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GENERATIVE ARTIFICIAL INTELLIGENCE IN MODERN CLASSROOM: COMPARISON OF AI-GENERATED READING TASKS AND AUTHENTIC STUDYING MATERIALS IN ENGLISH LANGUAGE LESSONS

Master's thesis

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ABSTRACT

This thesis investigates the AI generated teaching content and its suitability for teaching English language to the modern students. The research focuses on reading tasks and materials created by Twee.app platform and compares them to the study materials found in authentic English textbooks. The study covers the basic requirements for educational tasks and compares the practicality of government-approved materials and AI-generated ones. Quantitative research, conducted through a survey method, is used to analyse the benefits and identify the defects of both sources. In the results section, the quality of AI-generated tasks is demonstrated, as they are highly evaluated by research participants. Limitations of the material type are discussed. Suggestions for further research are provided.

Keywords

Artificial intelligence, teaching English, education, educational content creation, educational tasks, reading tasks, authentic materials

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INTRODUCTION

The concept of artificial intelligence, as a simulation of human brain activity executed by computers, emerged in the mid-20th century, however, it reached its height of popularity recently, with the release of GPT-3 to the world. Artificial intelligence has found utility in various domains and continues to evolve swiftly, driven by computational advancements and the increasing interest of the public. Vázquez-Cano (2021) stated that teachers can benefit from and should capitalise on the potential of tools based on AI. Thus, the topic should be studied and implemented in modern classrooms.

Nevertheless, is today's technology advanced enough for teachers to fully depend on it? Do the quality of computer-generated tasks align with modern requirements? Will students be able to discern differences between the two types of materials, and which one would they find more engaging and beneficial for their learning? All of the aforementioned questions should be considered when incorporating AI into the lesson to achieve the optimal outcome.

As a teacher, I am interested in the use of AI in my practice for several reasons. Firstly, the potential of generative AI allows teachers to generate materials that are relevant and practical, based on the contemporary interests of students, thus providing learners with language proficiency and life skills while eliminating irrelevant content frequently present in textbooks. Secondly, according to Nabilla (2023), changes in learning may enhance students' motivation, as novel learning materials and tasks may have a positive impact on students' engagement with the learning process. Lastly, generative AI serves as a powerful tool for teachers' time management, as task and material creation can be accomplished in seconds, assuming the tasks meet quality standards and require minimal modification.

The topic of AI use in education has been studied by many researchers, highlighting various issues and concerns among educators regarding the use of generative AI in the classroom. Ogurlu and Mossholder addressed teachers' concerns regarding plagiarism and the fear of the unknown. In contrast, Kwan Lo (2023) suggested that generative platforms, such as ChatGPT, can function as assistants for both instructors and students. Jagodič and Šinkovec (2021) raised an important question regarding our ability to keep pace with AI, as it raises concerns about the uncertainty of whether the career paths chosen by students today will remain relevant in the future.

Although views and opinions may vary, one thing is certain: AI requires study and implementation in schools to assist the modern generation in effectively utilising it.

THEORETICAL OVERVIEW

Role of Reading in Learning English as the second language

Reading is one of four main competences defined by the Common European Framework of Reference for Languages (CEFR), which refers to the ability to understand written texts in the target language. The purpose of reading competence within the English as a Second Language classroom includes enabling students to feel comfortable with reading in the foreign language, reading the unfamiliar authentic texts without help, at appropriate speed, silently and with adequate understanding (Nuttall, 2005, p 31). According to the CEFR, reading competence involves several sub-skills and abilities, which should be reached during the studying process. The list includes:

- Understanding gist: The ability to grasp the main idea of a text without necessarily understanding every detail.
- Understanding of the specific information: The ability to extract specific details and pieces of information from written texts, such as facts, dates, names, or figures.
- Analysing the text structure: The skill to recognize and comprehend the organisation, coherence, and structure of different types of texts, such as narratives, reports, articles etc.
- Understanding the function of different texts: The proficiency to recognize the purpose, genre, and intended audience of various written texts and to adjust reading strategies accordingly.
- Understanding attitude, opinion, and argument: The ability to discern the author's opinions and arguments expressed in the text, as well as to evaluate their validity and relevance.

Reading competence plays a crucial role in language literacy achievement as it enables learners to access a wide range of written materials in the target language. In the educational sphere, reading activities are considered basic and highly important, consequently they are always included into curriculum at all proficiency levels. Additionally, by executing reading tasks students exercise their vocabulary and grammar skills, practice pronunciation and develop critical thinking (Dagnaw, 2023). Considering all the points above, developing reading competence is a primary objective of language study.

Nowadays helping students develop their reading competence can become a challenge for teachers and tutors. Despite the significance of literature reading in person’s development, several studies have shown that students struggle with execution of reading tasks (Masnun, Putri, Jaelani, Ummah, 2022; Limeranto, Subekti, 2021) and creating a reading habit (Qadir, Kavlu, 2022). Problem of the reading skill decline motivated researchers to look for new approaches in teaching reading in order to alter the situation.

Gatcho and Hajan (2022) were searching for a solution to the problem in teaching and encouraging students to apply metacognitive strategies for reading tasks. Their study showed a significant effect on comprehension skills in students who undergo explicit teaching of metacognitive strategies. They also recorded the growing vocabulary size of the students engaged in the experiment. Similar research conducted by Kazemi, Zarehmoghadam and Emami (2016) demonstrated that the metacognitive awareness of students perceived with teachers' support and motivational orientation lead to a substantial increase in reading awareness in English learning.

Paige and Magpuri-Lavell (2014) studied one of the essential aspects of reading competence - reading fluency, which, according to them, can be defined by 3 main characteristics: accuracy, pacing and prosody, mastering which enables students to higher order and strategic thinking about the content that is being taught. Consequently, the capacity for critical thinking is directly connected to students' reading fluency, as it allows the readers to transfer their attention from decoding processes to understanding.

Considering all the points given above, the importance of reading skills has been proved by numerous studies and researches, results of which need to be reflected upon while developing the reading tasks and studying goals. Reading as a language proficiency skill may be overlooked by the modern generation of students, however, due to its significance, it should be teachers' task to encourage learners into the activity.

Criteria for developing Reading Tasks

Tasks are features of everyday life executed by people in various spheres for different purposes, which involve the strategic activation of specific competences in order to carry out a set of purposeful actions in a particular domain with a clearly defined goal (CEFR, 2020). While concentrating on the educational field, tasks should engage participants into interaction, production, reception or mediation or several of the before listed factors, which can help learners gain needed knowledge and skills.

Creating an effective and useful reading material is always a challenge for the educators due to the diverse nature of reading tasks and the varied needs and abilities of learners. However, it is possible to emphasise several general factors, which must be considered and included while developing reading tasks for educational purposes. By analysing topic related literature (Common European Framework of Reference for Languages, 2020; Nunan, 2004; Nuttall, 2003), the following factors were ascertained:

- Relevance: Reading tasks should suit curriculum demands and align with the learning objectives and provide learners with relevant knowledge and skills.
- Authenticity: Reading tasks should be based on real-life language that students may encounter outside the classroom in practical experiences and situations.
- Clarity: Tasks should be formulated clearly, avoiding any possible ambiguities. Students must easily understand the tasks' meaning and what kind of result is expected from them.
- Comprehension: Exercise should include questions and/or activities that engage students into analysing, interpreting and evaluating the text in order to enable the students to demonstrate their understanding of the material.
- Differentiation: Tasks should meet the studying needs of the students, help them to demonstrate their abilities and academic growth in various ways and, if needed, provide additional support or challenge.
- Engagement: Texts and exercises should stimulate students' curiosity and interest in the subject and motivate them to read and comprehend the texts.
- Feedback: Teachers should monitor the students' progress and be able to give constructive feedback to their reading skills in order to support their development.

A lot of attention must be paid to the sources of the texts for the exercises. As according to criteria, texts must be authentic, the question, if AI-generated texts can be considered authentic, should be raised. In the research conducted by Kobierski (2023), Artificial Intelligence was proven to become advanced enough to generate meaningful and intelligible pieces of writing, which could pass as texts written by humans, due to the fact that they mimic authentic language use as much as possible.

Reading can also be viewed not as a singular skill, but as a multiple skill that is used differently in order to fulfil different purposes (Victoriano, Dimaano, 2023). Reading tasks are created to get the students acquainted with vocabulary, pronunciation of the words, teach practical information or facts, enable students to critical thinking and analysis, introduce various cultural knowledge etc. Due to the fact that reading plays an important role both in school education and real-life learning, teachers can consider integrating reading tasks with the practice of other language skills, such as listening, speaking and writing.

Teachers should take into consideration the form and look of the tasks they create. Important aspects here can be the print size and style, text formatting, layout, punctuation (Nuttall, 2003), vivid images to illustrate the tasks, students' ability to have both text and the question(s) right before their eyes (Tran, 2020).

Studying at public schools is mostly executed in group works, which leads us to the idea of building the tasks in a way to increase students' motivation through peer competition, curiosity in discovering answers in teamwork and the feeling of accomplishment when completing the exercise on time (Tran, 2020).

Reading tasks, which meet the aforementioned requirements, can effectively support students' reading comprehension and help them develop their overall literacy, critical thinking and analysis skills. Each of the requirements should be satisfied in order to provide students with a high quality studying material.

Tasks developed by Artificial Intelligence and their Influence on Studying Process

Computer advancements have been actively used by teachers for the last few decades, rising to particularly high levels during Covid pandemic. Due to the rapid change, caused by lockdown, educators had to change their approach in lesson preparation and spend more time making learning videos, creating fun learning strategies, or preparing digital media that is relevant to teaching concepts (Khusniyah, 2022). All aforementioned gave a significant basis for modern teachers, encouraging them to continue utilising educational technology in their practice. Application of artificial intelligence can be the subsequent logical step in the teaching and instructional design spheres.

Several articles were studied in order to familiarise with the topic of use of artificial intelligence in the classroom, analyse experiences and gain better understanding of the possibilities and limitations of the approach.

Martínez, Batanero, Cerero, León (2023) highlighted several positive factors caused by implementation of AI-based tasks and tools in the classroom. By using AI generated models in science class they observed an increase in students' understanding of complex abstract notions, proving the effectiveness of the method. The study provided a review on different educational stages in all of which the effectiveness of AI has been shown. Attention was also paid to the issue of inclusiveness. By studying the behaviours and attitudes of people with autism and people with attention deficit hyperactivity disorder, AI-based tasks have been proven to be easier to implement for learners with special educational needs due to their simple design, adjustability and speed of development of instruction.

Another study (Michalon, Zuñiga, 2023) highlighted that most students attain a satisfactory level of proficiency of ChatGPT and computer literacy, which can serve as a good basis in transition to the new type of education. The same study has also shown that AI

technology is strengthening the timeless competencies: written expression, critical thinking, and organised reasoning, demonstrating a versatile application of the tool.

Introduction of the AI to the schools can be challenging due to teachers' scepticism and students' unfamiliarity with the approach. However, a related study (Li, Luo, Lei, Xu and Chen, 2022), targeted an attitude towards rapid change in learning and proved that it should not be considered as a problem.

All aforementioned facts prove that tasks developed by artificial intelligence have the power to transform the studying process by providing personalised, adaptive, and engaging learning experiences that optimise student learning outcomes and support the diverse needs of learners in today's digital age. However, a healthy scepticism toward the generated content is advisable, as in this stage of AI development data should be verified before implementation. The limitations are believed to become minor in the future due to the advancement of stronger natural language processing models (Davis, Lee, 2023).

The analysis of the literature provides a broad basis for the research on AI-generated educational materials and their novelty for modern classrooms. This research concentrates on generation of reading tasks with help of AI-powered platform Twee.app and their comparison to the authentic approved materials for public schools.

The following research questions are formulated to proceed with the study:

RQ1: Do the AI-generated reading materials fit in with the requirements of the educational reading tasks?

RQ2: What is the students' attitude towards the AI-generated materials compared to the governmentally approved ones? Which ones are more preferable?

The results of this study can provide valuable insights into the application of AI technology in education, its effectiveness in English language classrooms, students' attitude towards the new approach and their preference for future studying process.

METHOD

This chapter will provide a description of the research development, participants' sample and data collection, elaborating on quantitative methods used to conduct a research.

