PAPER

Predictors of Success and Preference for Full Online Distance Education: Insights Moving Forward the New Normal in Education

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ABSTRACT

The study investigated the critical success factors (CSF) influencing the effectiveness of online distance learning delivery. Effectiveness was measured based on overall student satisfaction, intention to re-enroll, intention to recommend the school, and preference for online learning. The study utilized data from a total of 2,703 students, which accounted for 68% of the entire student population of a higher education institution in the Philippines. Students expressed their satisfaction with the school's online services, including academic (learning outcomes and delivery), academic support, and student services. They regarded these services as indicative of quality, assessed through an instrument constructed from existing literature. A three-factor model was established through confirmatory factor analysis, and path relationships were scrutinized using covariance-based structural equation modeling with AMOS. Effect size analysis was used to confirm the regression weights and P-values. Results show that the delivery of learning had the most influence as a predictor of success and may be the only crucial factor for all indicators of success. Learning outcomes, academic support, and student services provided online did not show any significant effect or register any effect on all success indicators. The latter supports the premise that investing in ICT infrastructure and educational technology tools contributes, but it does not guarantee success. Moving forward, fully online distance learning, if designed appropriately, has the potential to become a prominent method of conventional education, rather than just a temporary solution during a crisis.

KEYWORDS

online distance learning, online learning success factors, online learning program success indicators

1 INTRODUCTION

The COVID-19 pandemic is undoubtedly the most unprecedented and disruptive global education event in history. In response to the pandemic, governments

worldwide have implemented policy actions such as lockdowns, social distancing, and safety protocols in public spaces, which have required everyone to stay in their homes. Consequently, months after the World Health Organization (WHO) declared a health emergency in January 2020, educational institutions worldwide have temporarily closed to contain the spread of the virus. These restrictions impacted all sectors of society, including work and education, and ultimately altered the way everyone lived. This closure affected approximately 3,589,484 tertiary school learners [1] and thousands of teachers in the Philippines.

Education institutions in the Philippines and worldwide have been forced to either close or quickly adapt to online learning in order to ensure that students continue their education. By force of circumstances, school administrators needed to quickly implement policies and systems for continuing education using online platforms [2], [3] for teaching and support services. Consequently, school administrators require teachers, students, and staff to use online platforms, regardless of the lack of resources, students' readiness to perform online learning tasks, and teachers' expertise in delivering education online [4–7]. However, the ability of schools to smoothly transition to online learning as a strategic response to the pandemic varies. Perhaps the ease of transitioning from classroom to digital learning depends on schools' commitment and willingness to implement e-learning programs or embrace technology to enhance learning, as well as investing in infrastructure to support the digital platform before the pandemic [8].

For most schools unprepared for the pandemic, implementing remote emergency teaching and learning (RET) was the more practical approach. RET is an alternative term used to describe the type of (online) instruction that teachers provide during times of crisis [9], [10]. Under this approach, strategies are flexible and temporary because more time is needed for careful planning and preparation. The RET contrasts with a fully online learning delivery program that is the result of careful instructional design and planning using a systematic design and development model [10]. Fully online learning is the type of program offered by schools that are considered early adopters of e-learning technology.

However, papers have not yet explored the success of online learning during crises and its correlation with early adoption. However, there may be an advantage for schools that embrace learning technology early on. Research identifying critical success factors (CSFs) for an organization to achieve goals is available, but it was conducted during what we consider normal times before the pandemic. Few studies have explored the same theme during the COVID-19 pandemic, yielding different results compared to studies conducted during normal times [8]. Even so, there are several empirical studies related to e-learning as an intervention during times of crisis. There are also studies focused on determining the status of e-learning in higher education institutions (HEIs) in the Philippines [7].

The study focused on students' experiences in HEIs in the Philippines. The institution advocated for the transformation of learning into the digital space and was an early adopter of technology even before the pandemic. The institution began its technology transformation in 2017 by investing in systems infrastructure for online learning and transitioning to blended learning through the implementation of a learning management system. Blended learning, as practiced, involves a combination of online and in-person learning activities or tasks for each course or subject.

The school decided to transition to a fully online setup, not just as a temporary remote teaching solution but as a comprehensive distance learning program. The pandemic allowed the school to test and implement a fully online delivery system, positioning it as an early adopter of educational technology. The shift allowed

learning activities to continue with minimal to no physical contact by reconfiguring the full range of academic services, academic support services, and student services to operate and serve partners through digital platforms. The teachers were trained and supported with devices to utilize suitable platforms in order to create an online environment where teaching and learning flourished with the help of technology. Eventually, the shift to online learning served well in managing the safety and well-being of the school's teachers, staff, and learners during the pandemic. After a year of fully online distance learning operations, the administration conducted a satisfaction survey in January 2021 to conclude the first semester of the 2020–2021 academic year, which was the first full year under the COVID-19 pandemic.

There are two primary aims of this study: 1) To ascertain how the subject higher education institution, as an early adopter of educational technology and presumed to be ready for online learning, was able to meet the needs of the learners during the pandemic. 2) To identify the factors contributing to the success of online distance learning using the CSFs framework. The study refers to these CSFs as service areas where favorable results are necessary to achieve the goals and objectives of HEIs (organizations) [8], [11]. These CSFs are the services that have the greatest impact on success. They can include core teaching tasks, academic support services, and student services. CSFs are identified based on the unit's performance in providing services as perceived by students during the pandemic. The study measures performance based on students' perceptions of the achievement of learning outcomes [12–16] and their satisfaction with how the school met the needs of learners during the pandemic.

2   LITERATURE REVIEW

This review focuses on articles that support the conceptual framework and examine the factors that contribute to the success of online distance learning delivery (ODLD). The selected studies were relevant for developing the assumptions set in the study.

Online pedagogies. The choice of delivery methods for learning is of great importance in ensuring the effectiveness of the learning process and the outcomes achieved by students. The COVID-19 pandemic posed a lot of challenges to learning, but it also provided valuable insights into how to design sustainable, desirable, and effective digital platforms for higher education [17]. Though there have been pedagogical experiments performed to identify effective learning techniques [18], the pandemic provided an opportunity to explore alternative methods suitable for an online learning environment. One approach that proved to be effective was active learning. Its application resulted in better student attendance, interactions, intellectual exchanges, and learning [18], [19]. The effectiveness of a learning approach is determined by the pedagogical environment and the learning model implemented by both the teacher and the social context. These factors have a significant impact on the construction of knowledge, participation through online tools, and student self-determination, especially on an online platform [20]. Pedagogical quality, along with content quality, adopted into the framework of e-learning, influences its effectiveness and acceptance [21].

Satisfaction is the measure of students' level of enjoyment and contentment with the learning opportunities and support services they received during the school term. Therefore, satisfaction in an online program is an important factor for success, which the paper assumes is directly affected by learning service

components [22], [23]. This premise qualifies the learning service component as a critical success factor.

Online learning is a concept related to e-learning, used interchangeably in the literature to refer to learning anytime and anywhere through the internet. However, e-learning is more comprehensive since it covers issues related to learning strategies, learning methods, content sharing, and connectivity, in addition to its main theme of utilizing technology [24]. The paper defines online learning as the delivery of educational information using information and communication technology through an internet-enabled teaching platform in order to overcome limitations of time and space [24], [25].

The paper aims to understand the factors that contribute to the success of online learning in distance education programs. The paper investigates online learning as a learning delivery strategy and a comprehensive education program that encompasses the school's provisions for learning and all associated services, including support for academics and students [26]. These service areas are CSFs for delivering online learning. The paper assessed the effectiveness of fully online distance education by examining students' intention to re-enroll (Eom, 2018) or their actual enrollment in the subsequent year, which serves as a manifestation of their intention to re-enroll. Students' perceived satisfaction affects their use and the continued use of e-learning systems [27].

Preferred learning delivery. The pandemic has created opportunities for discussing the integration of internet-based learning and identifying education models suitable for the current situation. Likewise, the pandemic was also an opportunity to test the actions, judgments, and selection of teaching strategies by the school administration and teachers regarding the effectiveness of technology-based pedagogy, instructional delivery modes, curricula, and content, especially their impact on learning outcomes. It was also an opportunity to test innovations that work in preparation for the new normal. It also made everybody rethink how effectively we operate and how everything else will adjust to the new normal.

Critical success factors refer to the areas or elements of execution on which satisfactory results depend [11], [28]. To ensure the successful delivery of online learning, school administration should pay particular attention to these CSFs. The administration's role is to manage and maintain the optimal conditions of these CSFs to contribute to the success of online learning. Favorable outcomes are necessary to achieve its goals and objectives [8].

The conceptual framework for investigating learning delivery via a fully online platform was formulated by integrating concepts discussed in the literature on successful online learning [14], [27], CSFs influencing success [11], [28], and preferred modes of learning delivery. The primary objective is to evaluate the areas of online learning delivery services (academic, academic support, and student services) [26] based on students' experiences in order to generate recommendations for enhancing these services. The study is causal (see Figure 1), as presented in the causal pathway model [29]. It aims to identify the school service areas that influence students' satisfaction, preference for online learning, intention to recommend the school, and intention to continue learning at the same school. Data and results shall inform the administration about the areas that require more attention for successful implementation.

The first area for investigation is how the learning was delivered via online distance. The inquiry covered the school's provisions for achieving learning outcomes and delivering instruction. Several papers utilized perceived learning outcomes and satisfaction as educational indicators in a distance delivery system to assess online success [12–16]. The paper used this premise to measure the success of e-learning based on the amount of knowledge students acquired and whether

the learning program achieved the desired outcomes in terms of student learning and satisfaction. Fulfilling learning outcomes is critical for successful online learning due to the interaction between learners and teachers [30]. It is associated with students' comprehension of the learning materials provided by teachers through online learning systems and platforms, based on students' skills and competencies as learning outcomes [13], [31]. On the other hand, learning methods and strategies shape students' experiences through implementation to achieve predetermined goals and reflect teachers' understanding of students' learning needs, as perceived learning is influenced by how teachers teach [32]. Thus, the study assumes that the perceived learning outcome is a CSF in distance education.

Self-directed learning is a teaching method that modifies the traditional schooling structure, empowering students to take charge of their own learning [33], [34]. This method compels educators to shift from being authorities to facilitators of learning, and students to take charge of deciding when and how to proceed with their learning through the affordances of digital technology. Self-directed learning, as a method of delivering education under the school's program, was assessed based on student satisfaction and assumed to be a critical factor for success.

The study also investigated the quality of the school's online education program by examining student satisfaction with all academic support services and student services on the platform. Additionally, the study evaluated the basic services that are considered CSFs.
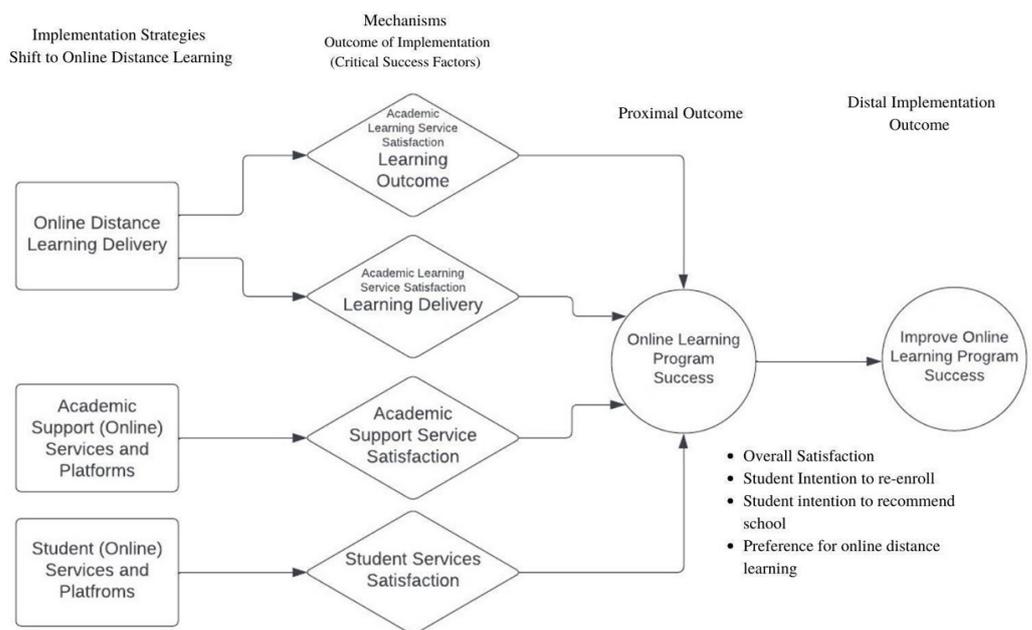

Fig. 1. Causal diagram model (initial four factor model)

3   METHODOLOGY

The study was conducted after a semester of operating in a distance online learning format. This period was also the first academic year under restrictions due to the COVID-19 pandemic. It was considered an appropriate time to evaluate the effectiveness of the initial design and implementation of full-distance online learning, particularly in terms of achieving learning outcomes. The study adopted a homogeneous convenience sampling approach to capture students' experiences that are unique

to the kind of services provided by the school as an early adopter of educational technology. The approach employed offers enhanced generalizability of results compared to typical convenience sampling methods. This was achieved by intentionally narrowing the sampling frame to mitigate socio-demographic heterogeneity, consequently reducing the potential for bias [35].

Instrument and data collection. Students were required to answer the student satisfaction survey, a feedback program designed to evaluate the administration's delivery of learning and support services and identify areas for improvement. Ethics protocol and data privacy were observed and cleared by the Office of Research and Publications.

The survey questionnaire consisted of 36 items designed to assess perceptions and satisfaction with the school's learning and learning support provisions. For the domain of academic learning delivery, the proponent developed seven scale items to assess the achievement of learning outcomes based on several related studies [12], [36]. The study measured the achievement of learning outcomes using a seven-point Likert scale to assess the level of agreement and disagreement. The satisfaction of the course and teacher under learning delivery was measured using a seven-point Likert-type scale. This scale allowed participants to express their degree of satisfaction with the performance of the teachers and the course. The options ranged from "completely true" to "completely not true." Satisfaction with the choice of instructional delivery was measured using an item that included response options ranging from dissatisfaction to satisfaction, utilizing a seven-point Likert-type scale.

There were 16 items for the academic support services domain, eight for each service area and its corresponding online platform. Items under the academic support services include enrollment, payment, library services, learning management training and support, technical services, technology support, safety and security, and information and communications. The student services domain had five items for student services and two items for its online platform. All items in the academic support and student services domains were measured using a seven-point Likert-type scale, ranging from disagreement to agreement.

The success of online learning delivery was measured by soliciting responses from students regarding their overall satisfaction. The responses were collected using a seven-point Likert-type scale, ranging from disagreement to agreement. The likelihood of recommending the school to other students and re-enrollment was measured using a seven-point Likert-type scale, ranging from very unlikely to very likely.

Lastly, the study measured preferred learning delivery based on the degree of preference for in-person to online learning engagement, using a scale from 1 entirely in-person to 5 entirely online learning. The scale is interpreted as a preference for either in-person delivery, with values towards 1.00 indicating a strong preference for in-person, and values towards 5.00 indicating a strong preference for online. Values within the range of 3.00 indicate a preference for a combination of online and in-person delivery, or both.

Using SPSS 24, the researcher handled missing values in the data by using the mean imputation method and conducted a paired t-test. The study conducted a principal component analysis (PCA) to assess whether the respondents accurately understood the questions before establishing the CFA model in AMOS [37]. The PCA procedure also clarified the dimensions perceived by those who responded to the survey and its related items, using a factor loading value of >.50 [37]. The study used effect sizes to further support the reported P-value. Effect sizes provide information on the magnitude or strength of the findings in research studies [38]. The study utilized Cohen's f^2, which is suitable for calculating the effect size within a multiple regression model [39].

4   RESULTS AND DISCUSSION

The study collected data from 2,703 (68%) of the 3,989 college students currently enrolled in the study. The initial test for evaluating the measurement model was principal component analysis (PCA) to reduce items and confirm item groupings as theorized. This analysis provided information regarding the maximum number and nature of factors, as well as an initial confirmation of the theorized model and its constructs [40]. Results show a KMO of .969 and a significant P-value (Sig- = 0.000) for Bartlett's Test. PCA was used as an initial step in CFA.

Four-factor components emerged as theorized and were grouped as Learning Outcomes, Learning Delivery, Academic Support and Services, and Student Services. The four groups represent the CSF for delivering a fully online learning program. All factor loadings in each group are greater than 0.50, and the alpha for the reliability test (> 0.70) is more than sufficient for each group.

After conducting analysis and making adjustments, the original four-factor model was revised to a three-factor model. This modification was made to address a violation of discriminant validity that was observed. Specifically, the academic support services and student services factors were merged, resulting in a model (Figure 2). Discriminant validity reduces confidence in the results [41]. CFA is commonly used to assess whether two factors could be merged [42], resulting in a new model with a better fit.
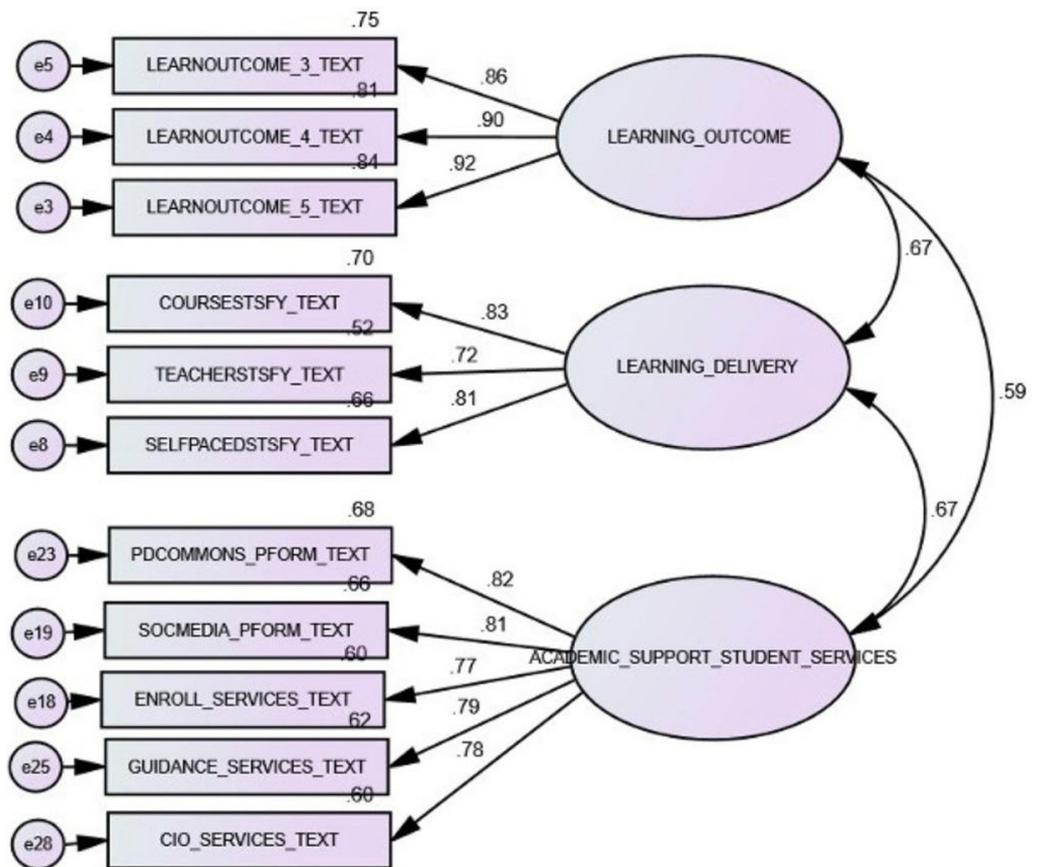

Fig. 2. Three factor model

To validate the resulting model, the proponent observed the principles of content validity, which refer to the extent to which the construct and its items represent the entire domain (concept) of interest. The proponent ensured that the deleted items or merged constructs were consistent in context, with the retained item maintaining the same meaning for the respondents.

The study reduced the number of items per factor by employing an alternative approach to covariance-based-SEM. This was done by removing indicator variables for each construct in order to achieve goodness of fit. This approach requires large sample sizes [43, 44]. It is an alternative to correlating measurement errors in order to improve model fit, as suggested by the modification indices [45]. Moreover, the deletion procedure in this study was carried out judiciously to achieve the objective of developing a well-fitting model with minimal modifications [46]. The decision to drop an item is not a random occurrence and follows a principal component analysis test. Not only do they covary, but they also have a loading higher than .70. Furthermore, removing other items did not significantly impact the overall reliability [47].

Construct validity. Table 1 shows that all Cronbach's alpha values (0.921, 0.831, and 0.893) and composite reliability values (0.922, 0.833, and 0.896) are well above the threshold level, indicating high reliability [48]. Convergent validity is assessed by calculating the average variance extracted (AVE) across all items that are associated with a specific construct measured reflectively. The AVE for each construct is all above the .50 threshold (i.e., 0.797, 0.625, and 0.633), which indicates that, on average, the construct explains more than 50% of the variance of its items [49], confirming convergent validity.

Table 1. Results of measurement model, construct reliability, and convergent validity

Survey Items	Component			Alpha	Composite Reliability	Average Variance Extracted
	1	2	3			
Learning Outcome 3 – I learned to connect the important	.864			921	0.922	0.797
Learning Outcome 4 – I developed the ability to express	.898					
Learning Outcome 5 – I improved my ability to integrate	.916					
I am satisfied with the learning experience…			.834	.831	0.833	0.625
This semester, I would recommend the			721			
Overall, I am satisfied with the			812			
Enrolment Services		.772		.893	0.896	0.633
Institutional Communications Online Platform		.815				
PDCOMMONS (Online Learning Guide); LMS Training and Support Platform		.825				
Guidance and Counselling Services		.788				
Community Involvement Services		.776				

Results show compliance with the conditions of Fornell and Larcker's (1981) criterion (Table 2) for measuring the extent of independence between the constructs

or how each is empirically distinct. All correlations between the constructs are less than the square root values of their estimated AVE, confirming discriminant validity [50].

Table 2. Discriminant validity

	Learning Outcome	Learning Delivery	Academic Support and Student Services
Learning Outcome	**0.893**		
Learning Delivery	0.671	**0.791**	
Academic Support and Student Services	0.587	0.668	**0.796**

Among the CSF identified, the study observed the highest satisfaction responses in academic support and student services. This service delivery area includes providing services through online platforms to facilitate student enrollment, academic and non-academic student engagements, guidance, and formation. The highest mean satisfaction response (5.812) was on websites, social media, and online platforms. One of the provisions in this area is the academic/learning platform, where students can choose between Google Workspace and Microsoft O365 to complete and submit learning tasks. The school website and social media platforms are also used to deliver school announcements under this service. Results suggest that the quality of available online education platforms and online education products was helpful [51]. Quality in e-learning plays a key role in the success of e-learning and should be a part of the core process to continuously improve and meet quality standards [52].

On the other hand, the lowest satisfaction responses were observed in the learning delivery aspect. Under this service delivery, course satisfaction registered the lowest mean satisfaction response of 4.182 out of a possible score of 7. This indicates that students were only satisfied with the learning delivery for some of their courses. Students also did not report higher satisfaction responses to their teachers, with a mean response of 4.562 compared to other services. Students felt that they could only recommend certain teachers to other students based on their recent semester experience prior to the survey. The satisfaction of teachers explains the outcomes of courses as a reflection of their performance or preparedness to deliver online learning. This may also be due to the low response rates in achieving learning outcomes that are related to the development of students' ability to express and communicate what they have learned from the courses. Other factors contributing to students' low satisfaction with learning delivery include network technology, teachers, and the online teaching mode itself [53].

Low satisfaction (4.882) was also observed with the choice of modality during the semester, specifically self-paced, self-directed learning. Students' response to guidance services was high at 5.738, which also includes perceptions of the platform's use.

Students from the college of education, arts, and sciences consistently reported the least satisfaction with learning delivery, followed by students from the college of engineering. The students may have experienced limited or restricted opportunities for creative expression and individuality when completing learning tasks, which they value in the creative discipline. Online learning may not have been as effective in fostering student creativity and voice, which could have made academic

experiences more authentic and meaningful. Moreover, the low response from engineering students may be attributed to the limited opportunities to apply theoretical knowledge to practical problem-solving in an online learning environment. The delivery of self-paced, self-directed learning also contributed to limited student engagement and active participation in class, where students can ask questions, collaborate with peers, and take a proactive approach to their engineering education.

Among the success indicators of the online learning program, overall satisfaction with online distance learning was rated at 5.147. Only a small percentage of students (7.47%) reported being highly satisfied, while the majority (70%) expressed some level of satisfaction. Conversely, 11% of students reported feeling unsatisfied. About ten percent of the students, approximately 200 from this sample, were unlikely to recommend the school and reported the lowest mean success indicator of 4.650. The percentage of students unlikely to enroll was around 5%. Students prefer modalities with more in-person engagement rather than fully online options, with approximately 85% expressing this preference.

4.1   Path analysis, hypothesis assessment, and model fit

The results of path analysis, hypothesis tests, and model fit to support the proposed theoretical model are presented in Table 3. The theoretical model shows that learning delivery has a high impact on overall satisfaction with online learning delivery, explaining 67% of the variance ($R^2 = 0.67$). This effect size is considered medium to large, with a value of 0.303. At the same time, there was no recorded effect size for learning outcome, academic support, and student services. Only Ho_{2a} is supported through Academic Support, and Student Services reported a significant standardized regression weight of $\beta = 0.342$; however, it did not register any effect size.

The theoretical model for intention to recommend school reports a 50% explanatory power ($R^2 = 0.50$) for intention to recommend school. This is attributed to learning outcome and learning delivery, with effect sizes of 0.020 (small) and 0.220 (medium), respectively. The learning outcome also showed a $\beta = -0.076$ and significant at a P-value of .001. On the other hand, the learning delivery had a while learning delivery registered $\beta = 0.563$ and significant at P-Value of less than 0.001. Academic support and student services registered $\beta = 0.254$ and significant at P-value of less than 0.001. However, no effect size was observed. The study provides support for Ho_{1b} and $Ho_{2b.}$

The theoretical model for intention to re-enroll explains 27% of the variance in intention to re-enroll ($R^2 = 0.27$) attributed to factors such as learning delivery, academic support, and student services, with small effect sizes of 0.027. The learning delivery registered a $\beta = 0.279$ and which was found to be significant at P-value < 0.001. Similarly, the academic support and student services registered a $\beta = 0.322$, also significant at a P-value of < 0.001. The study provides support for Ho_{2c} and $Ho_{3c}.$

The theoretical model for preference for online learning reports that learning delivery and academic support and student services account for 11% of the explanatory power for preference for online learning ($R^2 = 0.11$), with effect sizes of 0.067 (small) and 0.011 (none), respectively. The learning delivery registered a $\beta = 0.433$ and significant at P-value of less than 0.001. On the other hand, the while academic support and student services registered a $\beta = -0.127$, also significant at P-Value of less than 0.001. The study provides support for $Ho_{2d}.$

Table 3. Path analysis, hypothesis assessment, and model fit

Model	Estimate (Standardized)	P-Value (*** less than .01)	Effect Size f^2 [34]	R2
Learning Outcome —> Overall Satisfaction (Ho_{1a})	−.018	.363 (NS)	0.00 (N)	0.67
Learning delivery —> Overall Satisfaction (Ho_{2a})	.561	***	0.30 (M)	
Academic Support and Student Services —> Overall Satisfaction (Ho_{3a})	.342	***	0.00 (N)	
Model Fit: GFI 0.959; RMS 0.068; CGFI 0.973				
Learning Outcome —> Intention to Recommend School (Ho_{1b})	−.076	.001	0.02 (S)	0.50
Learning delivery —> Intention to Recommend School (Ho_{2b})	.563	***	0.22 (M)	
Academic Support and Student Services —> Intention to Recommend School (Ho_{3b})	.254	***	0.00 (N)	
Model Fit: GFI 0.965; RMS 0.063; CGFI 0.967				
Learning Outcome —> Intention to Re-enroll (Ho_{1c})	−.039	.141 (NS)	0.00 (N)	0.27
Learning delivery —> Intention to Re-enroll (Ho_{2c})	.279	***	0.03 (S)	
Academic Support and Student Services —> Intention to Re-enroll (Ho_{3c})	.322	***	0.03 (S)	
Model Fit: GFI 0.965; RMS 0.063; CGFI 0.975				
Learning Outcome —> Preference for Online Learning (Ho_{1d})	.005	.855 (NS)	0.00 (N)	0.11
Learning Delivery —> Preference for Online Learning (Ho_{2d})	.403	***	0.07 (S)	
Academic Support and Student Services —> Preference for Online Learning (Ho_{3d})	−.127	***	0.01 (N)	
Model Fit: GFI 0.965; RMS 0.062; CGFI 0.974				

Despite arguments that online learning has many disadvantages and contributes to an education crisis today [54], [55], it has proven to be the most valuable tool for the education sector in overcoming the crisis during the pandemic [55]. The literature presented reports that both private and state colleges and universities in the Philippines were not prepared. This prompted the Commission on Higher Education (CHED) to suspend the online form of instruction days after instructing HEIs to use online learning as an alternative delivery through a national memorandum [56]. Learning delivery is a crucial factor for all success indicators, particularly for students' intentions to re-enroll and recommend the school. These indicators are of primary interest for the sustainability and continuous operations of the school. The perceived poor performance in the delivery of learning has several factors that need to be considered, including teacher capacity, the situation and context of the learner, and the efficiency of the learning environment, aside from the more obvious issues of internet speed, the cost of materials, and the mode of delivery [2], [5]. These are attributed to what most research terms (ERT) emergency remote teaching. ERT is the strategy to ensure that students continue learning even while confined during a crisis. Most schools opted for online learning solutions, which forced school systems, teachers, staff, and students to quickly change and adapt to remote teaching. This resulted in significant changes to typical instructional practices. [57], [58].

Regardless of the presence of technology support infrastructure and online platform subscriptions, one challenge observed during the pandemic was the lack of training for faculty members and students in using the eLearning technologies necessary for a fully online setup [7]. Digital competence among teachers is truly an advantage

for schools to succeed in technology-based transitions [59]. Digital competency is necessary to design engaging and interactive online teaching materials and activities that capture students' attention and maintain their focus on an online platform [54]. Teachers reported moderate technology integration [60]. Indeed, the decision to shift was perceived as a significant difficulty and challenge, as faculty were forced to adapt to an online education setting with minimal preparations [61]. The sudden transition also caused stress for faculty during the pandemic [62].

However, teachers may have fallen short of students' expectations, but it's worth noting that the fault may not be entirely theirs. School administration should have fully provided faculty with continued support, training, development, and opportunities to understand and expand online education [61]. During times of change, school leadership must effectively drive the school to adapt, continuously support teachers, and ensure the smooth functioning of the school, regardless of work arrangements [58]. Likewise, the lack of resources, including professional learning methods, was most strongly negatively correlated with how teachers perceive their accomplishments [57].

Course satisfaction. Among the three elements of the learning delivery construct, students were least satisfied with their course engagement. Literature suggests that course design and organization, as quality indicators, positively and significantly influence students' perceptions of learning and satisfaction [27], [28], [36]. More specifically, the design and delivery of content as a measure of pedagogically sound and effective practices were positively correlated with students' perceptions of learning success [36]. In addition to course structure (content design and delivery), learner interaction and instructor presence significantly affect learning success [63]. One particular example is the utilization of virtual laboratories for courses that include laboratory components. In-person laboratory exercises not only provide a level of realism to help students learn concepts that are hard to visualize but also offer the hands-on experience of working in a laboratory guided by their professors. This is a learning process that cannot be experienced virtually and is especially important for those pursuing a degree in science and engineering. Course learning delivery or the teaching process directly predicted success (overall satisfaction) and was reported to have the strongest influence [64].

The type of response that students had in the study, or a similar response in any online program, is sufficient for school administrators to review their infrastructure planning and choice of online platforms, as well as course design and delivery methods that are suitable for online distance learning. A dynamic online learning environment is suggested to allow students to interact with their peers, instructor, and learning materials [27], [30]. This will require a change in students' learning practices and teaching strategies.

Instructional delivery design. Faculty commitment to instructional design and delivery is critical for creating effective virtual (online) environments [65]. Results show that the choice of instructional design is pivotal for the success of online learning as a delivery method for learning. In this study, the focus of instructional delivery was on self-paced, self-directed learning—an approach to learning that was primarily conducted online and asynchronously. Responses to this item shared the same level of satisfaction (lowest) as the course and teacher satisfaction compared to other services.

Online education can be an effective method of education for mature, self-disciplined, motivated, and well-organized students with a high degree of time management skills [54]. Students may have encountered difficulties in adjusting to a more independent learning approach, as well as facing challenges during their

self-regulated learning experience. These challenges may include technical issues, problems with materials and tasks, and difficulties with time management [66]. Moreover, the absence of teacher supervision makes it difficult for students to complete learning tasks, especially for those who require more self-control [67].

Learning outcome as CSF for ODLD. The paper considers learning outcomes to be a crucial factor in achieving learning goals or accomplishments. Students' agreement on its achievement reflects how well the school has fulfilled its purpose of teaching. Responses for items in this domain were higher than those in the learning delivery category but lower than responses to items in the academic support and student services categories.

Though the items received high satisfaction (with high agreement on achievement), the results indicate that the domain they represent did not have any impact on indicators of online learning success. Learning outcome had a significant inverse effect only on students' intention to recommend, but it did not have a significant effect based on effect size (f^2).

Though there has been a significant increase in research on factors affecting students' online learning outcomes [55], most papers consider perceived learning or learning outcomes as dependent variables, along with satisfaction [15], [68], rather than as predictors of satisfaction or success. Some papers explain learning outcomes as a factor in success and satisfaction, and the results vary. Baber [16] reported that perceived learning outcomes are a determinant of satisfaction, which contrasts with the work of Ikhsan et al. [31]. In their study, they found that learning outcomes do not mediate between course structure, peer support, interaction, and student satisfaction.

Academic support and student services as CSF for ODLD. Though academic support and student services had the highest satisfaction response mean scores, they failed to significantly impact or influence the success indicators, except for a small positive effect size on intention to re-enroll.

Learner support services are essential for improving learning outcomes and student satisfaction [69]. The school's services were transformed virtually and delivered through online platforms. However, heavy investment in ICT infrastructure and educational technology tools does not guarantee success. Educational technology tools and affordances are not as critical to online learning if they are not properly integrated into content-based learning [70]. The success of online learning programs depends on the readiness of their implementation to maximize the educational process during the COVID-19 pandemic [8], regardless of the level of technological advancement. This premise supports the argument against technocentrism, which is the belief that technology alone can solve long-standing issues in education [71]. Literature suggests that there should be more focus during technology transformations on supporting teachers as the agents of classroom-level innovations rather than solely focusing on educational technology. It further promotes the use of technology, accompanied by a clear theory of learning [72].

Factors that influence preferred learning modality. Preference for online distance learning is also driven by satisfaction with the learning delivery and is not based on the online platforms or educational technology tools. A positive correlation is found between satisfaction with learning delivery and a preference for more or entirely online engagement. Thus, a satisfying online learning experience leads to a more positive attitude toward online learning and, ultimately, an intention to prefer this mode of learning for future enrollment [73]. Conversely, students who had a negative experience tend to prefer learning with more than just in-person engagement.

Moreover, the study results indicate that students prefer a combination of in-person and online engagement, also known as blended learning, over other learning modalities [8]. A strong preference for a blended mode of learning was reported due to its flexibility and improved comprehension of learning materials [74]. Blended learning provides both the interaction and technical support available in face-to-face learning, as well as the time and space flexibility afforded by online learning [64], [75]. Moreover, even students with high task value, learning motivation, and self-efficacy, which are characteristics of students expected to thrive in an online environment, also preferred studying in blended learning environments [76].

On the other hand, a significant negative correlation is reported between academic support and student services and a preference for online learning. The results indicate that student satisfaction with the available technology for academic support and online services does not necessarily imply a preference for online learning. On the contrary, students who express satisfaction with the technology available to them prefer learning through more in-person interactions. Support for increased engagement during classes, including in-person learning activities, class interaction, and teacher support, influences students' decision to study online [77].

5   CONCLUSION

The success of schools offering fully online distance education depends on their ability to satisfy their students, thereby keeping them enrolled and promoting the school to prospective students. The results show that students require a rewarding learning experience to guarantee success in online learning. The paper presents evidence that the success of an online learning program largely depends on the delivery of learning, including course design, the commitment of teachers, and their readiness to deliver the learning as designed. Students should be offered a program that provides clear and systematic instructional materials and tasks [66], as well as instructions on how to adjust and adapt to the online environment.

The study findings suggest that self-paced, self-directed online learning may not be effective for college degree programs that involve a more authentic academic experience, which requires students to apply their knowledge and skills in a personal or meaningful way. These programs include performance-based, problem-based, and project-based learning. They aim to address real-world problems, challenging students to find solutions by utilizing critical thinking skills and applying their knowledge in new and challenging contexts. The study also emphasizes the crucial role of teachers in the success of online learning delivery programs, particularly their preparedness to facilitate online learning.

There is a need to design an online program that provides cognitive support, such as simulations, and facilitates improved student interaction with other students, content, and teachers. These strategies, which require collaboration and reflection, produce good cognitive learning results [19]. The learning design should support teacher-to-student and student-to-student engagement, as well as student-centered but teacher-directed synchronous collaborative learning activities.

Investing in ICT infrastructure and educational technology contributes to virtual education but is not a guarantee of success. It is not sufficient to solely rely on these resources to provide an excellent virtual education to students [78]. While online service platforms assist in facilitating seamless operations, they are not the sole determinant of overall success. Likewise, the benefits of educational technology tools are only realized when they are effectively integrated into learning content.

Learning during the pandemic was challenging for most schools because they needed more time to prepare for an online learning setup, especially for those who were not familiar with digital learning or interested in incorporating technology in education. For early adopters, the focus may have been on the technology itself rather than on how to integrate technology into the learning process, particularly in terms of equipping faculty with the skills to effectively use technology for facilitating learning. Online learning during the pandemic may have fallen short of expectations, not because it was flawed but because teachers and students needed more time to prepare. Schools should provide teachers with continued support, training, development, and opportunities to fully understand and expand online education [2]. In contrast, teachers should continuously guide students in adjusting their learning practices and behaviors to thrive online [79]. Since both students and teachers were exploring the online learning setup, it was important for them to mutually agree on specific online platforms to use, grading systems, assessment options, training workshops, and online technical support, among other things, in order to meet the needs of the students [4].

Moving forward, fully online distance learning has the potential to become a prominent mode of mainstream education, rather than just a temporary solution during times of crisis. To succeed, administrators must ensure that teachers are adequately prepared and ready to develop and facilitate a learning design suitable for an online environment. Likewise, students need to be assessed to determine if they are suitable for participating in an online learning setup [75]. Otherwise, they must be guided to develop the correct attitude, behaviors, and practices to succeed online.

Limitations. The study presented findings to inform school administrators about critical factors for the success of online distance learning as a mainstream learning strategy in the new normal. However, drawing conclusions from the experience of just one higher education institution may limit the generalizability of the results. This limitation is addressed by presenting anecdotes of experiences from other schools that validate observations. There is a need to validate conclusions. Therefore, the paper suggests conducting a similar test to validate the findings using samples from organizations that share the same premise and context.

6 ACKNOWLEDGMENT

7 REFERENCES

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