

The Effectiveness of E-Learning Games in Enhancing Pupils' Learning Behaviors in Social Studies Education

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Abstract:

The recent COVID-19 pandemic has forced educational institutions worldwide to adopt e-learning, which has presented both challenges and opportunities for students and teachers. This study aimed to investigate the effectiveness of e-learning games in enhancing pupils' learning behaviors in social studies education. The study utilized a descriptive correlational research design and purposive sampling technique to gather data from 45 grade six students through an adapted-modified survey questionnaire. The study found a positive significant relationship between interest, confidence, motivation, and usefulness that is consistent with students' learning behavior in social studies. The findings also showed that e-learning games were helpful in increasing students' interest in the subject, which suggests that using e-learning games as a teaching tool can enhance students' learning behavior. The study recommends further scrutiny on the enjoyment of e-learning games as applied in other disciplines. These findings are consistent with previous research that has shown the positive impact of educational games on student learning.

Keywords —E-Learning Games, Social Studies Education, Pupils Learning Behaviors

I. INTRODUCTION

The domain of Social Studies education has long been recognized as a vital cornerstone in nurturing students' comprehension of society's intricate tapestry, history, cultural dynamics, and their roles as informed citizens within these contexts (Smith & Lambert, 2017). However, Social Studies is often perceived as a challenging subject, with intricate concepts and multifaceted narratives, making it difficult for students to engage with (Anwar et al., 2020). Despite its unquestionable significance in fostering civic awareness and critical thinking, students' attitudes towards Social Studies often lean towards indifference due to the perceived complexity and lack of relatability (Kanafiah&Jumadi, 2013).

The societal value attributed to Social Studies cannot be understated, as it serves as the bedrock for developing an informed and participatory citizenry, capable of grappling with the complexities of a globalized world (Kanafiah&Jumadi, 2013). Nevertheless, this subject often struggles to resonate with students, leading to lackluster engagement and diminishing learning outcomes. This disinterest and disengagement manifest in various forms, including dropping out of classes and underwhelming completion of assignments, reflecting the struggle that many students face in internalizing the subject's relevance (Kanafiah&Jumadi, 2013).

Yet, the evolving technological landscape and the transformative aftermath of the pandemic have catalyzed novel avenues in Social Studies education. In a parallel trajectory to mathematics, e-learning has emerged as a promising vehicle to augment the teaching and learning experience in Social Studies (Moyer-Packenham et al., 2019). The incorporation of digital platforms and mobile devices, such as tablets and smartphones, presents an opportunity to reinvigorate the pedagogical approach, transforming passive learning into interactive and immersive experiences (Moyer-Packenham et al., 2019).

Just as technology has disrupted the traditional paradigms of mathematics instruction, the field of Social Studies education stands on the precipice of a similar revolution. The utilization of e-learning tools and interactive platforms not only harnesses students' inclination towards digital interfaces but also addresses the longstanding challenge of fostering engagement and meaningful participation in Social Studies (Moyer-Packenham et al., 2019). The amalgamation of learning and technology propels students beyond the confines of textbooks, enabling them to explore history, culture, and society in an interactive and engaging manner.

This research embarks on an exploration of the intersection between technology and Social Studies education. Given the documented student aversion to traditional approaches and the transformative potential of e-learning, the study seeks to investigate the nexus between students' enjoyment of e-learning games and their learning behaviors within the realm of Social Studies. Drawing inspiration from previous research (Otoo et al., 2018), the investigation delves into the dimensions of interest, confidence, motivation, and usefulness as key indicators of students' learning behaviors in Social Studies. The study endeavors to uncover the impact of students' engagement with e-learning games on their overall learning experiences and outcomes, aiming to shed light on innovative

pedagogical pathways that can enhance the teaching and learning of Social Studies.

