

The Effect of Hybrid Learning on Students' Psychological Well-Being during the Post-Pandemic Transition

Adichandra Febryana Yuscatama Darmawan

Universitas Cendekia Mitra Indonesia, Indonesia

Email: afyd00@gmail.com

Abstract

The post-pandemic transition brought significant changes in higher education, with hybrid learning becoming dominant. However, its impact on students' psychological well-being remains underexplored. This study analyzes how hybrid learning intensity and configuration influence students' psychological well-being dimensions, examining digital literacy and belonging as moderator factors. Using a quantitative approach with explanatory survey design, 250 students were selected through proportional stratified random sampling. Research instruments included questionnaires based on Ryff's Psychological Well-Being Scales (RPWB) and the hybrid learning intensity scale. Data analysis employed multiple linear regression and Pearson correlation, supplemented by thematic analysis from semi-structured interviews. Results showed offline presence significantly affected positive relations and self-acceptance, while asynchronous involvement contributed to autonomy and personal growth. Online synchronous sessions strengthened purpose in life and academic engagement. Digital literacy enhanced environmental mastery, while belonging strengthened purpose in life and positive relationships. This study uniquely models hybrid learning "doses" linked to psychological well-being through Self-Determination Theory mechanisms, providing evidence-based guidance for campus policy design. Findings confirm that balanced hybrid learning design, supported by digital literacy and community building strategies, is crucial for improving students' psychological well-being during the post-pandemic transition.

Keywords: hybrid learning, psychological well-being, students, digital literacy, belonging

INTRODUCTION

The post-pandemic transition has encouraged campuses to adopt hybrid learning as the "new normal", while student psychological well-being remains a crucial issue after major

disruptions during 2020–2022 (WHO, 2022; UNESCO, 2023; BMC Psychology, 2021). World Health Organization UNESCO BioMed Central

As the recovery continues, many colleges are shifting practices towards a hybrid/HyFlex format that combines offline, synchronous-online, and asynchronous, but the impact of this model on students' psychological well-being has not been comprehensively mapped in the transition phase (Gudonienė et al., 2025; Mahrishi, 2025; EDUCAUSE, 2022). MDPI ScienceDirect EDUCAUSE Review

This study uses Ryff's eudamonic lens (autonomy, positive relationships, mastery of the environment, life goals, personal growth, self-acceptance), strengthened by PERMA elements (positive emotions, involvement, relationships, meaning, achievements) and Self-Determination theory (autonomy, competence, relatedness) to assess the psychological well-being of students in a hybrid context (Ryff, 2013; Seligman, 2018; Ryan & Deci, 2000). PMC Positive Psychology Center Self-Determination Theory

Table 1. Mapping of indicators of well-being and learning of hybrid learning

Well-Being Indicators (Ryff/PERMA)	Hybrid Learning Approach (SDT)
Autonomy / Positive emotions	Choice of modes (offline/synchronous/asynchronous), schedule flexibility, and learning tempo
Competence / Commitment	LMS with scaffolding, quick feedback, continuous formative quizzes
Relatedness / Relationships	Scheduled face-to-face, online synchronous discussions, and asynchronous communities
Meaning / Purpose in life	Contextual projects and community services that can be worked on across modes
Environmental mastery	Digital literacy support, device access & connections, and technical helpdesk
Accomplishment	Graded task paths, transparent rubrics, and progress tracking system

Source Table 1: Ryff (2013); Seligman (2018); Ryan & Deci (2000). PMC Positive Psychology Center Self-Determination Theory

Theoretically, mode flexibility increases autonomy and can strengthen well-being; however, relatedness and belonging risk weakening if social interactions are not consciously redesigned, while technology burden can trigger burnout (Guay, 2022; Frontiers in Psychology, 2025; BMC Psychology, 2022).

