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Predicting Students' Learning Perceptions through Deep Learning Pedagogy within a Transformative Curriculum: Evidence from Indonesian Islamic Higher Education

Agus Pahrudin¹, Iip Sugiharta², Zainal Arifin³

^{1,2} Universitas Islam Negeri Raden Intan Lampung, Indonesia

³ Universitas Islam Negeri Sunan Kalijaga, Indonesia

Email : agus.pahrudin@radenintan.ac.id¹, iip.sugiharta@radenintan.ac.id², zainal.arifin@uin-suka.ac.id³

ABSTRACT

Islamic higher education institutions increasingly promote transformative and holistic curricular goals; however, empirical modeling that explains how deep learning pedagogy operates within Islamic epistemological commitments and predicts students' learning perceptions remains limited. This study examines how Meaningful Learning, Mindful Learning, and Joyful Learning, as dimensions of Deep Learning pedagogy, predict students' learning perceptions within a transformative curriculum framework in Indonesian Islamic higher education. An exploratory sequential mixed-methods design was employed. Semi-structured interviews were conducted with 27 academic leaders and lecturers from three Indonesian Islamic universities. Based on qualitative theme-to-item translation, a questionnaire was developed and administered to 300 undergraduates using a cross-sectional survey. The instrument demonstrated good to excellent reliability ($\alpha = 0.84-0.86$; overall $\alpha = 0.94$). Multiple linear regression was applied. Qualitative findings indicate that Deep Learning operates as an integrated pedagogical process linking contextual relevance, reflective engagement, and emotional involvement within a value-oriented instructional ecology. Quantitative results show that Meaningful Learning, Mindful Learning, and Joyful Learning jointly explain 71.7% of the variance in students' learning perceptions ($R^2 = 0.717$). Meaningful Learning and Joyful Learning emerge as the strongest predictors ($\beta = 0.39$), while Mindful Learning contributes positively with a smaller magnitude ($\beta = 0.17$). The findings suggest that effective transformative curriculum implementation in PTKI/PTAIS contexts requires intentional integration of cognitive relevance, reflective awareness, and emotional engagement within curriculum design, lecturer development, and institutional support systems. Limitations include the cross-sectional design, reliance on self-report measures, and limited institutional scope. This study contributes theoretically by recontextualizing Deep Learning constructs within an Islamic epistemological framework, particularly through a tawhidic integration of cognitive, reflective, and affective dimensions. By empirically modeling students' learning perceptions as an integrative indicator of transformative learning in Indonesian Islamic higher education, this study extends mainstream Deep Learning theory beyond its predominantly Western cognitive-reflective orientation toward a value-embedded pedagogical paradigm.

Keywords : *deep learning, joyful learning, meaningful learning, mindful learning, students' learning perception, transformative curriculum*

INTRODUCTION

In the context of rapid digital and social transformation, Islamic higher education institutions are increasingly challenged to translate aspirations for graduates who are technically competent, morally responsible, and socially engaged into concrete pedagogical practices. Within

Islamic educational philosophy, holistic development is articulated through the concept of *insān kāmil*, emphasising the integration of intellectual, ethical, and spiritual formation (Fernández et al., 2023). Global policy frameworks, including UNESCO's Futures of Education initiative and Sustainable Development Goal 4, similarly advocate value-oriented and transformative learning (UNESCO, 2024). However, translating these normative commitments into pedagogically operational models that cultivate meaning, reflective awareness, and ethical engagement remains an ongoing challenge in higher education practice.

Despite institutional commitments to holistic and transformative education, the implementation of these principles in Islamic higher education remains uneven and inconsistently operationalised (Abedi, 2024; Akrim et al., 2022). Transformative curriculum discourse is often reflected in policy documents; however, classroom practices frequently continue to prioritise content delivery, assessment compliance, and teacher-centred instruction (El-Annan & Hassoun, 2025). Evidence further indicates that curriculum transformation is commonly treated as a programmatic or administrative initiative rather than as a pedagogically integrated process embedded within institutional systems and instructional design (Siti Romlah et al., 2025). Consequently, reflective engagement, mindful awareness, and meaningful learning experiences are not systematically translated into measurable pedagogical practices (Shé et al., 2022). This condition highlights not merely a normative–practical discrepancy but also an empirical gap: the absence of analytical models that explain how specific pedagogical dimensions are operationalised and linked to observable student learning outcomes in Islamic higher education contexts.