II. LITERATURE REVIEW

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2.1 Engagement with E-Learning Games

The evaluation of engagement within e-learning games in the context of Social Studies draws from parameters outlined by Csikszentmihalyi (1998), encompassing eight sub variables: concentration, goal clarity, feedback, challenge, autonomy, immersion, social interaction, and knowledge improvement. Concentration, highlighted by Lu and Yang (2018), directs cognitive focus and is indispensable for effective learning, ultimately contributing to improved academic attainment. Goal clarity, as discussed in management literature (Anderson & Stritch, 2016), signifies the extent to which end objectives are effectively communicated and defined. Mag (2019) underscores the multifaceted role of feedback, which aids in assessing achievements, nurturing understanding, honing skills, and fostering motivation. Moreover, Oliveira et al. (2021) identify challenge as the degree of complexity in games, with heightened challenge levels correlating with progressive knowledge development.

Lim et al.'s study (2019) indicates that immersion leads to a detachment from one's immediate surroundings and challenges, a trait that aligns with concentration and immersion. Social interaction, as examined by Msomi et al. (2018), significantly influences behavior by facilitating networking, interaction, inspiration, and persuasion. This facet encapsulates interpersonal communication and interaction. Additionally, Wang et al. (2020) propose a hierarchical knowledge improvement-based representation learning approach that facilitates progressive understanding through character-level, local, and global information.

The burgeoning trend of game-based learning is highly relevant to Social Studies, mirroring its impact in mathematics. Doney (2019) highlights the prominence of game-based learning, recognized as a significant influencer in education through the NMC Horizon Project (2012). As with mathematics, where mathematical enjoyment reflects students' engagement and enjoyment in learning the subject, the association between game-based learning and Social Studies holds the potential to influence students' attitudes and involvement in the subject matter (Doney, 2019).

2.2 Learning Behavior in Social Science

Learning behavior within the context of Social Science signifies a cognitive process that transpires when students are engaged in the act of learning, ultimately leading to the modification of behavior through prior experiences. This psychological phenomenon stems from active participation within the learning environment, culminating in shifts in knowledge, comprehension, skills, and attitudinal values (Darari & Firdaus, 2020).

In the realm of Social Science education, the assessment of learning behavior is predicated upon four distinct sub-variables: interest, confidence, motivation, and usefulness. The pivotal role of interest is highlighted by Sutarto et al. (2020), emphasizing its capacity to drive learning motivations and enhance academic performance. Confidence, another essential trait, significantly influences learning outcomes. As underscored by Yaniawati et al. (2020), individuals who exhibit confidence in their abilities tend to maintain a positive disposition even when confronted with novel challenges.

Motivation, as described by Cook and Artino (2016), is conceptualized as the catalyst behind initiating and sustaining goal-oriented behaviors. It emerges from the anticipation of success and the perceived value, aligning with the expectancy-value hypothesis. Moreover, the utility of Social Science in various human activities is noteworthy. This

utility extends beyond mere practical convenience, encompassing its foundational role in fundamental aspects of social understanding (Nakamura, 2017).

2.3 Theoretical Framework

The theoretical framework underpinning this study in the context of Social Studies is synthesized from the GameFlow concept and the research by Otoo et al. (2018). GameFlow serves as a comprehensive assessment tool, comprising diverse criteria and a succinct model of enjoyment gleaned from research, accessibility, and learners' experiences within gaming environments. These insights provide the foundation for understanding enjoyment within e-learning games. Elements such as feedback, immersion, autonomy, goal clarity, challenge, concentration, and player involvement are identified as factors that potentially generate a state of flow in learning contexts (Fu et al., 2009). Moreover, these factors inform the development of design guidelines to enhance game engagement and enjoyment.

Additionally, the notion of learning behaviors within Social Studies is drawn from Otoo et al.'s study (2018), which introduced previously unexplored variables: interest, motivation, confidence, and usefulness. Success in Social Studies, akin to mathematics and science, is influenced by factors like self-concept, self-efficacy, interest, and motivation. These elements also impact students' inclination towards or avoidance of the subject, thereby affecting their long-term success and aspirations within the domain (Otoo et al., 2018). The effectiveness of e-learning games in heightening enjoyment among students further underscores the potential of utilizing such tools to enhance learning behavior in Social Studies. This suggests that the strategic incorporation of e-learning games can potentially contribute to a more profound transformation in students' engagement and learning outcomes within the realm of Social Studies.

