Exploring Psychological Factors Affecting the Success of Online Learning in Higher Education in Indonesia

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Abstract
Online learning in higher education in Indonesia continues to encounter substantial challenges, particularly marked by declining student engagement, increased dropout rates, and the emergence of academic burnout. A shocking phenomenon is the widespread perception of learner apathy, where students demonstrate minimal motivation, reduced participation, and a sense of emotional disconnection from the learning process. These psychological obstacles often undermine the potential of online learning, even when supported by adequate technological infrastructure. Despite these hurdles, online learning remains a necessary and strategic mode of education, especially in bridging geographical disparities across the Indonesian archipelago. Therefore, this study aimed to explore the psychological factors affecting online learning success, including emotional intelligence (EI), psychological well-being (PWB), self-efficacy (SE), and self-motivation (MO), which are believed to be critical in enhancing student engagement and learning outcomes. Engaging 1,052 students in Yogyakarta, the research examined these variables' relationships with online learning success. Online data collection via Google Forms was utilized, with analysis conducted through Structural Equation Modeling (SEM), tested via path analysis and bootstrap. Results indicated that EI, PWB, SE, and MO significantly and positively influenced online learning success. Particularly, MO emerged as an indirect mediator, influencing PWB and SE, thereby enhancing overall online learning effectiveness. This study is pivotal for understanding psychological factors in Indonesian online learning, offering insights into how MO can bolster PWB and SE, ultimately contributing to online learning success. These findings lay a foundation for refining online learning systems, aiming for a more effective and motivating learning environment in the future.

Keywords: Online learning success, emotional intelligance, self-efficacy, self motivation, well-being

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Online learning, defined as an electronic or web-based learning approach, has emerged as a dominant educational model, uniting students, educators, technology, and pedagogical processes (Holmes et al., 2019). Despite its global proliferation, challenges remain, especially in developing nations like Indonesia. The global digital transformation of the 21st century has increasingly normalized online learning across educational settings (Johnson et al., 2022; Rahimi & Oh, 2024), with the COVID-19 pandemic dramatically accelerating its adoption to maintain educational continuity (Hurtt et al., 2025; Wagiran et al., 2022).

The roots of online learning can be traced back to educational paradigm shifts beginning in the 1980s, influenced by Dewey's learner-centered ideas from the late 19th and early 20th centuries. This movement laid the foundation for the emergence of online learning. In the 1990s, extensive research began to examine the effects and broader implications of online learning. The digital era has since revolutionized traditional education, placing greater emphasis on student-centered learning environments (Holmes et al., 2019). Innovations such as Massive Open Online Courses (MOOCs) offered by platforms like Coursera and Khan Academy, along with tools such as Google Classroom, have significantly accelerated this transition (Holmes & Gardner, 2006; Nurtanto et al., 2019). Online learning provides a customizable and flexible educational experience, allowing learners to access content anytime and anywhere (Kholifah et al., 2021; Rahimi & Oh, 2024). Moreover, its effectiveness is recognized as being shaped not only by technological aspects but also by psychological and social dimensions (Dziuban et al., 2015; Koletsou & Mancy, 2011).

An in-depth exploration of psychological variables, including emotional intelligence, psychological well-being, self-efficacy, and motivation, is essential to fully understand the determinants of online learning success. These factors significantly affect students' online learning experiences (Ahmad et al., 2021; Chiu et al., 2021), with motivation identified as a critical psychological driver, mediating the relationship between psychological well-being, self-efficacy, and online learning effectiveness (Jatmoko et al., 2023; Tang & Zhu, 2023; Teo et al., 2023).

The efficacy of online learning extends beyond the realm of technological expertise. Psychological dimensions, notably motivation, psychological well-being, and self-efficacy, are crucial for the successful implementation of online learning (Ayal et al., 2021; Koletsou & Mancy, 2011; Vayre & Vonthron, 2017). However, the intricate interconnections among these psychological factors and their combined influence on online learning outcomes have yet to be comprehensively addressed. This study seeks to fill this gap by examining both the direct and indirect effects of emotional intelligence, psychological well-being, and self-efficacy on online learning outcomes, while also investigating the mediating role of motivation.

This research holds significance by providing a thorough analysis of psychological factors that contribute to the success of online learning. It aims to enhance understanding of how emotional intelligence, psychological well-being, and self-efficacy influence online learning, both directly and indirectly, and to illuminate the mediating influence of motivation. This endeavor will offer crucial insights for developing more effective online learning methodologies. Ultimately, as online learning becomes increasingly integral to education, comprehensively analyzing its determinants of success is imperative. This entails not only technological adeptness but also an appreciation for the complex interplay of

psychological factors, thereby enriching the body of knowledge within the online learning research domain.

