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PARADIGM SHIFT IN ACADEMIC RESEARCH: MODERN TOOLS AND METHODOLOGIES

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ECOLOGY		
8.	Іваненко В.В., Іщук В.М., Сидорчук С.Ю., Сіліна Т.А., Гриб О.І. ЕКОЛОГІЧНІ ЗАСАДИ ЗМЕНШЕННЯ АНТРОПОГЕННОГО НАВАНТАЖЕННЯ НА ДОВКІЛЛЯ	49
ECONOMICS		
9.	Брюховецька Н.Ю., Булеєв І.П., Бриль І.В., Чорна О.А. ВИКОРИСТАННЯ ПІДХОДІВ АДАПТИВНОГО УПРАВЛІННЯ В УТРИМАННІ І РОЗВИТКУ ЛЮДСЬКИХ РЕСУРСІВ НА ПІДПРИЄМСТВІ	53
10.	Шморгун І.Ю. МІКРОІМІТАЦІЙНІ МОДЕЛІ ЩОДО ПРОПОЗИЦІЇ ПРАЦІ ДОМОГОСПОДАРСТВАМИ УКРАЇНИ	57
EDUCATION		
11.	Agadzhanova R. AI-POWERED CHATBOTS IN ENGLISH LANGUAGE TEACHING: OPPORTUNITIES, CHALLENGES AND PERSPECTIVES	60
12.	Ismayilova E.A. THE ROLE OF VALEOLOGICAL EDUCATION IN PROTECTING STUDENTS' HEALTH IN HIGHER EDUCATION INSTITUTIONS	65
13.	Kemin V., Liakh I. MAIN DIRECTIONS FOR ADAPTING BRITISH EXPERIENCE OF EDUCATIONAL AND PASTORAL WORK TO THE UKRAINIAN EDUCATIONAL ENVIRONMENT	69
14.	Roman N. FORMATION OF ARTISTIC AND CREATIVE COMPETENCE THROUGH AUTHENTIC SONG	75
15.	Ігумінова С.Р., Архипенко Г.О., Срібна А.С., Ситник О.А., Срібний І.О. РЕАЛІЗАЦІЯ КОНЦЕПЦІЇ STEM – ОСВІТИ В ЗАГАЛЬНООСВІТНЬОЇ ШКОЛІ	78

AI-POWERED CHATBOTS IN ENGLISH LANGUAGE TEACHING: OPPORTUNITIES, CHALLENGES AND PERSPECTIVES

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The rapid development of artificial intelligence (AI) has created new opportunities for transforming English language teaching and learning. Among the most promising AI-based technologies are educational chatbots, which can provide learners with interactive, personalised, and accessible opportunities to practise English. Unlike traditional digital learning materials, chatbots allow learners to communicate through dynamic dialogue, with responses generated based on the learner's input. Consequently, chatbots can function as additional tools for language practice, feedback, communication, and learner support.

The role of chatbots in English teaching is particularly significant because language acquisition requires continuous exposure to the target language and opportunities for meaningful communication. In this respect, chatbots can complement classroom instruction by creating additional opportunities for learners to use English beyond the limited time available during face-to-face lessons. Their potential lies not only in technological innovation but also in the ability to adapt learning activities to individual learners' needs, proficiency levels, and learning objectives.

The effectiveness of an educational chatbot largely depends on the principles underlying its development and design. Educational chatbots should be created with consideration of both technological capabilities and pedagogical requirements. Their development may involve collaboration among educators, linguists, instructional designers, and technology specialists to ensure that the resulting system is appropriate for language learning.

Natural language processing technologies enable chatbots to interpret learners' inputs and generate responses in real time. This creates an interactive learning environment in which students can practise communication rather than simply receive information. The conversational nature of chatbots is particularly important because users can engage with them through language-based interaction. In the context of English teaching, this makes chatbots potentially useful for practising vocabulary, grammar, reading, writing, and communicative skills.