Quantitative method is a research approach dedicated to collect, analyse and interpret data to understand relationship between phenomena and the attitudes of study participants in order to confirm or disconfirm a theory (Creswell, 2009). The instrument of the method used in this study is a survey questionnaire, conducted before and after intervention in order to

gather quantitative data from a sample of students. After collecting and analysing the data using statistical techniques, similarities and differences are identified among variables, eventually leading to logical conclusions about the quality of two different types of material and student' attitude towards each of them.

Design of research material

This research is concentrated on comparison of governmentally approved textbooks that serve as a basis of school lessons and artificial intelligence generated material on the similar topic. Therefore, the first step to start the research was to prepare the materials for teaching and analysis.

School textbooks taken for comparison are "I love English 4", "I love English 5" and "I love English 7" by Ülle Kurm, which are used for teaching students in years 6, 7 and 9. Books are created by an Estonian author and include translation exercises, vocabulary and grammar parts translated into Estonian. This, on one hand, creates a scaffold for students and assists their understanding, and, on the other hand, prevents them from complete language immersion.

Contrary to textbook material, texts and tasks generated by Twee platform will be used. Twee is an AI-powered online platform designed to help English teachers quickly and easily create study content. It utilises advanced natural language processing to generate content tailored to fit in with the inquiry. The platform provides the opportunity to instantly generate a text on a certain topic and to create various types of tasks to it, including: lead-in activity for a text; three titles for a text; open questions; multiple choice (ABCD) questions; True/False questions and reading bits and pieces tasks.

The platform is going to be given a topic for the lesson and target vocabulary. Website also provides with several instruments to guide the generation such as:

- choice of specific genre of the text (Text, Fictional Story, Descriptive article, Newspaper article, Argumentative article, Blog post, Review, Report, Formal letter and Informal letter),
- fitting in certain length (50-100, 100-250, 250-350, 350-500, 500-750 symbols),
- choice of a proficiency level (A1, A2, B1, B2, C1, C2).

After being generated with consideration of aforementioned criteria, the same text is going to be used to generate questions in order to check the understanding of the students. Types of texts, exercises and text size depends on the grade, for which the materials are prepared.

Students of the 6th grade, according to Estonian National curriculum for basic schools (2011), need to obtain proficiency level A2.2, which enables them to read simple standard texts on familiar topics and understand the information contained in them. Students can also guess the meaning of unfamiliar words from the context. Therefore, suitable text types for generation on Twee platform would be: Text, Fictional Story, Blog post and Informal letter; text volume approx. 250 - 350 symbols.

Students of the 7th grade are presumed to obtain B1.1 level which means, that they need to be able to read and understand fact-based texts of a few pages with simple wording, understand the main idea of a narrative text and be able to follow the development of events in it. Twee platform can provide them with longer texts (up to 500 symbols) of following types: Text, Fictional Story, Newspaper article, Blog post, Formal letter and Informal letter.

Students of the 9th grade are expected to finish basic school with B1.2 – B2.1 proficiency level in English language. For lower level students the requirements include an ability to read and understand texts of a few pages with clear reasoning on various topics, find the necessary information, gather relevant information from several texts and use different reading strategies. For higher performance students the expected result is their ability to read and understand multi-page texts that contain factual information, opinions, and attitudes, read fluently and have extensive vocabulary. For these levels all text types of maximum length can be generated and used for studying.

Topics chosen for the experimental lessons are: Chocolate – for grade 6 (see Appendix 1 and Appendix 4), Fish and Chips for grade 7 (see Appendix 2 and Appendix 5) and Bringing the Lynx back to Britain for grade 9 (see Appendix 3 and Appendix 6).

To research the differences between different types of studying content, a questionnaire was developed (see Appendix 7). Questionnaire includes 41 questions divided into 5 sections dedicated to analyse the study material provided during the lesson:

- Section 1 – Text quality. 13 questions are given in order to see if the text fits in within criteria of educational reading tasks researched earlier in this thesis. This section ensures if the text provides a solid foundation for building the task(s) and supports students' learning.
- Section 2 – Task quality. 8 questions are built in a way to verify the tasks suitability for the level group and see their input in students' academic growth.
- Sections 3 – Inclusion of related skills. 10 questions that ask if students were given an opportunity to practise skills supportive to reading or be engaged in varied activities during the task.

- Section 4 - Language immersion. 4 questions are given to investigate if students could practise the studied language maximally during the lesson, perfectly with no help of supportive language or their mother tongue.
- Section 5 – Level of satisfaction. 6 questions ask for feedback from students about their studying experience during the task execution.

The questionnaire was developed by utilising books containing related literature, journals, online sources and other reference materials. In order to create a high quality research questionnaire it was vital to ensure following principles:

- Research questions are well-defined and aligned with study objectives,
- The collection of data is conducted by using valid and reliable measurement instruments, such as Google Forms, which ensure data accuracy, transparency and completeness.
- Addressing missing data, if such exists, ensuring that it is prepared appropriately for analysis.
- Interpretation of findings in the context of research questions and theoretical framework, clear explanations of the results and their significance for educational technology.
- Consideration of potential biases in data analysis and acknowledgement of limitations they may introduce.
- Ethical Considerations and maintenance of confidentiality
- Review and feedback from advisors, or experts in the field

After preparation, the first draft was presented and validated by English teachers for comment and suggestions. The draft was checked according to its contents and its appropriateness to the research objectives. All suggestions were followed and incorporated in the instrument. Afterwards, the final draft of the questionnaire was transmitted, edited and duplicated in Google Forms to facilitate data collection. The Research questionnaire (Duplicate 1) was used to collect the data on the reading exercises provided by school textbooks, after students have completed the tasks, while the Research questionnaire (Duplicate 2) was given after completion of an AI-generated task.

All the described preparations were done in order to ensure successful study, executed with high-quality materials and reliable quantitative research instruments.

Sample

Participants of this research were secondary school students in a state Estonian school in Võru city. The sample consists of 12 students from year 6 (7 male and 5 female), 24 students of

year 7 (12 male and 12 female) and 26 students of year 9 (12 male and 14 female); 62 students in total, with equal share of male and female participants.

The age of the students varied from 12 to 16 years, however, due to the fact that the research is concentrated on the quality of materials and their suitability for modern classrooms the age differences between the classes were not considered a significant issue. Each age group got a different text and task that suited the curriculum and the students' language proficiency level.

The participants and their families were informed about the research via notification on online school application Stuudium. The message contained information about the study purpose and process of collecting data, ensuring that personal data of the participants (such as their names and e-mail addresses) is not going to be shared in an open access outside the school. All the students agreed to participate willingly; they were given an opportunity to reject or call off their consent. The previously mentioned precautions are in line with Estonian Code of Conduct for Research Integrity (2017) dedicated to ensure research ethics and respect towards research participants.

To guarantee equality among participants, students were provided with electronic devices (Chromebooks) during the lesson, on which they were incorporated into research. They were provided with study materials and a suitable amount of time for task and questionnaire completion, taking into consideration their personal studying needs and differences.

Data collection

Experiment took place in mid-April 2024 during two lessons for each group of students. At the first lesson, chronologically positioned at the beginning of week, students worked with ordinary textbook material for approximately 30 minutes, completing reading, vocabulary comprehension and speaking exercises. Afterwards, they were given 10-15 minutes to complete the online questionnaire and give their feedback about the lesson. Next 2 lessons were dedicated to different types of tasks to give students a break from long reading practice and ensure that they would not be affected by personal factors, such as tiredness or lack of motivation. Next intervention happened a week after the first one and followed a similar routine.

Students could cooperate with each other and the teacher for the reading part. However, the tasks should have been completed individually for better understanding of the depth of the student's knowledge. Task review was done during the lessons in groups or with

the help of the teacher. For longer and more complicated types of writing activities feedback was given solely by the teacher.

All the educational materials used during the lessons were paper-based in order to ensure students' ability to participate in the research with lowest possible risks and discomfort. For students with special needs (seeing disorders) materials were printed in bigger font size. Students were also allowed to use worksheets for making notes and writing their answers to make the task completion faster.

For the data collection an online questionnaire was used, as it supported the quantitative research method chosen for this research. Each question in the questionnaire should have been evaluated on the scale from 1 to 5, where 5 is the highest expected result. The results of each question section were compared, described and discussed in the following chapter. In conclusion, the average point of both methods were given. Points were counted automatically, in terms of a single statement, and manually, when summarising all statements in the section.

To determine if there is a significant difference between the means of two datasets a T-test was employed. This study investigated whether there is any difference between textbook exercises and AI generated material. The null hypothesis is that there is no difference. This type of statistical testing tool is widely used for smaller sample sizes and its result can help to determine if the null hypothesis needs to be rejected.

The result of the research analysis is to show the differences between the study material creation methods and highlight fields for their quality improvement in future.

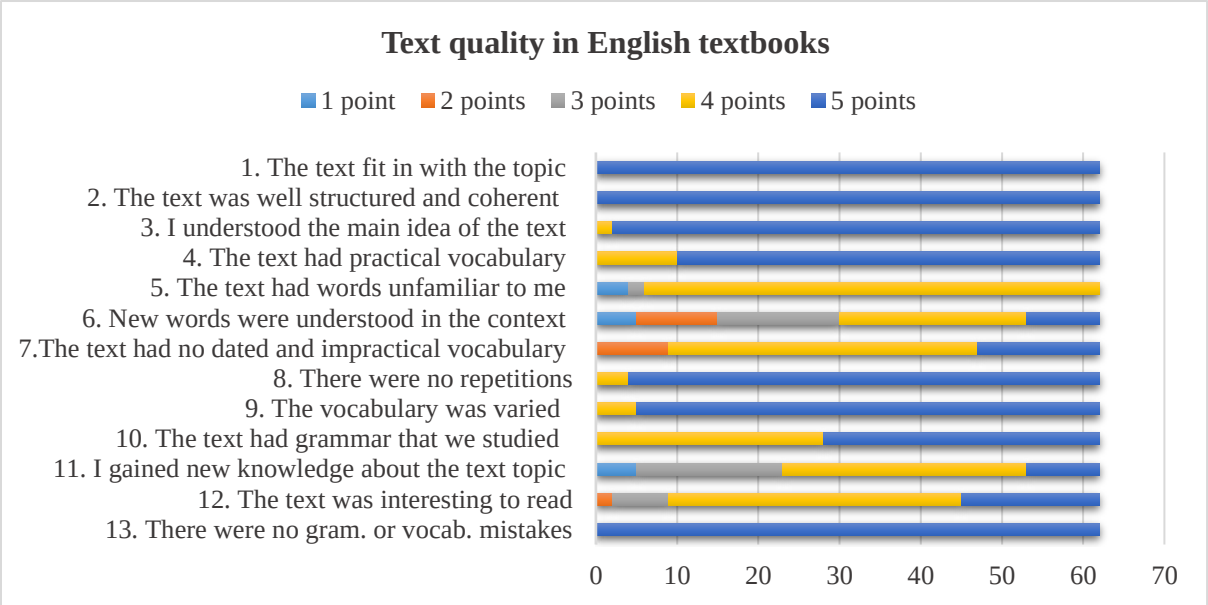
RESULTS

Results of questionnaire for textbook material

In the first survey, conducted after an ordinary English class that used textbooks as the main source of information, students had to answer the questions in 5 different categories. 62 students rated each statement from 1 to 5, where 1 stands for "totally disagree" and 5 for "totally agree". In the following pages the results are introduced divided in these 5 sections, to make analysis more precise.

