International Journal of Essential Competencies in Education
https://journal-center.litpam.com/index.php/ijece/index

Dec. 2023 Vol. 2, No. 2
e-ISSN: 2962-2131
pp. 128-143

Utilizing Social Reality Videos in Mobile Apps to Enhance Electronic Learning: Examining the Influence on Cognitive Learning Outcomes Among Students

Rachid El Yazidi

Department of Social Sciences, Moulay Ismail University, Meknes 52202, Morocco

Correspondence: elyazidi.rachid87@gmail.com

Article Info

Article History
Received: November 2023;
Revised: November 2023;
Published: December 2023

Keywords
Social reality videos;
Mobile application, e-learning system;
Cognitive learning outcomes

Abstract

This research endeavors to evaluate the effectiveness of incorporating electronic learning (e-learning) with social reality videos into a mobile application to enhance students' cognitive learning outcomes. The study adopts an experimental design, specifically a pretest-posttest control group design, involving two distinct groups: the experimental group exposed to e-learning featuring social reality videos, and the control group engaged in traditional face-to-face learning utilizing the expository method. Each group comprised twenty-eight students, and both groups underwent pre-tests and post-tests with identical tasks. The primary focus of this investigation is the assessment of cognitive learning outcomes among students, representing the educational impact of induced learning within each treatment group. Analysis of students' learning outcomes includes descriptive methods (such as the average learning outcomes and n-gain) and statistical procedures, including hypothesis testing to determine differences in achievement between the treatment groups, conducted at a significance level of 0.05. In summary, the findings of this study reveal that the integration of e-learning with social reality videos significantly enhances students' learning outcomes, surpassing the effectiveness of the expository method. Consequently, the researchers recommend the simultaneous incorporation of this innovative approach into conventional classroom lectures.

https://doi.org/10.36312/ijece.v2i2.1613

How to Cite

Yazidi, R. E. (2023). Utilizing Social Reality Videos in Mobile Apps to Enhance Electronic Learning: Examining the Influence on Cognitive Learning Outcomes Among Students. *International Journal of Essential Competencies in Education*, 2(2), 128–143. https://doi.org/10.36312/ijece.v2i2.1613

INTRODUCTION

In the contemporary educational landscape, there has been a notable surge in the utilization of digital learning platforms, particularly in the realm of electronic learning (e-learning). This trend is attributable to the rapid evolution of technology and has been further accelerated by the global Covid-19 pandemic. The confluence of these factors has underscored the imperative for devising a new framework for the implementation of e-learning, with a parallel acknowledgment of the challenges posed by the current online education landscape. It is evident that the existing online education paradigm lacks a well-defined learning scenario, especially in cases where courses are conducted amidst the complexities introduced by the Covid-19 pandemic.

Reflecting on the trajectory of online teaching experiences from the onset of 2020 until the present, a discernible theme emerges—the pervasiveness of student boredom.

Paradoxically, though students are dedicating more time to online learning than ever before, the digital platforms continue to curtail opportunities for face-to-face interactions among students. Notably, the impact of online learning on cognitive outcomes has not shown significant progress when compared to traditional face-to-face teaching methods. In the current educational landscape, where the adoption of e-learning is seemingly the only viable option, the managerial aspect of digital learning is identified as a catalyst for creating a motivational digital environment (Papadakis et al., 2020). However, the efficacy of this approach hinges on the integration of captivating digital pedagogy, a facet that remains critical for enhancing learning outcomes and facilitating in-depth knowledge acquisition, as suggested by Schmitz et al. (2012).

While the implementation of online learning brings about a certain degree of anxiety, particularly in the presentation of extensive theoretical content lacking interactivity, its adverse impacts on various facets of learning cannot be ignored (Viktorova, 2020). The potential for students to become passive recipients of information is heightened in situations where teacher-student contact is sporadic, reducing the educator to a mere conveyor of content (Moreno-Guerrero et al., 2020). Thus, navigating the complex terrain of digital education necessitates not only strategic managerial considerations but also a concerted effort to infuse online learning environments with engaging pedagogical approaches that foster meaningful and interactive learning experiences.

Addressing issues related to the implementation of digital learning, particularly in the realm of e-learning, demands careful consideration. It is imperative to tailor the utilization of learning technology to meet specific educational needs (Drolia et al., 2020). The focus should extend beyond the mere delivery of voluminous teaching content, which can lead to monotony and adversely affect learning outcomes. Instead, emphasis must be placed on incorporating engaging content and leveraging additional digital tools to inspire motivation, ultimately fostering enhanced learning results. Essentially, any approach to digital learning must be crafted with the goal of yielding positive consequences for student academic achievements (Cheng et al., 2016).

The versatility inherent in the application of digital learning opens avenues for the introduction of promising technologies. Integration with other relevant technological advancements, such as those highlighted by Katsaris et al. (2021), can significantly contribute to a more effective learning process. Within the scope of the current study, researchers have taken the initiative to enhance students' cognitive learning outcomes by implementing e-learning, complemented by social reality videos within mobile applications. Video-based virtual reality, recognized as an interactive visual technology, offers constructive opportunities to elevate student learning performance (Wu et al., 2021). This form of reality video, aligned with interactive virtual reality, as demonstrated in the research conducted by Škola et al. (2020), has proven to be instrumental in improving the learning process. Previous studies have consistently highlighted the pivotal role of instructional video technology in enhancing educational outcomes (Córcoles et al., 2021). Furthermore, the prevalence of mobile devices in learning environments serves as a catalyst for increased engagement across various activities in the 21st century, particularly supporting students' cognitive reasoning skills (Verawati, et al., 2022).

To comprehensively examine the impact on various facets of student learning outcomes, this study endeavors to implement e-learning, augmented by social reality videos in mobile applications, and assess its influence on enhancing students' cognitive learning outcomes.