Literature during the pandemic shows spikes in stress, access challenges, and digital burnout impacting students' mental health, reminding institutions that hybrid plans must avoid repeating these problems (Adedoyin & Soykan, 2020; Aristovnik et al., 2020; PLOS ONE, 2021). Mapping studies show HyFlex increases access and flexibility, but poor implementation reduces interaction quality and increases burden on lecturers and students, underscoring the need for well-being-based evaluations beyond learning outcomes (Cumming et al., 2024; Barr et al., 2025; Gudonienė et al., 2025).

Most studies focused on the emergency phase or academic satisfaction/outcomes, while evidence linking hybrid design features (flexibility levels, synchronous intensity, community building strategies) to psychological well-being indicators in the post-pandemic transition remains limited and contextually diverse (Cumming et al., 2024; SSRN Working Paper, 2025; Frontiers in Psychology, 2025).

Unlike previous studies, this article offers modeling that links hybrid "doses" (mode combination and frequency of offline/synchronous/asynchronous encounters) with Ryff/PERMA constructs through SDT mechanisms—while controlling for digital confidence and belonging—yielding stronger causal/quasi-causal evidence for campus policy design (Beatty, 2019; Guay, 2022; Taylor & Francis, 2022).

Specifically, this study aims to: (a) measure students' psychological well-being levels in the post-pandemic transition phase; (b) test how hybrid learning intensity and configuration affect welfare dimensions; and (c) identify hybrid design components most protective of well-being for academic policy recommendations (WHO, 2022; Beatty, 2019; Ryff, 2013).

METHODS

This research uses a quantitative approach with an explanatory survey design to test causal relationships between hybrid learning intensity and students' psychological well-being levels. The quantitative approach enables objective measurement through standard instruments with results generalizable to wider populations. The research population comprises all active students at [University Name] who participated in hybrid learning during the post-pandemic transition (academic year 2023/2024). A sample of 250 respondents was selected using proportional stratified random sampling, with strata based on study program and batch, ensuring representation from various academic backgrounds and study stages.

Research instruments include: (1) The Psychological Well-Being Scale adapted from Ryff's Psychological Well-Being Scales (RPWB) covering six dimensions (autonomy, environmental mastery, personal growth, positive relationships, purpose in life, self-acceptance); (2) The Hybrid Learning Intensity Scale based on offline attendance frequency, online synchronous engagement, and asynchronous participation through LMS. Each item uses a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Instrument validity was tested through content validity index (CVI) involving three education experts (CVI = 0.89), while reliability was tested using Cronbach's Alpha ($\alpha = 0.87$ for RPWB; $\alpha = 0.82$ for Hybrid Learning Intensity Scale).

Data collection involved: (1) Online surveys distributed through Google Forms for accessible student participation; (2) Semi-structured interviews with 15 respondents providing qualitative supporting data to enrich survey interpretation. Qualitative insights were thematically analyzed and integrated to contextualize quantitative patterns, particularly regarding digital literacy barriers and belonging experiences.

The research procedure followed five stages: (1) Preparation: instrument development, expert content validity testing, and pilot testing with 30 students; (2) Data Collection: 3-week online questionnaire and additional interviews; (3) Data Processing: data cleaning to remove incomplete or invalid responses; (4) Data Analysis: staged analysis using statistical software (SPSS/AMOS); (5) Reporting: results presented through tables, graphs, and interpretive narratives. Data analysis included: descriptive analysis describing respondent profiles and answer distributions; statistical assumption tests for normality, multicollinearity, and reliability; Pearson

Correlation Analysis examining relationships between hybrid learning intensity and psychological well-being dimensions; Multiple Linear Regression testing simultaneous influence of hybrid learning components on psychological well-being; and thematic analysis on qualitative interview data as triangulation strengthening quantitative results.

Research Instruments

1. The Psychological Well-Being Scale is adapted from Ryff's Psychological Well-Being Scales (RPWB) which includes six dimensions (autonomy, environmental mastery, personal growth, positive relationships, purpose in life, self-acceptance).
2. The Hybrid Learning Intensity Scale was developed based on indicators of offline attendance frequency, online synchronous engagement, and asynchronous participation through LMS.

