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THE INFLUENCE OF SANDBOX GAMES ON HUMAN THINKING: THE CASE OF MINECRAFT

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Abstract

This paper explores how sandbox games, particularly Minecraft, influence players' abstract and creative thinking. The game provides an open-ended environment where users can experiment with building, automation, and problem-solving. A special focus is placed on two aspects: the variety of blocks that allow unlimited creativity and the Redstone system, which introduces players to basic logical and computational concepts.

Key words: sandbox games, Minecraft, creativity, Redstone.

Анотація

Публікація досліджує, яким чином ігри-пісочниці, зокрема Майнкрафт, впливають на абстрактне та креативне мислення гравців. Гра забезпечує відкрите середовище, де користувачі можуть експериментувати з будівництвом, автоматизацією та вирішенням проблем. Особливу увагу приділено двом аспектам: різноманітності блоків, що надають необмежену креативність та системі Червоного каменю, яка знайомить гравців з основними логічними та обчислювальними поняттями.

Ключові слова: ігри-пісочниці, Майнкрафт, креативність, Червоний камінь.

Introduction

Sandbox games offer players unrestricted freedom to explore, create, and modify their virtual worlds. Among them, Minecraft stands out as one of the most influential, with millions of players worldwide. Unlike linear games with predefined goals, Minecraft encourages open-ended creativity, problem-solving, and even technical skills. Such features as the variety of building blocks and the Redstone system not only entertain but also provide valuable learning experiences, making Minecraft more than just a game.

Research results

One of the key aspects of sandbox games like Minecraft is the development of abstract and creative thinking. The game offers a wide variety of blocks that players can use to build anything. [1] As of now, Minecraft includes over eight hundred different types of blocks, each with unique properties and appearances. [2] This variety allows players to experiment with shapes, colors, and structures, encouraging creativity. Moreover, Minecraft is constantly updated, introducing new blocks and features that expand the possibilities even further. The game has no strict rules for building, and in Creative Mode, players have unlimited resources, allowing them to express their imagination without restrictions. Additionally, there are thousands of decorative and functional modifications that further extend the game's creative potential.

Another important feature of Minecraft is the Redstone system, which can be compared to a simplified programming language. [3] Redstone components, such as wires, repeaters, and pistons, allow players to create logical circuits, automation systems, and even complex mechanisms. Many players start by building simple doors or lights and gradually move on to more advanced projects like automatic farms, combination locks, and even basic computers inside the game. Understanding Redstone requires logical thinking, problem-solving skills, and basic knowledge of electrical circuits, making it an engaging way to develop computational thinking.

In addition to these aspects, Minecraft also promotes social interaction and teamwork, as players can collaborate on large-scale building projects or work together on multiplayer servers. The game also has an educational value, with Minecraft Education Edition being used to teach geometry, architecture, and even coding. [4] Furthermore, the Survival Mode challenges players to plan resource management, make strategic decisions, and adapt to different situations.

Conclusion

Minecraft is more than a popular sandbox game – it is a tool for developing creativity and problem-solving skills. The game's vast selection of blocks enables limitless artistic and architectural expression, while the Redstone system serves as an introduction to logical thinking and automation. Beyond these core aspects, Minecraft also encourages teamwork, education, and strategic decision-making. As games continue to evolve, their role in cognitive development and learning will become even more significant.

REFERENCES

1. Minecraft Official Wiki [Електронний ресурс] – Режим доступу: https://minecraft.fandom.com/wiki/Minecraft_Wiki
2. How many blocks are there in Minecraft? [Електронний ресурс] – Режим доступу: https://scalacube.com/blog/minecraft/how-many-blocks-are-there-in-minecraft
3. Redstone Mechanics in Minecraft [Електронний ресурс] – Режим доступу: https://minecraft.fandom.com/wiki/Redstone
4. Minecraft Education Edition [Електронний ресурс] – Режим доступу: https://education.minecraft.net/

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