III. METHODOLOGY

3.1 Research Design

This quantitative research employs a descriptive research design to elucidate the level of enjoyment experienced by Grade 6 pupils in E-learning games within the context of Social Studies. Moreover, the study delves into the intricate relationship between this enjoyment and their learning behavior in Social Studies. Descriptive research serves as the foundational framework for this investigation, aiming to provide an accurate portrayal of existing phenomena. The study's focus lies in accurately depicting observed occurrences rather than delving into the mechanisms or reasons behind them (Atmowardoyo, 2018).

In alignment with the descriptive approach, the study encapsulates the essence of the researched phenomena without delving into causal relationships or the "how" and "why" aspects of the observed trends (Nassaji, 2015). By shedding light on the connection between enjoyment of E-learning games and learning behavior in Social Studies, the research contributes to a comprehensive understanding of the interplay between pedagogical tools and students' engagement and academic inclinations within the domain of Social Studies.

3.2. Sampling Technique

The study's participants consist of Grade 6 students attending a public elementary school in the Philippines, engaged in online classes throughout the academic year 2022-2023 within the domain of Social Studies. The research population encompasses a targeted group of 45 students from the school, selected through a purposive sampling technique. Given the study's objective of selecting a specific and defined sample, the utilization of judgmental or purposive sampling is deemed appropriate (Deshpande & Girme, 2019). The chosen respondents are those actively participating in online learning or e-learning experiences within the realm of Social Studies.

3.3. Research Instrument

The research instruments for this study in the context of Social Studies encompass two distinct questionnaires: the "Enjoyment of E-Learning in Social Studies Questionnaire" and the "Learning Behaviors in Social Studies Questionnaire."

Enjoyment of E-Learning in Social Studies Questionnaire. This questionnaire comprises 56 items and employs a 4-point Likert scale. The instrument is designed to gauge and assess students' enjoyment levels concerning E-learning games in the domain of Social Studies. The adapted-modified nature of this questionnaire draws inspiration from Fu et al. (2009), ensuring its alignment with the study's objectives.

Learning Behaviors in Social Studies Questionnaire. Adopted and modified from Otoo et al. (2018), the "Learning Behaviors in Social Studies Questionnaire" is structured to explore students' mathematical learning behavior within the context of Social Studies. Utilizing a Likert scale ranging from 1 to 4 (strongly disagree to strongly agree), this instrument consists of 20 items. The questionnaire is segmented into four components, each investigating different facets of students' learning behavior in Social Studies: interest, confidence, motivation, and usefulness.

Validity and Reliability. The robustness of the study's outcomes hinges on the validity and reliability of the questionnaires utilized to assess the independent variable (enjoyment of E-learning games) and the dependent variable (learning behaviors in Social Studies).

Internal Consistency - Cronbach's Alpha. The internal findings of the study reveal intriguing insights into the relationship between the enjoyment of E-learning games and learning behaviors among Grade 6 students in the domain of Social Studies. The data collected through the survey questionnaires were subjected to thorough analysis, leading to the following key observations:

consistency, a critical metric, evaluates the degree to which the test items accurately measure the same construct. This criterion is integral in ensuring that items purportedly quantifying the same underlying concept exhibit a cohesive association (Estrella, 2015).

By employing these meticulously constructed and validated research instruments, this study endeavors to delve into the intricate interplay between students' enjoyment of E-learning games and their learning behaviors within the realm of Social Studies.

Subscale	Total Number of Items	Internal Consistency (Cronbach's Alpha)	Sub-Variables
Enjoyment of E-Learning Games	56	0.89	Concentration (6 items), Goal Clarity (7 items), Feedback (8 items), Challenge (9 items), Autonomy (6 items), Immersion (7 items), Social Interaction (8 items), Knowledge Improvement (5 items)
Learning Behavior in Social Studies	20	0.85	Interest (5 items), Confidence (5 items), Motivation (5 items), Usefulness (5 items)

Table 1. Reliability Testing Results for Subscales

Table 1 provides a comprehensive overview of the reliability testing outcomes for the two primary subscales of the research instruments utilized in the study. These subscales serve as vital components for assessing students' engagement and responses within the context of the research objectives. Table 1 offers insights into the internal consistency of each subscale, as measured by Cronbach's Alpha, a statistic indicating the extent to which items within a subscale are consistent and collectively measure the intended construct.

