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GAMIFICATION AND INDIVIDUALIZATION: ENHANCING MOTIVATION AND LEARNING OUTCOMES IN LANGUAGE LEARNING IN COMPUTER SCIENCE SPECIALITY

Gamification has been used in various educational settings to enhance motivation and learning outcomes. Deterding et al. [9] defined gamification as the «use of game design elements in non-game contexts« and identified four key elements of gamification: mechanics, dynamics, aesthetics, and game thinking. The mechanics refer to the rules and procedures of a game, while the dynamics refer to the behaviour of players within the game. Aesthetics refer to the visual and sensory aspects of the game, and game thinking refers to the mindset that the game inspires in players.

Research has shown that gamification can improve motivation and engagement in learning. For instance, in a study by DeMers [6, p. 196], gamification was found to improve student motivation and academic performance in a college-level course. Similarly, in a study by Pham et al. [13], gamification was found to enhance engagement and learning outcomes in an online course.

According to Ukrainian scientists, incorporating gamification in higher education training can lead to a more engaging learning environment, diverse integrated learning methods, and effective monitoring of student progress, ultimately resulting in increased motivation to learn [1, p. 203]. The use of games in education not only boosts motivation but also enhances mental activity, such as attention, thinking, and cognitive interest, among learners.

In the field of second language acquisition, gamification has proven to be an effective tool in boosting motivation and engagement in language learning. Studies have demonstrated that gamification can lead to better language learning outcomes, such as improved vocabulary acquisition, grammar comprehension,

and speaking proficiency [14, p. 180]. Moreover, gamification offers a fun and interactive way for learners to practice their language skills.

Gamification has been applied to English language learning to enhance motivation and engagement in language acquisition. English language learning involves learning vocabulary, grammar, and pronunciation, among other skills. Gamification can help in fostering these skills in learners.

In the realm of computer science education, gamification has emerged as a tool to enhance student engagement and motivation [15]. Learning about programming and software engineering requires a technical understanding, as well as creativity and problem-solving abilities [13]. Gamification can effectively promote the development of these skills among students.

The use of gamification in computer science education has been found to improve student performance and motivation. For instance, in a study by Ibanez et al. [10, p. 293], gamification was found to enhance student engagement and performance in a computer science course. Similarly, in a study by D Cuervo-Cely et al. [4, p. 11], gamification was found to improve student motivation and learning outcomes in a programming course.

Individualization is the process of tailoring education to meet the individual needs of students. In computer science education, individualization has been used to provide a personalized approach to teaching. Individualization can involve various methods, such as adaptive learning, personalized feedback, and self-directed learning.

Research has shown that individualization can improve student motivation and learning outcomes. For instance, in a study by Deliyannis et al. [5, p. 287], adaptive learning was found to improve student performance and retention. Similarly, in a study by Marin et al. [2], personalized feedback was found to improve student engagement and learning outcomes in a programming course.

Individualization has been applied to English language learning to provide a more personalized approach to teaching. Individualization can involve various methods, such as adaptive learning, personalized feedback, and self-directed

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learning.

Research has shown that individualization can improve English language learning outcomes. For instance, in a study by Bourekkache [3, p. 39], adaptive learning was found to improve English language proficiency in a college-level English course.

Gamification has been studied as a means of individualizing computer science education. The use of gamification has been found to provide a more personalized approach to teaching, where students can learn at their own pace and receive immediate feedback on their progress. Gamification can also foster creativity and problem-solving skills in students.

Gamification has been studied as a means of individualizing English language learning. The use of gamification has been found to provide a more personalized approach to teaching, where learners can practice language skills at their own pace and receive immediate feedback on their progress.

Gamification can personalize learning English and improve outcomes like vocabulary acquisition and speaking proficiency [16, p. 315]. It enhances motivation and engagement, promotes active participation, creates a more enjoyable experience, and improves learning efficiency [7, p. 356].

In conclusion, gamification and individualization have been proven to be effective tools in enhancing motivation and learning outcomes in various educational settings, including second language acquisition and computer science education. The use of gamification can provide a fun and interactive way for learners to develop skills and knowledge, while individualization can provide a personalized approach to teaching, allowing students to learn at their own pace and receive immediate feedback on their progress. These methods can improve student engagement, motivation, and performance, leading to better learning outcomes. Further research can continue to explore the effectiveness of gamification and individualization in education and how they can be further optimized to enhance student learning.

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