Section 1: Text Quality. In the first part of the questionnaire students rated 13 questions connected to text quality in the school books. Following results were obtained:

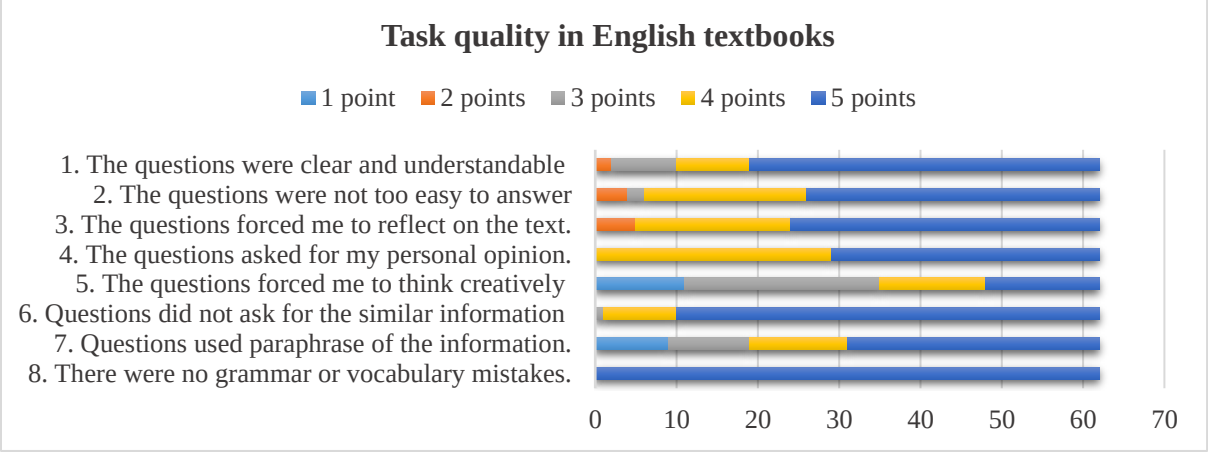
Figure 1. Results of the Text Quality part of the questionnaire for textbooks



The Text Quality part achieved quite high results. 62 students gave responses on 13 statements, making 806 replies in total. From this amount 497 were “5 points” (61.7%), 232 were “4 points” (28.8%), 42 were “3 points” (5.2%), 21 were “2 points” (2.6%) and 14 were “1 point” (1.7%).

Section 2: Task Quality. In the second part students had 8 questions to rate concerning the quality of the tasks, which followed the reading activity. The results were following:

Figure 2. Results of the Task Quality part of the questionnaire for textbooks

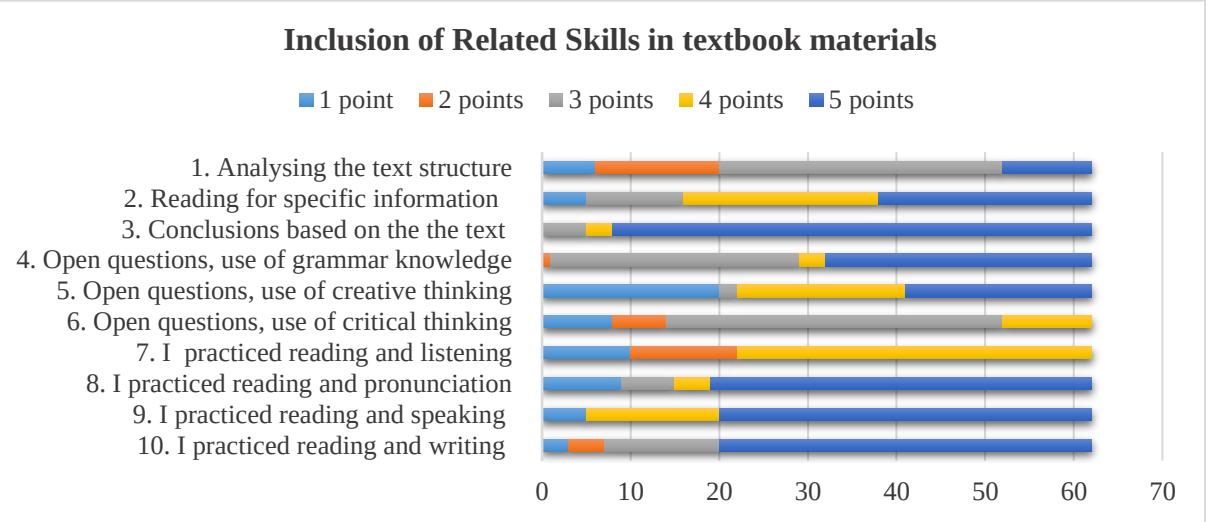


The Task Quality part also reached high values. Out of 496 responses, given by the research participants, 309 (62.3%) rated the statements “5 points”, 111 (22.4%) rated “4 points”, 45 (9.1%) rated “3 points”, 11(2.2%) rated “2 points” and 20 (4%) rated “1 point”.

Section 3: Inclusion of related skills. In the third part the material is tested for their multifunction purposes. The main skill studied in this thesis is Reading, however, it is more

natural to train skills in a complex set with each. This part of the questionnaire included 10 questions, the replies are following:

Figure 3. Results of the Inclusion of Related Skills part of the questionnaire for textbooks

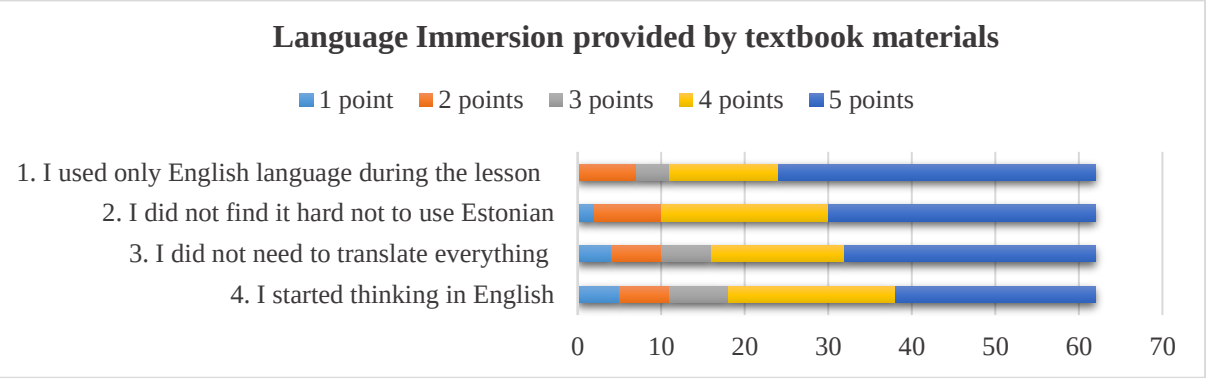


The Inclusion of Related Skills part had 620 responses in total. This category has shown a lower amount of the "5 points" responses (42.2 %), compared to previous categories. "4" and "3 points" responses are close in number: "4 points" rate was given by 116 responses (18.7%) and "3 points" were given by 135 responses (21.8%). "2 points" rate was given 37 times (6%) and "1 point" was given 66 times (10.6%).

Section 4: Language Immersion. In the fourth part tasks are tested in order to learn if the materials support students' ability to switch in studied language entirely. Language immersion has a high potential to motivate learners, increase understanding of the language and culture, consequently leading to greater fluency (Supriyono, Saputra, Dewi, 2023).

The questionnaire on this topic was relatively short, only 4 questions, and provided the study with following data:

Figure 4. Results of the Language Immersion part of the questionnaire for textbooks

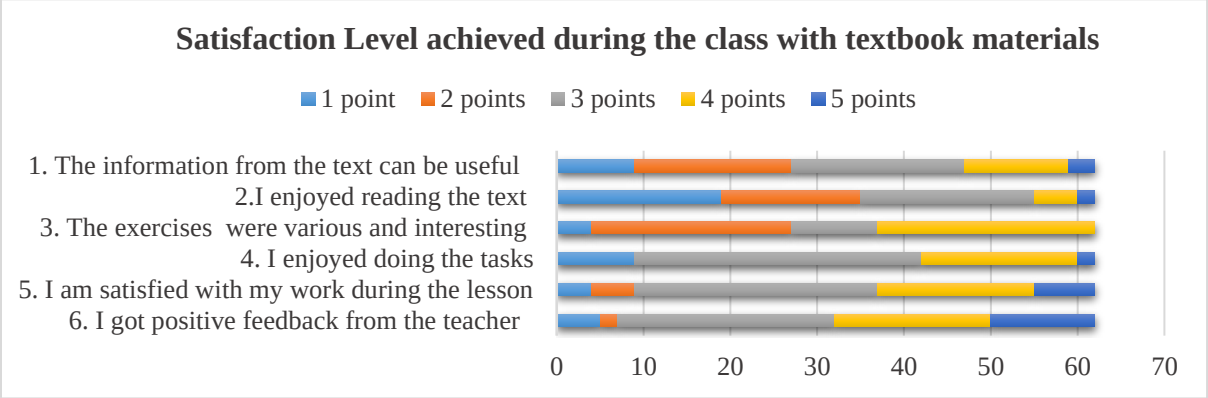


The Language Immersion part was the shortest in the questionnaire, with 248 responses in total. Exactly half of them, 124 (50%) were "5 points", 69 (27.8%) were "4

points", 17 (6.9%) were "3 points", 27(10.9%) were "2 points" and 11 (4.4%) were rated "1 point".

Section 5: Level of Satisfaction. The fifth and final part is dedicated to students' satisfaction with their work. This part of the questionnaire enabled them to reflect on the material they studied. The results are following:

Figure 5. Results of the Level of Satisfaction part of the questionnaire for textbooks



The Level of Satisfaction part had 372 responses in total, the majority of which concentrated on middle elements. 26 responses (7%) were rated "5 points", 96 responses (25.8 %) were "4 points", 136 responses (36.6%) were "3 points", 64 responses (17.2%) were "2 points" and 50 responses (13.4%) were rated "1 point".

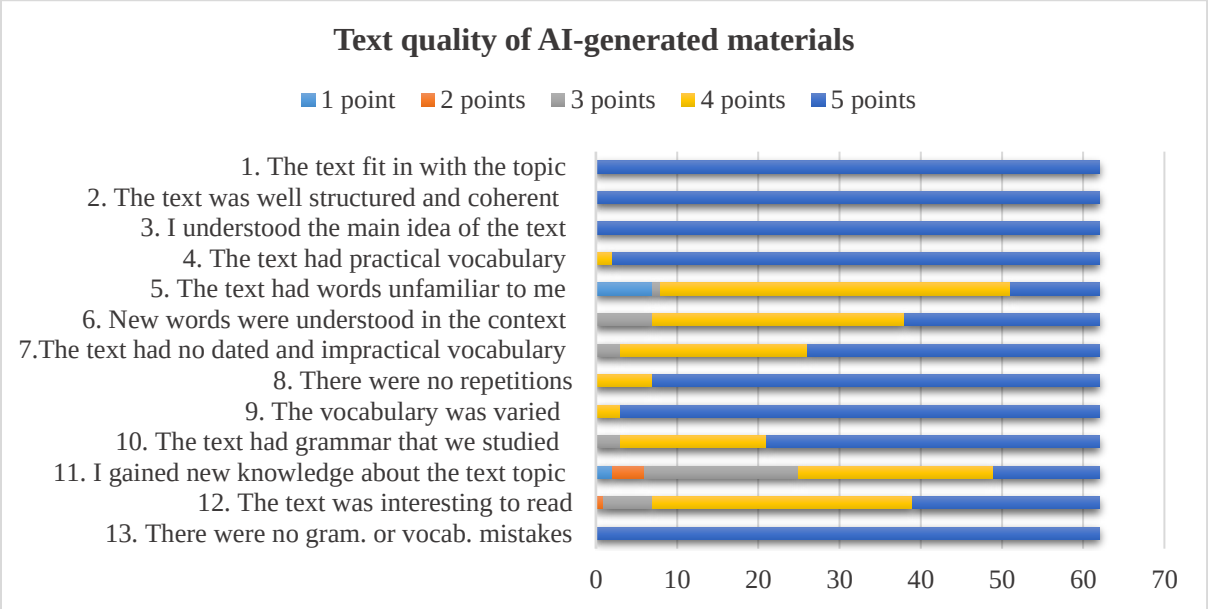
The application of textbook materials in English language classes showed the highest results in the categories Text and Task Quality, significant results in Language Immersion part and rather neutral results in Inclusion of Related Skills and Level of Satisfaction parts.

Results of questionnaire for AI-generated material

In the experimental research for this thesis AI-generated materials were introduced to students as analogy to textbook ones. The generated texts and tasks were given to the students in printed form during the lesson. Certainly, students have already experienced working with out-of-book exercises in forms of worksheets and printed out pages from alternative educational sources, however, those tend to be human made. For the majority of learners participation in the experiment happened to be the first interaction with AI-created content. After the intervention 62 students completed a second questionnaire about their studying experience, which included identical questions to the first one. Their feedback is analysed further in the chapter one section a time, similarly to the presentation of Textbook Results.