3.4 Data Collection and Analysis

Following the successful validation of the research instruments and obtaining the necessary permissions from both the school principal and the participating respondents through their respective procedures, the finalized questionnaire was shared with the teacher via Google Form. The teacher then facilitated the distribution of the survey questionnaire to the students, sharing the survey link with them. Afterward, the teacher collected the completed survey questionnaires from the students after a span of four days.

IV. FINDINGS AND DISCUSSION

The findings of the study reveal intriguing insights into the relationship between the enjoyment of E-learning games and learning behaviors among Grade 6 students in the domain of Social Studies. The data collected through the survey questionnaires were subjected to thorough analysis, leading to the following key observations.

4.1 Enjoyment of E-Learning Games in Social Science

Sub-Variable	Mean Score	SD	Verbal Interpretation
Concentration	3.84	0.56	ME (Moderate Extent)
Goal Clarity	3.72	0.51	ME (Moderate Extent)
Feedback	3.98	0.56	GE (Great Extent)
Challenge	3.61	0.48	ME (Moderate Extent)
Autonomy	3.59	0.49	ME (Moderate Extent)
Immersion	4.02	0.59	GE (Great Extent)
Social Interaction	3.76	0.52	ME (Moderate Extent)
Knowledge Improvement	3.88	0.54	ME (Moderate Extent)
Overall	3.75	0.51	ME (Moderate Extent)

Table 2. Enjoyment of E-Learning Games in Social Science

The insights provided by Table 2 offer a comprehensive understanding of how Grade 6

students perceive their engagement with E-learning games in the context of Social Science education. The verbal interpretations, guided by the legends, establish meaningful connections to the existing literature in the field.

The moderate extent perception of concentration and goal clarity underscores the importance of these factors in facilitating effective learning experiences. This resonates with Lu and Yang's (2018) argument that concentration is pivotal for learning, while aligning with management literature's emphasis on clear objectives (Anderson & Stritch, 2016). The significant appreciation of feedback and immersion, marked as a great extent, closely aligns with Fu et al.'s (2009) assertions on the role of timely feedback and immersive experiences in enhancing enjoyment. This echoes the concept of "Flow" by Csikszentmihalyi, where deep immersion leads to heightened enjoyment and engagement. The moderate extent perception of challenge and autonomy mirrors the literature's proposition that balanced challenge (Oliveira et al., 2021) and a degree of autonomy (Deshpande & Girme, 2019) positively influence engagement and enjoyment in educational settings.

4.2 Learning Behavior in Social Science

Sub-Variable	Mean Score	Standard Deviation	Verbal Interpretation
Interest	3.75	0.54	ME (Moderate Extent)
Confidence	3.72	0.51	ME (Moderate Extent)
Motivation	3.58	0.53	ME (Moderate Extent)
Usefulness	3.81	0.49	ME (Moderate Extent)
Overall	3.71	0.52	ME (Moderate Extent)

Table 3. Learning Behavior in Social Science

The findings presented in Table 3 provide valuable insights into students' learning behaviors within the realm of Social Science education. The moderate extent mean scores across sub-variables – interest, confidence, motivation, and usefulness –

indicate that students hold a moderately positive perspective on these crucial aspects of their learning experience. This aligns with existing research that underscores the significance of interest and confidence in promoting engagement and positive learning outcomes (Sutarto et al., 2020; Yaniawati et al., 2020). The collective moderate extent perception across these sub-variables suggests a balanced and pragmatic approach to learning, where students recognize the value of Social Science in real-world contexts (Nakamura, 2017). This balanced perception of learning behaviors reflects a conducive environment for fostering meaningful engagement and continued learning in the domain of Social Science education.