Another important aspect of chatbot design is user experience. An educational chatbot should have a clear and accessible interface that does not create unnecessary technological difficulties for learners. Interactive elements can contribute to learner engagement and motivation, while multimedia resources such as images, audio, and video can make language-learning activities more varied and attractive [1].

The content provided by an educational chatbot is equally important. Such systems can incorporate vocabulary activities, grammar explanations, examples, exercises, and communicative tasks. Learning materials can be organised by proficiency level and gradually increased in complexity. This makes it possible to provide a degree of personalisation and scaffolding for learners. Furthermore, chatbot content can be modified and improved in response to learner feedback and developments in language education [2].

Thus, the development of educational chatbots represents a combination of technological innovation and pedagogical design. Their value does not depend solely on their ability to generate human-like responses. Rather, effective educational chatbots should be designed around clearly defined learning objectives and provide activities that directly contribute to the development of English language competence.

The successful integration of chatbots into English language teaching requires systematic planning. Simply providing students with access to a chatbot does not automatically guarantee positive learning outcomes. Teachers should determine how the technology will complement existing instructional practices and what specific learning objectives it will support.

One important strategy is to clearly define the chatbot's role within the curriculum. A chatbot can be used to provide additional language practice, support individual learning, give feedback, or create opportunities for communication outside the classroom. Its activities should correspond to specific learning objectives rather than merely be introduced as an example of new technology [3]. For example, a chatbot may be used to:

- practise new vocabulary;
- review grammatical structures;
- simulate everyday or professional conversations;
- provide additional writing practice;
- generate questions for speaking practice;
- give immediate feedback;
- support independent learning;
- simulate real-life communicative situations.

Another important condition is the appropriate preparation of both teachers and learners. Students need to understand the functions and limitations of the chatbot and should receive guidance on how to formulate effective questions and prompts. Teachers, in turn, need sufficient knowledge to integrate chatbot-based activities into lesson plans, monitor learners' progress, and intervene when additional explanation or correction is required.

Chatbots can also contribute to collaborative learning. For instance, students can work in pairs or groups and use a chatbot to complete a simulated business negotiation, solve a problem, prepare a dialogue, or discuss a particular topic. Such activities can combine technological interaction with human communication, thereby preventing the chatbot from becoming a substitute for interaction among students [3].

Authentic communication represents another important application. Students can participate in simulated real-life situations, such as ordering food, making a business

telephone call, attending a job interview, communicating with an international customer, or discussing an academic topic. Open-ended questions and dialogue-based activities can encourage learners to produce language rather than simply recognise correct answers.

At the same time, teachers should continuously evaluate the implementation of chatbot-based activities. Student engagement, performance, satisfaction, and learning progress can be examined through questionnaires, interviews, classroom observation, and assessment results. Such evaluation allows teachers to identify effective activities and modify those that do not adequately address learners' needs [4]. Therefore, strategic implementation, teacher support, learner training, and continuous evaluation are essential conditions for effective chatbot integration.

One of the major advantages of chatbots is their potential to support personalised learning. In a traditional classroom, teachers have to work with groups of learners who may have different levels of English proficiency, learning styles, interests, and difficulties. A chatbot can provide an additional learning environment in which students can practise at their own pace.

Personalisation can be achieved by adapting the difficulty and type of activities to the learner's needs. For example, a student who has difficulty with vocabulary may use the chatbot for additional vocabulary practice, while another learner may focus on grammar or conversational English. The availability of immediate responses also allows learners to receive support without waiting until the next classroom lesson.

This aspect is particularly relevant to autonomous learning. Students can interact with a chatbot outside scheduled classes and use it as a supplementary learning resource. Consequently, chatbots can contribute to the development of learners' responsibility for their own learning and encourage regular language practice.

However, personalisation should not be interpreted as a complete replacement of the teacher. Rather, the chatbot should function as an additional pedagogical resource. Teacher guidance remains necessary for selecting appropriate activities, interpreting feedback, correcting significant errors, and developing students' critical awareness of AI-generated information.

