Predictive Analysis of Sports Education Students' Dropout in the Distance Learning Centre

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Abstract

The demand for e-Learning in distance education is growing rapidly due to the flexibility it offers in terms of time and location, facilitated by advancements in information and communication technology. This study aims to decrease the dropout rate among students in sports education and gain insight into the factors contributing to their discontinuation of studies. There is a need for research to identify and address the causes of the increasing dropout rate among learners at distance learning centres. The study collected data from 1,125 learners at an e-distance learning centre in Seoul. The findings were analysed using the partial least square – structural equation model (PLS-SEM). This study's implications are significant for preventing learner attrition. The study emphasises the importance of offering a variety of learning resources to enable learners to regularly access an e-learning platform and sustain their engagement in the learning process over a prolonged period of time. When developing education programmes for adult learners with diverse characteristics, it is essential to possess a comprehensive understanding of each learner's attributes beforehand. This will enable the implementation of suitable interventions and facilitate effective learning.

Keywords: Dropout Reasons, Learning Analytics, Dropout, Distance Education, Personal Characteristic Data

1. Introduction

The keyword 'Fourth Industrial Revolution' has given rise to significant transformations in various sectors of society (Dutta et al., 2021). The aforementioned alterations are experiencing an increase in popularity as a result of the current worldwide pandemic triggered by the COVID-19 virus (Barrot, Llenares, & del Rosario, 2021). Given the prevalence of non-face-to-face remote education in the education sector, it is imperative for educational institutions to proactively address the digital transformation of the learning environment (Keaton & Gilbert, 2020). Distance education has the potential to greatly contribute to educational development due to its ability to provide open learning opportunities that accommodate the needs of learners without time and location limitations, while also facilitating interaction. In a distance education setting, the learning information produced by instructors and learners during their engagement with the Learning Management System (LMS) will be automatically collected and stored as 'log data' on the server. Real-time behaviour is a valuable source of information for identifying learners' online learning behaviours, which can contribute to a better understanding of learners (Elumalai et al., 2021). Therefore, the

educational activities of learners and instructors stored in the Learning Management System (LMS) can be considered a valuable repository of information that warrants careful observation and analysis (O'Brien et al., 2020).

According to Salas-Pilco, Yang, and Zhang (2022), motivated students who have access to adequate online learning resources are more likely to enhance their learning. The popularity of online learning and distance education is growing. However, the quality and availability of resources greatly impact students' educational experiences. Shikulo and Lekhetho (2020) emphasised the necessity of educational training for enhancing students' learning behaviour. As learners develop a habit of online learning, their confidence in this mode of education increases. The extant literature in the field has examined multiple factors that can contribute to the success of students engaged in distance learning. As stated by Batez (2021), the suitability of distance learning for students is contingent upon their motivation to enhance their behaviour through a productive framework. However, Andoh, Appiah, and Agyei (2020) have highlighted that the enhancement of students' learning in online education is contingent upon the cultivation of their interest in the realm of online education. D'Agostino et al. (2021) found

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that a significant number of students lack confidence in their online learning experiences, perceiving online education as an unreliable means of acquiring educational training. Hence, the enhancement of student education in e-learning has become a topic of considerable scholarly contention.

Therefore, it is imperative to conduct thorough research on the learner's learning status beforehand in order to enhance their completion rate and mitigate dropout (Adi & Fathoni, 2019). Distance education often leads to higher dropout rates among students. Scholars have argued that family-based evaluation and support are necessary to decrease student dropout rates in distance education. Nevertheless, there are still gaps in the existing literature regarding the identification of obstacles to distance education and learning. This research aims to address gaps in the existing body of knowledge by conducting a quantitative analysis of student dropout rates. The aim of this study is to examine the effects of various factors, such as inadequate equipment and space, assessment difficulties, limited support, digital isolation, lack of accountability, and time management problems, on the dropout rates of students in sports education who are engaged in e-learning. This study is innovative in terms of its theoretical and practical contributions, which aim to enhance the existing body of knowledge. The research consists of several significant sections, namely the literature review, research methodology, data analysis, discussion and conclusion, and theoretical and practical implications. This study also identified the need for future research to facilitate scholarly contributions to the existing body of knowledge. According to Huang et al. (2020), dropout refers to the permanent loss of school registration by a student as a result of expulsion or withdrawal. Gagnon et al. (2020) highlight that dropout is a significant issue in the global education sector, posing challenges for universities, society, and students. Dropout has significant implications for the socio-economic aspects of students and educational institutions, and is closely linked to the effectiveness of the education system.

