A study on the role of game-based learning in fostering innovation and creativity in primary schools in Sri Lanka (A Case Study of the Ibbagamuwa Education Zone)

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1. Introduction

Nowadays, game-based learning (GBL) has become a leading educational strategy that leverages the interactive and engaging nature of games to improve various learning outcomes. In school education, GBL is increasingly recognized for its ability to foster innovation and creativity among students. This approach aligns with contemporary educational needs that emphasize critical thinking, problem solving, and creative skills as essential for future success (Gee, 2003; Kapp, 2012). The modern need to integrate GBL into primary education stems from the evolving educational landscape that calls for innovative teaching methods to meet the needs of a rapidly changing world. Traditional teaching, often characterized by rote learning and passive instruction, is increasingly seen as inadequate for developing the skills required of 21st century students (Prensky, 2001). Thus, as the demand for creative and innovative thinkers grows, Education systems should adapt to include strategies that promote these skills from an early age (Zhang & Li, 2018). Although there is a growing recognition of the benefits of GBL globally, there is a significant knowledge gap regarding its application and effectiveness in the Sri Lankan educational context. While most existing research on GBL is concentrated in Western settings, there is a lack of understanding of how these strategies can be adapted and implemented in primary schools in Sri Lanka (Morris, 2019). This gap highlights a critical need for local studies that consider Sri Lanka's unique cultural and educational dynamics. Therefore, conducting research on the role of GBL in primary schools in Sri Lanka is important for several reasons. It will provide insight into how innovative learning strategies can be integrated into local curricula, transform traditional teaching methods and improve student outcomes. Furthermore, this research is also important in terms of contributing to the broader discourse on educational innovation by providing context-specific evidence of the effectiveness of GBL in fostering creativity and innovation among school students in Sri Lanka.

2. Materials and methods

This study employed a qualitative research design to explore the role of game-based learning (GBL) in fostering innovation and creativity in primary schools in Sri Lanka. This research has been done on the basis of Ibbagamuwa Education Zone which is an existing education zone in Sri Lanka as the field of study. Study sample A sample of 20 teachers teaching in primary grades belonging to Ibbagamuwa Education Zone was selected for this research through purposive sampling method. Semi-structured interview method and observation method were used for data collection. Thematic analysis was used to analyze the data obtained through semi-structured interviews and observation methods.

3. Results and Discussion

Engagement and motivation:

The study revealed that Game Based Learning (GBL) significantly increased student engagement and motivation in the Ibbagamuwa Education Zone. The majority of teachers studied reported that students were more enthusiastic and actively participated in lessons when GBL strategies were used. This finding aligns with previous research, which emphasizes that

GBL can improve student engagement by making learning more interactive and fun (Kapp, 2012). For example, research by Gee (2003) stated that the immersive nature of games captures students' attention and sustains their interest, leading to improved learning outcomes. Accordingly, the increased motivation observed in this study suggests that GBL can effectively transform traditional classroom dynamics and make elementary students' learning more engaging.

Develop creative thinking:

Another important finding, based on data from the majority of data contributing teachers, was that GBL fosters creative thinking among primary school students. The majority of teachers noted that game-based activities encourage students to think creatively and solve problems in new ways. This supports previous studies such as Prensky (2001) who promote creative problem solving by challenging students to explore different strategies and solutions. The results of the study suggest that GBL provides a conducive environment for developing creativity by allowing students to experiment with different approaches in a low-risk setting.

Improve problem solving skills:

The majority of research contributors emphasized that GBL improves students' problem-solving skills. Teachers felt that game-based activities lead students to develop critical thinking and problem-solving strategies, which are then transferred to other areas of their learning. This finding is consistent with Zhang and Li's (2018) meta-analysis. GBL has been shown to effectively improve cognitive skills by presenting students with complex situations that require thoughtful solutions. Accordingly, this study reveals that integrating GBL into the curriculum can contribute to better problem-solving skills among students.

