outlined in the national curriculum, we suggest using the following authentic materials as the basis for the e-case content to develop ELC of senior school students (Navchal'ni prohramy z inozemnykh mov, 2017):

TED-Ed: <https://ed.ted.com/>

BBC: <https://www.bbc.com/>

Vox: <https://www.vox.com/>

Google Arts & Culture: <https://artsandculture.google.com/>
Business Insider: <https://www.businessinsider.com/>
Britannica: <https://www.britannica.com/>

Results. Our findings comprise a framework for creating e-cases and their examination and solution procedure to develop ELC of senior school students that can serve to guide instructors and to help in further investigations. This framework includes a methodological e-case classification based on the criteria of the anticipated level of students' independence and the exhaustiveness of the solution to the problem: the e-cases of solution selection, of solution generation and of solution realisation. It discusses how each type implies a particular instructional approach, and outlines the learning procedures of each approach. Also, the study has substantiated the following criteria for e-case content selection for the ELC formation among senior students: accuracy, topical appropriacy, language proficiency level and lexical range. The examples of tasks and e-case content sources are simultaneously offered.

Further research prospects consist in experimentally testing the efficacy of applying the suggested methodological e-case classification in designing e-cases to form ELC of senior school students. Besides, more research into the matter could increase our knowledge of the exercise types suitable for each e-case type at different ELC formation stages. It can also help in developing a theoretical framework for the methodology of using e-cases to form ELC of senior school students and designing an empirical research to prove its effectiveness. In addition, further examination could develop insight into what digital tools can help students streamline the search for solutions and enhance lexical retention.

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