2. Literature Review

In this context, Valtonen et al. (2021) argue for the importance of identifying and implementing strategies to address the issue of student attrition. Mouchantaf (2020) identified multiple factors contributing to dropout, encompassing personal, environmental, college-related, and institutional factors. Salta et al. (2022) reported that the average dropout rate for four-year colleges in the United States in 2020 was approximately 25%, while the

graduation rate within six years stood at around 64%. Dropout is a prominent social concern, and there have been initiatives to address this issue and promote academic achievement in higher education (Gonzalez-Ramirez et al., 2021). Therefore, an effective approach involves acquiring timely information regarding dropout likelihood, analysing potential factors, and promptly identifying students who are at risk of dropping out.

Meanwhile, Schmits et al. (2021) found that college student dropout typically occurs when students discontinue their studies due to personal reasons or issues encountered at the university. Discontinuation of studies encompasses various forms such as drop-out, stop-out, transfer-out, and opt-out. Tulaskar and Turunen (2022) highlighted the adverse effects of dropout on students, universities, and society. Re-admission to another university following a dropout can incur additional expenses and a significant time commitment for individual students. Moreover, this decision may result in restricted job prospects and diminished income opportunities (Hehir et al., 2021; Ibrahim, 2023). According to Lee et al. (2021), universities face challenges in financial management due to the impact of these challenges on the development and implementation of educational policies, ultimately posing a threat to the quality of education. Similarly, Sukendro et al. (2020) argue that dropping out of school carries significant costs and negatively impacts national competitiveness due to inefficient utilisation of human resources. In contrast, a leave of absence refers to temporarily discontinuing studies and subsequently withdrawing from school after a specified duration. He resumed and persisted in his studies.

Similarly, Du et al. (2022) found that while remote education has expanded access to desired resources, there remains a significant proportion of students who discontinue their education. The completion rates for MOOCs, which have attracted over 200 million learners, range from 3.2% to 6.5%. The dropout rate for K-MOOCs is even higher, with a range of 80% to 90%, although there is a slightly better completion rate of 13%. (Chauhan, 2015; Hew & Cheung, 2014). The dropout rate in online educational institutions is significantly higher than that of traditional offline institutions. Though Remote education offers convenient access to desired courses and eliminates time and space constraints. However, learners bear sole responsibility for their learning and may experience feelings of isolation due to limited interaction. This can result in reduced motivation, posing challenges in sustaining and progressing in their learning journey. Whereas Baber (2020) noted that online learning environments, which rely heavily on self-directed learning,

can lead to feelings of isolation and limited interaction among learners. This separation from instructors and peers can diminish learning motivation. Hsiao (2021) found that the high dropout rate among adult learners can be attributed to factors such as low motivation and the unique characteristics of individuals who balance work and study. Further, Zuhairi, Karthikeyan, and Priyadarshana (2020) identified a positive relationship between education satisfaction, familial and peer support, and time management skills with the likelihood of continuing one's learning. Dorn et al. (2021) identified several significant factors that influenced the continuity of learning. These factors included the learner's initial satisfaction with the curriculum, their job and individual interests, and the discrepancy between the learning contents. Scholars have highlighted that dropout rates are influenced by factors such as dissatisfaction with the abundance of information and knowledge, lack of confidence, and limited interaction in the online environment. Nasir (2020) found that various experience factors, including limited auditory stimulation and interaction, lack of instructor feedback, inadequate learning time, insufficient skills for distance learning, complex learning tasks, and cognitive overload, significantly impact dropout decisions. To address the causes of dropout rates in distance learning, it is crucial to offer a curriculum that aligns with learners' proficiency and interests, encompassing a diverse range of subjects (Peterson et al., 2020).