LITERATURE REVIEW

The transformation brought about by technological advancements and digitalization, long foreseen and now materializing, is reshaping various aspects of society (Alonso-García et al., 2019). The integration of technology into societal frameworks reflects the tangible outcomes of technological progress across diverse fields (Hinojo-Lucena et al., 2018). The ramifications of these technological strides are evident in the facilitation of daily tasks, expediting processes, and enhancing overall performance through their utilization (Moreno-Guerrero et al., 2020). Education, in particular, has witnessed the profound influence of technological evolution, manifesting in the form of Information and Communication Technology (ICT). The progression of the teaching and learning landscape is intricately linked to the advancements in ICT (Garrote-Rojas et al., 2018). The incorporation of ICT not only transforms educational processes but also paves the way for the creation of novel learning environments, fostering innovative pedagogical practices as required (Li et al., 2019). This utilization not only facilitates access to a wealth of global information (Nikolopoulou et al., 2019) but also holds the potential to yield promising outcomes in learning, such as heightened student motivation, increased learning autonomy, active student engagement, and positive attitudes towards the subject matter (Khine et al., 2017; Moreno-Guerrero et al., 2020).

Moreover, the burgeoning interest in the role of technology in learning is reflected in a growing trend of scholarly exploration, with a bibliometric analysis by Ismail (2022) unveiling 170 documents in the Scopus database spanning the period from 1994 to 2022. This corpus of research predominantly centers on the theme of learning technology in educational professional development, highlighting a trajectory of expanding scholarly attention to this domain. The continuous expansion of this body of knowledge attests to the increasing significance and relevance of studying the intersection of technology and learning, underlining the dynamic nature of educational technology research and its evolving landscape. As we navigate the educational landscape, the implications of technology on learning stand as a captivating and continuously evolving subject of exploration, gaining momentum with each passing year.

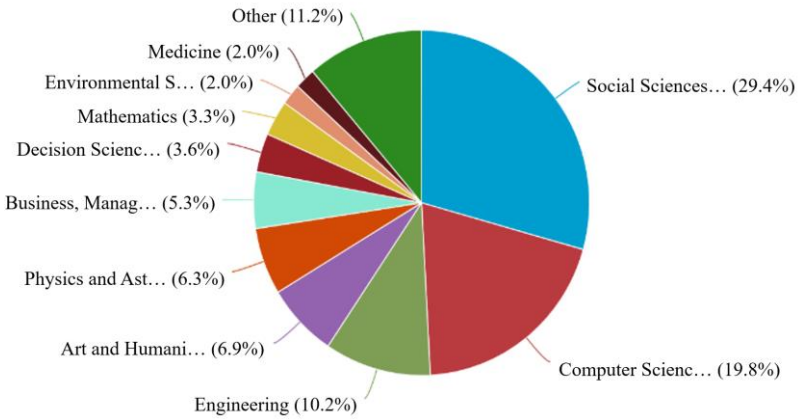

Figure 1. Analysis of documents categorized by subject area that explores the topic of educational technology in professional development within the Scopus database, covering the period from 1994 to 2022

E-learning emerges as a technology-driven pedagogical approach, encompassing online educational activities facilitated through internet access and technological tools, including mobile devices, featuring both synchronous and asynchronous interactions, coupled with considerations of connectivity and accessibility (Cole et al., 2020). Consequently, the e-

learning methodology serves as an effective pedagogical tool, enhancing students' accessibility to educational resources.

In contemporary educational settings, the significance of digital platforms has escalated markedly. This surge is attributed to the pervasive influence of the Covid-19 pandemic, which originated in early 2020 and continues to impact a substantial portion of the global student population—1.6 billion students, constituting 94% worldwide, across over 200 countries (Mohammed, 2022). The ensuing transformation has posed considerable challenges, notably marked by the substitution of traditional whiteboards with interactive counterparts (Karakose et al., 2021). The imperative for educators to adapt e-learning systems to the evolving circumstances is underscored (Katsaris et al., 2021). A comprehensive digital learning framework has been formulated, demanding that educators harness the online learning environment regardless of their proficiency in digital literacy (Karakose et al., 2022). This concern is heightened by the prerequisite for a robust pedagogical infrastructure and the deployment of sophisticated digital learning tools.

It is noteworthy that the utilization of identical digital tools, such as e-learning, does not uniformly yield benefits for all students; rather, it hinges on individual preferences (Katsaris et al., 2021). Furthermore, the alignment of the curriculum with online pedagogy assumes paramount importance. The application of online education encounters challenges in crafting clear learning scenarios, particularly in the context of the Covid-19 pandemic (Wu et al., 2021). The transition of the curriculum becomes a stumbling block when the faculty-prepared curriculum deviates from the lecturer's online learning framework, necessitating time-consuming adjustments and inducing discomfort, often stemming from content disparities (Poultsakis et al., 2021). Consequently, the role of digital learning remains ambiguous, particularly concerning its impact on enhancing students' cognitive learning outcomes (Schmitz et al., 2012; Ting, 2012).

E-learning has emerged as a crucial solution for maintaining educational continuity amidst the challenges posed by the Covid-19 pandemic (Mohammed, 2022). Its adaptability in terms of scheduling, location, expenses, and effort positions it as a preferred option for facilitating the learning process (Papachristos et al., 2010; Qian, 2018; Zhu & Chen, 2020). The implementation of e-learning in any digital educational environment can foster a motivational atmosphere (Papadakis et al., 2020). Furthermore, digital learning opens up promising opportunities for integrating new technologies (Katsaris et al., 2021) by utilizing available technological resources (Zhu & Chen, 2020), which may include desktops, computers, smartphones, tablets, and more. These technological resources encompass various digital formats such as educational videos, video conferencing, podcasts, social networks, learning platforms, among other options (Shakah et al., 2019).

Digital resources, such as those found on e-learning platforms, have been extensively investigated as facilitators for a seamless learning experience (Qian, 2018; Zhu & Chen, 2020). Additional technological tools employed in education, such as virtual reality videos, contribute to an enhanced learning process and have been associated with positive effects on students' attitudes and self-regulated learning (Córcoles et al., 2021; Škola et al., 2020; Wu et al., 2021). EL-Ariss et al. (2021) contend that incorporating videos into blended e-learning can significantly augment students' in-depth comprehension.

Moreover, the acceptance of learning videos is notable due to their ability to support active learning, boost motivation, and increase student engagement, rendering the learning experience enjoyable (Galatsopoulou et al., 2022). Additionally, mobile devices, a frequently utilized technological resource in education, have been identified as valuable tools,

particularly when equipped with relevant educational content, and can serve as modern tools fostering twenty-first-century skills (Papadakis et al., 2022; Papadakis, 2021).