Section 1: Text Quality. In this part students rated 13 statements considering their studying experience with AI-generated text and tasks. The results were following:

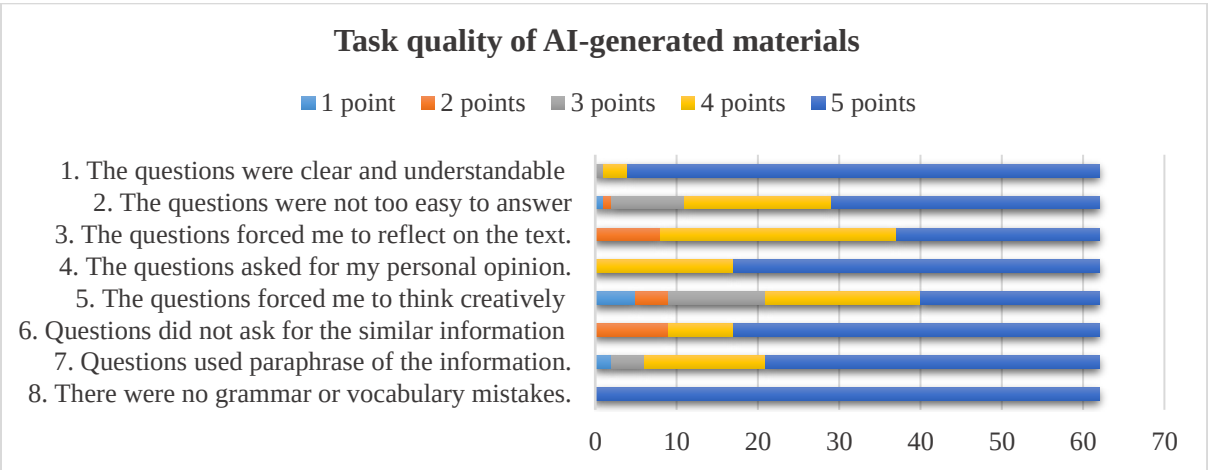
Figure 6. Results of the Text Quality part of the questionnaire for AI-generated materials



The Text Quality part was given 806 responses in total. 570 responses (70.7%) were rated “5 points”, 183 (22.7%) were rated “4 points”, 39 (4.9%) were rated “3 points”, the lowest amount of 5 responses (0.6%) were rated “2 points” and 9 responses (1.1%) were rated “1 point”.

Section 2: Task Quality. In the second part students had rated 8 questions about the quality of the tasks, which accompanied the reading activity.

Figure 7. Results of the Task Quality part of the questionnaire for AI-generated materials

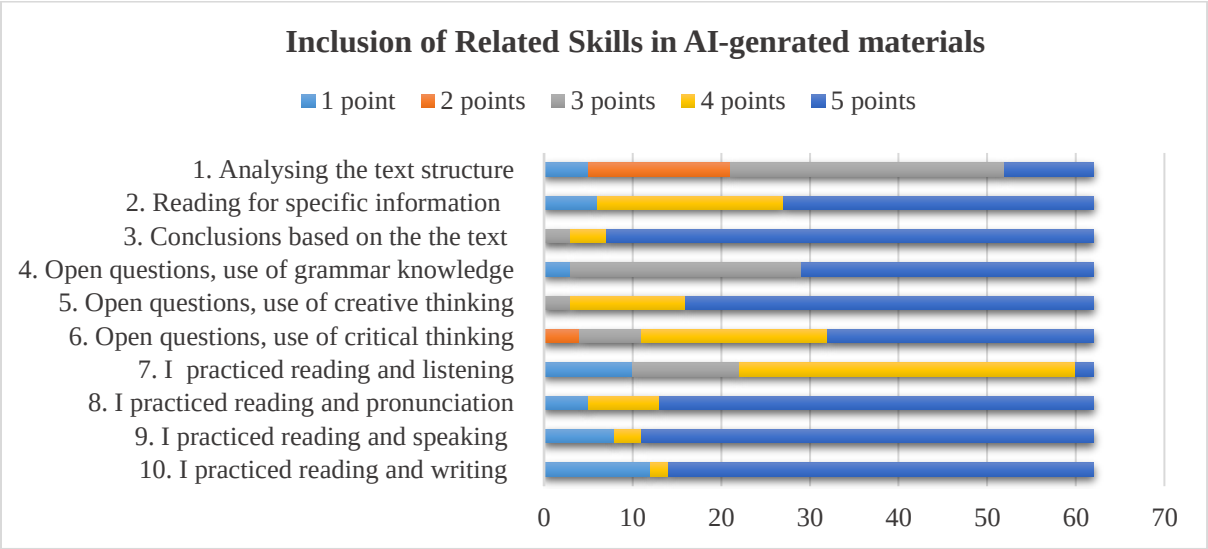


62 respondents answered all the questions in the section, making it 496 replies in total. The rating of the received responses is provided in **Figure 7**. As we can see more than a half responses, 331 (66.7%), rated this part with the highest mark “5 points”, 109 replies (22%) gave it “4 points”, 26 replies (5.2%) rated “3 points”, 22 responses (4.5%) rated it with“2 points” and 8 replies (1.6%) rated it “1 point”.

Section 3: Inclusion of related skills.

Materials, generated by the AI-powered Twee platform, mostly provide users with text-based content. However, during the experimental English class students were able to cooperate with and activate more language aspects for practice. The results given in **Figure 8** show us how well the AI-based materials enable them in the inclusion of skills related to reading.

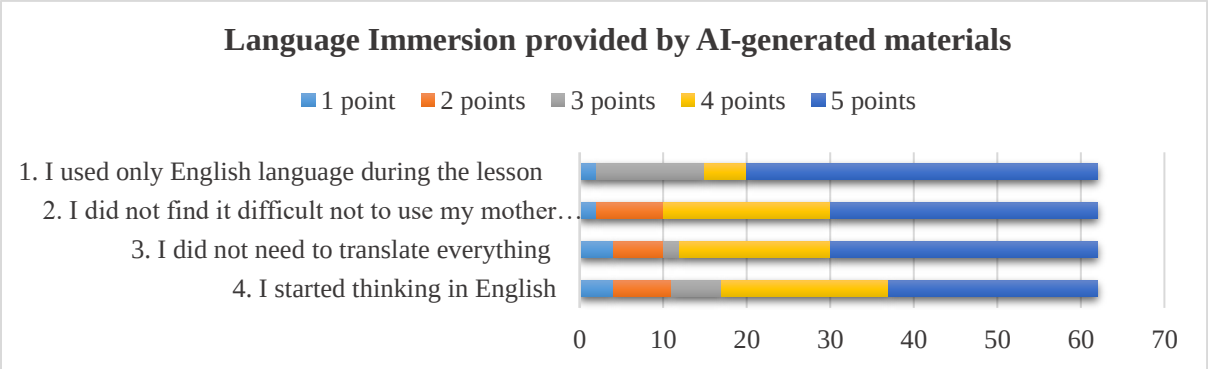
Figure 8. Results of the Inclusion of Related Skills part for AI-generated materials



As we can see, the questionnaire included 10 statements with a total number of 620 replies. A little more than a half of the replies, 359 (58%), were rated “5 points”, 110 replies (17.7%) were rated “4 points”, 82 responses (13.2%) were rated “3 points”, 20 replies (3.2%) were rated “2 points” and 49 replies (7.9%) were rated “1 point”.

Section 4: Language Immersion. In this section the lever of foreign language immersion during the class was studied. The rates are following:

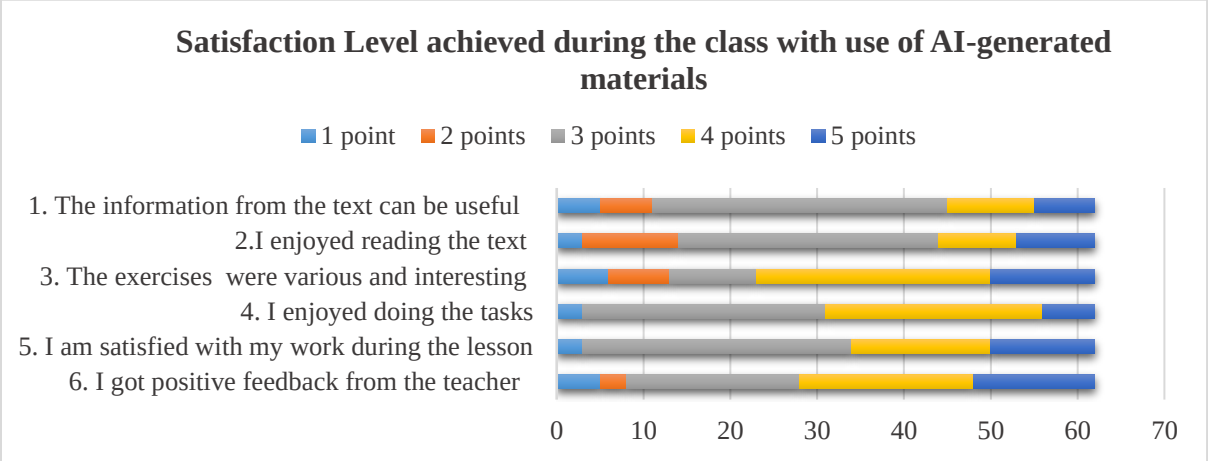
Figure 9. Results of the Language Immersion part of the questionnaire for AI-generated materials



As the questionnaire for this part was short, the total number of replies is 248, from which 131 (52.8%) were “5 points”, 63 (25.4%) were “4 points”, “3 points” and “2 points” had even score of 21 (8.5%) responses and 12 replies (4.8%) were given “1 point” rate.

Section 5: Level of Satisfaction. The final part of the survey summarised the level of students’ satisfaction with their work and encouraged their self-reflexion. The data about the results is provided in Figure 10.

Figure 10. Results of the Level of Satisfaction part of the questionnaire for AI-generated materials



From total amount of 372 responses, 60 (16.1) were rated “5 points”, 107 (28.8%) were rated “4 points”, the highest index of the category estimated of 153 responses (41.1) was “3 points”, 27 replies (7.3%) were rated “2 points” and 25 responses (6.7%) were rated “1 point”.

In general, educational material created by generative artificial intelligence were highly rated in four out of five sections of the questionnaire, Text and Task quality, Inclusion and Language Immersion. Level of satisfaction of the tasks was rated rather neutrally, although, it can be highlighted that none of the categories were rated radically negatively.

Comparison of results of both questionnaires

Comparison of the two sets of data provided in this thesis is also going to be introduced in sections, highlighting the major differences in both highest and lowest categories and summarising the significant variations of the results. For this chapter all the scored points of each question of the research questionnaire was processed in order to calculate the mean, as this would make further analysis easier.

The Text Quality part obtained the following results (here and after higher digits are highlighted):

Table 1. Means of the results of the Text Quality part.

Note: Stmt = Statement; M = Mean.

Stmt	1	2	3	4	5	6	7	8	9	10	11	12	13	M
Book	5	5	4.96	4.83	3.77	3.34	3.95	4.93	4.91	4.54	3.61	4.09	5	4.46
AI	5	5	5	4.96	3.82	4.27	4.53	4.88	4.95	4.61	3.68	4.24	5	4.61

The table depicts that both Book and AI-generated materials got perfect 5 for statements 1, 2 and 13, which stand for text's alliance with the topic, structure and grammar and vocabulary quality (see Appendix 7). There is slight variation in scores for most of the questions. Book material tends to achieve lesser rates in most of the aspects, except for the amount of repetitions in the text. AI generated materials scored better for practical vocabulary, comprehension of new words in context, relevant grammar and studying interest.

Overall, AI-generated materials appear to have a slightly higher performance across the questions, as indicated by the higher mean score (4.610) compared to Textbook materials (4.456), which can indicate potential areas for improvement.

The Task Quality part demonstrated following rates:

Table 2. Means of the results of the Task Quality part.

Note: Stmt = Statement; M = Mean.