Literature Review

The theoretical foundation of this study is grounded in the Community of Inquiry (CoI) framework, which conceptualizes meaningful online learning through the interaction of cognitive presence, social presence, and teaching presence (Garrison & Arbaugh, 2007). This framework has been widely recognized as a dominant model in explaining the quality of online learning environments. Building on this perspective, psychological factors such as emotional intelligence (EI), psychological well-being (PWB), self-efficacy (SE), and self-motivation (MO) are positioned as enabling conditions that support the development of these three presences. EI facilitates emotional regulation and social interaction, thereby strengthening social presence. PWB contributes to emotional stability and resilience, which sustain engagement. SE enhances learners' confidence in managing tasks, supporting cognitive presence. Meanwhile, MO drives persistence and active participation, reinforcing all dimensions of the CoI framework. Thus, rather than constituting a separate grand theory, these psychological constructs extend the CoI framework by explaining the internal conditions that enable students to actively engage in collaborative knowledge construction. This integration is particularly relevant in the Indonesian higher education context, where psychological readiness plays a critical role in determining online learning success (Phan & Ngu, 2021; Stark, 2019; Stephen & Rockinson-Szapkiw, 2021; Teo et al., 2023).

Emotional Intelligence on Psychological Well-being and Self-Efficacy

Psychological well-being (PWB) in the context of learning is defined as the optimal state wherein students strive to attain their learning objectives (Kantor & Proekt, 2019). PWB encompasses positive feelings, a sense of meaning in learning, well-being, and the absence of stress symptoms during the learning process. The ability to regulate emotions becomes crucial in influencing students' psychological well-being when engaging in online learning. Furthermore, the capacity to perceive, evaluate, and manage thoughts with positive emotions serves as a fundamental factor in enhancing students' psychological well-being in the online learning setting (Can et al., 2021). A study conducted by Kamboj & Garg (2021) underscores the perception of teachers, indicating that students adept at managing and controlling their emotions exhibit good psychological well-being during learning. Other research affirms that emotional intelligence significantly determines feelings of happiness and high satisfaction levels in learning (Augusto-Landa et al., 2011; Fang et al., 2023). This finding is consistent with the Community of Inquiry perspective, which posits that emotional intelligence enhances both social and cognitive presence, thereby enabling students to sustain engagement in online learning (Redmond et al., 2023; Shea et al., 2022; Yidana & Aboagye, 2024).

> **Hypothesis 1 (H_1):** There is a notable impact of emotional intelligence on psychological well-being. Moreover, a high level of emotional intelligence in students is strongly suggested as a critical factor in elevating student self-efficacy during online learning.

As evidenced by Chang & Tsai (2022), effective management and control of emotions during learning significantly influence confidence levels in problem-solving within the online learning context. Consistent with this, both Wen et al. (2020) and Wang et al. (2020) assert that students' confidence in self-assessment regarding their ability to

achieve learning goals is largely influenced by their emotional control capabilities. Bandura (1982) further supports the idea that self-efficacy continues to grow when accompanied by proper emotional control and management. In online settings, self-efficacy is also enhanced through students' ability to regulate emotional states, which sustains persistence in collaborative learning communities (Shea & Bidjerano, 2010; Stephen & Rockinson-Szapkiw, 2021).

> **Hypothesis 2 (H_2):** There is a substantial effect of emotional intelligence on self-efficacy in online learning environments.

Psychological Well-being and Self-Efficacy in Motivation

Motivation, a crucial psychological aspect for students, necessitates the involvement of other psychological elements to foster its development (Santrock, 2007). These elements must inherently possess characteristics that respond to ongoing life circumstances (Fierro-Suero et al., 2020). Psychological well-being and self-efficacy emerge as key variables that shape how individuals perceive and evaluate their own circumstances. he desired emotional state encapsulated by psychological well-being undoubtedly fuels the growth of motivation in the learning process. Marler et al. (2021) reveal that students' strong inclination to learn is intricately tied to their desired psychological state. Further affirming this link, research by Fierro-Suero et al. (2020) underscores the significant impact of psychological well-being on the flourishing of student motivation. In parallel, another psychological determinant, self-efficacy, plays a crucial role in propelling student learning motivation. Mesa-Fernández et al. (2019) assert that students' drive to learn hinges on robust self-confidence in their learning abilities, particularly evident in the context of mastering online learning. Studies by Alkhatib (2020) and Kong (2021) validate the substantial influence of self-efficacy on the growth of learning motivation in students. This resonates with findings that self-efficacy, reinforced by psychological well-being, predicts stronger engagement in the Community of Inquiry framework, where motivation sustains active participation (de Barba et al., 2016; Shea et al., 2022; Zhang et al., 2025)**.** Additionally, Tang & Zhu (2023); Teo et al. (2023) emphasize the critical role of self-efficacy in fostering student motivation, particularly in the successful implementation of online learning amid the challenges posed by the COVID-19 pandemic.

> **Hypothesis 3 (H_3):** There is a statistically significant relationship between psychological well-being and motivation in online learning.

> **Hypothesis 4 (H_4):** There is a statistically significant relationship between self-efficacy and motivation in online learning.

Psychological Well-being, Self-Efficacy and Motivation for Online learning Success

Online learning success denotes the positive outcomes achieved following the implementation of the learning process through this mode (Ilias et al., 2020; Sun & Chen, 2016). Key success indicators in online learning encompass student satisfaction, positive feedback, enhanced online learning readiness, and the efficiency of materials absorbed by students (Kruger-Ross & Waters, 2013; Sun & Chen, 2016; Wei & Chou, 2020). Crucially, the psychological conditions of students play a pivotal role in the prosperous implementation of online learning (Al-Kumaim et al., 2021; Besser et al., 2022; Li & Wang, 2024). Motivation emerges as a fundamental factor, laying the groundwork for the successful execution of online learning aspects (Berestova et al., 2022; Sun & Chen, 2016).