It is emphasized that the integration of technology into learning approaches should be tailored to meet the specific learning needs of students (Drolia et al., 2020) and play an integral role in establishing an interactive constructivist learning environment (Papadakis et al., 2020). Lastly, the effective implementation of existing technology in e-learning systems requires competent human resources (Wan & Niu, 2020). A well-designed e-learning framework, complemented by suitable technologies, serves as a digital pedagogy that fosters robust critical thinking skills and ultimately enhances overall learning outcomes (Bilad et al., 2022; Verawati, et al., 2022).

METHOD

In this investigation, an experimental design known as the pretest-posttest control group design, as outlined by Fraenkel et al. (2012), was employed. The study comprised two distinct sample groups, with the first group designated as the experimental group and the second as the control group. The treatment administered to the experimental group involved utilizing e-learning modules featuring social reality videos through a mobile application. Conversely, the control group experienced traditional face-to-face learning with an emphasis on expository teaching methods. To gauge the impact of these treatments, both groups underwent a pre-test before the intervention, and a post-test was administered subsequent to the completion of the respective treatments.

Participants in this study were students enrolled in a basic natural science course at one of the private universities. Each group, both experimental and control, consisted of twenty-eight students. Demographically, the sampled individuals had an average age falling within the range of eighteen to nineteen years, and the gender distribution was relatively balanced between female and male participants. It is noteworthy that the demographic information was included solely for descriptive purposes and was not considered a variable influencing the study's outcomes.

Furthermore, the research design aimed to explore the efficacy of different learning modalities on student performance. By juxtaposing e-learning with social reality videos against traditional face-to-face instruction, the study sought to discern any significant differences in the academic outcomes of the experimental and control groups. The decision to focus on basic natural science courses aimed to provide a specific context for the investigation, allowing for a more targeted analysis of the impact of the selected learning methods on students within this academic domain.

In this investigation, the primary focus revolves around the assessment of students' cognitive learning outcomes. The evaluation of these outcomes employed a meticulously crafted test instrument in the form of an essay test, comprising ten questions. The cognitive dimensions under scrutiny include understanding, application, analysis, synthesis, and evaluation, with each dimension being represented by a pair of questions. Prior to its implementation, the cognitive learning outcomes test underwent a rigorous validation process, ensuring its reliability and content validity. Content validity, a critical aspect in test development, was assessed by examining the extent to which the test instrument accurately measures the designated content domain. This domain is delineated into three dimensions: definition, representation, and domain relevance, as stipulated by Sireci and Faulkner-Bond (2014). The validation process enlisted the expertise of two experienced validators, whose evaluations affirmed the test's validity within the specified domains.

Furthermore, the reliability of the cognitive learning outcomes test was meticulously gauged. Reliability, synonymous with the consistency of measurement, was assessed in accordance with Chatzopoulos et al.'s (2022) framework. To calculate reliability, the percentage of agreement between each validator was determined using Borich's (2016) equation. The outcome of this reliability assessment conclusively demonstrated that the cognitive learning outcomes test exhibited a commendable level of reliability, thereby bolstering confidence in the accuracy and consistency of the measurements it provides.

The analysis of learning outcome data in this study encompassed both descriptive and statistical approaches. Descriptively, the learning outcomes were computed as averages from the pre-test to the post-test within the two groups. Additionally, the n-gain score, indicating the average improvement in learning, was calculated. This n-gain score was categorized into three levels: low (n-gain < 0.3), moderate (n-gain 0.3 - 0.7), and high (n-gain > 0.7), as proposed by Hake (1999). The augmentation in learning scores was evaluated against predetermined criteria, classifying outcomes into five ranges based on average scores: 0-20 (not good), 21-40 (poor), 41-60 (sufficient), 61-80 (good), and 81-100 (very good).

Statistical analysis was conducted using the independent sample t-test, preceded by a normality test to ensure the data met the assumptions of the test. The significance level for the statistical test was set at 0.05. The primary aim of the statistical analysis was to assess the hypothesis, comparing students' cognitive learning outcomes between treatment groups. The null hypothesis (H_0) posited that there is no difference in cognitive learning outcomes among students in the treatment groups, while the alternative hypothesis (H_a) suggested the presence of significant differences. The execution of these statistical tests was facilitated through the utilization of SPSS 25.0 software tools, ensuring a robust and comprehensive evaluation of the study's hypotheses.

RESULT AND DISCUSSION

In Table 1, a detailed presentation of student learning outcomes is provided, revealing insightful observations regarding the performance of two distinct sample groups. The initial examination of test results showcased a remarkable similarity between the two groups, as both exhibited average scores falling within the 'less' criteria. This initial parity suggested a comparable starting point for the experimental and control groups in terms of academic achievement. However, a noteworthy divergence emerged during the final assessment, where the average scores and learning outcome criteria exhibited notable distinctions between the groups.

Upon closer scrutiny of the post-test results, the experimental group demonstrated a considerable advancement, boasting an average score of 78.76 and achieving the coveted 'good' criteria. This noteworthy improvement underscored the efficacy of the experimental intervention, indicating a positive impact on the participants' academic performance. In contrast, the control group, while maintaining a comparable starting point, displayed a less favorable trajectory in terms of learning outcomes. With an average score of 46.32 and a corresponding designation of 'sufficient,' the control group's performance fell short of the heightened achievements observed in the experimental counterpart.

The divergence in the post-test outcomes highlights the potential influence of the experimental intervention on elevating student learning outcomes to a 'good' level, as opposed to the control group's maintenance within the 'sufficient' criteria. These findings contribute valuable insights into the effectiveness of the interventions employed, shedding light on the distinct trajectories and outcomes experienced by the experimental and control groups throughout the course of the study.

Table 1. The analysis results of students' cognitive learning outcomes

Group	Average score and criteria				n-gain	Criteria
	Pre-test	Criteria	Post-test	Criteria		
Exp. group, n = 28	28.88	Less	78.76	Good	0.72	High
Con. group, n = 28	30.96	Less	46.32	Sufficient	0.29	Low

The findings presented in Table 1 indicate notable variations in the enhancement of students' learning outcomes, as measured by the n-gain, between the two groups under consideration. Specifically, the experimental group demonstrated a significantly higher level of improvement, meeting the 'high' criteria, as evidenced by an n-gain score of 0.72. In contrast, the control group's n-gain score was considerably lower, falling within the 'low' criteria with a recorded value of 0.29. These disparities underscore the differential impact of the instructional interventions applied in each group, with the experimental group exhibiting a more pronounced positive effect on students' learning outcomes compared to the control group. The significance of these outcomes is visually represented in Figure 2 through a descriptive analysis, offering a graphical depiction of the variations in students' learning outcomes between the experimental and control groups. This visualization serves to complement the quantitative data presented in Table 1, providing a comprehensive overview of the effectiveness of the instructional strategies employed in the experimental group in comparison to the control group. The juxtaposition of these results emphasizes the substantial influence that the instructional approach can have on students' overall learning gains, supporting the assertion that the experimental group's instructional method has yielded more favorable outcomes than the control group's approach.