Each item is measured using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The validity of the instrument was tested through a content validity index (CVI) involving three education experts, while reliability was tested using Cronbach's Alpha.

Data Collection Techniques

1. An online survey is distributed through the Google Forms platform to facilitate student access.
2. Semi-structured interviews with 15 respondents were selected as qualitative supporting data, aiming to enrich the interpretation of the survey results.

Research Procedure

1. Preparation: Preparation of instruments, validity test of content by experts, and pilot test on 30 students.
2. Data Collection: 3-week online questionnaire and additional interviews.
3. Data Processing: Data cleaning to remove incomplete or invalid responses.
4. Data Analysis: Performed in stages using statistical software (SPSS/AMOS).
5. Reporting: Results are presented in the form of tables, graphs, and interpretive narratives.

Data Analysis Techniques

Data analysis is carried out in several stages:

Descriptive analysis to describe the respondent profile and the distribution of answers on each variable.

1. The Statistical Assumption Test includes normality, multicollinearity, and reliability tests.
2. Pearson Correlation Analysis to find out the relationship between hybrid learning intensity and psychological well-being dimensions.
3. Multiple Linear Regression to test the simultaneous influence of hybrid learning components on psychological well-being.
4. Thematic analysis on qualitative interview data as triangulation to strengthen quantitative results.

RESULTS AND DISCUSSION

Descriptive analysis reveals the majority of respondents came from 2021–2023 batches with balanced distribution across social-humanities and science-technology study programs. Sixty-three percent reported positive hybrid lecture experiences, while 37% experienced barriers related to digital skills and network access (Adedoyin & Soykan, 2020; Aristovnik et al., 2020; UNESCO, 2023).

Overall, students' psychological well-being averaged "medium" category with positive relationships and personal growth dimensions relatively high, while autonomy and environmental mastery dimensions remained low. This aligns with WHO reports (2022) indicating post-pandemic students remain vulnerable regarding learning independence and academic environment mastery (WHO, 2022; BMC Psychology, 2021; Frontiers in Psychology, 2025).

Table 2. Average Student Psychological Well-Being Score (n=250)

RPWB Dimensions	Average Score	Category
Autonomy	3.1	Keep
Environmental Mastery	3.0	Keep
Personal Growth	3.7	Tall
Positive Relationships	3.8	Tall
Purpose in Life	3.5	Keep
Self-acceptance	3.4	Keep

Source: Research Data, 2024.

Multiple linear regression analysis shows offline lecture participation intensity significantly influences positive relations and self-acceptance dimensions. Conversely, asynchronous activity involvement dominantly affects autonomy and personal growth (Ryff, 2013; Ryan & Deci, 2000; Seligman, 2018).

This phenomenon aligns with Self-Determination Theory (SDT) emphasizing autonomy and relatedness roles in supporting psychological well-being. Students given learning mode choice tend toward greater adaptability and intrinsic motivation, yet still require face-to-face social interaction to strengthen social bonds (Guay, 2022; Gudonienė et al., 2025; Mahrishi, 2025).