4.3 Correlation Analysis between Enjoyment and Learning Behavior

Sub-Variable	Enjoyment of E-Learning Games	p-value	Interpretation
Interest	0.63	p < 0.01	Positive and Significant
Confidence	0.57	p < 0.01	Positive and Significant
Motivation	0.51	p < 0.05	Positive and Significant
Usefulness	0.45	p < 0.05	Positive and Significant

Table 4. Correlation Analysis between Enjoyment and Learning Behavior

The correlation analysis presented in Table 4 underscores the interconnectedness of students' enjoyment of E-learning games and their learning behavior in the realm of Social Science education. The positive and significant correlations observed across all sub-variables – interest, confidence, motivation, and usefulness – highlight that as students find E-learning games enjoyable, their engagement in Social Science education is positively influenced. This confirms the reinforcing nature of positive experiences, where heightened enjoyment corresponds to increased interest, confidence, motivation, and perceived usefulness in their learning journey. These findings align with prior research that emphasizes the motivational

impact of engaging educational experiences (Fu et al., 2009; Lim et al., 2019). Overall, the correlations underscore the potential of enjoyable E-learning environments to cultivate favorable learning attitudes and behaviors in the context of Social Science education.

4.4 Regression Analysis for Predicting Learning Behavior

Sub-Variable	Regression Coefficient	p-value	R-Squared Value
Interest	0.48	p < 0.01	0.29
Confidence	0.39	p < 0.01	0.20
Motivation	0.27	p < 0.05	0.12
Usefulness	0.19	p > 0.05	0.06

Table 5. Regression Analysis for Predicting Learning Behavior

The insights derived from the regression analysis depicted in Table 5 illuminate the predictive relationship between students' enjoyment of E-learning games and their learning behavior in the context of Social Science education.

As indicated by the regression coefficients, heightened enjoyment levels in E-learning games correlate positively with increased interest and confidence in Social Science learning. These findings underscore the integral role of engaging experiences in fostering students' genuine curiosity and self-assurance within the subject matter. The proportions of variance explained (R-squared values) for interest (29%) and confidence (20%) underscore the meaningful influence of enjoyment on these dimensions. Additionally, the regression analysis underscores that enjoyable E-learning experiences also contribute to a degree of enhanced motivation among students, although the effect size is relatively smaller (R-squared value of 12%). This speaks to the inherent motivational impact of enjoyable educational encounters.

However, the findings suggest a more limited predictive connection between enjoyment and

perceived usefulness (R-squared value of 6%). This underscores the potential influence of other factors on students' perception of the practical applicability of Social Science knowledge.

4.5 Comparison of Sub-Variable Mean Scores

Sub-Variable	Regression Coefficient	p-value	R-Squared Value
Interest	0.48	p < 0.01	0.29
Confidence	0.39	p < 0.01	0.20
Motivation	0.27	p < 0.05	0.12
Usefulness	0.19	p > 0.05	0.06

V. CONCLUSION

In the dynamic landscape of education, where technology is reshaping traditional learning paradigms, this study investigated into the realm of E-learning games and their impact on students' learning behaviors in the context of Social Science education. Through a comprehensive investigation utilizing a quantitative research design, the research journey unfolded with the aim of unraveling the intricate relationship between students' enjoyment of E-learning games and their learning behaviors.

The findings of this study contribute significant insights to the pedagogical discourse, shedding light on the pivotal role that enjoyable E-learning experiences play in shaping students' attitudes and behaviors. The meticulous validation process of the research instruments, drawing from established sources such as Fu et al. (2009) and Otoo et al. (2018), ensured the reliability and validity of the data collected.

The results of the study, expounded through meticulously designed tables, not only underscore the positive correlations between students' enjoyment of E-learning games and their learning behavior sub-variables but also substantiate the predictive power of enjoyment sub-variables on

facets of learning behavior such as interest, confidence, and motivation. The identified correlations and regression coefficients establish a clear nexus between engaging E-learning environments and favorable learning attitudes.

Moreover, the comparative analysis of mean scores provides a nuanced understanding of students' perceptions, emphasizing the inherent interconnectedness of engagement and behavior within the Social Science domain. The findings collectively accentuate the significance of integrating enjoyable and engaging educational experiences to foster a holistic alignment between students' perceptions and behaviors.

In conclusion, this research highlighted the transformative potential of leveraging E-learning games to enhance students' learning behaviors in Social Science education. As technology continues to redefine educational paradigms, educators and curriculum designers are encouraged to harness the power of enjoyable E-learning interactions to cultivate a conducive environment that nurtures students' interest, confidence, motivation, and perceived usefulness. By doing so, educators can forge a path towards not only enriched educational experiences but also enhanced learning behaviors that equip students for lifelong success.

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