Stmt	1	2	3	4	5	6	7	8	M
Book	4.5	4.42	4.45	4.53	3.3	4.82	3.9	5	4.37
AI	4.91	4.3	4.14	4.72	3.79	4.43	4.5	5	4.47

The results of the Task Quality part provide us with more varied information, compared to the previous research part. Textbook materials gained higher scores for statements 2, 3 and 6 that stood for difficulty of the tasks, their connection to the text and absence of repetitive questions dedicated to same or similar pieces of information. AI-generated materials performed better in the statements about comprehensibility of the tasks, personal approach, creativity and vocabulary variety. Both educational instruments scored well in grammar and vocabulary quality.

To summarise, both Textbooks and AI-generated materials have relatively high scores, although AI materials gained higher results in bigger amounts of statements, leading to a higher overall mean score.

The Inclusion of Related Skills part has provided us with the following findings:

Table 3. Means of the results of Inclusion of Related Skills part.

Note: Stmt = Statement; M = Mean.

Stmt	1	2	3	4	5	6	7	8	9	10	M
Book	2.9	3.96	4.79	4	3.34	2.8	3.13	4.16	4.43	4.19	3.77
AI	2.9	4.27	4.84	3.97	4.69	4.24	3.35	4.55	4.43	4.19	4.14

In this part of comparison statements 1, 9 and 10, that stand for text structure analysis and inclusion of speaking and writing, showed the same results. Book materials scored slightly better for inclusion of grammar knowledge in the exercise, however AI materials achieved higher rates in the remaining statements, referring to skills of reading for specific information, making conclusions, ability of creative and critical thinking and practising pronunciation and listening.

The Inclusion section has shown lower rates, compared to the 2 previous categories, as the means for Textbook and AI materials equal 3.77 and 4.14 respectively. Due to better performance in more than a half of the statements, AI-based materials continue to lead.

The Language Immersion part demonstrated the next results:

Table 4. Means of the results of Language Immersion part.

Note: Stmt = Statement; M = Mean.

Stmt	1	2	3	4	M
Book	4.32	4.16	4	3.83	4.08
AI	4.37	4.16	4.1	3.88	4.13

In this category only the 2nd statement scored equal points, which represents students' comfort during the foreign language lessons without support from their mother tongue. AI-generated materials were rated higher for sole English language application during the lesson and ability to conduct thinking and understanding processes in it.

Although Textbook materials scored lesser points, it should be mentioned that there is only a minor difference between the two instruments.

The Level of Satisfaction part provided the thesis with the following data:

Table 5. Means of the results of the Level of Satisfaction part.

Note: Stmt = Statement; M = Mean.

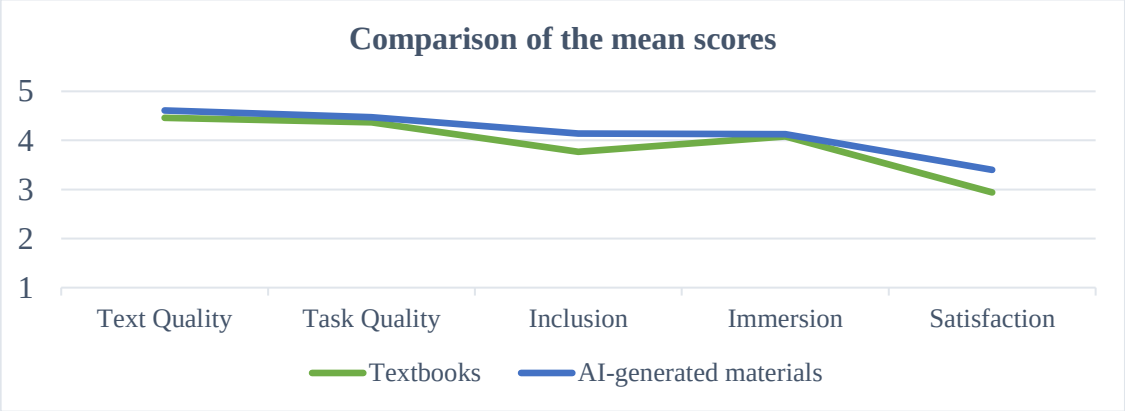
Stmt	1	2	3	4	5	6	M
Book	2.64	2.27	2.9	3.06	3.3	3.48	2.94
AI	3.13	3.16	3.51	3.5	3.55	3.56	3.4

In the final part of the questionnaire results it is clear that AI-based educational content was better perceived by the research participants than the Textbook one. AI scored higher for practicality of the material, students' interest and personal and teacher's feedback.

Despite that AI-generated materials scored more than School books, it must be mentioned that the mean is close to the "3 points" rating, which stood for "neither agree nor disagree with the statement", an option that depicts a rather neutral position.

Having compared the results of the both questionnaires and found the similarities and differences in the scores, it can be summarised that AI-generated material tends to receive better rates from the students, who participated in the study. Comparison of the average means of both instruments in all 5 categories is given below and provides a visual proof of the AI-generated materials leadership.

Figure 11. Textbook and AI-generated materials mean scores



Analysis of the research results

The results presented in the previous chapter show that AI-generated materials tend to reach higher mean scores compared to the Textbooks. However, to use the results as a basis for conclusions their significance must be checked.

Due to the fact that this research uses two sets of data collected from the same group under two different conditions, while using textbooks and AI-based materials, an appropriate testing instrument would be a paired samples t-test.

Paired t-test is going to be conducted two times by using the mean scores each question gained in the questionnaire for both educational instruments. The result of the tests will provide us with information of which hypothesis should be rejected and which has proven to be worthy:

- Null hypothesis (H0): There is no significant difference in the students' performance between reading textbook texts and reading AI-generated texts.
- Alternative hypothesis (H1): There is a significant difference in the students' performance between reading textbook texts and reading AI-generated texts.

First test is meant to evaluate significance of the results in sections Text Quality, Task Quality and Inclusion, as these categories are directly connected to the first Research Question and study the quality of the two educational instruments.

The paired t-test was conducted using a statistical online calculator, which was supplied with 62 mean scores from 2 sets of data (31 from Textbooks and 31 from AI-based tasks questionnaires). The results indicated that there is a significant medium difference between Textbooks ($M = 4.2$,$SD = 0.7$) and AI-generated materials ($M = 4.4$,$SD = 0.5$), $t(30) = 2.9$, $p = .007$. The result is significant at $p < .05$.

Sections 4 and 5, Immersion and Satisfaction, are related to the RQ2, researching students' preferences, thus these parts are tested separately.

The paired t-test calculator was supplied with 20 mean scores from 2 sets of data (10 from Textbooks and 10 from AI-based tasks questionnaires). The results have indicated that there is a significant large difference between Textbooks ($M = 3.4$,$SD = 0.7$) and AI materials ($M = 3.7$,$SD = 0.4$), $t(9) = 3.1$, $p = .012$. The result is significant at $p < .05$.

The result of the two paired t-tests enable us to reject the null hypothesis and assert that the findings of the study are significant. This evidence for the importance of the results can be used for the discussion and interpretation of the research data.

DISCUSSION

The results of the research have demonstrated that the AI-powered platform Twee.app has high potential to create studying materials of proper quality, which can match or even exceed the content created for textbooks. The questionnaire results in their majority have shown slightly higher results for AI-generated texts and tasks in all 5 categories of the survey, and paired t-tests have proven significance of the differences between the two sets of data.

The interpretation of the findings of this thesis shall be presented in accordance with the research questions stated in the end of the Theoretical overview. By reflecting on the initial purposes of the research conclusions can be made coherently.

RQ1: Do the AI-generated reading materials fit in with the requirements of the educational reading tasks?

Analysis of the literature on the topic of text and task quality demands, presented in the second part of the theoretical overview, provided with a solid scientific ground for creation of statements for the questionnaire parts 1, 2 and 3: Text and Task Quality and Inclusion of Related Skills (see Appendix 7).

The survey results had a rather big difference in the category of the Text Quality, 61.7% of maximum points for Textbooks and 70.7% of maximum points for AI-generated tasks, making a 9% gap between the two. The only statement that gained higher rate for Textbook materials was about the occasional repetitions of the words and information, which leads to the conclusion that the generated texts still require reviewing before proceeding with the creation of the exercises.

The Task Quality section of the questionnaire had much less difference between the means, compared to the previous one. Textbook material was rated with 62.3% of the highest points, which is 4.4% lower than the results of AI-generated tasks (66.7%) in this category. Important to know is that the statements, which scored more for schoolbook materials, are connected to the complexity of the exercises and, again, to the repetitions of the information. The fact that students did not find it too difficult to complete the tasks can mean that the generated content provided them with a better scaffold, and potentially could increase their motivation. However, it can also mean that the tasks might be too easy for some learners, leading to the discussion if the AI-generated materials leave enough room for a zone of proximal development.

The simultaneous practice of several skills at a time is also a significant criteria of modern language classes. The research has shown that both educational instruments satisfy this requirement with some limitations. The analytical competences, such as reading for specific information and drawing conclusions, were well practised during the lesson, however, analysis of text structure was rather overlooked. Grammar practice was slightly better performed when utilising the textbooks, although creative and critical thinking were better activated by AI materials, making them more practical and more oriented onto development of transferable skills.

The language competences parallel to reading also performed better in some aspects rather than others. The pronunciation and listening practice scored better with AI generated tasks. However, that can be caused by higher students' interest towards the material out of book, or by the fact that some AI-generated texts tend to be longer, which could have motivated the learners to cooperate and read the texts together, rather than individually. It is also worth mentioning that listening practice gained some of the lowest scores, which can be explained by the fact that reading was conducted in one room by several groups of children simultaneously. This should have caused a certain amount of discomfort, resulting in the score. Speaking and writing competencies gained even mean scores for both educational materials, showing that either of the types of studying content provided fine and adequate opportunities for the skills practice.

Based on the digits, received after the survey and findings done by analysing them, it can be claimed that the requirements were satisfied to a rather high extent and the AI-generated materials have obtained an acceptable quality for being utilised during the studying process with little but important need of teachers' supervision.

RQ2: What is the students' attitude towards the AI-generated materials compared to the governmentally approved ones? Which ones are more preferable?

Taking into consideration students' motivation and how closely it is connected to their current learning environment and educational tools, it can be assumed that various types of material and content can directly affect learners' interest. This idea was used as the foundation for developing statements of 4th and 5th parts of the questionnaire.

In the generated materials the emphasis was placed on maximum language communication and absence of any Estonian language scaffolds. Despite that, the difference between the Language Immersion results for the two studying tools is slight, only 0.05 points. Consequently, it can be summarised that neither of the educational means can provide the participants with a significant level of support for assimilating the knowledge solely in the target language.

The performance of the Level of Satisfaction part of the research demonstrated a slight difference between the means of the instructional materials, 2.94 points for Textbooks and 3.4 points for AI-created tasks (0.46 points difference). The AI-generated content was found slightly more practical and enjoyable and resulted in better satisfaction and feedback. However, as the score for studying contentment gained average points of approximately 3 and can be interpreted as neutral. These results can show students' reluctance towards reading for pleasure, a phenomenon also described by Qadir and Kavlu (2022).

As we can see from the results of the last two parts of the survey, the students slightly favour the AI-generated content, as it provides them with more practical and interesting information and tasks. One of the possible reasons for it is relevance of the information, as the books take time to be written, edited, printed and due to financial reasons are re-used by several classes within years. AI, on the contrary, finds "fresher" information on the topic and simplifies task creation, potentially enabling teachers to update their lessons annually.

To summarise, the study has met the research objectives for each of the research questions, proving that the AI generated educational content is developed enough to be utilised in modern English classrooms.

Implications of the research

There are several potential implications for this study. As the thesis is dedicated to teaching tools, which are significant elements of learning, the information about the advantages and disadvantages of textbooks and AI-based materials can be used by the fellow teachers when creating educational content. The current and potential users of Twee platform can learn how to use the website effectively and their experience can be passed on and built up. The interest in the topic has potential to inspire the AI developers to create new tools for generation of educational content or increase the quality of the existing ones.

Significance of the research

The subject of AI implementation in school and education is relatively new and may cause misunderstandings, or simply be overlooked due to its imperfections. Consequently, research on this topic may provide an overview on some of the possibilities of modern educational technologies, their reliability and limitations. Teachers' and educators' awareness of the students' opinion on the AI-generated materials may motivate the firsts to learn the instrument and create new content.