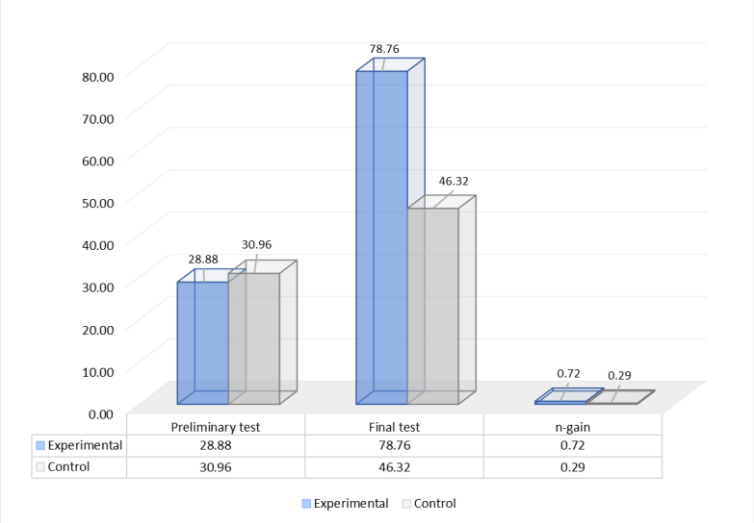

Figure 2. The visual representation of students' cognitive learning outcomes based on descriptive analysis

The analysis of outcomes depicted in Figure 2 unequivocally illustrates the superiority of the e-learning model, reinforced by the incorporation of social reality videos within a mobile application, as implemented in the experimental group, compared to the traditional face-to-face learning approach utilizing the expository method, which was employed in the control group. The disparity in the augmentation of scores between these groups was notably pronounced. The visual representation in Figure 2 serves as a compelling testament to the efficacy of e-learning with social reality video integration, showcasing a discernible advantage over the conventional face-to-face expository method. Notably, the divergence in score

increments underscores the substantial benefits conferred by the innovative e-learning paradigm over the traditional instructional approach. Furthermore, Figure 3 offers a comprehensive portrayal of the distribution of pre-test and post-test scores across the two groups subjected to distinct learning methodologies. This stark contrast in outcomes lends credence to the argument that the experimental group, engaged in e-learning with social reality video support, outperformed the control group, indicating a transformative impact on learning outcomes. The visualized data encapsulates a compelling narrative, underscoring the pedagogical advantages inherent in the integration of e-learning with social reality videos in a mobile apps.

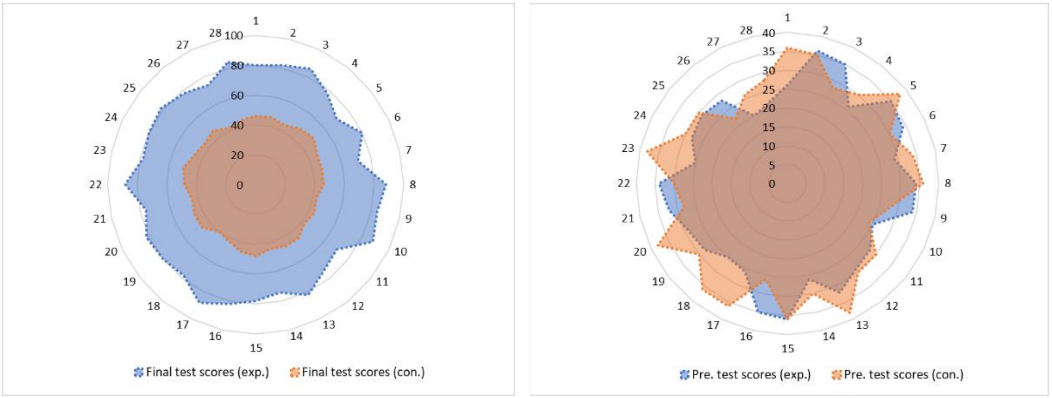

Figure 3. Pre-test and post-test results depicting the distribution of students' cognitive learning outcomes

In Figure 3, an evident disparity in the cognitive learning outcomes scores of students is apparent, particularly on the post-test, indicating a discernible gap between the two groups. However, it is noteworthy that during the initial test, the distribution of individual learning outcome scores appears to be relatively balanced. This suggests that while the groups may have started with comparable levels of cognitive performance, divergences in learning outcomes became more pronounced as the instructional period progressed, culminating in notable discrepancies on the final assessment. The nuanced dynamics of these results are further elucidated through the descriptive statistical analysis presented in Table 2. This table offers a comprehensive overview of the key statistical measures, shedding light on central tendencies, dispersions, and other relevant metrics that contribute to a more thorough understanding of the observed cognitive learning outcomes. The juxtaposition of these findings in both Figure 3 and Table 2 underscores the multifaceted nature of the educational intervention's impact on individual student performance, emphasizing the need for a comprehensive assessment approach that considers the evolution of learning outcomes over time and across various metrics.

Table 2. The outcomes of the descriptive analysis within each group, as determined by the n-gain parameter

Group	Mean	Var.	SD	SE. Mean
Exp. group, n = 28	72.000	56.122	7.445	1.562
Con. group, n = 28	29.131	30.412	6.124	1.112

The differentiation in mean, median, variance, and standard deviation is contingent upon the n-gain parameter within each respective experimental and control group. In addition, an assessment of the augmentation in cognitive learning outcome scores was

conducted for both groups, preceded by a preliminary normality test. The outcomes of the normality test and subsequent statistical analysis are succinctly presented in Tables 3 and 4, offering a comprehensive overview of the distribution characteristics and the consequential impact on cognitive learning. The disparity in statistical measures among the experimental and control groups underscores the nuanced nature of the experimental conditions and highlights potential variations in learning outcomes. The application of a normality test before engaging in statistical analysis reflects a methodological commitment to ensuring the robustness and reliability of the subsequent findings. These tabulated results serve as a crucial reference point for comprehending the intricacies of cognitive learning outcomes in relation to the experimental interventions and control conditions, thereby contributing valuable insights to the broader discourse on educational research and pedagogical strategies.