In similar vein, Kaya (2021) states that universities offering continuing education and lifelong learning programmes have distinct offerings for degree and non-degree courses. These institutions also provide credit-recognizing courses that foster cultural and intellectual development in various disciplines such as humanities, social sciences, natural sciences, and arts. These courses also facilitate the transfer and admission process to universities. The organisation offers a range of educational courses and content, including industry-commissioned education (Coussement et al., 2020). Therefore, it is imperative to provide diverse curricula in Korea, encompassing liberal arts disciplines, in order to enhance learners' knowledge and stimulate their curiosity. Furthermore, a significant number of learners enrolled in the Distance Lifelong Education Centre have completed their formal education and may possess limited comprehension of the course material and learning strategies. Elderly and disabled learners may face challenges in adapting to distance lectures due to their lack of familiarity with this mode of learning. Additionally, they may struggle with the extensive amount of learning content and their physical limitations, resulting in slower learning speed, reduced understanding, and

shorter attention spans compared to other adult learners. Therefore, it is imperative to assist learners in enhancing their ability to engage with and adjust to distance lectures, taking into account individual learner characteristics such as age or disability (Singh et al., 2021). Tsolou, Babalis, and Tsoli (2021) suggest that regular monitoring of learners' progress and response to course content is essential for implementing class improvements. These improvements may include adjusting the learning level and difficulty, as well as designing assignments and evaluations that align with the learning goals and environment. It is recommended that this monitoring be conducted on a weekly basis. Different teaching and learning methods, including problem-based learning, team teaching, discussions, offline parallel classes, and journal writing, are used alongside lectures, depending on the subject content and student population (Smith, 2021). The operation of the system is dependent on the content and level, and it is essential to regularly update and enhance it with the most recent information and data. Based on this review of literature, the following hypotheses are developed.

H1: *Lack of equipment and space influences students for e-learning dropout.*

H2: *Assessment challenges influences students for e-learning dropout.*

H3: *Limited support influences students for e-learning dropout.*

H4: *Digital isolation influences students for e-learning dropout.*

H5: *Lack of accountability influences students for e-learning dropout.*

H6: *Time management issues influences students for e-learning dropout.*

3. Methodology

This study utilised a statistical method to analyse relationships. The study collected data from students based on the study's objectives and the characteristics of the variables. The analysis was performed using Smart PLS 4. The measurement items for this research were developed due to the limitations of existing studies in providing a definitive scale to test the proposed relationships. The development of scale items is a complex process, and it involves following the guidelines proposed by Jebb, Ng, and Tay (2021). The process of developing scale items begins by operationalizing study variables within the given context. Furthermore, a group of experts was assembled to generate a collection of items based on their operationalization. Additionally, the pool of scale items was assessed for face and content validity. Face and content validity are

employed to assess the validity of the content, language, and contextualization of a scale. Seven expert reviewers, specialising in various research fields, were contacted for the panel. Participants were instructed to assess the content and face validity of the scale items using their knowledge and observations. The face validity of developed items is assessed through testing and subsequent modifications are made based on recommendations from reviewers.

The subsequent phase involved gathering data from a subset of the population to validate the reliability of the scale items. A structured questionnaire was developed and distributed to collect the data. One-third of the estimated sample size was surveyed, and the collected data was analysed using Smart PLS 4 for data analysis. Measurement model assessment findings are verified using calculations performed with the PLS Algorithm. This test examines the reliability, convergent validity, and discriminant validity of individual items. The process is thorough, and only factor loadings greater than 0.60 are considered for assessing the reliability of individual items. In addition, Cronbach's alpha and composite reliability values greater than 0.70 are employed to assess convergent validity. The Fornell and Larcker method is used to test the discriminant's validity. Items with low individual reliability were excluded from the study sample. The remaining items were subsequently progressed to the next stage. The data is collected from a different subset of the population, and the findings of PLS Bootstrapping are used to assess the structural model.

This method facilitated the identification of significant relationships between variables and ensured the appropriateness of the developed scale items for the findings. Therefore, this research also demonstrates the validity of the research scale. The simple random sampling method was chosen to collect data due to the known population of the study, which consisted of individuals enrolled in distance education programmes. The study utilised data from the Distance Lifelong Education Centre

in Seoul, consisting of 1,125 participants (421 males and 704 females), for analysis. The data collected were exclusively used for research, with prior notification and consent from the participants. In accordance, the final data of this research is also analysed using Smart PLS 4 based on the findings of measurement model assessment and structural model assessment.