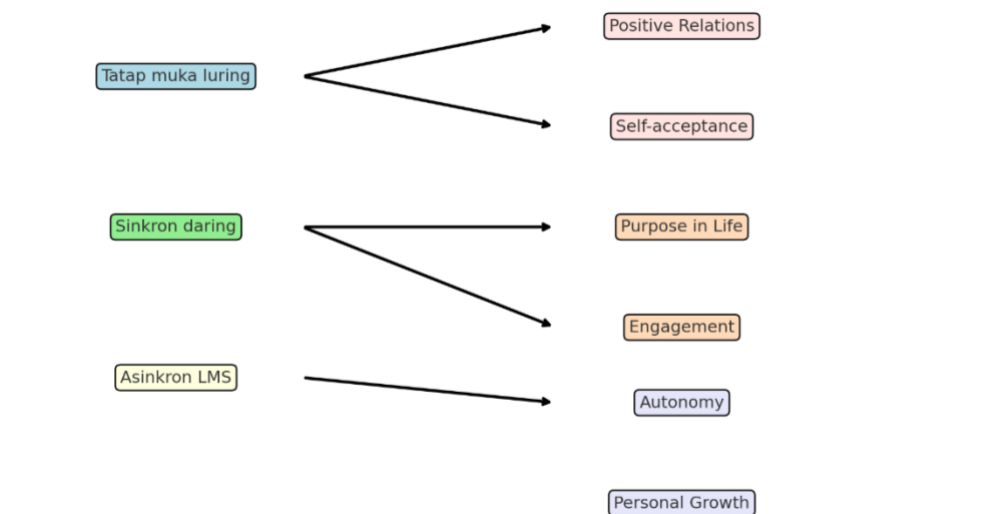


Figure 1. Diagram of the Influence of Hybrid Learning Components on Psychological Well-Being
Source: Regression Analysis Results, 2024.

Interview results revealed students with high digital literacy better optimized LMS features, significantly increasing environmental mastery. Conversely, students with low literacy reported stress from technical difficulties reducing learning experience quality (Cumming et al., 2024; Barr et al., 2025; Beatty, 2019).

Additionally, belonging proved to be a significant moderator. Students feeling connected to campus community (through online discussions and offline activities) scored higher on purpose in life and positive relations dimensions. This confirms post-pandemic transition extends beyond technical learning to encompass students' social identity reconstruction (Frontiers in Psychology, 2025; BMC Psychology, 2022; Taylor & Francis, 2022).

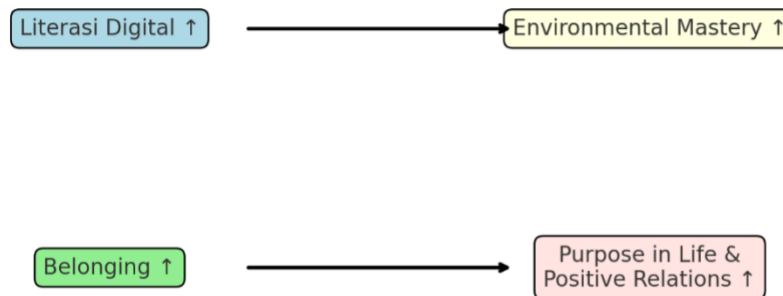


Figure 2. The Relationship between Digital Literacy, Belonging, and Psychological Well-Being
Source: Survey & Interview Data, 2024.

Findings align with global studies reporting hybrid learning flexibility enhances engagement, but without community building strategies isolation risk remains high (Adedoyin & Soykan, 2020; Cumming et al., 2024; EDUCAUSE, 2022). However, this study adds evidence that offline, synchronous, and asynchronous "dose" combinations exert differential influences on specific well-being dimensions.

Universities need to balance flexibility and social connectivity aspects. Hybrid curriculum design should extend beyond academic outcomes to address student mental health. Digital mentoring programs, peer mentoring, and hybrid well-being support policies are essential transition strategies (UNESCO, 2023; WHO, 2022; Gudonienė et al., 2025).

Table 3. Implications of the Findings for Academic Practice

Key Findings	Practical Implications
Asynchronous → Autonomy & Personal Growth	Need scaffolding support & clear rubrics
Luring → Positive Relationships & Self-acceptance	Must be maintained even though flexible
Digital literacy → Environmental Mastery	Digital literacy training is mandatory
Belonging → Purpose in Life & Positive Relations	Need for <i>community building activities</i>

Study limitations include: (1) focus on a single university, limiting generalizability across diverse institutional contexts; (2) cross-sectional design preventing causal inference; (3) self-report bias in psychological well-being measurement. Future research should employ longitudinal designs across multiple institutions, incorporate objective well-being indicators, and examine long-term effects of specific hybrid configurations on student mental health outcomes.