Table 3. The normality test results, $p > 0.05$

Groups	Kolmogorov-Smirnov		Shapiro-Wilk	
	Statistic	Sig.	Statistic	Sig.
Exp. group, n = 28	0.204	0.200	0.966	0.578
Con. group, n = 28	0.213	0.200	0.976	0.486

The outcomes of the normality examination, employing two distinct test models, namely the Kolmogorov-Smirnov and Shapiro-Wilk tests, indicated that both sets of data exhibited a normal distribution. This assertion is substantiated by the observation that the significance values derived from both normality tests exceeded the threshold of 0.000. Consequently, given the established normal distribution of the data sets, subsequent analyses were conducted utilizing parametric statistical methods, specifically the independent sample t-test. This choice was informed by the adherence of the data to normality, allowing for the application of parametric tests to ascertain any significant differences between the groups under investigation.

Tabel 4. The independent sample t-test results, $p < 0.05$

		t	df	Sig. (2-tailed)
Cognitive learning outcomes	Equal var. assumed	28.664	54	0.000
	Equal var. not assumed	28.664	49.232	0.000

The outcomes derived from the diverse set of tests detailed in Table 4 elucidate a profound significance value (0.000) that is less than the conventional threshold of 0.05. As per the established criteria for hypothesis testing, the rejection of the null hypothesis (H_0) and acceptance of the alternative hypothesis (H_a) become imperative. This unequivocally signals the presence of disparities in students' cognitive learning outcomes across the various treatment groups. Furthermore, these findings corroborate the insights garnered from the descriptive analysis, affirming that social reality video-assisted e-learning surpasses face-to-face learning employing expository methods in fostering advancements in students' cognitive learning outcomes.

This discovery aligns seamlessly with the conclusions drawn in a prior investigation conducted by EL-Ariss et al. (2021), where the integration of video in blended e-learning was found to significantly enhance students' depth of understanding. Correspondingly, research by Busyaeri et al. (2016) substantiates these results by demonstrating a noteworthy improvement in the learning outcomes of 27 students engaged in video-assisted learning, with an average performance reaching 80.63. Remarkably, 79.63% of these students expressed

strong agreement with the utilization of learning videos, indicating a favorable perception of this pedagogical approach. The resonance of positive sentiment towards learning videos underscores their recognition as interactive educational tools, contributing to a feasible and impactful learning experience (Pamungkas & Koeswanti, 2021).

Moreover, a cascade of corroborative evidence from additional studies conducted by Hidayat et al. (2018), Novita et al. (2019), Prastica et al. (2021), and Sih and Martini (2019) accentuates the efficacy of learning videos in augmenting students' learning outcomes. Collectively, these insights underscore the transformative potential of integrating video-based instructional content into educational frameworks, elucidating a pathway towards enhanced cognitive learning outcomes for students across diverse learning environments.

The findings of this research underscored the persistent hurdles associated with e-learning, with identified issues revolving around student ennui, constrained interaction opportunities, and dwindling motivation. These challenges collectively manifested in stagnant learning outcomes, showcasing a concerning lack of progress among students. Recognizing these impediments, the integration of e-learning with social reality videos through mobile applications emerged as a transformative pedagogical strategy with the potential to significantly enhance students' learning achievements. The spotlight of our investigation also encompassed the pivotal role of mobile applications in this context, acknowledging their inherent utility as formidable learning tools. This aligns with corroborative evidence from earlier studies, which emphasized the efficacy of well-designed mobile devices as potent instruments for learning (Papadakis et al., 2021).

Moreover, extant literature has attested to the positive impact of adept mobile technology utilization on various facets of the learning experience. Properly harnessed, mobile technology has the capacity to augment students' engagement in learning activities, elevate learning performance, and stimulate motivation enhancement (Elsafi, 2018). Additionally, mobile technology's versatility supports a seamless learning environment that transcends the boundaries between formal and informal learning settings, thereby promoting holistic curriculum achievement (Looi et al., 2016). As such, the effective incorporation of mobile applications, particularly those featuring social reality videos, stands out as a promising avenue for addressing the limitations of traditional e-learning and fostering a more dynamic and rewarding educational experience.

In the present investigation, the implementation of a social reality video-supported e-learning teaching intervention, despite its relatively brief duration, yielded compelling empirical evidence affirming its substantial impact on enhancing students' cognitive learning outcomes. The educational approach, conducted in an e-learning mode, entailed students accessing social reality videos through a mobile application, guided by the instructor in alignment with the designated learning theme. The monitoring of student activity was executed in an engaging manner, employing social reality videos. The conclusive findings of this study underscored the superiority of e-learning supported by social reality videos in fostering improved cognitive learning outcomes compared to traditional expository teaching methods.

Throughout the e-learning implementation, the current study successfully adhered to the anticipated characteristics of learning, consistent with prior research. This alignment allowed for the facilitation of dialogues and interactive activities within study groups, echoing the outcomes observed by Bakhouyi et al. (2019). Moreover, it fostered enhanced interpersonal relationships among students, echoing the findings of previous studies (Bakhouyi et al., 2019), thereby promoting a collaborative atmosphere conducive to achieving learning goals, as highlighted by Sathiyamoorthi (2020). The incorporation of social reality videos proved

instrumental in augmenting students' learning motivation, rendering the educational activities captivating and intriguing for the students.

In light of the study's discerning outcomes, the researchers posit a robust recommendation for the adoption of social reality video-assisted e-learning within mobile applications. This recommendation, particularly geared towards the enhancement of students' cognitive learning outcomes, aligns with the conclusive evidence obtained through the empirical investigation. As educational landscapes continue to evolve, the integration of innovative methodologies such as social reality video-supported e-learning stands poised to make a meaningful contribution to the pedagogical advancements in the digital era.