Findings

The assessment of the measurement model's findings is conducted in order to ascertain the validity of individual items as well as to evaluate their convergent and discriminant validity. Factor loadings are used to assess the reliability of individual items. According to Shevlin and Miles (1998), factor loadings exceeding 0.60 are deemed significant in assessing the reliability of items within a given construct. The present study has reported that the factor in question exhibits a statistically significant value that surpasses the recommended threshold. Hence, the objects utilised in this study exhibit reliability at the individual level. In addition, the examination of composite reliability and Cronbach's alpha is conducted to assess the internal consistency among the items comprising a particular construct. Internal consistency is considered to be achieved when both Cronbach's alpha and composite reliability exceed the threshold of 0.70 (Peterson & Kim, 2013; Raykov, 1997). The data analysis revealed that the internal consistency of the data has been attained. Ultimately, the average variance extracted is computed in order to assess the variability among the items that are loaded onto a specific construct. The findings indicate that there is a variance of over 50% among the items loaded on a single construct, which is deemed acceptable according to Alarcón and Sánchez (2015). Convergent validity holds considerable importance in the context of conducting subsequent data analysis. The findings are presented in Table 1 and Figure 1.
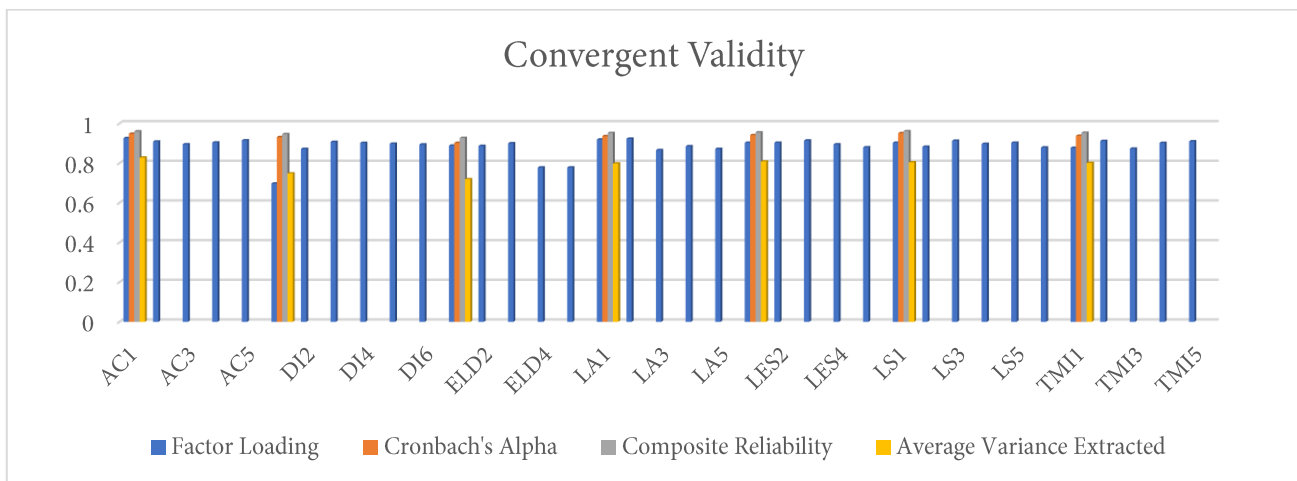

Figure 1. *Convergent Validity*

Table 1

Convergent Validity

Construct	Items	Factor Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Assessment Challenges	AC1	0.926	0.948	0.96	0.828
	AC2	0.909			
	AC3	0.895			
	AC4	0.904			
	AC5	0.915			
Digital Isolation	DI1	0.697	0.931	0.946	0.748
	DI2	0.872			
	DI3	0.907			
	DI4	0.902			
	DI5	0.898			
	DI6	0.894			
E-learning Dropout	ELD1	0.888	0.902	0.927	0.719
	ELD2	0.887			
	ELD3	0.900			
	ELD4	0.778			
	ELD5	0.778			
Lack of Accountability	LA1	0.919	0.936	0.952	0.798
	LA2	0.923			
	LA3	0.866			
	LA4	0.885			
	LA5	0.872			
Lack of Equipment and Space	LES1	0.903	0.941	0.955	0.808
	LES2	0.903			
	LES3	0.914			
	LES4	0.895			
	LES5	0.880			
Limited Support	LS1	0.903	0.951	0.961	0.804
	LS2	0.883			
	LS3	0.913			
	LS4	0.897			
	LS5	0.903			
	LS6	0.879			
Time Management Issues	TMI1	0.877	0.938	0.953	0.801
	TMI2	0.912			
	TMI3	0.873			
	TMI4	0.902			
	TMI5	0.910			