Limitations and Suggestions for further research

There are several limitations of the research that need to be brought up. First of all, the study sample is rather small and concentrated on a relatively narrow age group. In future the sample could be bigger and more varied, examining different generations and searching for more areas of improvement towards AI adaptability and utility.

Another factor that might have influenced the research results is that, due to ethical reasons, students were aware of the experimental condition they were put through. Their

attitude to the different materials might have appeared before the intervention, even though the research hypotheses and questions were not discussed with the participants.

This thesis has studied utilisation of AI and books in order to develop only one language competence –Reading. The future research may investigate tools and AI-powered platforms that can be used for students' development in various competences and subjects.

As the AI-based tools are only used virtually, the logical step for development is creation of presentable web-based texts and exercises, which can be used online. That would benefit both students' computer competences and environmental sustainability.

The last area for possible research presented in this thesis is introducing students to AI. As the tool is becoming widely spread and has already caused massive changes in the social, professional and legal spheres of life, it seems unavoidable that in future students would deal with AI on a daily basis. It is vital to create rules and terms of use of the artificial intelligence and teach the younger generation how to properly and effectively utilise the tool.

ACKNOWLEDGEMENTS

I would like to express my gratitude to the thesis supervisor, Associate Professor of Educational Technology, Leo Aleksander Siiman, for his guidance and feedback for this project. His course on Research in Educational Technology provided a significant basis of theory and practice of various research and analysis methods that were implied in this study.

I would also like to thank my colleagues for the questionnaire review and suggestions and to all the students who spent their time and afford to participate in the research.

Finally, I would also like to extend my gratitude to the developers of Twee platform, which was utilised for creating studying content for this thesis.

AUTHOR'S DECLARATION

I hereby declare that I have written this thesis independently and that all contributions of other authors and supporters have been referenced. The thesis has been written in accordance with the requirements for graduation theses of the Institute of Education of the University of Tartu and is in compliance with good academic practices.

Yuliia Demchenko

Signed digitally Date: 31.05.2024

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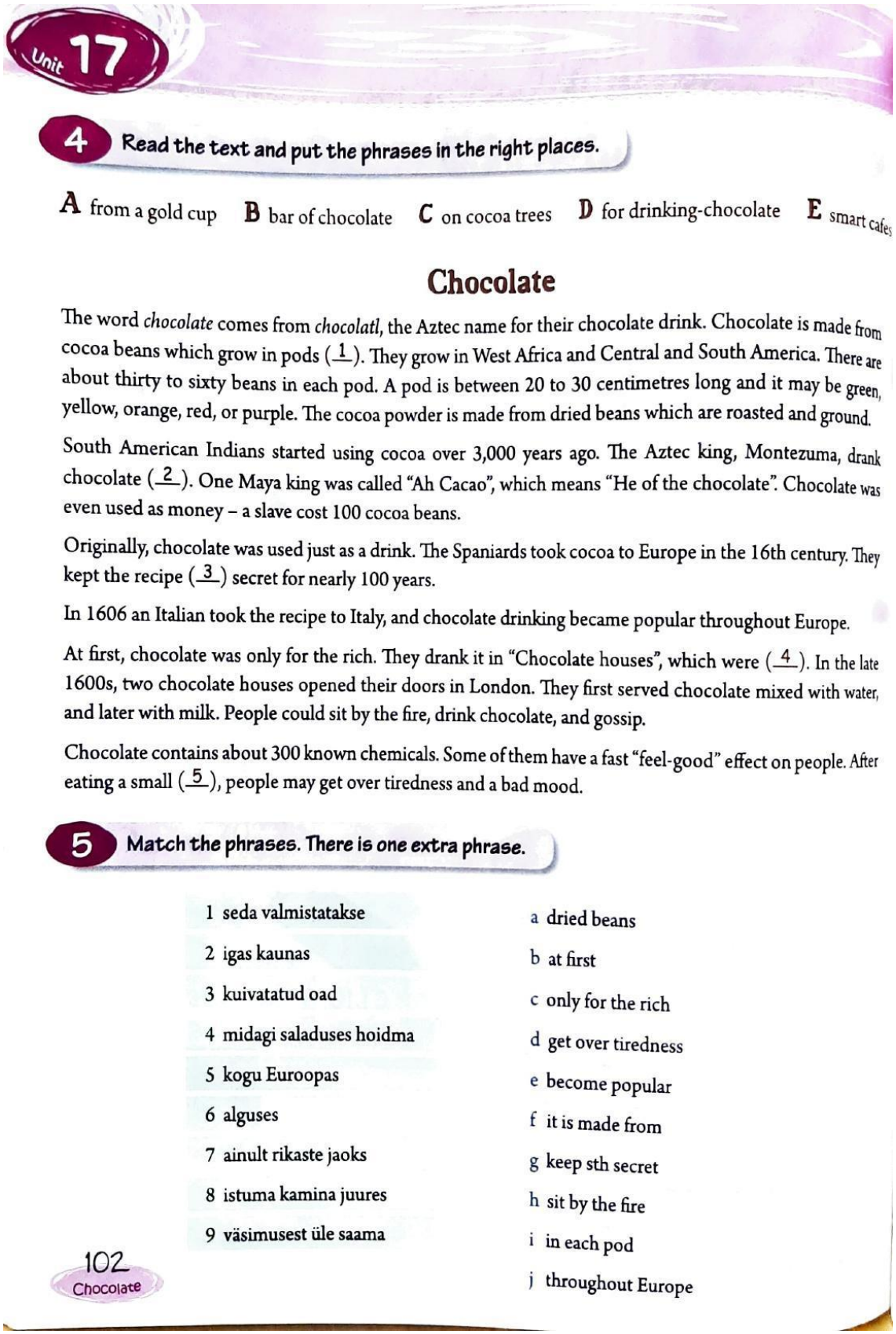
APPENDICES

Appendix 1. Text and tasks from school textbook I love English 4 (6th grade)



Unit 17

4 Read the text and put the phrases in the right places.

A from a gold cup **B** bar of chocolate **C** on cocoa trees **D** for drinking-chocolate **E** smart cafes

Chocolate

The word *chocolate* comes from *chocolatl*, the Aztec name for their chocolate drink. Chocolate is made from cocoa beans which grow in pods (1). They grow in West Africa and Central and South America. There are about thirty to sixty beans in each pod. A pod is between 20 to 30 centimetres long and it may be green, yellow, orange, red, or purple. The cocoa powder is made from dried beans which are roasted and ground.

South American Indians started using cocoa over 3,000 years ago. The Aztec king, Montezuma, drank chocolate (2). One Maya king was called "Ah Cacao", which means "He of the chocolate". Chocolate was even used as money – a slave cost 100 cocoa beans.

Originally, chocolate was used just as a drink. The Spaniards took cocoa to Europe in the 16th century. They kept the recipe (3) secret for nearly 100 years.

In 1606 an Italian took the recipe to Italy, and chocolate drinking became popular throughout Europe.

At first, chocolate was only for the rich. They drank it in "Chocolate houses", which were (4). In the late 1600s, two chocolate houses opened their doors in London. They first served chocolate mixed with water, and later with milk. People could sit by the fire, drink chocolate, and gossip.

Chocolate contains about 300 known chemicals. Some of them have a fast "feel-good" effect on people. After eating a small (5), people may get over tiredness and a bad mood.

5 Match the phrases. There is one extra phrase.

1 seda valmistatakse	a dried beans
2 igas kaunas	b at first
3 kuivatatud oad	c only for the rich
4 midagi saladuses hoidma	d get over tiredness
5 kogu Euroopas	e become popular
6 alguses	f it is made from
7 ainult rikaste jaoks	g keep sth secret
8 istuma kamina juures	h sit by the fire
9 väsimusest üle saama	i in each pod
	j throughout Europe

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Chocolate

Appendix 1. Continued

17 Unit

6 **Answer the questions.**

1 Who gave chocolate its original name?
2 Where do cocoa trees grow?
3 Where do cocoa beans grow?
4 How long is the history of cocoa?
5 Who took cocoa to Europe?
6 When did cocoa drinking become popular throughout Europe?
7 How was chocolate first served in London?
8 What was a chocolate house?
9 What did people do when drinking chocolate?
10 Could everybody afford drinking chocolate in the 17th century?
11 Why does chocolate have the "lift" effect on people?

7 **Talk about chocolate.**

Where cocoa beans grow
The history of chocolate
Chocolate houses in London
Why people love chocolate
How I feel about chocolate

8 **Read the sentences. Change the underlined part so that it's true for you. Talk about it.**

1 I like white chocolate best.
2 I never drink hot chocolate.
3 I often buy chocolate-coated biscuits.
4 I hate raspberry jam.
5 I'm allergic to milk.
6 I've never eaten Italian food.
7 I usually spend all my pocket money on ice cream.
8 I don't eat raisins.
9 Drinking tea soothes my bad mood.
10 I eat a bar of chocolate every day.
11 I got a box of chocolates for my last birthday.
12 I've seen the film called *Charlie and the Chocolate Factory*.

103
Chocolate

Appendix 2. Text and tasks from school textbook I love English 5 (7th grade)

3 **In pairs make up and act out your own dialogues in a takeaway place. Search for real places and prices on the Internet.**

Key phrases

Yes, please.
Here you are.
Here you go.
Anything else / to drink?
Can I see the menu?
I'd like ... . / Can I have ...?
How much is ...?
That's ... .

4 **Read the text. Answer the questions.**

1 Where were potato chips first named French fries?
2 Why was newspaper banned as a wrapping paper for fish and chips?
3 What is the most popular sort of fish in Britain?

Fish and chips

The delicious combination of deep-fried fish and chips is one of the most popular dishes in Britain. Despite the huge rise in popularity of other fast-food places, such as burger bars and pizza shops, a serving of fish and chips is still the UK's favourite takeaway meal. It consists of fish, covered in batter, deep fried, and served with chipped potatoes. It is often seasoned with salt and vinegar. Today there are more than 10,000 fish and chip shops in the UK which sell over 250 million fish and chip meals each year.

Historians claim that the earliest fried potatoes were eaten in Belgium in the 16th century.

During the First World War, American soldiers who were based in Belgium were introduced to fried potato chips. As the official language of the Belgian army was French, the soldiers nicknamed the tasty fried potatoes "French fries". The name stuck, and this is what hot potato chips are now called in many countries.

Appendix 2. Continued

18

In Britain, fish and chips were first sold together as a dish around the year 1860. The longest-running fish and chip shop that is still open is located near Leeds. For more than a hundred years, fish and chips were served in newspaper. It helped to keep prices low, but in 1980 it was considered to be unhealthy. Now fish and chip shops wrap it in several layers of greaseproof paper when serving it.

Britain's most popular fish is cod. There are more than 200 species of cod. The Atlantic cod can grow to 1.8 m, weigh 91 kg and may live to be 30 years old. Cod and chips may be called Britain's national dish, but most cod is caught in waters off Iceland, northern Norway, and Russia. Only about 30 per cent is from the North Sea.

Although fried in oil, fish and chips is not considered unhealthy. An average portion of fish and chips has only 7.3% fat whereas a cheese sandwich has more than 10% fat. Nowadays you can order a meal of fish and chips almost anywhere in the world. But it's most delicious when bought from a proper fish and chip shop in Britain.

5 Find, write, and learn.

1 suur juurdekasv milleski
2 kaasaostetav toit
3 millestki koosnema
4 kaetud taignaga
5 millegagi maitsestatud
6 igal aastal
7 ajaloolased väidavad
8 kõige kauem käigus olev kauplus
9 ebatervislikuks pidama
10 rahvusroog

Appendix 2. Continued

6 Make up sentences.

1 The combination of fish and chips	salt and vinegar
2 Fish is deep fried and	served with chipped potatoes
3 It is often seasoned with	is the most popular meal in Britain
4 The earliest potato chips	over 250 million meals each year
5 Fish and chip shops in Britain sell	were eaten in Belgium
6 The American soldiers based in Belgium	fish and chips were served in newspaper
7 The first meal of fish and chips	is caught from the North Sea
8 For more than a hundred years, ...	was sold around 1860
9 The most popular fish which is used	to make fish and chips is cod
10 Only about 30% of cod	named the potato chips French fries

7 Talk about fish and chips.

The meal of fish and chips French fries The most popular fish in Britain

8 Ask and answer the questions. Add some extra information.

1 When did you last eat fish?
2 Have you ever eaten fish and chips?
3 Are any members of your family keen on fishing?
4 How do you prefer to eat fish – salted, baked, dried, fried, or cooked in soup?
5 What is your favourite takeaway meal?
6 When did you last have a takeaway?
7 What is the best restaurant or café you have ever been to?
8 What food place is the nearest to your home / school?
9 When did you last cook a meal?
10 Who in your family is best at cooking?
11 What is your favourite dessert?
12 When did you last use a recipe to cook or bake something?