CONCLUSION

The primary objective of this research is to introduce a novel approach to e-learning by incorporating social reality videos into a mobile application and to investigate its influence on enhancing students' educational achievements. The rationale behind this initiative is rooted in the persistent challenges associated with traditional e-learning methods, where issues such as student ennui, confined interaction opportunities, and dwindling motivation have collectively contributed to stagnation in academic progress. Within the context of the present study, the integration of e-learning enriched with social reality videos within mobile applications emerges as a potent pedagogical tool, yielding a discernible impact on augmenting students' cognitive learning outcomes, surpassing the efficacy of conventional expository teaching methods. This noteworthy discovery prompts researchers to advocate for the widespread adoption of this innovative approach across diverse academic disciplines and in conventional classroom lectures.

Despite the evident success of this research endeavor, it is imperative to acknowledge certain limitations inherent in the study. Notably, the instructional intervention's relatively brief duration poses a constraint on the extent of comprehensive analysis. Furthermore, there is an awareness of the necessity to gauge the broader spectrum of learning outcomes affected by this novel e-learning methodology. The researchers emphasize the need for future investigations to delve into the extended implications of this pedagogical innovation and to explore its applicability across various courses and educational settings. Consequently, this study serves as a foundation for further research, inviting scholars to explore the nuanced dimensions of incorporating social reality videos into e-learning platforms, with an emphasis on the duration of instructional interventions and a comprehensive assessment of its impact on diverse facets of the learning experience.

LIMITATION

Despite the promising results indicating the enhanced efficacy of integrating e-learning with social reality videos in mobile applications, this study has certain limitations. Firstly, the generalizability of the findings may be constrained due to the small sample size of twenty-eight students in each group. Additionally, the study focuses solely on cognitive learning outcomes, neglecting other dimensions of the learning experience such as affective and psychomotor domains. Moreover, the duration of the experiment may not capture long-term effects, and the study does not explore potential variations in learning outcomes based on students' prior familiarity with mobile technology. These limitations suggest caution in extrapolating the results to broader educational contexts and warrant further research to address these constraints and provide a more comprehensive understanding of the proposed instructional approach.

RECOMMENDATION

Based on the findings of the study, a promising avenue for future research involves exploring the long-term impact and sustainability of integrating social reality videos into e-learning platforms. Given the demonstrated effectiveness in enhancing cognitive learning outcomes, future studies could delve into the durability of these benefits over an extended period. Additionally, investigating the diverse learning preferences and the potential moderating factors influencing the success of this innovative approach could provide valuable insights. Furthermore, examining the adaptability of this method across various subjects and educational levels would contribute to a comprehensive understanding of its applicability in diverse learning environments. This recommendation seeks to encourage a more nuanced exploration of the implications and broader implementation strategies for leveraging social reality videos in e-learning contexts.

Author Contributions

The authors have sufficiently contributed to the study, and have read and agreed to the published version of the manuscript.

Funding

This research received no external funding.

Acknowledgement

The authors express their gratitude to the various colleagues and stakeholders whose valuable contributions played a pivotal role in the execution and triumph of this research endeavor. Special appreciation is extended to the students who willingly took part in assuming roles within both the experimental and control groups, as their active involvement significantly enriched the study's outcomes. The collaborative efforts of these individuals, including fellow researchers, educators, and participants, were instrumental in shaping the successful implementation of the study. Their dedication and cooperation fostered an environment conducive to the exploration of the research objectives, and their collective commitment to the project's execution merits acknowledgment. The authors recognize the importance of such collaborative endeavors and underscore the significance of each participant's role in the study's overall achievement. This collaborative spirit not only facilitated the research process but also underscored the broader significance of teamwork in the realm of academic inquiry, ultimately contributing to the advancement of knowledge in the respective field.

Declaration of Interest

The authors declare no conflict of interest.

REFERENCES

Alonso-García, S., Aznar-Díaz, I., Cáceres-Reche, M.-P., Trujillo-Torres, J.-M., & Romero-Rodríguez, J.-M. (2019). Systematic Review of Good Teaching Practices with ICT in Spanish Higher Education. Trends and Challenges for Sustainability. *Sustainability*, *11*(24), Article 24. https://doi.org/10.3390/su11247150

Bakhouyi, A., Dehbi, R., Banane, M., & Talea, M. (2019). A Semantic Web Solution for Enhancing The Interoperability of E-learning Systems by Using Next Generation of SCORM Specifications. *International Journal of Emerging Technologies in Learning (iJET)*, *14*(11), Article 11. https://doi.org/10.3991/ijet.v14i11.10342

Bilad, M. R., Anwar, K., & Hayati, S. (2022). Nurturing Prospective STEM Teachers' Critical Thinking Skill through Virtual Simulation-Assisted Remote Inquiry in Fourier

Transform Courses. *International Journal of Essential Competencies in Education*, *1*(1), Article 1. https://doi.org/10.36312/ijece.v1i1.728

Borich, G. D. (2016). *Observation Skills for Effective Teaching* (0 ed.). Routledge. https://doi.org/10.4324/9781315633206

Busyaeri, A., Udin, T., & Zaenudin, A. (2016). Pengaruh Penggunaan Video Pembelajaran terhadap Peningkatan Hasil Belajar Mapel IPA di MIN Kroya Cirebon. *Al Ibtida: Jurnal Pendidikan Guru MI*, *3*(1), Article 1. https://doi.org/10.24235/al.ibtida.snj.v3i1.584

Chatzopoulos, A., Kalogiannakis, M., Papadakis, S., & Papoutsidakis, M. (2022). A Novel, Modular Robot for Educational Robotics Developed Using Action Research Evaluated on Technology Acceptance Model. *Education Sciences*, *12*(4), Article 4. https://doi.org/10.3390/educsci12040274

Cheng, P.-H., Yang, Y.-T. C., Chang, S.-H. G., & Kuo, F.-R. R. (2016). 5E Mobile Inquiry Learning Approach for Enhancing Learning Motivation and Scientific Inquiry Ability of University Students. *IEEE Transactions on Education*, *59*(2), 147–153. https://doi.org/10.1109/TE.2015.2467352

Cole, M. T., Swartz, L. B., & Shelley, D. J. (2020). Threaded Discussion: The Role It Plays in E-Learning. *International Journal of Information and Communication Technology Education*, *16*(1), 16–29. https://doi.org/10.4018/IJICTE.2020010102

Córcoles, C., Cobo, G., & Guerrero-Roldán, A.-E. (2021). The Usefulness of Video Learning Analytics in Small Scale E-Learning Scenarios. *Applied Sciences*, *11*(21), Article 21. https://doi.org/10.3390/app112110366

Drolia, M., Sifaki, E., Papadakis, S., & Kalogiannakis, M. (2020). An Overview of Mobile Learning for Refugee Students: Juxtaposing Refugee Needs with Mobile Applications' Characteristics. *Challenges*, *11*(2), Article 2. https://doi.org/10.3390/challe11020031

EL-Ariss, B., Zaneldin, E., & Ahmed, W. (2021). Using Videos in Blended E-Learning for a Structural Steel Design Course. *Education Sciences*, *11*(6), Article 6. https://doi.org/10.3390/educsci11060290

Elsafi, A. (2018). Formal and Informal Learning Using Mobile Technology. In S. Yu, M. Ally, & A. Tsinakos (Eds.), *Mobile and Ubiquitous Learning* (pp. 177–189). Springer Singapore. https://doi.org/10.1007/978-981-10-6144-8_11

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research* (8th ed.). Mc Graw Hill.