The assessment of discriminant validity is conducted in order to examine potential problems of multicollinearity within the research dataset. The assessment of discriminant validity is conducted using the Heterotrait-Monotrait (HTMT) method. This methodology is extensively employed in research within the field of social sciences. Discriminant validity is considered to be achieved when the results obtained from the heterotrait-monotrait ratio of correlations (HTMT) matrix are below the threshold of 0.85 (Ramayah et al., 2018). The results of this study have substantiated the presence of discriminant validity in the research data. Hence, it can be concluded that the data does not exhibit any instances of multiple collinearities, thereby rendering it suitable for subsequent analysis. The findings are presented in Table 2 and Figure 2.
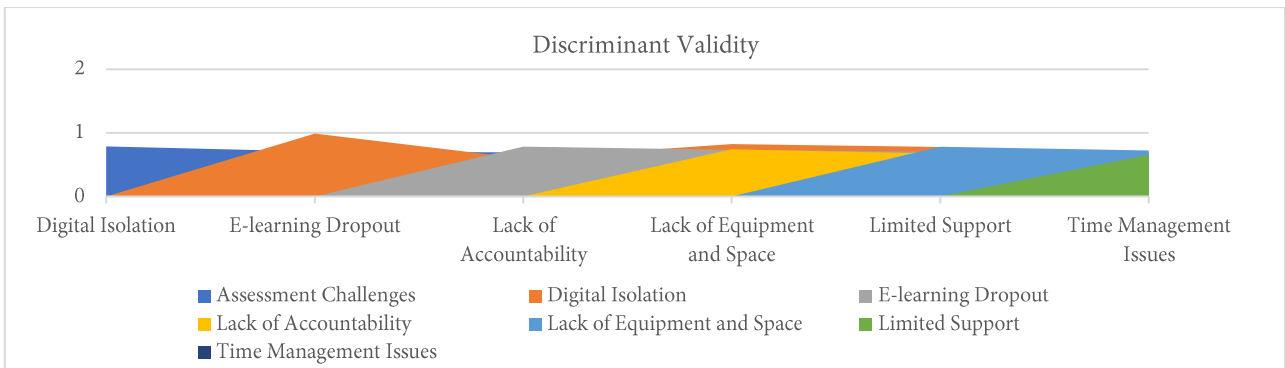
Figure 2. *Discriminant Validity*

Table 2

Discriminant Validity

Construct	Assessment Challenges	Digital Isolation	E-learning Dropout	Lack of Accountability	Lack of Equipment and Space	Limited Support	Time Management Issues
Assessment Challenges							
Digital Isolation	0.787						
E-learning Dropout	0.708	0.989					
Lack of Accountability	0.694	0.599	0.784				
Lack of Equipment and Space	0.691	0.822	0.732	0.742			
Limited Support	0.591	0.778	0.705	0.675	0.782		
Time Management Issues	0.668	0.593	0.685	0.691	0.721	0.656	

The findings of structural model assessment are considered to test the path. The recommended threshold value t > 1.96 and p < 0.05 are considered to test the relationship between variables purposed in framework (Hair, Howard, & Nitzl, 2020). In accordance, the effect size between the relationship was tested. An effect size is a value measuring the strength of the relationship between two variables in a population, or a sample-based estimate of that quantity. The value of 0.02 is small, 0.15 is medium and 0.35 is large for f^2 (Rosenthal, 1994). H1 findings (original sample = 0.178, t = 2.562, p = 0.011 and f^2 = 0.026) confirmed that lack of equipment and space significantly influences students for e-learning dropout. Furthermore, the results (original sample = 0.151, t = 7.190, p = 0.011 and f^2 = 0.171) of H2 confirmed that assessment challenges significantly