Cooperative learning and social interaction:

The study found that GBL promotes collaborative learning and enhances social interaction among students. Most of the teachers studied mentioned that games are necessary to develop students' teamwork, communication and cooperation. This finding is consistent with the work of Vygotsky (1978) who emphasized the importance of social interaction in cognitive development. Therefore, the collaborative aspect of GBL not only improves social skills, but also contributes to a more integrated learning environment where students support each other to achieve common goals. This research revealed

Teacher training and implementation challenges:

A notable outcome of the study was the identification of challenges related to teacher training and implementation of GBL. The majority of data contributor teachers reported that while they recognized the benefits of GBL, they lacked adequate training and resources to effectively integrate these strategies into their teaching practices. This issue is highlighted in research by Morris (2019) who found that successful GBL implementation often requires significant professional development and support. Accordingly, this study underscores the need for targeted training programs and resource allocation to enable teachers to effectively use GBL strategies.

4. Conclusion

This study on the role of game-based learning (GBL) in fostering innovation and creativity in primary schools within the Ibbagamuwa Education Region has provided valuable insights into its impact on students' participation, creative thinking, problem-solving skills and social interaction. highlights some key benefits as well as some challenges that need to be addressed. According to this study, the study confirms that GBL significantly increases student engagement and motivation. The immersive and interactive nature of game-based activities

captures students' interest and encourages active participation. To capitalize on this finding, game-based activities should be integrated into the school curriculum to transform traditional classroom dynamics and create a more stimulating learning environment. Educational policy makers and curriculum developers should consider incorporating GBL as a standard practice to make learning more enjoyable and effective for elementary students. GBL fosters creative thinking by allowing students to experiment with different problem-solving strategies in a low-risk setting. This finding supports the need for educational approaches that encourage creativity. Schools should focus on designing game-based activities that challenge students to think innovatively and explore different solutions. Teacher training programs can include components that emphasize the development of creativity through GBL. Also, the study reveals that GBL improves students' problem-solving skills by presenting complex situations that require critical thinking. To build on this finding, educational institutions should incorporate problem-solving games into the curriculum and provide opportunities for students to engage in complex, game-based challenges. This approach will help students develop essential cognitive skills that can be transferred across different subjects and real-life situations. GBL promotes collaborative learning and enhances social interaction among students. The study underscores the importance of incorporating team-based games to foster teamwork and communication skills. Accordingly, schools should create more opportunities for students to work together on game-based projects that help build a supportive learning environment and improve social cohesion. One significant challenge identified according to this study is the lack of adequate training and resources for teachers to effectively implement GBL. To address this issue, it is critical to invest in professional development programs that equip teachers with the skills and knowledge to integrate GBL into their teaching practices. In addition, providing schools with the necessary resources and support facilitates the successful implementation of GBL strategies. Accordingly, this study suggests the following recommendations for successful implementation of GBL strategies.

- Professional Development: Here teachers can implement extensive training programs to familiarize them with GBL techniques and best practices. Through this, ongoing support and professional development can be ensured to ensure that teachers have the confidence and ability to use GBL effectively.
- Integration of Curriculum: Another possible course of action here is to develop and incorporate game-based learning modules into the primary school curriculum to align with educational objectives and promote student activity and creativity.
- Allocation of resources: This can allocate resources and funds to support the integration of GBL, including the acquisition of educational games and technologies that enhance the learning experience.
- Collaborative Learning Opportunities: It is possible to design and implement more collaborative, game-based activities that encourage teamwork and communication among students.
- Research and Evaluation: Further research can be conducted to evaluate the long- term effects of GBL on various aspects of student learning and development. Through this, this provides additional insights and can guide future educational practices and policies.
- Overall, this study highlights the potential of GBL to transform primary education. Although this study shows that GBL has a positive impact on students' participation, creativity, problem solving skills and collaborative learning in primary schools within the Ibbagamuwa Education Zone, GBL The study also highlights the need for improved teacher training and resources to fully realize the benefits. By addressing these challenges, educational stakeholders can improve the effectiveness of GBL and foster a more innovative and creative learning environment for students.

5. Keywords

Creativity Development, Game-Based Learning (GBL), Innovation in Education, Primary Education in Sri Lanka

6. References

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