Galatsopoulou, F., Kenterelidou, C., Kotsakis, R., & Matsiola, M. (2022). Examining Students' Perceptions towards Video-Based and Video-Assisted Active Learning Scenarios in Journalism and Communication Courses. *Education Sciences*, *12*(2), Article 2. https://doi.org/10.3390/educsci12020074

Garrote Rojas, D., Arenas Catillejo, J. Á., & Jiménez-Fernández, S. (2018). Las TIC como herramientas para el desarrollo de la competencia intercultural. *EDMETIC*, *7*(2), 166–183. https://doi.org/10.21071/edmetic.v7i2.10533

Hake, R., R. (1999). *Analyzing change/gain scores*. Indiana University: Woodland Hills, CA - USA.

Hidayat, D., Wiharna, O., & Yayat, Y. (2018). Pengaruh Penggunaan Video Pembelajaran terhadap Hasil Belajar Siswa pada Materi Garis dan Konstruksi Geometris. *Journal of Mechanical Engineering Education*, *5*(2), Article 2. https://doi.org/10.17509/jmee.v5i2.15183

Hinojo-Lucena, F. J., Mingorance-Estrada, Á. C., Trujillo-Torres, J. M., Aznar-Díaz, I., & Cáceres Reche, M. P. (2018). Incidence of the Flipped Classroom in the Physical

Education Students' Academic Performance in University Contexts. *Sustainability*, *10*(5), Article 5. https://doi.org/10.3390/su10051334

Ismail, I. (2022). Teknologi Pembelajaran Dalam Pengembangan Profesional Pendidikan Agama Islam di Indonesia: Analisis Bibliometrik. *Jurnal Ilmiah Mandala Education*, *8*(2), Article 2. https://doi.org/10.36312/jime.v8i2.3312

Karakose, T., Polat, H., & Papadakis, S. (2021). Examining Teachers' Perspectives on School Principals' Digital Leadership Roles and Technology Capabilities during the COVID-19 Pandemic. *Sustainability*, *13*(23), Article 23. https://doi.org/10.3390/su132313448

Karakose, T., Yirci, R., & Papadakis, S. (2022). Examining the Associations between COVID-19-Related Psychological Distress, Social Media Addiction, COVID-19-Related Burnout, and Depression among School Principals and Teachers through Structural Equation Modeling. *International Journal of Environmental Research and Public Health*, *19*(4), 1951. https://doi.org/10.3390/ijerph19041951

Katsaris, I., Vidakis, N., & Department of Electrical and Computer Engineering, Hellenic Mediterranean University, Heraklion, Crete, 71410, Greece. (2021). Adaptive e-learning systems through learning styles: A review of the literature. *Advances in Mobile Learning Educational Research*, *1*(2), 124–145. https://doi.org/10.25082/AMLER.2021.02.007

Khine, M. S., Ali, N., & Afari, E. (2017). Exploring relationships among TPACK constructs and ICT achievement among trainee teachers. *Education and Information Technologies*, *22*(4), 1605–1621. https://doi.org/10.1007/s10639-016-9507-8

Li, S., Yamaguchi, S., Sukhbaatar, J., & Takada, J. (2019). The Influence of Teachers' Professional Development Activities on the Factors Promoting ICT Integration in Primary Schools in Mongolia. *Education Sciences*, *9*(2), Article 2. https://doi.org/10.3390/educsci9020078

Looi, C.-K., Lim, K. F., Pang, J., Koh, A. L. H., Seow, P., Sun, D., Boticki, I., Norris, C., & Soloway, E. (2016). Bridging Formal and Informal Learning with the Use of Mobile Technology. In C. S. Chai, C. P. Lim, & C. M. Tan (Eds.), *Future Learning in Primary Schools* (pp. 79–96). Springer Singapore. https://doi.org/10.1007/978-981-287-579-2_6

Mohammed, D. Y. (2022). The web-based behavior of online learning: An evaluation of different countries during the COVID-19 pandemic. *Advances in Mobile Learning Educational Research*, *2*(1), 263–267. https://doi.org/10.25082/AMLER.2022.01.010

Moreno-Guerrero, A.-J., Aznar-Díaz, I., Cáceres-Reche, P., & Alonso-García, S. (2020). E-Learning in the Teaching of Mathematics: An Educational Experience in Adult High School. *Mathematics*, *8*(5), Article 5. https://doi.org/10.3390/math8050840

Nikolopoulou, K., Akriotou, D., & Gialamas, V. (2019). Early Reading Skills in English as a Foreign Language Via ICT in Greece: Early Childhood Student Teachers' Perceptions. *Early Childhood Education Journal*, *47*(5), 597–606. https://doi.org/10.1007/s10643-019-00950-8

Novita, L., Sukmanasa, E., & Pratama, M. Y. (2019). Penggunaan Media Pembelajaran Video terhadap Hasil Belajar Siswa SD. *Indonesian Journal of Primary Education*, *3*(2), Article 2. https://doi.org/10.17509/ijpe.v3i2.22103

Pamungkas, W. A. D., & Koeswanti, H. D. (2021). Penggunaan Media Pembelajaran Video Terhadap Hasil Belajar Siswa Sekolah Dasar. *Jurnal Ilmiah Pendidikan Profesi Guru*, *4*(3), Article 3. https://doi.org/10.23887/jippg.v4i3.41223

Papachristos, D., Alafodimos, N., Arvanitis, K., Vassilakis, K., Kalogiannakis, M., Kikilias, P., & Zafeiri, E. (2010). An Educational Model for Asynchronous E-Learning. A Case