Appendix 3. Text and tasks from school textbook I love English 7 (9th grade)

17

4 Read the article and finish the sentences.

1 The lynx population in Britain disappeared due to ...
2 Some people in Britain want to reintroduce the lynx because ...
3 The decision to reintroduce the lynx will be made by ...

BRINGING THE LYNX BACK TO BRITAIN

The Week Junior *22 July 2017*

Measuring up to 1.5 metres long, with long back legs and large tufted ears, the Eurasian lynx can be found living wild in forests all the way from western Europe to Central Asia. Even though it is one of the widest-ranging species of lynx, this wild cat hasn't lived in the UK since it was hunted to extinction 1,300 years ago. That could be about to change if plans to reintroduce six lynx into British forests are given the go-ahead.

The Lynx UK Trust plans to transport two males and four females from Sweden – which is home to a thriving lynx population – to Northumberland's Kielder Forest. Their new home was chosen based on the forest's large size – meaning that there's plenty of space for the cats to roam, the lack of major roads nearby, and the vast number of deer they could hunt. The lynx would be fitted with GPS collars so that they can be tracked, and it's hoped that the animals will breed and create the first UK-based population in 1,300 years.

Over the past two years, the Lynx UK Trust has been discussing the idea with locals and sheep farmers. Although some people are against the idea, because of fears that they could pose a threat to livestock, the trust's Dr Paul O'Donoghue believes that there are more benefits to lynx living wild in the UK than there are risks. The UK has a large roe deer population, and this has led to some forest areas being overgrazed – which is when so many plants are eaten by animals that it damages the environment. Lynx could help to reduce the problem by keeping the deer population under control. O'Donoghue believes that lynx could also generate "tens of millions of pounds" for the area, bringing in tourists who want to spot them.

The trust have submitted an application for a five-year introduction trial to Natural England, an organisation that advises the Government on England's nature and landscapes. If accepted, O'Donoghue thinks "we could have lynx back on the ground."

Appendix 3. Continued

17

Did you know?

The Eurasian lynx is Europe's third-largest predator, after the brown bear and wolf.

Five lynx facts

1 Lynx have such powerful eyesight that they are able to spot a mouse up to 75 metres away.
2 There are four species of lynx around the world: the bobcat, the Canadian, the Eurasian, and the Iberian.
3 These spotty wild cats are related to domestic cats, jaguars, lions, and tigers.
4 Lynx don't chase their prey down like other larger cats; instead, they use the art of surprise by stalking and then pouncing on their victims.
5 The long hairs in the tufts on their ears help lynx hear more clearly.

5 Find, write, and learn.

1 arvukas populatsioon
2 millestki puudus
3 kellelegi endast ohtu kujutama
4 midagi kontrolli all hoidma
5 avaldust esitama
6 kedagi milleski nõustama

6 Ask and answer the questions.

1 What happened to the lynx population in Britain 1,300 years ago?
2 Why was Kielder Forest in Northumberland chosen as the best home for lynx?
3 How do roe deer damage the environment in Britain?
4 What are the benefits of reintroducing lynx to England?
5 Why are some people against the idea?
6 What are some of the tasks of the organization called Natural England?
7 What are the main characteristics of the Eurasian lynx?

Appendix 4. Text and tasks generated by AI dedicated to 6th grade

Lead-in activity:

Look at the picture of a tree and brainstorm different products that can be made from its beans. You have 5 minutes to come up with a list and then each group will share their ideas with the class.

Which Title Fits Best?

1. The History and Types of Chocolate

2. Is White Chocolate Actually Made from Cacao Beans?

3. How Does Eating Chocolate Benefit Your Health?

Chocolate is a food that is made from dried beans. It is used in many desserts like pudding, cakes, candy and ice cream. It can be a solid form like a candy bar or it can be in a liquid form like hot chocolate.

At first, chocolate was only for the rich. It was a drink that kings and queens enjoyed. They believed that it gave them strength and helped them get over tiredness. But now, people all over the world enjoy chocolate.

The story of chocolate began in Mesoamerica where the Mayans and Aztecs lived. They grew cacao trees and they made a special drink called xocoatl, which was bitter and spicy. The Spanish explorers came to America in the 1500s and brought the drink back to

Spain. They added sugar and honey to the drink to make it sweeter. Chocolate became popular throughout Europe, but only the rich could buy it.

In the 1700s, people started making chocolate bars. In 1828, Conrad Van Houten, a Dutch chemist, invented a machine that removed the fat from cacao beans. This made it possible to make powdered chocolate which we use today in baking and cooking.
There are three main kinds of chocolate. Dark chocolate has no milk, so it is bitter. It is used in baking and cooking. Milk chocolate is sweet and creamy. It is used in candy bars and other sweets. White chocolate is not really chocolate because it doesn't have any cacao powder. It is made from cocoa butter, sugar and milk.

Many people believe that chocolate is bad for your health, but this isn't true. Chocolate has some healthy things like antioxidants and flavonoids, but it also has a lot of sugar and fat. So you should eat it in moderation. A small piece of chocolate every day is good for you. Chocolate is a special treat that people all over the world enjoy. It's fun to eat on a hot day because it melts in your mouth, and it's great to eat by the fire on a cold winter night. It's also a wonderful gift for someone you love.

Task 1.

Can You Tell which Sentences are True and which are False?

1. Chocolate is produced from dried beans.
2. Chocolate was initially available to everyone.
3. The history of chocolate started in Mesoamerica with the Mayans and Aztecs.
4. The Spanish explorers brought chocolate to America.
5. Sugar and honey were included in the drink to enhance its sweetness.
6. Chocolate was not popular in Europe.
7. Kings and queens liked this drink

Task 2.

Answer the questions

1. What was the invention of Conrad Van Houten in 1828?

A. He invented a machine to make chocolate bars.

B. He invented a machine to remove fat from cacao beans.

C. He invented a machine to make powdered chocolate.

D. He invented a machine to make milk chocolate.

2. Which type of chocolate is used mostly in baking and cooking?

A. Dark chocolate

B. Milk chocolate

C. White chocolate

D. All types of chocolate are used in baking and cooking.

3. What is the main difference between dark chocolate and white chocolate?

A. Dark chocolate is sweeter than white chocolate.

B. Dark chocolate has cacao powder, while white chocolate does not.

C. Dark chocolate is used in candy bars, while white chocolate is used in baking.

D. Dark chocolate has more antioxidants than white chocolate.

4. Which of the following is a healthy benefit of eating chocolate?

A. It has a lot of sugar and fat.

B. It helps you gain weight.

C. It makes you feel tired.

D. It contains antioxidants.

5. How should you enjoy eating chocolate?

A. Eat a large piece every day.

B. Eat it only on hot days.

C. Eat it only by the fire on cold winter nights.

D. Eat a small piece every day.

Task 3.

Answer the questions:

1. What is chocolate made from?

2. Who originally enjoyed chocolate as a drink?

3. Where did the story of chocolate begin?

4. Who invented a machine to remove fat from cacao beans in 1828?

5. What are the three main kinds of chocolate mentioned in the text?

6. Why should you eat chocolate in moderation according to the text?

7. When is chocolate described as fun to eat and why?

Appendix 5. Text and tasks generated by AI dedicated to 7th grade

Lead-In activity

Look at the pictures of different traditional Estonian foods such as. Discuss in pairs whether you think fish and chips could become a popular takeaway food in Estonia. Consider factors like taste preferences and cultural differences in your discussion.

Which Title Fits Best?

1. How Fish and Chips Can Help You Lose Weight

2. The History and Popularity of Fish and Chips in the UK

3. Are Fish and Chips Only Served with Ketchup?

Fish and chips is a popular takeaway food in the UK. It consist of pieces of fish covered in batter (a mixture of flour, water, and sometimes beer), which are then deep-fried, and served with hot chips (thickly cut potatoes) and mushy peas (cooked peas that have been crushed). The dish is usually seasoned with salt and vinegar.

The first fish and chip shop opened in London in 1860, and there was a huge rise in the number of shops selling the dish in the late nineteenth and early twentieth centuries. By 1910, there were over 25,000 fish and chip shops in the UK, and they continued to be popular until the 1960s. Since then, the number of shops has fallen, but fish and chips remain a favourite with the British public, and around 380 million portions are sold each year.

The origin of fish and chips is unclear, but some historians claim that it was introduced to the UK by Jewish immigrants from Spain and Portugal in the seventeenth century. They fried fish in oil and ate it with potatoes, which were not widely eaten in Europe at the time. However, others believe that the dish was brought to England by French refugees from the Revolution in the late eighteenth century.

Harry Ramsden's, a famous fish and chip restaurant in West Yorkshire, consider to be the longest running shop in the UK. It was opened in 1928 and can seat 250 customers. The restaurant is also famous for its large portions: one serving of fish and chips includes a whole fillet of fish and enough chips for two people. Harry Ramsden's has had many celebrity customers, including Charlie Chaplin and the Beatles.

Fish and chips is often served in paper or cardboard boxes, but it used to be wrapped in old newspapers. This tradition began in the 1930s when newspaper was used to wrap up the food during a newspaper shortage. The practice was banned in the 1980s because the ink from the newspapers was thought to be unhealthy, but some shops still use fake newspapers with food-related stories.

Fish and chips is often considered to be unhealthy because it contains a lot of fat and salt. However, fish is a good source of protein and vitamins, and recent studies have shown that eating fish and chips once a week is not bad for your health. In fact, some experts believe that the dish can be part of a balanced diet. Fish and chips are also more environmentally friendly than other fast foods like hamburgers and fried chicken because they produce fewer greenhouse gases.

In 1999, the British National Federation of Fish Fryers launched National Fish and Chip Day to celebrate this iconic dish. On the first Friday in June each year, people all over the UK enjoy fish and chips at their local shop or restaurant.

Task 1

Can You Tell which Sentences are True and which are False?

1. Fish and chips is a popular dine-in food in the UK.
2. The first fish and chip shop opened in Manchester in 1860.

3. By 1910, there were over 50,000 fish and chip shops in the UK.
4. Fish and chips is often considered to be healthy because it contains a lot of protein.
5. Harry Ramsden's has been visited by famous people like Charlie Chaplin and the Beatles.
6. Fish and chips is always served on plates.
7. Fish and chips are also more environmentally friendly than other fast foods like salads.

Task 2.

Answer the questions:

1. What does fish and chips consist of?
2. When was the first fish and chip shop opened in London?
3. How many fish and chip shops were there in the UK by 1910?
4. Who are some famous customers of Harry Ramsden's fish and chip restaurant?
5. Why was the tradition of wrapping fish and chips in newspapers banned in the 1980s?
6. Is eating fish and chips once a week considered bad for your health according to recent studies?
7. Why are fish and chips considered more environmentally friendly than other fast foods like hamburgers and fried chicken?

Task 3. Get Creative with Your Writing!

Choose one of the writing tasks below and write a passage on the topic:

1. Write a social media post describing your favourite fish and chips restaurant. Use the words "takeaway" and "covered in batter" in your post.
2. Imagine you are writing an email to a friend recommending them to try fish and chips for the first time. Include the phrases "consist of" and "seasoned with" in your email.
3. Create a review of a fish and chips restaurant you recently visited. Mention the words "unhealthy" and "huge rise in" in your review.