A robust motivation to engage in online learning positively impacts the willingness to use the platform effectively (Jain & Roy, 2024). Furthermore, as student motivation grows, satisfaction with online learning also experiences an upswing (Stark, 2019). Substantial research underscores the influential role of student motivation in driving online learning success, evident in student readiness and satisfaction during its implementation (de Barba et al., 2016; Stark, 2019).

> **Hypothesis 5 (H_5):** There is a statistically significant relationship between psychological well-being and online learning success.

Aligned with psychological well-being, another critical aspect, self-efficacy, emerges as a determinant of online learning success. students' confidence in their ability to master online learning fosters readiness in its usage. Mesa-Fernández et al. (2019) demonstrate that students' confidence in their ability to master online learning fosters readiness for its use. Correspondingly, research by Kong (2021) and Alkhatib (2020) examines the significant influence of self-efficacy on the effectiveness of understanding learning materials in online environments. Additionally, Wang et al. (2020) highlight the pivotal role of self-efficacy in enhancing student satisfaction, a key benchmark in online learning, particularly during the challenges posed by the COVID-19 pandemic. Research further indicates that self-efficacy contributes directly to cognitive presence and sustained engagement within online communities, reinforcing the success of online learning (Lim et al., 2021; Vayre & Vonthron, 2017).

> **Hypothesis 6 (H_6):** There is a statistically significant relationship between self-efficacy and online learning success.

Lastly, motivation, identified by experts as a vital psychological aspect, profoundly influences the implementation of online learning (Chiu et al., 2021; Stark, 2019). Within the online learning context, motivation is defined as the driving force compelling an individual to navigate the processes of the online learning system using accessible devices to achieve learning objectives (Marler et al., 2021). Research by Tang & Zhu (2023), Stark (2019) and Teo et al. (2023) underscores the pivotal role of motivation in enhancing student readiness for online learning implementation. Meanwhile, Chiu et al. (2021) and Jain & Roy, 2024), emphasize the paramount importance of motivation in ensuring the success of online learning, substantiating its significant influence on implementation success. Motivated learners contribute more actively to collaborative inquiry and knowledge construction, reflecting the essential role of motivation in the CoI framework (Liu & Yang, 2014; Yidana & Aboagye, 2024).

> **Hypothesis 7 (H_7):** There is a statistically significant relationship between motivation and online learning success.

Mediating Roles of Motivation

Psychological aspects, particularly psychological well-being and self-efficacy have been widely acknowledged to significantly influence e-learning success both directly and indirectly (Santrock, 2007). In terms of indirect influence, previous studies emphasize that psychological well-being enhances learning outcomes by fostering higher motivation. Among various psychological factors, intrinsic motivation is a key driver that encourages students to engage actively in online learning without external pressure (Wang et al., 2020). The Self-Determination Theory (Ryan & Deci, 2000) and the Expectancy-Value Theory (Eccles & Wigfield, 2020; Martin et al., 2021) explain that motivation acts as a bridge

linking psychological well-being with successful learning outcomes by promoting autonomy, competence, and meaningful engagement.

Empirical studies have confirmed that students with higher psychological well-being, reflected in optimism, purposefulness, and feelings of value, are more likely to achieve success in online learning (Morales-Rodríguez et al., 2020; Zou et al., 2023). Conversely, insufficient motivation and lower well-being levels can disrupt the learning process and reduce academic success (Fiorella, 2020; Lyboldt et al., 2023; Rüppel et al., 2015). Given these findings, it becomes essential to validate this relationship within the Indonesian context, where educational dynamics may differ.

> **Hypothesis 8 (H_8):** Psychological well-being has a significant impact on e-learning success through the mediating role of motivation.

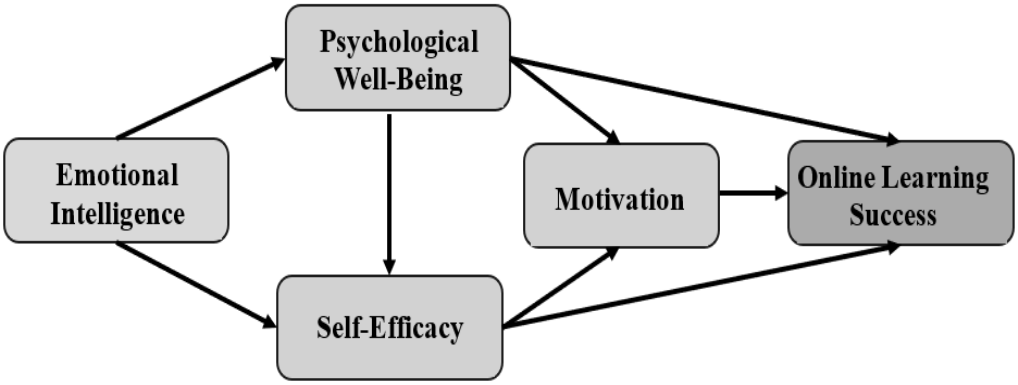
Beyond psychological well-being, self-efficacy is another crucial psychological factor that influences success in online learning environments. Students with strong self-efficacy, who are optimistic about achieving learning goals, confident in solving problems, and believe in their capacity to learn across disciplines, generally show better online learning performance (Bandura, 1982; Kholifah, Kurdi, Nurtanto, & Mutohhari, 2023). Prior studies Stephen & Rockinson-Szapkiw (2021); Zimmerman & Kulikowich (2016) further support that high self-efficacy enables students to manage online learning challenges effectively. However, high self-efficacy alone does not guarantee learning success, especially when motivation is unstable or external supports are lacking (Schunk, 1985; Zimmerman, 2000). Instability in motivation can reduce student persistence and performance during online education. To strengthen the empirical understanding in this area, particularly within the Indonesian context, the following hypothesis:

> **Hypothesis 9 (H_9):** Self-efficacy significantly influences e-learning success through the mediating role of motivation.

Figure 1 illustrates a conceptual model of online learning success through psychological well-being, self-efficacy, and motivation. furthermore, emotional intelligence directly correlates with psychological well-being and self-efficacy and is predicted to influence online learning success.

Figure 1

Mediation Model of Self-Regulation in Terms of the Relationship Between Adaptability and Student Engagement



Methods

Research Design

In this research, the impact of the independent variable on the dependent variable was assessed through a quantitative data approach. The focus was on the collected data, and the structural equation modeling (SEM) technique was employed for analysis, both with and without a mediator, supported by robust theoretical foundations. The study adopted an ex-post facto design based on structural data (Cohen et al., 2011). It involved Indonesian university students who had the prerequisite of engaging in online learning for two to four semesters. Utilizing a university academic monitoring and assessment system, an online questionnaire was administered to gather comprehensive data on all variables. The monitoring and assessment period, spanning from April to June 2022, aligned seamlessly with the study.

Participants

In this study, participants consisted of undergraduate students in Yogyakarta Province, Indonesia. The selection criteria focused on students who had experienced online learning for two to four semesters, ensuring sufficient exposure to explore diverse opinions on the psychological aspects influencing successful online learning implementation. A total of 126 invalid responses, including identical answers and completion times under 30 seconds, were removed to ensure questionnaire diversity. The final sample comprised 1,052 students, representing a 92% response rate from the predetermined sample. Yogyakarta Province universities contributed 1052 participants. Background statistics, including gender, age range, majors, and weekly online learning intensity, are detailed in Table 1.

Table 1

Background of Participants (N=1,052)

Dimensions	Category	Frequency	Percentage
Gender	Male	594	56.46%
	Female	458	43.54%

Dimensions	Category	Frequency	Percentage
Study period	1– 4 semesters	448	42.59%
	5 – 8 semesters	394	37.45%
	9 – 12 semesters	162	15.40%
	13 – 14 semesters	48	4.56%
Expertise	Tourism	323	30.70%
	IT	348	33.08%
	Technology and Engineering	381	36.22%
Online Learning Intensity	8 – 12 hours	139	13.21%
	13 – 17 hours	166	15.78%
	18 – 22 hours	319	30.22%
	23 – 27 hours	528	50.19%

Data Collection and Instruments

The study's data collection process was anchored in the utilization of each university's monitoring and evaluation system, known as e-monev. Focusing on students who participated in at least 40 hours of online learning from April to June 2022, the integration of e-monev with the Academic Information System (AIS) mandated the completion of an online learning readiness survey on the platform's landing page. To enhance the reliability of data collection, socialization and briefing sessions were organized before the actual data collection, aiming to ensure data accuracy and coherence. The survey employed a Likert scale for responses, with options ranging from *strongly disagree (SD)* to *strongly agree (SA)*, for evaluating various factors. The survey questions, derived from previously validated scales, were subjected to confirmatory factor analysis, confirming the reliability and validity of the measurement instrument.

Six statements capturing emotional intelligence encompass expressions like

- *I am mindful of my emotions in the moment.*
- *I can discern others' feelings by observation*.
- *I engage in activities that bring me joy.*
- *I know when to discuss my concerns with others.*
- *I uplift those feeling down.*
- *I leverage positive moods to maintain my spirits*.

Originating from the works of Chang & Tsai (2022) and Pienimaa et al. (2021), these indicators were crafted to evaluate emotional intelligence.

Psychological well-being is measured through three opinion-based indicators, reflecting sentiments such as

- *I consistently maintain optimism in online learning activities*.
- *Online learning activities hold purpose and meaning for me*.
- *I feel respected and valued by others in the online learning environment*

These indicators, designed by Morales-Rodríguez et al. (2020) and Zhang et al. (2022), contribute to assessing psychological well-being.

Self-efficacy is measured through three opinion-based indicators, reflecting students' confidence in their learning abilities, such as:

- *I am optimistic about achieving learning goals.*
- *I have confidence in my problem-solving abilities.*
- *I believe in my capacity to learn multidisciplinary science through online learning.*

These indicators are adapted from Bandura (1982) and Kholifah et al. (2023) to assess students' self-efficacy in online learning contexts.