influence students for e-learning dropout. Thirdly, the outcomes (original sample = 0.178, t = 2.295, p = 0.022 and f^2 = 0.026) of H3 pointed that limited support significantly influences students for e-learning dropout. In accordance, the results (original sample = 0.305, t = 3.243, p = 0.001 and f^2 = 0.061) of H4 established that digital isolation significantly influences students for e-learning dropout. Meanwhile, the findings (original sample = 0.271, t = 3.364, p = 0.001 and f^2 = 0.063) of H5 reported that lack of accountability significantly influences students for e-learning dropout. Finally, the outcome (original sample = 0.385, t = 5.351, p = 0.000 and f^2 = 0.139) of H6 established that time management issues significantly influence students for e-learning dropout. The results of structural model analysis are reported in Table 3 and Figure 3.
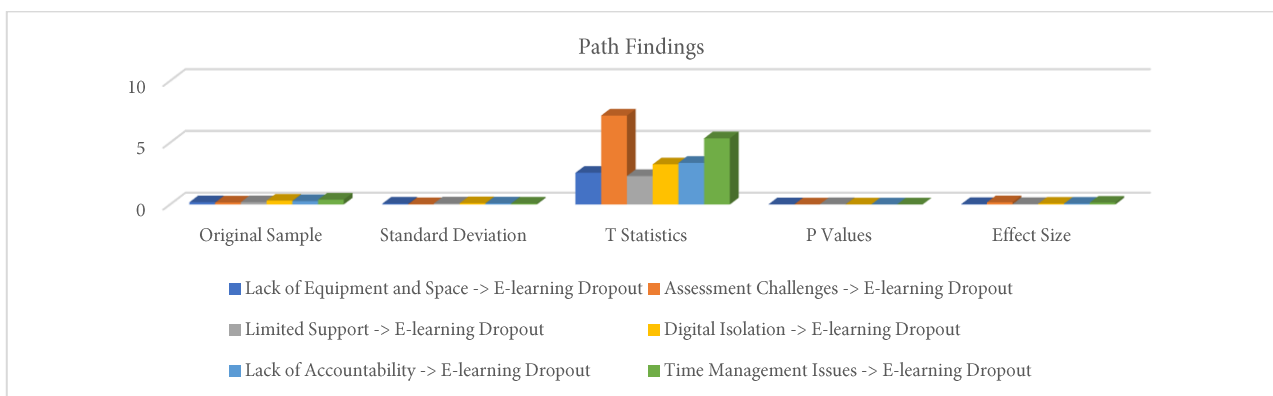

Figure 3. Path Findings

Table 3

Path Findings

Paths	Original Sample	Standard Deviation	T Statistics	P Values	Effect Size	Result
Lack of Equipment and Space -> E-learning Dropout	0.178	0.070	2.562	0.011	0.026	Accepted
Assessment Challenges -> E-learning Dropout	0.151	0.021	7.190	0.000	0.171	Accepted
Limited Support -> E-learning Dropout	0.178	0.077	2.295	0.022	0.026	Accepted
Digital Isolation -> E-learning Dropout	0.305	0.094	3.243	0.001	0.061	Accepted
Lack of Accountability -> E-learning Dropout	0.271	0.081	3.364	0.001	0.063	Accepted
Time Management Issues -> E-learning Dropout	0.385	0.072	5.351	0.000	0.139	Accepted

Additionally, this study assessed the model's performance using measures such as coefficient of determination, effect size, and predictive relevance. The coefficient of determination, also known as R squared, quantifies the proportion of variance in the dependent variable that can be explained by the independent variable. It quantifies the extent of variability within a given dataset. An R-Square value of 0.67 indicates substantial strength, while a value of 0.33 suggests moderate strength, and a value of 0.19 indicates weak strength (Di Bucchianico, 2008). The research model demonstrated a coefficient of determination of 88% based on the obtained results. Q2 measures the predictive relevance of a model, indicating whether it is effective or not. A value greater than 0 is considered favourable. Additionally, Q2 assesses the predictive validity of the endogenous constructs. Positive Q2 values indicate successful reconstruction of values and the predictive relevance of the model (Koban et al., 2012). The research model demonstrates high predictive validity, as evidenced by the Q2 findings. Table 4 presents the results of the coefficient of determination and predictive relevance.

Table 4

Coefficient of Determination and Predictive Relevance

Construct	R Square	R Square Adjusted	SSO	SSE	Q^2 (=1-SSE/SSO)
E-learning Dropout	0.887	0.884	1110	417.87	0.624

4. Discussion and Conclusion

This study's findings support the relationships between the observed variables as hypothesised by H1, H2, H3, H4, H5, and H6. The hypotheses revealed six significant factors that contribute to student dropout in distance education. The factors contributing to student dropout in e-learning include insufficient equipment and space, assessment difficulties, limited support, digital isolation, lack of accountability, and time management issues. This research has identified previously unrecognised relationships that have not been explored in existing literature. However, certain studies have addressed and analysed these relationships. Adi and Fathoni (2019) highlight the significance and urgency of addressing the issue of dropout rates in the global education sector. This phenomenon presents a significant challenge for educational institutions, including universities, as well as society as a whole, and places a burden on students. Andoh et al. (2020) argue that it is crucial to identify and implement strategies to address student dropout due to its impact on the socio-economic aspects of students and educational institutions, as well as its correlation with the effectiveness of the education system.