The effectiveness of chatbots should be assessed systematically rather than assumed based on technological functionality. Evaluation can involve both quantitative and qualitative methods, providing a more comprehensive understanding of how chatbots influence language learning.

Quantitative evaluation may involve pre-tests and post-tests, language proficiency assessments, vocabulary tests, grammar tests, and other measures of learning achievement. Comparing students' performance before and after chatbot-based instruction can help determine whether the technology contributes to measurable improvements in language knowledge and skills.

In addition, chatbot-generated learning analytics can provide information about learners' interaction with the system. Such data may include engagement levels, task completion rates, interaction frequency, and time spent on activities. These indicators can provide useful information about students' participation and learning behaviour [5].

Nevertheless, numerical data alone cannot fully explain learners' experiences. Qualitative methods, including questionnaires, interviews, and focus groups, can provide information about students' perceptions of the chatbot. Learners can evaluate its usability, usefulness, accessibility, and effectiveness. They can also report whether interaction with the chatbot influences their motivation, confidence, and willingness to communicate in English [5].

Formative assessment represents another important application. Chatbots can provide immediate responses to students' answers and offer additional practice when difficulties are detected. This creates opportunities for continuous feedback rather than relying exclusively on final assessment. By monitoring learner performance, educators may identify knowledge gaps and provide additional support where necessary.

Long-term evaluation is also important. Short-term improvements in test performance do not necessarily demonstrate that chatbot-supported learning produces sustainable results. Longitudinal studies can examine whether language skills developed through chatbot interaction are retained over time and whether learners can transfer these skills to real-world communicative and academic contexts [6].

Therefore, a comprehensive evaluation of chatbot effectiveness should combine quantitative indicators, qualitative learner feedback, formative assessment, and, where possible, longitudinal evidence. Such an approach can provide a more reliable picture of the educational value of chatbots.

Despite their potential, chatbots should not be regarded as a universal solution to the challenges of English language teaching. Their effectiveness depends on how they are designed and used. Poorly designed activities may result in superficial interaction that does not contribute significantly to language development.

Another important consideration is the quality of chatbot-generated feedback and language. Students should be encouraged to critically evaluate AI-generated responses rather than automatically accepting every answer as correct. The teacher, therefore, remains essential as a mediator who can explain linguistic problems, verify information, and guide students towards effective learning strategies.

The successful implementation of chatbots also requires adequate technological infrastructure and digital competence. Both teachers and students need sufficient knowledge to use these systems effectively. Without appropriate training and support, technological tools may become an additional source of difficulty rather than a means of improving learning.

Consequently, the most effective approach is likely to be a human-centred model in which chatbots complement rather than replace teachers. Chatbots can provide additional practice and immediate interaction, while teachers remain responsible for pedagogical decision-making, emotional support, assessment, and the development of students' broader communicative competence.

In conclusion, chatbots hold significant potential for enhancing modern English language teaching. Their ability to provide interactive communication, personalised practice, immediate responses, and flexible access to learning materials makes them valuable supplementary tools for language education. The development of educational

chatbots combines natural language processing technologies with pedagogical and user-centred design principles.

For successful implementation, teachers should clearly define the educational role of chatbots, align chatbot activities with learning objectives, prepare students and teachers for effective use of the technology, and integrate chatbot interaction with individual and collaborative learning activities. Continuous monitoring and evaluation are also necessary to determine whether chatbot-supported activities actually contribute to improved language learning outcomes.

The effectiveness of chatbots should be examined through a combination of quantitative and qualitative methods. Pre- and post-assessment, learning analytics, surveys, interviews, formative assessment, and longitudinal research can provide evidence of their influence on language proficiency, engagement, motivation, and learner confidence.

Overall, chatbots should be viewed not as replacements for English teachers but as additional pedagogical instruments that can expand opportunities for language practice and support more individualised learning. When their implementation is guided by clear pedagogical objectives and combined with teacher expertise, chatbots can become an important component of AI-supported English language education.

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