_____

_____

_____

_____

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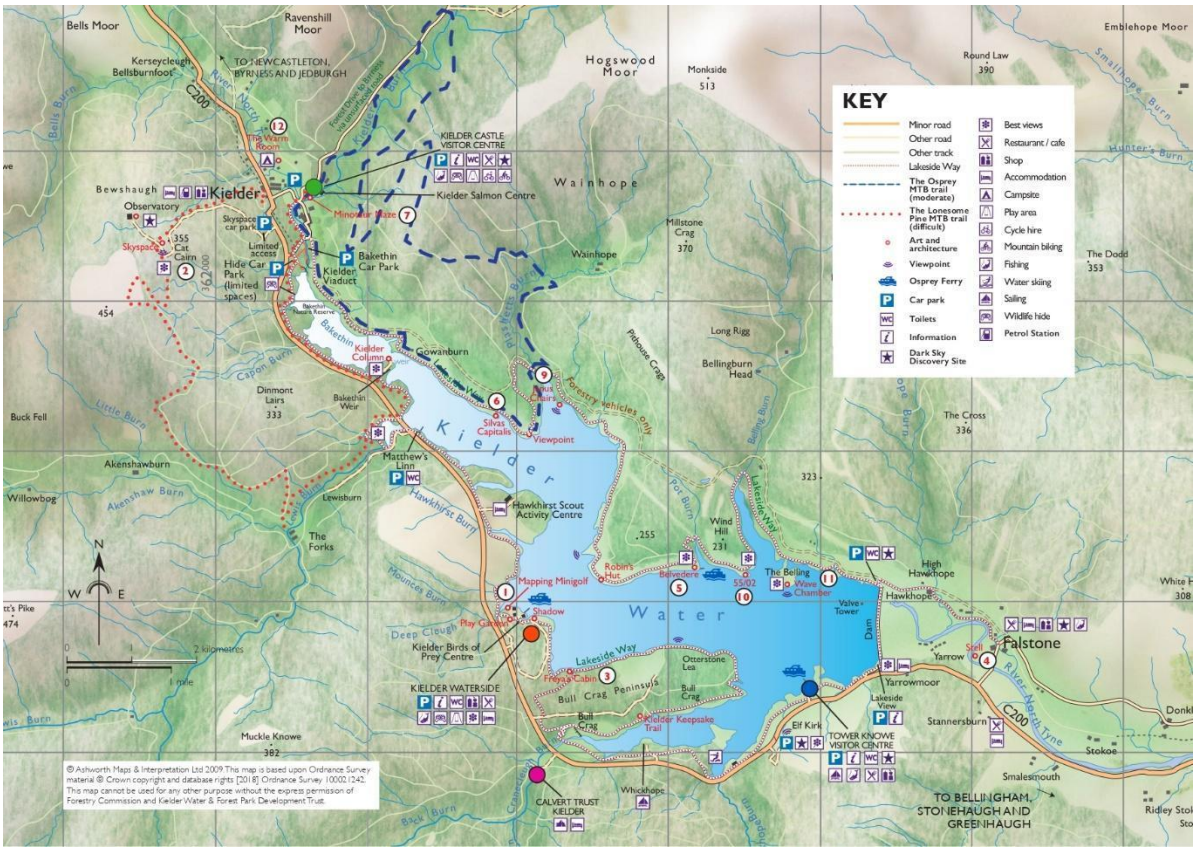
_____

_____

Appendix 6. Text and tasks generated by AI dedicated to 9th grade

Lead-In activity

Look at the map of the proposed reintroduction areas for the lynx in the UK. Work in groups to come up with a persuasive argument either supporting or opposing the reintroduction based on the specific location. Each group should present their arguments to the class and engage in a respectful debate about the potential benefits and challenges of reintroducing the lynx to these areas.



Which Title Fits Best?

1. Reintroducing the Eurasian Lynx to the UK for Conservation Efforts

2. Are Lynx Attacks on Farm Animals a Common Occurrence?

3. How Would Lynx Reintroduction Impact Popular Game Bird Populations?

The Eurasian lynx is a medium-sized cat that used to be found all over the UK. But by the 17th century, hunting and habitat loss had wiped it out in England and Wales, and now there are only a few hundred left in Scotland. There is no doubt that the thriving population of lynx in Scotland is thanks to conservation efforts. However, the lack of lynx in other areas of the UK may pose a threat to the survival of the species as a whole. The Lynx UK Trust wants

to reintroduce the lynx to Cumbria, Northumberland and Aberdeenshire. They argue that the lynx would help keep under control the deer population and that it would bring economic benefits to these areas through increased tourism. The trust has submitted an application to Natural England, the government's adviser on the natural environment, for a trial reintroduction in Kielder Forest in Northumberland.

The lynx is a specialist predator of deer. In Europe, where the lynx is common, it helps keep under control deer populations. This benefits not only the vegetation but also other animals that need the forest habitat. The trust argues that the reintroduction of the lynx would have similar effects in the UK. It claims that the deer population in Kielder Forest is twice what it should be and that this is having a negative impact on the forest ecosystem. The deer eat young trees, preventing them from growing into mature trees, and they also prevent the regeneration of the ground flora. The trust says that the lynx will help reduce the deer population, allowing the forest to regenerate and providing more food and shelter for other animals. These include birds such as the black grouse, which is currently at risk of extinction in England.

The National Farmers' Union (NFU) opposes the reintroduction of the lynx. It argues that the lynx would pose a threat to farm animals, such as lambs and poultry, and that this would cause serious economic losses for farmers. The trust counters that lynx attacks on farm animals are extremely rare. It says that the lynx is a secretive animal that avoids human contact and that it is highly unlikely to venture near farms. It also points out that in other European countries where lynx live, farmers are compensated for any losses caused by lynx predation. However, the NFU remains unconvinced.

The trust claims that the reintroduction of the lynx would bring significant economic benefits to the areas involved. It argues that the lynx is an iconic species that is much loved by the public. It points out that the reintroduction of the white-tailed eagle to Scotland has been a major success in terms of increasing visitor numbers to the country. The trust believes that the lynx could have a similar effect. It predicts that thousands of people will visit Kielder Forest each year in the hope of seeing the lynx. These visitors will spend money in local shops, hotels and restaurants, boosting the local economy. The trust also plans to run educational programmes and guided tours, further increasing visitor numbers.

A survey conducted by YouGov in 2017 found that 91% of the British population supports the reintroduction of the lynx. This suggests that the Lynx UK Trust's proposal has widespread public support. However, some people are concerned about the risks to farmers and their livestock. Others worry that the lynx might pose a threat to pets, such as cats and

small dogs. There are also concerns that the lynx might reduce the number of popular game birds, such as pheasants, which are bred in large numbers for shooting. The trust has responded to these concerns by proposing measures to minimise conflicts between lynx and humans. For example, it plans to work closely with farmers to develop strategies to protect livestock.

Natural England is currently considering the Lynx UK Trust's application. If it approves the trial reintroduction, the trust will have to submit a detailed plan for the project. This plan will need to address a wide range of issues, such as how to monitor the lynx population and its impact on deer numbers. It will also need to include measures to ensure that the lynx does not come into conflict with humans. Finally, the plan will need to demonstrate how the economic benefits of the project can be maximized.

Task 1. *Answer the questions*

1. According to the passage, which of the following best describes the current population of lynx in the UK?
A. The lynx population is thriving across the UK.
B. The lynx population has been completely wiped out in the UK.
C. The lynx population is only found in a few hundred in Scotland.
D. The lynx population is declining in all parts of the UK.

2. What is the primary reason given for the lack of lynx in areas of the UK other than Scotland?
A. Hunting and habitat loss
B. Lack of conservation efforts
C. Competition from other predators
D. Declining deer populations

3. Which of the following benefits does the Lynx UK Trust claim the reintroduction of the lynx would have on the forest ecosystem?
A. Increased regeneration of young trees and ground flora
B. Reduced populations of endangered bird species
C. Improved control of the deer population
D. All of the above

4. According to the passage, which of the following is the main concern expressed by the National Farmers' Union regarding the reintroduction of the lynx?
A. The lynx will pose a threat to farm animals.
B. The lynx will reduce the population of game birds.
C. The lynx will increase the risk to pets in the area.
D. The economic benefits of the reintroduction are overstated.

5. What is the primary economic benefit the Lynx UK Trust claims the reintroduction of the lynx will have?
A. Increased visitor numbers and spending in the local economy
B. Compensation payments to farmers for livestock losses
C. Revenue from educational programs and guided tours
D. Reduced costs for the management of deer populations

6. According to the passage, what percentage of the British population supports the reintroduction of the lynx?
A. 50%
B. 75%
C. 91%
D. 100%

7. What is the next step in the process described in the passage if Natural England approves the Lynx UK Trust's application?
A. The Lynx UK Trust will begin the reintroduction immediately.
B. The Lynx UK Trust will submit a detailed plan for the project.
C. Natural England will conduct a public survey on the proposal.
D. The Lynx UK Trust will start working with local farmers.

Task 2. *Answer the questions:*

1. Why did the Eurasian lynx disappear from England and Wales by the 17th century?
2. How has the Lynx UK Trust contributed to the thriving population of lynx in Scotland?

3. What benefits does the trust argue that reintroducing the lynx to Cumbria, Northumberland, and Aberdeenshire would bring?
4. How does the lynx help control deer populations in Europe according to the trust?
5. Why does the National Farmers' Union oppose the reintroduction of the lynx?
6. What economic benefits does the trust believe will come from reintroducing the lynx to Kielder Forest?
7. What percentage of the British population supports the reintroduction of the lynx according to a survey conducted in 2017?

Task 3. Get Creative with Your Writing!
Choose one of the writing tasks below and write a passage on the topic:

1. Write a social media post advocating for the reintroduction of lynx to England, using the target vocabulary to explain how a thriving population of lynx could benefit the ecosystem.
2. Compose an email to a local wildlife conservation organization expressing your concerns about the lack of apex predators in England and how reintroducing lynx could help keep other animal populations under control.
3. Write a blog post discussing how the absence of lynx in England poses a threat to the balance of the ecosystem, using the target vocabulary to explain why it's important to submit an application for their reintroduction and seek advice on how to make it happen.

Appendix 7. Research questionnaire

Rate the statements, where 1 - totally disagree, 2 - mostly disagree, 3 - neither agree nor disagree, 4 - mostly agree, 5 - totally agree

1. Text quality
    1) The text fit in with the topic
    2) The text was well structured and coherent
    3) I understood the main idea of the text
    4) The text had practical vocabulary
    5) The text had words unfamiliar to me
    6) New words were understood in the context
    7) The text had no dated and impractical vocabulary
    8) There were no repetitions of the same words or information
    9) The vocabulary was varied
    10) The text had grammar structures that we studied in the lessons
    11) I gained new knowledge about the text topic
    12) The text was interesting to read
    13) There were no grammar or vocabulary mistakes in text
2. Task quality
    1) The questions were clear and understandable
    2) The questions were not too easy to answer
    3) The questions forced me to look back at the text, reflect on the information in it
    4) The questions asked for my personal opinion or experience connected to the topic
    5) The questions forced me to think creatively
    6) Questions did not ask for the same/similar information
    7) Questions used synonyms or paraphrase of the information from the text
    8) There were no grammar or vocabulary mistakes in questions
3. Inclusion of related skills
    1) I practiced the following reading skill – analysing the text structure (determined introduction, main body, and conclusion of the text)
    2) I practiced the following reading skill – reading for specific information
    3) I practiced the following reading skill – drawing conclusions based on the information from the text

4) There were open questions that made me use my grammar knowledge

5) There were open questions that made me use creative thinking

6) There were open questions that made me use critical thinking (discussing, debating, proving your point of view, analysing other point of view)

7) I could practice two skills: reading and listening

8) I could practice two skills: reading and pronunciation

9) I could practice two skills: reading and speaking

10) I could practice two skills: reading and writing

4. Language immersion

1) I used only English language during the lesson

2) I did not find it difficult not to use my mother tongue during the task

3) I did not need to translate everything I read or hear into my mother tongue, I could conduct understanding in English

4) I started thinking in English

5. Level of satisfaction

1) The information from the text can be useful in my future

2) I enjoyed reading the text

3) The exercises and questions to the text were various and interesting

4) I enjoyed doing the tasks

5) I am satisfied with my work during the lesson

6) I got positive feedback from the teacher

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31/05/2024