According to Keaton and Gilbert (2020), the user's text does not contain any substantive information that can be rephrased in an academic style. The phenomenon of dropout, which refers to the discontinuation of academic endeavours, has been highlighted as a multifaceted issue influenced by various factors including personal, environmental, college-related, and institutional elements. Tsolou et al. (2021) argue that dropout, as a phenomenon, carries significant social importance, leading to focused efforts to reduce its prevalence and enhance academic success in the context of higher education. As per Baber's (2020) research, a recommended strategy involves the acquisition of timely data pertaining to the potential incidence of student attrition, followed by an analysis of potential contributing factors, and the prompt identification of students who are at risk of discontinuing their education. Dutta et al. (2021) have noted that the occurrence of college students' attrition generally refers to the discontinuation of academic pursuits by individuals as a result of personal circumstances or a variety of challenges encountered during their tenure at the educational institution. D'Agostino et al. (2021)

argue that it signifies a deviation from the endeavour of attaining advanced education, encompassing a range of manifestations including discontinuation, interruption, transfer, and voluntary withdrawal.

The impact of dropouts on students, universities, and society as a whole has been widely acknowledged. As stated by Kaya (2021), the re-enrolment procedure for individual students who have previously withdrawn from a university may entail additional financial obligations and a substantial allocation of time. As stated by Nasir (2020), the aforementioned decision has the potential to limit opportunities for obtaining employment and subsequently lead to a decline in income potential. From an institutional perspective, scholars have contended that this matter carries significant ramifications for the financial administration of universities. It presents difficulties in devising and executing educational policies, thereby potentially jeopardising the overall standard of education. Lee et al. (2021) contends that the phenomenon of dropping out is associated with considerable financial implications and ultimately erodes a country's competitive advantage by suboptimal utilisation of its human capital. Tulaskar and Turunen (2022) define a leave of absence as a temporary interruption of educational endeavours, encompassing a discontinuation of studies and subsequent departure from the educational institution after a specified period. It was observed that he resumed and persisted in his scholarly endeavours.

Whereas, Valtonen et al. (2021) argue that the widespread adoption of remote education has effectively enabled individuals to conveniently obtain desired educational resources. Nevertheless, it is important to highlight that there exists a considerable percentage of students who discontinue their academic pursuits. Based on the findings of Barrot et al. (2021), it is evident that the rate of attrition in online educational institutions surpasses that observed in traditional offline educational institutions. Remote education provides learners with convenient access to desired courses and the flexibility to learn without the limitations of time and space. Casement et al. (2020) argue that learners are fully accountable for their own learning and may encounter a sense of isolation stemming from limited interaction. This can lead to reduced motivation and difficulties in maintaining and advancing in their educational endeavours. Salas-Pilco et al. (2022) have observed that the learning environment, characterised by a higher reliance on self-directed learning compared to traditional offline education, can result in feelings of isolation and reduced interaction among learners when they are physically distanced from instructors and peers. Consequently, this can lead to a decline in one's motivation

to learn. Batez (2021) posits that recent reports indicate a significant dropout rate, which can be ascribed to factors such as diminished motivation and the distinctive attributes of adult learners who concurrently participate in both employment and education.

Similarly, Schmits et al. (2021) found a noteworthy association between educational satisfaction, familial and peer support, time management skills, and the inclination to persist in the pursuit of knowledge. Several factors were found to have a significant impact on the continuity of learning. These factors include the learner's initial satisfaction with the curriculum, their occupation, their specific interests, and the discrepancy between the learning materials. O'Brien et al. (2020) found that experts highlighted several factors that contribute to dropout rates in online education. These factors include dissatisfaction with the large amount of information and knowledge, lack of self-confidence, and limited engagement in the online environment. The findings indicate that experiential factors play a significant role in the decision to drop out. Sukendro et al. (2020) identified several factors that contribute to challenges in distance learning. These factors encompass the lack of auditory stimulation and limited peer interaction, inadequate instructor feedback, insufficient time for learning, inadequate skills for distance learning, the complexity of learning tasks, and cognitive overload. Hehir et al. (2021) argue that in order to address attrition among distance learning students, it is crucial to create a curriculum that matches their abilities and interests, incorporating a variety of subjects.

Likewise, Singh et al. (2021) found that institutions specialising in continuing education and lifelong learning generally provide separate programmes for degree and non-degree courses. These institutions offer credit-recognizing courses that promote cultural and intellectual development across disciplines including humanities, social sciences, natural sciences, and arts. Gagnon et al. (2020) state that these courses support the transfer and admission of students to universities. The organisation provides a wide array of educational courses and information, including education that is commissioned by the industry. Smith (2021) argues that it is crucial to offer diverse curricula in Korea, incorporating liberal arts subjects, in order to enhance learners' knowledge and foster their curiosity. Du et al. (2022) found that elderly and disabled learners face difficulties in participating in distance lectures due to their limited familiarity with this instructional format. Moreover, individuals may encounter challenges in effectively navigating a vast amount of educational content and may also be influenced by their physical attributes. Elumalai et al. (2021) identified factors

that may lead to slower learning, decreased comprehension, and shorter attention spans in adult learners when compared to their counterparts. Therefore, it is crucial to assist learners in improving their capacity to understand and adapt to remote lectures, while considering individual learner characteristics such as age or disability.

While Hsiao (2021) emphasises the importance of implementing measures to improve instructional quality. This includes adjusting the level of instruction and complexity, as well as customising assignments and assessments to align with learning objectives and contextual factors. Regular monitoring of learners' progress and their responses to course materials on a weekly basis is necessary. Shikulo and Lekhetho (2020) state that various instructional approaches have been developed in pedagogy to improve teaching and learning practises. Some of the approaches that can be used include problem-based learning, team teaching, discussions, offline parallel classes, and journal writing, among others. Peterson et al. (2020) employ these methods in conjunction with traditional lectures, while considering the subject matter and student enrolment. The system's operation depends on the quality and quantity of information, requiring regular updates with the latest data.

Theoretical and Practical Implications

This study has made a valuable contribution to the existing literature through its empirical findings. The literature indicates that insufficient equipment and space are significant factors contributing to student dropout. This problem has not been identified in previous studies. The study also found that assessing student work poses a challenge for teachers in online learning, leading to students failing to achieve their goals and an increase in dropout rates. Prior studies have not previously identified this relationship, which is novel in the literature. The study revealed that inadequate support for students in distance learning is a growing issue that negatively impacts their academic performance and contributes to higher dropout rates. This research makes a theoretical contribution by identifying a relationship that has not been previously addressed in prior studies. Digital isolation is a significant factor contributing to student dropout rates. This is due to students adopting less productive learning approaches when engaging with digital and remote learning. This research also addresses the relationship mentioned, which has not been extensively discussed in previous studies. This study emphasised the importance of time management as a significant factor influencing students' decision to drop out of e-learning. This contribution is unique as previous

research has not extensively examined this relationship. This study's practical implications align with its theoretical implications. This study emphasised the significance of adequate equipment and space for students to enhance their learning. The research findings indicate that providing students with suitable learning spaces and equipment by institutions and families can lead to a reduction in dropout rates. The study found that inadequate evaluation of student work is a significant factor contributing to high dropout rates. Parents and teachers must conduct thorough assessments of students' work and work towards enhancing their learning behaviour. The study also highlighted the practical necessity of providing support to students in order to enhance their learning, as improved learning is crucial for reducing dropout rates. The study emphasised the need to address students' sense of digital isolation and promote online community-building opportunities with their peers. This process facilitates access to assistance and promotes the exchange of ideas in the context of learning, thereby decreasing the dropout rate. Accordingly, the study found that holding students accountable for their learning can help improve their dropout rates. Proper monitoring of students' work is a crucial factor in enhancing their digital education. The study emphasised the importance of teachers and parents offering students flexibility in their learning. This process is crucial for enhancing their learning behaviour in order to achieve sustainability goals. Implementing these recommendations can effectively reduce the dropout rate among students.

Limitations and Future Directions

This study has identified important factors that contribute to the dropout rate among students. Nevertheless, there are certain constraints associated with this study. The study's data collection was limited to a single geographic location, which restricts the generalizability of its findings. Therefore, scholars are advised to gather data from various geographical locations in order to conduct research and compare the findings. The study solely examined the direct relationships between variables, without considering potential mediating and moderating variables that could impact these relationships. consequently, scholars must examine the mediating effect of students' mental well-being on the relationship between dropout rates and their approach to students. Empirical justifications for this relationship would be beneficial. This study has identified areas of literature that require improvement, emphasising the need for future research to address these shortcomings.

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