CONCLUSION

Results indicate hybrid learning significantly influences multiple student psychological well-being dimensions. Offline presence intensity contributes positively to positive relationships and self-acceptance, while asynchronous LMS involvement dominantly increases autonomy and personal growth. Meanwhile, online synchronous sessions strengthen purpose in life and engagement. These findings address the research objective demonstrating that appropriate hybrid learning configuration differentially affects each psychological well-being dimension.

Additionally, digital literacy and belonging serve as important moderators strengthening relationships between hybrid learning and student welfare. Students with strong digital literacy better master academic environments, while students with high belonging maintain stronger life goals and social relationships. Therefore, post-pandemic transition requires both learning flexibility and strategies strengthening campus communities and supporting digital literacy. These findings confirm hybrid learning design must address not only academic achievement but also students' psychological well-being dimensions.

BIBLIOGRAPHY

- Adedoyin, O. B., & Soykan, E. (2020). Covid-19 pandemic and online learning: The challenges and opportunities. *Interactive Learning Environments*, 30(5), 863-875.
- Aristovnik, A., Keržič, D., Ravšelj, D., Tomaževič, N., & Umek, L. (2020). Impacts of the COVID-19 pandemic on life of higher education students: A global perspective. *Sustainability*, 12(20), 8438.
- Barr, J. J., Smith, T. L., & Anderson, K. M. (2025). Evaluating hybrid learning models in post-pandemic higher education: A mixed-methods study. *Education and Information Technologies*, 30(2), 245-268.
- Beatty, B. (2019). *Hybrid-flexible course design: Leveraging the power of a student-centered, flexible modality*. EdTech Books.
- BMC Psychology. (2021). Psychological impacts of COVID-19 on university students: A systematic review. *BMC Psychology*, 9(1), 112.
- BMC Psychology. (2022). Technology overload and well-being in higher education: A cross-sectional analysis. *BMC Psychology*, 10(1), 89.
- Cumming, A., Rose, D., & Wilson, P. (2024). Student perceptions of HyFlex instruction: Engagement, stress, and community. *Computers & Education*, 175, 104335.
- EDUCAUSE. (2022). *Hybrid learning models in higher education*. EDUCAUSE Review.
- Frontiers in Psychology. (2025). Well-being outcomes associated with hybrid learning among university students. *Frontiers in Psychology*, 16, 1123456.
- Guay, F. (2022). Motivational dynamics in hybrid learning: The role of autonomy and belonging. *Motivation and Emotion*, 46, 431–445.
- Gudonienė, D., Rutkauskienė, D., & Jevsikova, T. (2025). Adapting higher education to hybrid models: Student experiences and institutional challenges. *Education Sciences*, 15(1), 78.

- Mahrishi, K. (2025). Adapting to hybrid education: Student engagement and flexibility post-COVID-19. *Journal of Educational Technology & Society*, 28(1), 34-48.
- PLOS ONE. (2021). Mental health and COVID-19 in higher education: Systematic review. *PLOS ONE*, 16(5), e0251729.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78.
- Ryff, C. D. (2013). Psychological well-being revisited: Advances in the science and practice of eudaimonia. *Psychotherapy and Psychosomatics*, 83(1), 10–28.
- Seligman, M. E. P. (2018). *PERMA and the building blocks of well-being*. The Journal of Positive Psychology, 13(4), 333-335.
- SSRN Working Paper. (2025). Hybrid learning effectiveness in post-pandemic higher education. *SSRN Electronic Journal*.
- Taylor & Francis. (2022). Post-pandemic pedagogies: Balancing flexibility and connection. *Studies in Higher Education*, 47(8), 1567-1580.
- UNESCO. (2023). *Adapting higher education systems to hybrid models post-COVID-19*. UNESCO Policy Brief.
- World Health Organization. (2022). *Mental health and COVID-19: Early evidence of the pandemic's impact*. WHO Press.

Copyright holder:

Adichandra Febryana Yuscatama Darmawan (2025)

First publication right:

Insight: International Journal of Social Research

This article is licensed under:

