Research Article

Shaping Digital Learners: Self-Directed Learning As A Pathway To E-Learning Readiness

Darryl Imperial [1]

[1] Associate Professor II, St. John Paul II College of Davao, Davao City, Philippines

Article Info

A b s t r a c t

This research investigated the predictive relationship between self-directed learning (SDL) readiness and e-learning readiness (ELR) of college students from a private college in Davao City. The study, motivated by the increasing significance of SDL within online learning frameworks, aimed to assess the SDL and ELR levels of students and their interrelationships and construct a regression model to predict ELR based on self-directed learning. Using a descriptive correlational research design, the study gathered data via standardized survey instruments with a sample of 80 college students who had experience with online learning. The results showed that students had moderate to high levels of both SDL and ELR, and a significant positive relationship was found between them. Confirmatory regression analysis established that SDL significantly predicts ELR, thus establishing a dependable predictive model. The results highlight the need to develop self-directed learning skills in students to improve their readiness for digital learning environments. Contributing to local literature, this study contextualizes the SDL-ELR link within Philippine higher education, offering actionable insights for curriculum developers, teachers, and educational institutions aiming to strengthen or enhance e-learning frameworks.

[1] Corresponding Author: Darryl Imperial
[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

1. Introduction

Self-directed learning (SDL) has been recognized as a cornerstone of academic and professional growth, replacing traditional environments that demand autonomy and learner-centered approaches. Learning to acquire new knowledge is complete when people take the initiative to identify their needs, set goals, implement strategies, and track results (Alotaibi, 2020). The SDL's role in student achievement and adaptiveness in digital learning environments becomes more important as digital learning environments expand.

Hill et al. (2020) then expand on this foundation by explaining SDL as the process of learning in which learners take responsibility for planning their activity, executing it, and assessing their learning. It helps foster deeper cognitive engagement and better outcomes, leading to long-term learning. As Levett-Jones (2005) notes, in higher education, SDL is a critical part of the curriculum, where students are encouraged to develop their independence, reflection, and critical thinking. Besides academics, SDL engenders self-confidence, motivation, and self-monitoring, preparing students for success in complex and changing environments (Wong et al., 2021). In nursing and engineering, SDL is important for nurturing accountability and responsiveness (Noh & Kim, 2019).

Beyond digital learning platforms, SDL becomes even more relevant in the context of the global shift to digital learning platforms. The findings by Premkumar et al. (2018) suggest that students with a high level of SDL readiness and digital skills are more likely to achieve higher degrees of success in virtual courses. Ilçin et al. (2016) affirm that SDL-oriented learners are more satisfied and effective in choosing and using strategies suited to their needs.

As noted by Toh and Kirschner (2020), it is time for personal responsibility in the digital era, and Van Deur (2020) adds that SDL provides learners with the ability to create their learning environments and strategies.

Sharma and Verma (2023) further prove that students with some SDL readiness performed better using fuzzy expert systems-based e-learning. Lasfeto and Ulfa (2023) advocate adaptive systems for those with lower SDL preparedness. Similarly, Schweder and Raufelder (2023) demonstrate how motivational shifts among learners would be aided by an increased responsibility for SDL. However, SDL suffers limitations. According to Al-Adwan et al. (2022), SDL has a positive contribution to academic performance but decreases satisfaction and continued engagement with e-learning platforms.

As SDL evolves, so does the notion of e-learning readiness—the degree of preparedness and capability of learning in digital environments. Ample literature has studied e-learning from a technological or institutional standpoint (Al-Fraihat et al., 2017). However, it is realized that SDL plays just as important a role. Torun (2020) states that e-learning effectiveness is more than just infrastructure; it also depends on students' self-efficacy, autonomy, and readiness. Several competencies comprise e-learning readiness, including technological access, proficiency in using a platform to access online content, a tendency to accept online modalities, and a willingness to engage in remote learning (Kabir et al., 2021). In many regions, e-learning became the primary mode of delivery during the COVID-19 pandemic. However, the preparedness among students varied tremendously and impacted their success (Callo & Yazon, 2020; Naji et al., 2020). Yokoyama (2019) claims that e-learning readiness encompasses academic self-efficacy, which is the confidence a student has in their ability to succeed in digital learning.

It also changed the perception of online education during the pandemic as many

[1] Corresponding Author: Darryl Imperial
[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

institutions began providing access and flexibility (Khan et al., 2020; Mostafa et al., 2021).

While e-learning has several advantages, including cost efficiency, convenience, resource availability, and flexible scheduling (Dehghan et al., 2022), some challenges also exist. They include infrastructure limitations, faculty awareness of copyright, poor internet access, and digital literacy (Haslam, 2021). As such, the relationship between SDL and e-learning readiness has emerged as a critical issue to address if one seeks ways to optimize student outcomes in a digital age.

The researcher has observed that many college students struggle to adapt to online learning platforms. These students often lack the initiative to manage their learning pace and show limited engagement with digital content, indicating deficiencies in self-directed learning (SDL). This raises concerns about their readiness for e-learning environments. While several international studies have examined SDL and e-learning readiness separately, there is a lack of research in the Philippine college context exploring the predictive relationship between the two. Therefore, this study aims to fill that gap by developing a regression model to predict e-learning readiness based on SDL among college students.

2. Materials and Methods

2.1. Research Design

This study employed a descriptive-correlational design. Descriptive design provides a snapshot of a population's current conditions, characteristics, or phenomena that are essential for identifying relationships and patterns that exist naturally without manipulation, making it suitable for educational settings (LoBiondo-Wood & Haber, 2021). This perspective complements Creswell's (2012) notion that researchers employ correlational statistical tests to define and measure the degree of association between variables. This rationale aligns with the objectives of this study—to examine the predictive relationship between self-directed learning and e-learning readiness. Furthermore, the study employed regression analysis to estimate and provide predicted values for self-directed learning. This study aimed to determine the extent to which self-directed learning correlates with e-learning readiness. Applying this statistical approach can provide predicted values for self-directed learning, and inferences about the associations have been made to better understand how the rate of variation in self-directed learning affects the levels of e-learning readiness among college students.

2.2. Respondents and Sampling Procedure

This study involved 80 college students. Student participants who were not officially enrolled, declined participation, transferred mid-semester, were diagnosed with cognitive or behavioral conditions, or who could not understand or complete the survey instrument due to language restrictions or other constraints. The study employed simple random sampling, a probability-based technique in which every participant in the population had the same probability of being selected. This aligns with Taherdoost's (2016) definition of this approach, which enhances the external validity of findings and mitigates selection bias. For this study, it was deemed appropriate to use a random sample, as it would lead to a representative

[1] Corresponding Author: Darryl Imperial
[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

sample of the college student population participating in e-learning.

2.3. Research Instruments

Two survey questionnaires were used to gather data from the study respondents. The first set of the questionnaire was the Self-Directed Learning (SDL) Scale adapted from Williamson (2007), which aimed to assess the learners' ability to manage and direct their learning processes. The second instrument was the E-Learning Readiness (ELR) Scale developed by Hung et al. (2010), which measured learners' preparedness and competencies in engaging with online learning environments. To meet the research instrument's validity and reliability, the researcher ensured fidelity from face validity to reliability testing and tool use. The survey questionnaires were also sent to experts for modification in the respondents' community. The instruments underwent pilot testing for reliability, which measures consistent results. Huck (2015) noted that a scale has high internal consistency if items 'hang together' and measure the same construct, ideal for Likert scales. Whitley (2002) states that no absolute rules exist; however, most researchers accept a minimum internal consistency coefficient of 0.70. This study also used a five-point Likert scale because it is one of the most commonly used scales.

2.4. Data Collection and Analysis

The study employed regression analysis to estimate and provide predicted values for self-directed learning. Applying this statistical approach can provide predicted values and inferences about the associations made to understand better how the rate of variation in self-directed learning affects the levels of e-learning readiness among college students.

2.5. Ethical Considerations

The researcher ensured fidelity from face validity to reliability testing and tool use. The survey questionnaires were also sent to experts for modification in the respondents' community. Student participants who were not officially enrolled, declined participation, transferred mid-semester, were diagnosed with cognitive or behavioral conditions, or who could not understand or complete the survey instrument due to language restrictions or other constraints.

3. Results

Table 1 outlines the level of self-directed learning among the respondents across ten specific indicators, evaluated using the mean, standard deviation, and corresponding descriptive levels. The overall mean rating was 4.13 with a standard deviation of 0.56, indicating a *High* level of self-directed learning. This suggests that, on average, students are actively involved in managing and directing their learning processes.

Among the indicators, the highest-rated item was *finding both success and failure inspire further learning*, which had a mean of 4.45 and a standard deviation of 0.73, interpreted as *Very High*. This implies that students are highly resilient and motivated by both achievements and setbacks in their learning journey. Similarly, *Interaction with others helping to develop the insight to plan for further learning* had a mean of 4.40 and a standard deviation of 0.72, while *maintaining good inter-personal relationships*

[1] Corresponding Author: Darryl Imperial
[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

with others had a mean of 4.36 and a standard deviation of 0.75; both indicators were rated as *Very High*, showing the importance of collaboration and social support in enhancing students' learning independence.

Table 1. Level of Self-Directed Learning

Indicator	SD	Mean	Description
1. identifying one's own learning needs	0.92	4.19	High
2. being able to select the best method for one's learning	0.90	4.14	High
3. arranging a self-learning routine in such a way that it helps develop a permanent learning culture in one's own life	0.78	4.08	High
4. inner drive directing towards further development and improvement in learning	0.76	4.08	High
5. finding modern educational interactive technology enhances one's learning process	1.00	3.76	High
6. being able to analyze and critically reflect on new ideas, information, or any learning experiences	0.93	3.84	High
7. being able to identify the areas for further development in things accomplished	0.80	4.01	High
8. finding both success and failure inspires further learning	0.73	4.45	Very High
9. interaction with others helps to develop the insight to plan for further learning	0.72	4.40	Very High
10. maintaining good interpersonal relationships with others	0.75	4.36	Very High
Total Mean	**0.56**	**4.13**	**High**

On the other hand, the lowest-rated item was *finding that modern educational interactive technology enhances one's learning process*, which received a mean of 3.76 and a standard deviation of 1.00, yet still fell within the *High* category. This suggests that while students value digital tools, they may not perceive them as highly essential as personal motivation and peer interaction.

Overall, the data indicate that students exhibit strong self-direction in learning, particularly in areas such as internal motivation, reflective thinking, and interpersonal collaboration.

In Table 2, the level of e-learning readiness among the respondents, as measured by mean scores and standard deviations, is indicated by descriptive levels, which indicate the extent of preparedness. The overall mean was 3.15 with a standard deviation of 1.09, reflecting a *Moderate* level of e-learning readiness. This suggests that while students possess foundational skills necessary for engaging in online learning, there is still room for improvement in fully adapting to e-learning environments.

The highest-rated indicator was *Using technology (e.g., email) to communicate*, which yielded a mean of 4.50 and a standard deviation of 0.81, categorized as *Very High*. This demonstrates that students are highly adept at using digital communication tools. Similarly, *Having used electronic methods to communicate with other students for a group project* received a mean of 4.41 with a standard deviation of 0.69, also rated as *Very High*, indicating students' strong capacity for collaborative work in virtual settings. Other items that scored *Very High* include *Being able to use web browsers to research information*, *Having used Internet chat programs*, and *Being able to write confidently and format documents using a word processing program*, with means of 4.34, 4.36, and 4.20, respectively, showing a solid grasp of common digital tools and platforms.

[1] Corresponding Author: Darryl Imperial
[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

Table 2. Level of Reading Comprehension Skills

Indicator	SD	Mean	Description
1. being able to use web browsers to research information.	0.79	4.34	Very High
2. using technology (e.g., email) to communicate.	0.81	4.50	Very High
3. having used internet chat programs.	0.86	4.36	Very High
4. being able to write confidently and format documents using a word processing program.	0.80	4.20	Very High
5. being comfortable working and learning independently.	0.93	3.63	High
6. taking notes on text readings or from viewing audio or video clips.	0.83	3.73	High
7. having used email to contact an instructor.	1.13	3.63	High
8. having used electronic methods to communicate with other students for a group project.	0.69	4.41	Very High
Total Mean	**1.09**	**3.15**	**Moderate**

In contrast, lower-rated indicators included *Being comfortable working and learning independently* and *Having used email to contact an instructor*, both of which received a mean of 3.63 with standard deviations of 0.93 and 1.13, respectively, and were rated as *High*. Similarly, *Taking notes on text readings or viewing audio or video clips* was also rated as *High*, with a mean of 3.73 and a standard deviation of 0.83. These results suggest that while technical skills are well-developed, aspects related to independent learning and active engagement in academic communication could benefit from further development.

Table 3 illustrates the correlation between self-directed learning and e-learning readiness. The correlation between self-directed learning and e-learning readiness is moderate, with an R-value of 0.558, indicating a positive relationship between the variables; in other words, as self-directed learning increases, so does e-learning readiness. Once again, the p-value is 0.000, which is less than 0.05. This shows that the correlation is statistically significant and unlikely to be a coincidence. In conclusion, the findings demonstrate a considerable positive correlation between self-directed learning and e-learning readiness.

Table 3. Correlation between Variables

Pair of Variables		r-value	p-value
Independent Variable	Dependent Variable		
Self-Directed Learning	E-learning Readiness	.558*	.000

Table 4 presents the regression analysis, which shows a statistically significant influence between Self-Directed Learning (SDL) and E-Learning Readiness (ELR) among college students ($\beta = 0.513$, $p < 0.001$). This supports the idea that students with a higher capacity for SDL are more prepared to engage in online learning environments. With an R^2 of .295, SDL accounts for nearly 30% of the variance in ELR, indicating a substantial effect. This aligns with studies by Saeid and Eslaminejad (2017) and Leatemia et al. (2016), who found that students with stronger SDL skills demonstrate greater academic achievement and adaptability in flexible, learner-driven settings, such as hybrid or online learning environments.

[1] Corresponding Author: Darryl Imperial
[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

Table 4. Regression Analysis of Self-Directed Learning as a Predictor of E- Learning Readiness

	Coefficients	Standard Error	t stat	p-value	
Intercept	1.886	0.363	5.190	0.000	sig
Self-Directed Learning	0.513	0.087	5.908	0.000	sig

R square   =   0.295
F value   =   17.493
p value   =   0.000 (significant)

The significant link between SDL and ELR supports Aslam and Arzeen's (2024) conclusion that SDL enhances ELR, mediating student engagement and digital learning success. Moreover, this finding complements the work of Torun (2020), who emphasized the importance of self-learning motivation in online academic performance. Overall, the data affirms that strengthening students' SDL capabilities directly improves their readiness and success in e-learning environments, reinforcing the value of fostering autonomy and self-regulation in educational design.

3.1. The Regression Model

The general regression model indicated that self-directed learning plays at most a trivial role in shaping readiness for online study. The results show that for each additional point on the self-direction scale, e-learning readiness improves by 0.513 points (p < 0.001). Because the overall model itself is statistically significant, the null hypothesis is rejected, and self-directed learning is identified as the main driver of college students' readiness for e-learning.

3.3.1 The General Model:

The model, which incorporates self-directed learning, has a strong and statistically significant impact on e-learning readiness (p = 0.000), making it the primary predictor. These findings confirm that SDL plays a critical role in shaping students' preparedness for online learning environments.

$$Y = 1.886 + 0.513(Motivation)$$
Model 1: Y = 1.886 + 0.513(Motivation)

The constant value (intercept = 1.886) represents the baseline e-learning readiness. Self-directed learning exerts a strong positive influence on e-learning readiness (coefficient = 0.513, p < .001), solidifying its role as the primary driver in this analysis, with a standard error of 0.087 and a 95% confidence, confirming the precision and reliability of the estimate. The model yielded an R² value of 0.295, indicating that learning motivation explains a modest 29.5% of the variance in reading comprehension.

4. Discussion

4.1. Self-Directed Learning

[1] Corresponding Author: Darryl Imperial
[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

The level of self-directed learning among college students, as measured across ten indicators, yielded an overall mean of 4.13 and a standard deviation of 0.56, indicating a *High* level of self-directed learning. This result suggests that students are generally proactive and responsible in managing their learning experiences, aligning with Dogham et al. (2022), who define self-directed learning (SDL) as a process in which learners take the initiative in designing, implementing, and evaluating their own learning.

The highest-rated item was *Finding both success and failure inspires further learning*, which yielded a mean of 4.45 and a standard deviation of 0.73, interpreted as *Very High*. This indicates a strong level of motivation among students, where both achievements and setbacks are viewed as opportunities for growth. According to Garrison's (1997) model, this reflects the *motivation* dimension of SDL, which is vital for initiating and sustaining learning. Moreover, this resilience aligns with findings by Sadeghi et al. (2024) and von Keyserlingk et al. (2022), who observed that highly motivated learners, particularly those with higher academic performance, are more inclined toward self-directed learning, utilizing both success and failure as feedback mechanisms.

In contrast, the lowest-rated item was *finding that modern educational interactive technology enhances one's learning process*, which had a mean of 3.76 and a standard deviation of 1.00, although still rated as *High*. This suggests that while students are receptive to educational technology, they may not fully perceive it as essential for their learning compared to intrinsic and interpersonal factors. This finding highlights an area where teacher facilitation is especially important. Garrison (1997) emphasized that educators can foster SDL by providing appropriate resources and timely feedback. Supporting this, Hiramanek (2005) and Shen et al. (2014) stressed that the integration of educational technology should be accompanied by structured guidance to help students critically engage with digital tools and reflect on their learning.

The data reflect that college students are generally well-prepared to direct their learning, particularly when motivated by personal experiences and social interactions. However, there is still a need to bridge the gap between technological resources and students' perceptions of their learning value, underscoring the importance of institutional support in enhancing digital readiness within self-directed learning environments.

4.2. E-Learning Readiness

The results provide a clear picture of the students' e-learning readiness, revealing a spectrum of strengths and weaknesses aligned with the evolving digital demands of higher education. The highest-rated indicator was *Using technology (e.g., email) to communicate*, which recorded a very high mean score of 4.50 and a standard deviation of 0.81. This suggests that students are highly capable of utilizing communication technologies, a crucial component in digital learning environments, where consistent and clear communication often substitutes for face-to-face interactions.

Likewise, *Having used electronic methods to communicate with other students for a group project*, which received a mean of 4.41, further emphasizes students' proficiency in collaborative digital tools. These competencies reflect the increasing normalization of technology in higher education, as noted by Santosh and Panda (2016), who emphasized how digital tools have reshaped traditional educational paradigms.

These findings also resonate with Lim's (2013) assertion that technological tool usage is a key

---

[1] Corresponding Author: Darryl Imperial
[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

dimension of e-learning readiness, reinforcing that communication via digital platforms is now a fundamental academic skill. The high performance in these areas underscores that students are well-equipped with the technological literacy required for successful engagement in e-learning platforms such as Moodle or Canvas LMS, as noted in the reviewed literature.

On the other hand, the overall mean of 3.15 and standard deviation of 1.09 indicate only a *Moderate* level of e-learning readiness. The lowest-rated item, *Being comfortable working and learning independently*, obtained a mean of just 3.63 with a standard deviation of 0.93. This highlights a significant gap in students' ability to self-regulate their learning, a finding aligned with Piskurich's (2003) suggestion that classroom mechanisms of self-guided learning must be incorporated to better prepare students for independent learning in digital settings. Similarly, *Having used email to contact an instructor*, also rated with a mean of 3.63, suggests hesitation or lack of initiative in seeking academic support. This issue may impede performance in asynchronous learning environments where independent communication is crucial.

4.3. Correlation

The Self-Directed Learning Readiness (SDLR) and E-learning Readiness (ELR) metrics tend to capture tendencies related to Self-Directed Learning (SDL) and E-learning Readiness (r = 0.558, p = 0.000). The aforementioned metrics have had a significant impact on a student's academic performance (p < 0.05). This aligns with Saeid and Eslaminejad (2017), who demonstrated that SDLR has a positive impact on self-efficacy and achievement motivation, thereby enhancing academic performance. Moreover, Leatemia et al. (2016) noted that students prepared for SDL performed optimally in problem-based learning integrated models. The body of literature highlights that SDLR is fundamental in determining success across

This gap between technical capability and independent learning readiness supports Torun's (2020) view that e-learning readiness should be assessed not only by technical proficiency but also by students' motivation, self-direction, and learner control. Without the latter, students may struggle academically despite being tech-savvy. Guglielmino and Guglielmino (2003) further emphasized that low readiness levels are strongly linked to higher dropout rates in online learning, suggesting that the observed weaknesses in autonomous learning and instructor engagement may have broader implications for academic achievement and retention.

Upon revisiting, although students demonstrate adequate technical skills and teamwork in e-learning settings, their moderate level of overall e-learning readiness suggests that they would benefit from more support in developing autonomous learning skills. An understanding of students' readiness levels is critical to successfully implementing e-learning initiatives as institutions continue to convert portions of in-person programs to online formats and integrate them into existing programs.

diverse learning environments, including e-learning.

In support of this notion, Torun (2020) stressed the importance of both SDLR and motivation in online learning, observing that students who are properly prepared for e-learning tend to achieve better results. In this regard, the marked positive association between Self-Directed Learning and E-learning Readiness in the current data is understandable because students who are more ready to engage in self-directed learning are more likely to possess the necessary skills and motivation for effective e-learning. This finding is also supported by Çiğdem and Ozturk (2016),

[1] Corresponding Author: Darryl Imperial
[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

who noted a comparable positive impact of ELR on academic performance in e-learning.

In summary, the findings of this research highlight the crucial role of self-directed blended learning (SDLR) in shaping students' readiness for e-learning. As Lee et al. (2018) pointed out, students who demonstrate greater SDLR, accompanied by ELR, tend to participate more actively in learning activities and obtain better results. Therefore, it is necessary to cultivate self-directed learning in addition to fostering e-learning readiness to improve students' engagement and achievement within contemporary educational settings.

4.4. Influence

This study's findings indicate that Self-Directed Learning (SDL) predicts E-Learning Readiness (ELR) with a self-directed learning score considerably stronger than the prediction of 0.513 ($p < .000$). A positive relationship exists between SDL and ELR. The model's ELR explains approximately 29.5% of the variance ($R^2 = 0.295$), and the regression model shows statistical significance ($F = 17.493$, $p < 0.05$), further supporting this claim. Moreover, students' self-directed learning skills correlate significantly with their e-learning readiness and willingness to engage in e-learning environments. Eyler et al. (2020) and Torun 2020) corroborated these findings, proposing that SDL, a characteristic of learners' initiative and responsibility in managing their learning, was strongly tied to success and engagement in advanced online learning.