Study in a Higher Technology Education. *International Journal of Advanced Corporate Learning (iJAC)*, *3*(1), 32. https://doi.org/10.3991/ijac.v3i1.987

Papadakis, S. (2021). Advances in Mobile Learning Educational Research (A.M.L.E.R.): Mobile learning as an educational reform. *Advances in Mobile Learning Educational Research*, *1*(1), 1–4. https://doi.org/10.25082/AMLER.2021.01.001

Papadakis, S., Alexandraki, F., & Zaranis, N. (2022). Mobile device use among preschool-aged children in Greece. *Education and Information Technologies*, *27*(2), 2717–2750. https://doi.org/10.1007/s10639-021-10718-6

Papadakis, S., Kalogiannakis, M., & Zaranis, N. (2021). Teaching mathematics with mobile devices and the Realistic Mathematical Education (RME) approach in kindergarten. *Advances in Mobile Learning Educational Research*, *1*(1), Article 1. https://doi.org/10.25082/AMLER.2021.01.002

Papadakis, S., Trampas, A., Barianos, A., Kalogiannakis, M., & Vidakis, N. (2020). Evaluating the Learning Process: The "ThimelEdu" Educational Game Case Study: *Proceedings of the 12th International Conference on Computer Supported Education*, 290–298. https://doi.org/10.5220/0009379902900298

Poultsakis, S., Papadakis, S., Department of Preschool Education, Faculty of Education, University of Crete, Crete, Greece, Kalogiannakis, M., Department of Preschool Education, Faculty of Education, University of Crete, Crete, Greece, Psycharis, S., & School of Pedagogical and Technological Education, Athens, Greece. (2021). The management of Digital Learning Objects of Natural Sciences and Digital Experiment Simulation Tools by teachers. *Advances in Mobile Learning Educational Research*, *1*(2), 58–71. https://doi.org/10.25082/AMLER.2021.02.002

Prastica, Y., Hidayat, M. T., Ghufron, S., & Akhwani, A. (2021). Pengaruh Penggunaan Media Video Pembelajaran Terhadap Hasil Belajar pada Mata Pelajaran Matematika Siswa Sekolah Dasar. *Jurnal Basicedu*, *5*(5), Article 5. https://doi.org/10.31004/basicedu.v5i5.1327

Qian, Y. (2018). Application Research of E-learning Network Teaching Platform in College English Reading Teaching. *Educational Sciences: Theory & Practice*, *18*(5), Article 5. https://doi.org/10.12738/estp.2018.5.082

Sathiyamoorthi V. (2020). An Intelligent System for Predicting a User Access to a Web Based E-Learning System Using Web Mining. *International Journal of Information Technology and Web Engineering (IJITWE)*, *15*(1), 75–94. https://doi.org/10.4018/IJITWE.2020010106

Schmitz, B., Klemke, R., & Specht, M. (2012). Effects of mobile gaming patterns on learning outcomes: A literature review. *International Journal of Technology Enhanced Learning*, *4*(5–6), 345–358. https://doi.org/10.1504/IJTEL.2012.051817

Shakah, G. H., Al-Oqaily, A. T., & Alqudah, F. (2019). Motivation Path between the Difficulties and Attitudes of Using the E-Learning Systems in the Jordanian Universities: Aajloun University as a Case Study. *International Journal of Emerging Technologies in Learning (iJET)*, *14*(19), Article 19. https://doi.org/10.3991/ijet.v14i19.10551

Sih, N. D. S., & Martini, M. (2019). Penggunaan Media Video Pembelajaran untuk Meningkatkan Hasil Belajar Sub Materi Metabolisme Sel. *PENSA: E-JURNAL PENDIDIKAN SAINS*, *7*(3), Article 3. https://ejournal.unesa.ac.id

Sireci, S., & Faulkner-Bond, M. (2014). Validity evidence based on test content. *Psicothema*, *26*(1), 100–107. https://doi.org/10.7334/psicothema2013.256

Škola, F., Rizvić, S., Cozza, M., Barbieri, L., Bruno, F., Skarlatos, D., & Liarokapis, F. (2020). Virtual Reality with 360-Video Storytelling in Cultural Heritage: Study of Presence,

Engagement, and Immersion. *Sensors*, *20*(20), Article 20. https://doi.org/10.3390/s20205851

Ting, Y.-L. (2012). The Pitfalls of Mobile Devices in Learning: A Different View and Implications for Pedagogical Design. *Journal of Educational Computing Research*, *46*(2), 119–134. https://doi.org/10.2190/EC.46.2.a

Verawati, N. N. S. P., Ernita, N., & Prayogi, S. (2022). Enhancing the Reasoning Performance of STEM Students in Modern Physics Courses Using Virtual Simulation in the LMS Platform. *International Journal of Emerging Technologies in Learning (iJET)*, *17*(13), Article 13. https://doi.org/10.3991/ijet.v17i13.31459

Verawati, N. N. S. P., Handriani, L. S., & Prahani, B. K. (2022). The Experimental Experience of Motion Kinematics in Biology Class Using PhET Virtual Simulation and Its Impact on Learning Outcomes. *International Journal of Essential Competencies in Education*, *1*(1), Article 1. https://doi.org/10.36312/ijece.v1i1.729

Viktorova, L. V. (2020). Educational Conditions for Implementation of Adults' Distance Learning of Foreign Languages. *Information Technologies and Learning Tools*, *75*(1), Article 1. https://doi.org/10.33407/itlt.v75i1.2797

Wan, S., & Niu, Z. (2020). A Hybrid E-Learning Recommendation Approach Based on Learners' Influence Propagation. *IEEE Transactions on Knowledge and Data Engineering*, *32*(5), 827–840. https://doi.org/10.1109/TKDE.2019.2895033

Wu, W.-L., Hsu, Y., Yang, Q.-F., & Chen, J.-J. (2021). A Spherical Video-Based Immersive Virtual Reality Learning System to Support Landscape Architecture Students' Learning Performance during the COVID-19 Era. *Land*, *10*(6), Article 6. https://doi.org/10.3390/land10060561

Zhu, X., & Chen, Z. (2020). Dual-modality spatiotemporal feature learning for spontaneous facial expression recognition in e-learning using hybrid deep neural network. *The Visual Computer*, *36*(4), 743–755. https://doi.org/10.1007/s00371-019-01660-3