Motivation is measured through five indicators, reflecting students' drive and persistence in learning, such as:

- *I can maintain focus on learning despite distractions.*
- *I eagerly embrace new challenges and learning opportunities.*
- *I am enthusiastic and prepared to tackle learning problems through online learning.*
- *I am consistently motivated to complete learning assignments.*
- *I am open to exploring diverse learning resources in online learning.*

These indicators are adapted from Stark (2019) to capture students' motivation in online learning environments.

Online learning success is measured through seven indicators, reflecting students' perceived effectiveness and outcomes in online learning, such as:

- *I possess the ability to use information and communication technology (ICT) effectively.*
- *I am confident in organizing and conducting learning via the internet.*
- *I can effectively communicate using internet and ICT networks.*
- *I have control over and can explore online learning content.*
- *I am satisfied with the infrastructure supporting online learning.*
- *I can attain learning outcomes in online learning.*
- *I can enhance my skills through online learning.*

These indicators are adapted from Adams et al. (2022) and Stark (2019) to assess overall online learning success.

Validity and Reliability of Instruments

Prior to the large-scale survey, a pilot test of the variables was conducted using a subset of the sample to ensure the instrument's clarity and appropriateness. The preliminary dataset was analyzed to examine internal consistency and reliability. Cronbach's Alpha values were calculated for each construct, and all exceeded the recommended threshold of 0.70, indicating acceptable to high reliability (Johnson & Wichern, 2007). This procedure ensured that the items within each construct were internally consistent and adequately represented the intended psychological factors. Furthermore, construct validity was assessed by expert review and pilot responses, confirming that the items aligned with the

theoretical framework. Only after this pilot testing phase was the instrument finalized and administered in the full-scale data collection. The comprehensive validity test outcomes are depicted in Table 2.

Table 2

Validities of Instruments for Emotional Intelligence, Psychological Well-Being, Self-Efficacy, Motivation, and Online Learning Success

Variable	Item	Outer Loading	Desired level	Decision
Emotional Intelligence	EI1	0.810	≥0.700	Valid
	EI2	0.775	≥0.700	Valid
	EI3	0.846	≥0.700	Valid
	EI4	0.867	≥0.700	Valid
	EI5	0.833	≥0.700	Valid
	EI6	0.759	≥0.700	Valid
Psychological Well-Being	PWB1	0.811	≥0.700	Valid
	PWB2	0.897	≥0.700	Valid
	PWB3	0.910	≥0.700	Valid
Self-Efficacy	SE1	0.849	≥0.700	Valid
	SE2	0.887	≥0.700	Valid
	SE3	0.859	≥0.700	Valid
Motivation	Mo1	0.737	≥0.700	Valid
	Mo2	0.843	≥0.700	Valid
	Mo3	0.833	≥0.700	Valid
	Mo4	0.727	≥0.700	Valid
	Mo5	0.771	≥0.700	Valid
Online Learning Success	ELS1	0.890	≥0.700	Valid
	ELS2	0.897	≥0.700	Valid
	ELS3	0.886	≥0.700	Valid
	ELS4	0.801	≥0.700	Valid
	ELS5	0.832	≥0.700	Valid
	ELS6	0.730	≥0.700	Valid
	ELS7	0.866	≥0.700	Valid

The reliability test results are equally satisfactory. Demonstrating high standards across all instruments, the alpha reliability test outcomes are detailed in Table 3, underscoring the instruments' consistent data collection capabilities.

Table 3

Reliabilities of Instruments for Emotional Intelligence, Psychological Well-Being, Self-Efficacy, Motivation, and Online Learning Success

Variable	α	rho_A	Composite	AVE	Decision
Emotional Intelligence	0.899	0.903	0.923	0.665	Reliable

Variable	α	rho_A	Composite	AVE	Decision
Psychological Well-being	0.844	0.848	0.906	0.763	Reliable
Self-efficacy	0.832	0.833	0.899	0.749	Reliable
Motivation	0.842	0.846	0.888	0.614	Reliable
Online Learning Success	0.933	0.940	0.946	0.714	Reliable

Data Analysis and Ethical Considerations

To analyze the hypotheses concerning the influence of various variables, this study utilized Structural Equation Modeling (SEM). Path analysis facilitated the assessment of how exogenous variables directly affect endogenous ones. Additionally, the mediating effect of motivation on the indirect impact of psychological well-being and self-efficacy on online learning efficacy was examined using a bootstrap method. This method is crucial for determining the robustness and reliability of indirect effects in diverse situations, as it aids in establishing confidence intervals (Preacher & Hayes, 2008). The SmartPLS 3.0 software was chosen for data analysis. The formulation of research hypotheses was guided by a comprehensive review of existing literature, highlighting the direct or indirect influence of external factors on internal variables.

This study was conducted in accordance with the principles of the Declaration of Helsinki. It was approved by the Ethics Committee of the Institute for Research and Community Service at Universitas Negeri Jakarta (approval number: 18/UN39.14/PT.01.06/I/2022, dated January 8, 2022). All participants were fully informed about the study's objectives, the voluntary nature of their participation, and the confidentiality of their responses. Written informed consent was obtained prior to participation. Transparency was ensured in the development and validation of the research instruments. Respondents participated voluntarily without coercion, and they were assured that their responses would be used solely for academic purposes. Moreover, participants retained the right to withdraw from the study at any stage without penalty, thereby safeguarding their autonomy, rights, and well-being.

Results

Structure Model Analysis

The assessment of the structural model's conformity level was conducted through a model appropriateness test. Table 4 illustrates the overall fit indices of the research model, serving as the baseline model. Notably, the basic model demonstrated commendable performance in terms of overall fit. The chi-square value computed was relatively modest, with a highly significant probability achieved. Key fit indices, including GFI, AGFI, NFI, SRMR (0.05), and RMSEA (0.08), surpassed the accepted threshold of 0.90. These results affirm the suitability of the fit model within the goodness of fit category, enabling the commencement of structural model analysis (Johnson & Wichern, 2007).

Table 4
Model Fit Test Result

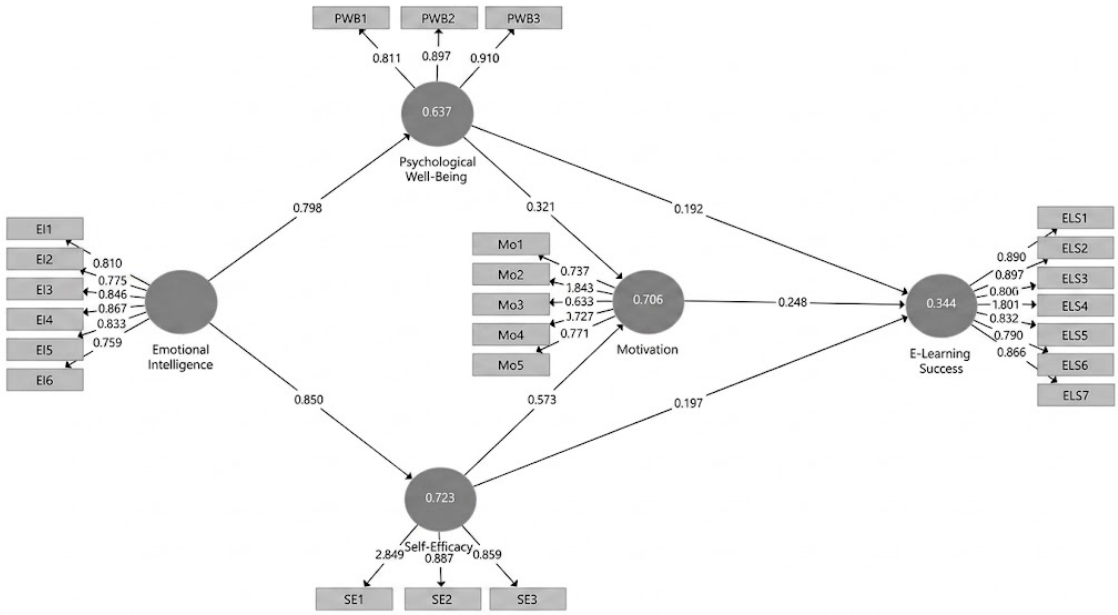
Goodness of fit indices	Result	Desired levels
Chi-square	31.501	Small
Probability	0.418	>0.50

Goodness of fit indices	Result	Desired levels
GFI	0.914	≥0.90
AGFI	0.931	≥0.90
NFI	0.921	≥0.90
SRMR	0.036	<0.05
RMSEA	0.048	<0.08

Figure 2 portrays the structural analysis model implemented in the study. Both path analysis and SEM analysis were employed to evaluate the direct impact of exogenous factors on endogenous variables. Furthermore, the bootstrap method was applied to examine the role of intervening factors in the model.

Figure 2

Structural Model Analysis Results for Emotional Intelligence, Psychological Well-Being, Self-Efficacy, Motivation, and Online Learning Success



Direct Effect Test

The scrutiny of direct effects is elucidated through the revelations of path analysis, encompassing the estimated impact values on the original sample, the t-count value, and the probability value at the 5% or 95% confidence level. The hypothesis testing pertains to the influence of emotional intelligence on psychological well-being and self-efficacy, the effects of psychological well-being and self-efficacy on motivation and online learning success, and the impact of motivation on online learning success.

Table 5

Path Analysis Test Result

Path	Estimate	t value	Bias	p
Emotional Intelligence → Psychological Well-Being	0.798	60.402	0.000	0.000

Path	Estimate	t value	Bias	p
Emotional Intelligence → Self-Efficacy	0.850	80.739	0.000	0.000
Motivation → Online Learning Success	0.248	4.622	0.001	0.000
Psychological Well-Being → Online Learning Success	0.192	4.361	-0.001	0.000
Psychological Well-Being → Motivation	0.321	10.050	-0.001	0.000
Self-Efficacy → Online Learning Success	0.197	4.127	-0.001	0.000
Self-Efficacy → Motivation	0.573	19.603	0.000	0.000

The entire sample underwent the hypothesis tests, stratified into groups based on participants' backgrounds. Testing was conducted across each dimension in the background to ascertain the testability of the hypotheses in all respondents with the diverse features presented. Table 5 delineates the outcomes of hypothesis testing through route analysis on the overall sample, while Table 6 delineates samples contingent on each dimension in the participants' background.

The findings support Hypothesis 1 (H_1), showing a direct and significant influence of emotional intelligence on psychological well-being, evidenced by an estimated coefficient of 0.798 and a p-value of less than 0.001. Emotional intelligence also significantly affects self-efficacy, corroborating Hypothesis 2 (H_2), with an estimated coefficient of 0.850 and a p-value of less than 0.001. In line with Hypothesis 3 (H_3), psychological well-being is shown to significantly impact motivation, with an estimated coefficient of 0.321 and a p-value of less than 0.001. Furthermore, self-efficacy significantly influences motivation, validating Hypothesis 4 (H_4), with an estimated coefficient of 0.573 and a p-value of less than 0.001. Hypothesis 5 (H_5) is confirmed by an estimated coefficient of 0.192 and a p-value of less than 0.001, indicating a direct effect of psychological well-being on online learning success. Additionally, Hypothesis 6 (H_6) finds support through the direct effect of self-efficacy on online learning performance, with an estimated coefficient of 0.197 and a p-value of less than 0.001. Motivation's significant influence on online learning outcomes is confirmed by Hypothesis 7 (H_7), with an estimated coefficient of 0.248 and a p-value of less than 0.001. The consistent significance across all hypotheses, indicated by p-values below 0.050, highlights a pervasive impact across the sample and underscores the necessity of integrating emotional intelligence, psychological well-being, self-efficacy, and motivation for the best educational results.

Indirect Effect Test Through Self-Motivational as Mediation

This study investigates the indirect effects of psychological well-being and self-efficacy on online learning success, specifically examining the mediating role of motivation. Through statistical analysis using the SmartPLS software, the bootstrap method with a 97.5% confidence interval is applied to determine precise confidence limits for various cases. This method effectively confirms the significant mediating role of motivation (Preacher & Hayes, 2008). Table 6 highlights the critical role of motivation in mediating the relationship between psychological well-being and online learning achievement. An indirect effect value of 0.079 with a significance level of less than 0.001 indicates the extent to which psychological well-being affects online learning efficacy through motivation. This

suggests that psychological well-being, facilitated by motivation, indirectly influences online learning effectiveness, supporting Hypothesis 8 (H_8).

Table 6

Mediation Effect of Motivation Between Psychological Well-Being and Online Learning Success

	ELS		Mo		Estimate	*p*	Bootstrapping 97.5% CI	
	Estimate	S.E.	Estimate	S.E.			Lower limit	Upper limit
PWB	0.192	0.018	0.321	0.031				
SE			0.224	0.044				
F^2	0.489		0.471					
Indirect effect					0.079	0.000	0.042	0.108
Direct effect					0.192	0.000	0.167	0.226
Total effect					0.271	0.000	0.198	0.298

Note: PWB = Psychological Well-Being; SE = Self-Efficacy ELS = Online learning Success; MO = Motivation

Similarly, as depicted in Table 7, motivation assumes a pivotal role in mediating the indirect influence of self-efficacy on online learning performance. The estimated value of 0.142, coupled with a significance of 0.000, attests to the support for H_9.

Table 7

Mediation Effect of Motivation Between Self-Efficacy and Online Learning Success

	ELS		Mo		Estimate	*p*	Bootstrapping 97.5% CI	
	Estimate	S.E.	Estimate	S.E.			Lower limit	Upper limit
SE	0.197	0.019	0.573	0.024				
ELS			0.314	0.017				
F^2	0.632		0.541					
Indirect effect					0.142	0.000	0.098	0.188
Direct effect					0.197	0.000	0.167	0.241
Total effect					0.339	0.000	0.297	0.374

Note: PWB = Psychological Well-Being; SE = Self-Efficacy ELS = Online learning Success; MO = Motivation

Discussion

Over the course of the prolonged COVID-19 pandemic, college students' attitudes and behaviors toward online learning have undergone a substantial transformation. The surge in online learning usage is attributed to a strategy of initial defense and subsequent adaptation (Adams et al., 2022; J. Wang et al., 2024). In our sample, a majority of students (over 50%) have proactively adapted by intensifying their use of online learning, dedicating

approximately 23-27 hours per week. This suggests a shift in students' preferences from traditional classroom settings to digital learning (virtual classrooms). However, a segment of students has struggled to make significant adjustments, maintaining an online learning intensity within the range of 8-12 hours per week.

Conversely, some students surpass the standard Indonesian graduation timeframe of eight semesters, indicating potential challenges in completing their studies. Despite the diverse nature of the sample, the data generated reflects this variability, albeit not uniformly distributed. This study underscores the significance of psychological factors, including emotional intelligence, psychological well-being, self-efficacy, and motivation, in influencing online learning performance. Furthermore, motivation emerges as a crucial mediator for the impact of psychological well-being and self-efficacy on the effectiveness of online learning implementation.

These findings contribute to the broader body of online learning literature by highlighting the importance of psychological readiness as a determinant of success, consistent with the Community of Inquiry (CoI) framework (Garrison & Arbaugh, 2007). While prior studies have emphasized the role of technological readiness and access (de Barba et al., 2016; Yilmaz, 2016), our results extend the literature by demonstrating that emotional intelligence and psychological well-being are equally critical for sustaining social and cognitive presence online. This positioning enriches theoretical understanding, as it suggests that online learning success cannot be separated from learners' psychological capital, thereby expanding the scope of CoI beyond its original focus on pedagogy and interaction.

Interestingly, the results reveal that self-motivation plays a stronger mediating role than initially anticipated, amplifying the effects of psychological well-being and self-efficacy. This finding is consistent with Stark (2019) and Teo et al. (2023), who highlight the central role of motivation in sustaining engagement. However, the present results indicate that motivation not only supports engagement but also converts the influence of other psychological factors into measurable learning outcomes. Conversely, the relatively weaker direct effect of psychological well-being on learning success was unexpected, indicating that well-being alone is insufficient unless reinforced by strong motivational dynamics. This nuance challenges earlier assumptions that well-being directly predicts online learning performance (Rodríguez et al., 2020), instead highlighting its indirect but essential contribution.

From a theoretical perspective, the study advances online learning research by integrating psychological constructs into the CoI framework, thereby proposing a more holistic model of online learning success. This synthesis demonstrates that psychological capital (EI, PWB, SE, and MO) underlies the conditions for meaningful presence and engagement. Practically, these findings have implications for higher education institutions: interventions to improve online learning should not only focus on infrastructure but also include training in emotional intelligence, resilience programs to enhance well-being, and pedagogical strategies to strengthen students' self-efficacy and motivation (Bagdy & Stefaniak, 2024; Stephen & Rockinson-Szapkiw, 2021; Wagiran et al., 2022). Without these psychological supports, even well-designed online platforms risk disengagement and dropout.

Moreover, our findings refine the discourse on equity in online learning. Students with lower psychological capital may face compounded disadvantages, especially in

contexts where academic support is limited. This insight resonates with Besser et al., (2022), who highlighted adaptability as a challenge during sudden online transitions, and suggests that sustainable online education in developing countries like Indonesia requires policies that simultaneously address psychological and technological readiness. Failure to do so may exacerbate digital divides and academic inequalities.

In sum, this study both confirms and extends prior scholarship. It confirms the importance of motivation and self-efficacy as repeatedly reported in online learning studies (Di Fabio & Kenny, 2016; Sanchez-Ruiz et al., 2021), while extending the literature by positioning emotional intelligence and well-being as foundational yet indirect contributors. Theoretically, it challenges narrow interpretations of CoI by embedding psychological capital as a prerequisite for presence. Practically, it calls for higher education policy and practice to treat psychological supports as essential infrastructure for sustainable online learning ecosystems.

Several limitations of this study should be acknowledged. First, the data were collected from a single region in Indonesia, which may limit the generalizability of the findings to broader cultural or institutional contexts. Second, the psychological constructs were measured using self-report questionnaires with a limited number of items, which may not fully capture the multidimensional nature of emotional intelligence, psychological well-being, self-efficacy, and motivation. Third, the cross-sectional design restricts the ability to infer causality between variables. Additionally, while efforts were made to validate the instrument, further psychometric testing with larger and more diverse samples is recommended for future research. These limitations suggest that caution should be exercised in interpreting the results and that replication studies across different higher education settings are needed.

From a methodological perspective, the study employed a survey-based quantitative approach, which provides broad insights but may overlook the nuanced, qualitative experiences of learners in online environments. The reliance on self-reported data also presents the possibility of social desirability bias. Future studies are encouraged to adopt mixed-method designs to provide deeper contextual understanding and triangulate quantitative findings with qualitative evidence. Addressing these methodological constraints is essential to strengthening the validity and applicability of future research in this field.

Conclusion

The educational landscape witnessed a transformation in college students' cognitive processes and behaviors amid the prolonged COVID-19 pandemic, particularly in response to online learning. Students' psychological factors played a pivotal role in shaping these shifts in mental processes and behavior within the realm of online learning. As indicated by existing literature, essential psychological attributes, including emotional intelligence, psychological well-being, self-efficacy, and motivation, form the bedrock for the successful integration of online learning within university settings. Notably, motivation emerges as a paramount psychological determinant, influencing both the success of online learning and serving as a mediator for the indirect impact of psychological well-being and self-efficacy on online learning effectiveness. In this context, higher education institutions are urged to prioritize the consideration of psychological variables that underpin the efficacy of online learning, rather than exclusively concentrating on skill development. Initiating this emphasis right from the initial lectures, higher education can proactively nurture and mold

emotional intelligence. Additionally, addressing students' psychological well-being needs and fostering self-efficacy are imperative steps in enhancing learning motivation during online learning, ultimately ensuring its successful adoption.

Declarations

The author declares no conflicts of interest. Permission to collect data from human subjects was granted from the authors' educational institutions.

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