Garrison's (1997) model, which emphasizes self-management, self-monitoring, and motivation in effective learning, supports the importance of SDL in predicting ELR. Students with higher levels of SDL demonstrate the ability to set goals, strategically select learning methods, and self-assess skills essential for independent online learning. Fisher et al. (2001) noted that SDL readiness could be taught, indicating a need for institutional frameworks aimed at developing these skills. Through student-led instruction, collaborative teaching, and reflective practice, SDL and, consequently, ELR, can be cultivated (Garrison, 1997; Boyer et al., 2014).

The analysis provided demonstrates that Self-Directed Learning (SDL) is a significant driver of E-Learning Readiness. This illustrates the significant gap resulting from educational systems failing to cultivate SDL capabilities among learners. As has been demonstrated, a learner's ability to self-direct learning (SDL) influences the academic work they can undertake. Students with a high degree of self-direction not only meet but also participate and achieve more in self-directed learning in digitally facilitated environments (Lee et al., 2018; Aslam & Arzeen, 2024). Therefore, the development of SDL is important not only from the perspective of academic results but also from the perspective of providing adequate education management skills, especially in the context of rapid digitization.

4.5. Model for Reading Comprehension Skills

The regression model reveals that self-directed learning (SDL) has a significant impact on e-learning readiness (ELR) among college students. The model incorporates a coefficient of 0.513 for SDL, indicating that e-learning readiness increases by 0.513 units for every one-unit increase in SDL, holding all else constant. This illustrates the impact self-directed learning has as a predictor of e-learning readiness. Moreover, the significance value ($p = 0.000$) supports the hypothesis that self-directed learning preparedness has a significant impact on online learning environments, reinforcing the claim that students who are more prepared for self-directed learning tend to excel in these environments. The aspect of SDL as a

[1] Corresponding Author: Darryl Imperial

[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

significant predictor of e-learning readiness is consistent with several studies in the literature. For example, Saeid and Eslaminejad (2017) demonstrate that students who are prepared for self-directed learning tend to perform better academically, likely due to their increased autonomy and motivation. This aligns with the regression results, which show that SDL correlates strongly with higher levels of e-learning readiness. Similarly, Torun (2020) emphasizes the importance of self-directed learning as a predictor of success in e-learning environments, noting that students who are prepared for self-directed learning tend to utilize online learning resources more effectively.

The relationship between SDL and e-learning readiness is also supported by Aslam and Arzeen (2024), who argue that SDL acts as a mediator between ICT self-efficacy and student engagement, thereby reinforcing the claim that it enhances the level of preparedness for online learning. This mediation effect aligns with the regression model, which identifies SDL as one of the most significant determinants of e-learning readiness.

These findings also align with the Self-Determination Theory by Deci and Ryan (1985), which emphasizes the importance of autonomy, competence, and social relationships

as critical components of motivation and engagement. Self-directed learning (SDL), a component of autonomy and competence, positively impacts e-learning readiness by fostering intrinsic motivation and self-regulation. The analysis confirmed the hypothesis, focusing on the significant role of self-directed learning (SDL) in e-learning readiness.

Additionally, the findings validate Connectivism, proposed by Siemens in 2005, which emphasizes learners' capability to interconnect through various digital networks and is fundamental to both SDL and e-learning readiness. The regression model places great emphasis on SDL, which, from a connectivist perspective, can be defined as the competencies required to participate actively in online learning.

In e-learning contexts, self-directed learning (SDL) plays a crucial role in predicting e-learning readiness, as corroborated by our regression analysis results. Supported by the theoretical lenses of SDT and Connectivism, the findings underscore the importance of autonomy, competence, and navigating within digital networks in shaping learners' e-learning preparedness.

5. Conclusions

This study's findings revealed that self-directed learning skills were highly rated among college students, driven by strong internal motivation, reflective thinking, and interpersonal collaboration. Hence, students demonstrated a strong capacity for self-directed learning, which should be sustained and further developed. Teachers are encouraged to design inquiry-based and project-oriented activities that foster student autonomy. Concurrently, students should engage in reflective practices, including maintaining learning journals and setting goals. Moderately facilitated e-learning readiness was found alongside proficient digital communication;

however, students required further development in independent learning and academic engagement. The moderate level of e-learning readiness necessitates strategic interventions. Teachers should gradually integrate digital tools into their instruction to help students become more comfortable and confident in their use. The correlation analysis revealed a significant positive relationship between self-directed learning and e-learning readiness. Furthermore, the regression model illustrated that an increase in self-directed learning corresponds with an increase in e-learning readiness, highlighting the crucial role of self-regulation in students'

[1] Corresponding Author: Darryl Imperial
[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

preparedness for online learning. It can help educators assess learners' preparedness and tailor instruction accordingly. At the same time, for them, it may inform policy development, particularly concerning integrating e-learning frameworks and learner engagement systems. The model's apparent influence on learning behavior illustrates the importance of balanced collaboration.

6. Limitations

This study is subject to several limitations. First, the sample size (n = 80) may limit the statistical power and accuracy of the results, making it more challenging to detect smaller effects or interactions. Second, because the participants were selected from a specific group of college students, the generalizability of the results across various programs and geographic regions may be limited. Third, the utilization of self-reported questionnaires introduces potential response bias, as participants may have exaggerated or understated their actual behaviors and learning experiences. These limitations warrant careful interpretation of the findings and underscore the necessity for more rigorous and diversified data collection in future research.

Author Contributions:
This is not applicable in this research as it only has one author.

Institutional Review Board Statement:
This study did not require ethical approval, as St. John Paul II College of Davao does not have an Institutional Review Board. Therefore, no protocol number or formal approval was required for this research.

Informed Consent Statement:
Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest:
The author declares no conflict of interest.

Disclosure Statement:
The author acknowledges the use of Grammarly to refine sentence structure, Turnitin to ensure originality and uphold academic integrity, and ChatGPT to enhance language expression. While these AI tools assisted in various aspects of writing, the author affirms that all AI-generated outputs were thoroughly reviewed and validated. The author accepts full responsibility for the content, accuracy, and integrity of this work, in accordance with COPE guidelines.

[1] Corresponding Author: Darryl Imperial
[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

References

Abd-El-Fattah, S. M. (2010). Garrison's model of self-directed learning: Preliminary validation and relationship to academic achievement. The Spanish Journal of Psychology, 13(2), 586–596. https://doi.org/10.1017/S113874160000 2262

Abele, C., Penprase, B., & Ternes, R. (2013). A closer look at academic probation and attrition: What courses are predictive of nursing student success? Nurse Education Today, 33(3), 258–261. https://doi.org/10.1016/j.nedt.2012.11.0 07

Ahmed, A. (2024). Relationship between self-directed learning readiness and online learning engagement among nursing students. Higher Institute of Nursing Research Journal, 9(1), 45–52.

Ahmed, A., & Fatah, F. (2024). Self-directed learning readiness among Generation Z Kurdish EFL undergraduates. Journal of University of Human Development, 10(1), 15–22.

Al-Adwan, A. S., Nofal, M., Akram, H., Albelbisi, N. A., & Al-Okaily, M. (2022). Towards a sustainable adoption of e-learning systems: The role of self-directed learning. Journal of Information Technology Education: Research, 21, 1–18.

Al-Fraihat, D., Joy, M., & Sinclair, J. (2017). Identifying success factors for e-learning in higher education. In International Conference on E-Learning (pp. 247–255). Academic Conferences International Limited.

Alotaibi, K. N. (2020). The relationship between self-directed learning readiness and academic achievement for health sciences preparatory program students at King Saud University. International Education Studies, 13(1), 32–39. https://files.eric.ed.gov/fulltext/EJ12810 53.pdf

Ameliana, I. (2017). Teacher-centered or student-centered learning approach to promote learning? Jurnal Sosial Humaniora, 10(2), 59–70. https://doi.org/10.12962/j24433527.v10i 2.2161

American Psychological Association. (2020). Publication manual of the American Psychological Association (7th ed.). APA.

Apprendoo. (2024). Self-directed learning: Definition, benefits, and applications. https://www.apprendoo.com/en/self-dire cted-learning-definition-pros-and-cons-a nd-applications/

Arzeen, N., Arzeen, S., & Muhammad, H. (2023). The mediating role of self-directed learning and e-learning readiness in the relationship between ICT self-efficacy and student engagement. Journal of Development and Social Sciences, 4(2), 286–300. http://ojs.jdss.org.pk

Aslam, I., & Arzeen, N. (2024). Empowering e-learning: Navigating readiness and engagement through ICT mastery and self-directed learning. International Journal of Human and Society, 4(1), 172–183. http://ijhs.com.pk

Aslam, I., Arzeen, N., & Arzeen, S. (2023). The role of ICT self-efficacy as moderator in the relationship between self-directed learning, e-learning readiness, and student engagement. Pakistan Journal of

[1] Corresponding Author: Darryl Imperial

[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

Health Sciences, 4(3), 202–206. [Thejas]

Bettinger, E. P., Boatman, A., & Long, B. T. (2013). Student supports: Developmental education and other academic programs. The Future of Children, 23(1), 93–115. https://doi.org/10.1353/foc.2013.0004

Boyer, S. L., Edmondson, D. R., Artis, A. B., & Fleming, D. (2014). Self-directed learning: A tool for lifelong learning. Journal of Marketing Education, 36(1), 20–32. https://doi.org/10.1177/0273475313494010

Bujang, M. A., Sa'at, N., & Tg Abu Bakar Sidik, T. M. I. (2018). Sample size guidelines for logistic regression from observational studies with large population: Emphasis on the accuracy between statistics and parameters based on real life clinical data. The Malaysian Journal of Medical Sciences, 25(4), 122–130. https://doi.org/10.21315/mjms2018.25.4.12

Callo, E. C., & Yazon, A. D. (2020). Exploring the factors influencing the readiness of faculty and students on online teaching and learning as an alternative delivery mode for the new normal. Universal Journal of Educational Research, 8(8), 3509–3518. https://doi.org/10.13189/ujer.2020.080826

Chang, W. C. (2023). Impact of gender on self-directed learning among e-learning nursing undergraduates in Malaysia. Journal of Educators Online, 20(4), 1–10. https://doi.org/10.9743/JEO.2023.20.4.4

Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th ed.). Pearson Education.

Creswell, J. W., & Creswell, J. D. (2017). Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.). SAGE Publications.

Creswell, J. W., & Guetterman, T. C. (2019). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (6th ed.). Pearson.

Dehghan, H., Esmaeili, S. V., Paridokht, F., Javadzade, N., & Jalali, M. (2022). Assessing the students' readiness for e-learning during the COVID-19 pandemic: A case study. Heliyon, 8(8), e10219. https://doi.org/10.1016/j.heliyon.2022.e10219

Dogham, R. S., Elcokany, N. M., Ghaly, A. S., Dawood, T. M. A., Aldakheel, F. M., Llaguno, M. B. B., & Mohsen, D. M. (2022). Self-directed learning readiness and online learning self-efficacy among undergraduate nursing students. International Journal of Africa Nursing Sciences, 17, 100490. https://doi.org/10.1016/j.ijans.2022.100490

Dy, M. C., Ng, J. M., Ordonez, M. M., & Tan, M. A. (2010). Self-directed learning readiness of undergraduate accountancy students. De La Salle University Institutional Repository. https://animorepository.dlsu.edu.ph/

Etikan, I., & Bala, K. (2017). Sampling and sampling methods. Biometrics & Biostatistics International Journal, 5(6), 00149.

[1] Corresponding Author: Darryl Imperial

[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

https://doi.org/10.15406/bbij.2017.05.00
149

Field, A. (2005). Discovering statistics using SPSS (2nd ed.). SAGE Publications.

Fisher, M., King, J., & Tague, G. (2001). Development of a self-directed learning readiness scale for nursing education. Nurse Education Today, 21(7), 516–525. https://doi.org/10.1054/nedt.2001.0589

Garrison, D. R. (1997). Self-directed learning: Toward a comprehensive model. Adult Education Quarterly, 48(1), 18–33. https://doi.org/10.1177/0741713697048 00103

Grande, R. A. N., Berdida, D. J. E., Cruz, J. P., Cometa-Manalo, R. J., Balace, A. B., & Ramirez, S. H. (2022). Academic motivation and self-directed learning readiness of nursing students during the COVID-19 pandemic in three countries: A cross-sectional study. Nursing Forum, 57(3), 382–392. https://doi.org/10.1111/nuf.12698

Guglielmino, L. M. (2013). The case for promoting self-directed learning in formal educational institutions. SA-eDUC Journal, 10(2), 1–18.

Guglielmino, L. M., & Guglielmino, P. J. (2003). Assessing learner readiness for e-learning. International Journal of Self-Directed Learning, 1(1), 1–14.

Harvey, B. J., Rothman, A. I., & Frecker, R. C. (2003). Effect of an undergraduate medical curriculum on students' self-directed learning. Academic Medicine, 78(12), 1259–1265. https://doi.org/10.1097/00001888-20031 2000-00015

Haslam, M. B. (2021). What might COVID-19 have taught us about the delivery of nurse education, in a post-COVID-19 world? Nurse Education Today, 97, 104707. https://doi.org/10.1016/j.nedt.2020.1047 07

Hill, M., Peters, M., Salvaggio, M., Vinnedge, J., & Darden, A. (2020). Implementation and evaluation of a self-directed learning activity for first-year medical students. Medical Education Online, 25(1), Article 1717780. https://doi.org/10.1080/10872981.2020. 1717780

Hiramanek, N. (2005). Self-directed learning and continuing medical education. Australian Family Physician, 34(10), 879–880.

Huck, S. W. (2015). Reading statistics and research (6th ed.). Pearson Education.

Hung, M. L., Chou, C., Chen, C. H., & Own, Z. Y. (2010). Learner readiness for online learning: Scale development and student perceptions. Computers & Education, 55(3), 1080–1090. https://doi.org/10.1016/j.compedu.2010. 05.004

Ilçin, M., Tomruk, N., Yeşilyaprak, S. S., Karadibak, D., & Savcı, S. (2016). The relationship between learning styles and academic performance in Turkish physiotherapy students. Physiotherapy, 102, Article e102. https://doi.org/10.1016/j.physio.2016.10. 000

Kabir, H., Hasan, M. K., & Mitra, D. K. (2021). E-learning readiness and perceived stress among the university students of Bangladesh during COVID-19: A countrywide cross-sectional study. Annals of Medicine, 53(1), 2305–2314. https://pubmed.ncbi.nlm.nih.gov/348896 99/

[1] Corresponding Author: Darryl Imperial

[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

Khan, A. H., Sultana, M. S., Hossain, S., Hasan, M. T., Ahmed, H. U., & Sikder, M. T. (2020). The impact of COVID-19 pandemic on mental health & wellbeing among home-quarantined Bangladeshi students: A cross-sectional pilot study. Journal of Affective Disorders, 277, 121–128. https://doi.org/10.1016/j.jad.2020.07.135

Lasfeto, D. B., & Ulfa, S. (2023). Modeling of online learning strategies based on fuzzy expert systems and self-directed learning readiness: The effect on learning outcomes. Journal of Educational Computing Research, 60(8), 2081–2104. https://doi.org/10.1177/07356331221094249

Lee, S., Kim, D. H., & Chae, S. M. (2020). Self-directed learning and professional values of nursing students. Nurse Education in Practice, 42, 102647. https://doi.org/10.1016/j.nepr.2019.102647

Levett-Jones, T. L. (2005). Self-directed learning: Implications and limitations for undergraduate nursing education. Nurse Education Today, 25(5), 363–368. https://doi.org/10.1016/j.nedt.2005.03.003

LoBiondo-Wood, G., & Haber, J. (2021). Nursing research: Methods and critical appraisal for evidence-based practice (10th ed.). Elsevier Health Sciences.

Lopes, A. (2007). E-learning readiness: A case study in a Portuguese higher education institution. Journal of Educational Technology & Society, 10(3), 1–10.

Mahdion, Z., Khatony, A., Abdi, A., & Jafary, F. (2017). Assessment of academic failure rate and related factors from the perspective of nursing students of School of the Nursing and Midwifery Faculty, Kermanshah University of Medical Sciences, in the first semester of 2011–2012. Journal of Nursing Education, 5(5), 1–8. https://doi.org/10.29252/jne.5.5.1

Morris, T. H. (2019). Adaptivity through self-directed learning to meet the challenges of our everchanging world. Adult Learning, 30(1), 56–66. https://doi.org/10.1177/1045159518814486

Mostafa, W., Gamel, A., Mohammed, S. F., Samy, E., & Fadel, E. A. (2021). Readiness and acceptance of maternity and community undergraduate nursing students for adopting e-learning during COVID-19 pandemic. Egyptian Journal of Health Care, 12(4), 332–342. https://doi.org/10.21608/ejhc.2021.199133

Naji, K. K., Du, X., Tarlochan, F., Ebead, U., Hasan, M. A., & Al-Ali, A. K. (2020). Engineering students' readiness to transition to emergency online learning in response to COVID-19: Case of Qatar. Eurasia Journal of Mathematics, Science and Technology Education, 16(10), em1886. https://doi.org/10.29333/ejmste/8474

Noh, G. O., & Kim, D. H. (2019). Effectiveness of a self-directed learning program using blended coaching among nursing students in clinical practice: A quasi-experimental research design. BMC Medical Education, 19(1), Article 225. https://doi.org/10.1186/s12909-019-1672-1

Piskurich, G. M. (2003). Preparing learners for e-learning. Jossey-Bass.

[1] Corresponding Author: Darryl Imperial
[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

Polit, D. F., & Beck, C. T. (2021). Nursing research: Generating and assessing evidence for nursing practice (11th ed.). Wolters Kluwer.

Premkumar, K., Pahwa, P., Banerjee, A., Baptiste, K., Bhatt, H., & Lim, H. J. (2014). Changes in self-directed learning readiness in dental students: A mixed-methods study. Journal of Dental Education, 78(6), 934–943.

Premkumar, K., Vinod, E., Sathishkumar, S., Pulimood, A. B., Umaefulam, V., Prasanna Samuel, P., & John, T. A. (2018). Self-directed learning readiness of Indian medical students: A mixed method study. BMC Medical Education, 18(1), Article 134. https://doi.org/10.1186/s12909-018-124 4-9

Sadeghi, N., Janatolamakn, M., Rezaeian, S., et al. (2024). Exploring self-directed learning readiness and related factors: The role of time management skills in nursing students. BMC Medical Education, 24, Article 1088. https://doi.org/10.1186/s12909-024-060 83-w

Santosh, S., & Panda, S. (2016). Sharing of knowledge among faculty in a mega open university. Open Praxis, 8(3), 247–264. http://dx.doi.org/10.5944/openpraxis.8.3 .317

Schweder, S., & Raufelder, D. (n.d.). Self-directed learning in formal education: Longitudinal analysis of multiple goal profiles. SSRN. https://doi.org/10.2139/ssrn.4321341

Sharma, D., & Verma, S. (2023). Impact of e-learning on self-directed learning from students' perspective. European Economic Letters, 13(3). https://doi.org/10.52783/eel.v13i3.440

Shen, W. Q., Chen, H. L., & Hu, Y. (2014). The validity and reliability of the Self-Directed Learning Instrument (SDLI) in mainland Chinese nursing students. BMC Medical Education, 14(1), 108. https://doi.org/10.1186/1472-6920-14-1 08

Siemens, G., & Yurkiw, M. (2003). E-learning in higher education: A review of the literature. Canadian Journal of University Continuing Education, 29(1), 1–19.

Slater, C. E., Cusick, A., & Louie, J. C. Y. (2017). Explaining variance in self-directed learning readiness of first-year students in health professional programs. BMC Medical Education, 17(1), 207.

Taherdoost, H. (2016). Sampling methods in research methodology: How to choose a sampling technique for research. International Journal of Academic Research in Management, 5(2), 18–27.

Tang, K. S., & Lim, C. P. (2013). Online learning readiness among pre-service teachers in Malaysia. Australasian Journal of Educational Technology, 29(3), 307–324.

Tannenbaum, C., Greaves, L., & Graham, I. D. (2016). Why sex and gender matter in implementation research. BMC Medical Research Methodology, 16(1), 145.

Toh, W., & Kirschner, D. (2020). Self-directed learning in video games: Affordances and pedagogical implications for teaching and learning. Computers & Education, 154, 103912.

[1] Corresponding Author: Darryl Imperial

[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

https://doi.org/10.1016/j.compedu.2020.103912

Torun, F. (2020). E-learning readiness in higher education: A literature review. Education and Information Technologies, 25(5), 3835–3855.

Van Deur, P. (2020). Middle school teachers' views on developing self-directed learning. Educational Studies. https://doi.org/10.1080/03055698.2020.1729093

von Keyserlingk, L., Rubach, C., Lee, H. R., Eccles, J. S., & Heckhausen, J. (2022). College students' motivational beliefs and use of goal-oriented control strategies: Integrating two theories of motivated behavior. Motivation and Emotion, 46(5), 601–620. https://doi.org/10.1007/s11031-022-09957-y

Whitley, B. E. (2002). Principles of research in behavioral science (2nd ed.). McGraw-Hill.

Williamson, S. N. (2007). Development of a self-rating scale of self-directed learning. Nurse Researcher, 14(2), 66–83. https://doi.org/10.7748/nr2007.01.14.2.66.c6019

Wong, F. M. F., Tang, A. C. Y., & Cheng, W. L. S. (2021). Factors associated with self-directed learning among undergraduate nursing students: A systematic review. Nurse Education Today, 104, 104998. https://doi.org/10.1016/j.nedt.2021.104998

Yokoyama, S. (2019). Academic self-efficacy and academic performance in online learning: A mini review. Frontiers in Psychology, 9, 2794. https://doi.org/10.3389/fpsyg.2019.02794

Yurdugül, H., & Alsancak-Sırakaya, D. (2013). E-learning readiness of higher education students: A case study. Educational Technology & Society, 16(2), 1–12.

[1] Corresponding Author: Darryl Imperial

[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph

[1] Corresponding Author: Darryl Imperial
[*] Corresponding Email: darrylimperial@sjp2cd.edu.ph