Empirical evidence at the global level reinforces this concern. Results from large-scale international surveys of higher education students indicate that a substantial proportion of students continue to experience surface-oriented learning despite ongoing curriculum reform initiatives. The Student Academic Experience Survey (Wright et al., 2025) reports that less than 50% of university students consistently engage in deep or reflective learning activities, while many students perceive their learning experiences as predominantly driven by assessment demands and content coverage rather than by meaningful or engaging pedagogical practices.

Consistent findings are also reported in international higher education research, showing that fewer than half of students demonstrate characteristics of deep or reflective learning, with instructional practices remaining largely content-driven and assessment-oriented across diverse higher education systems (Hernández et al., 2023; Wergin, 2019). Similar patterns are evident in Islamic education contexts, where instructional practices often remain focused on textual transmission and formal requirements, with limited integration of social reality and transformative learning experiences, resulting in a persistent gap between normative educational ideals and lived pedagogical practice (Munawir & Sahrir, 2025). This gap between transformative curricular intentions and pedagogical practices represents a critical empirical problem that warrants systematic investigation within Islamic higher education contexts.

In contemporary educational discourse, deep learning is understood not merely as the mastery of subject matter but as a pedagogical orientation that integrates three interrelated dimensions, namely meaningful learning, mindful learning, and joyful learning. Meaningful learning emphasises conceptual connectedness and relevance; mindful learning highlights learners' awareness and reflective engagement; while joyful learning foregrounds intrinsic motivation and emotional engagement as conditions for sustained learning (Salmi et al., 2023). In higher education research that builds on the deep–surface approaches to learning tradition, deep learning is commonly operationalised as cognitive and metacognitive engagement oriented toward conceptual understanding and academic achievement, and it is typically examined through students' learning approaches and related performance outcomes (Roehe et al., 2024; Xie et al., 2023).

In contrast, Islamic higher education frames learning, including the enactment of PAI-related and value-oriented curricula, within an explicit epistemological commitment in which

intellectual development is inseparable from ethical formation and moral responsibility; consequently, deep learning is interpreted as a curricular–pedagogical integration of cognitive, reflective, and affective dimensions grounded in religious values rather than as a purely cognitive–metacognitive orientation (Irham, 2025; Masturin et al., 2022). However, empirical studies in Islamic education indicate that instructional practices often remain dominated by textual transmission and formal routines, with limited integration of social reality and experiential learning, highlighting the gap between this normative epistemological ideal and its pedagogical enactment (Munawir & Sahrir, 2025). This comparison clarifies why deep learning requires contextual reinterpretation when translated from dominant higher education models into Islamic higher education settings, where curriculum and pedagogy are explicitly value-laden.

Transformative learning theory conceptualises meaningful learning as a process grounded in critical reflection and authenticity, through which learners revisit underlying assumptions and lived experiences, leading to shifts in perspective and subsequent action (Singer-Brodowski, 2023; Southworth, 2022; Stuckey et al., 2022; Sweet, 2023). From an Islamic epistemological perspective, knowledge is not understood as value-neutral but as a transformative process that integrates intellectual reasoning (*‘aql*), spiritual consciousness (*rūḥ*), and ethical responsibility, as articulated in the traditions of *tarbiyah* and *ta’dib* grounded in the principle of *tawḥīd* (Arbani et al., 2022; Fathurrohman et al., 2025). Empirical evidence from Islamic contexts indicates that the integration of religious values and spiritual authority into contemporary learning and social practices increasingly occurs through adaptive, context-sensitive forms rather than rigid or purely formal modes of transmission (Hidayati, 2022).

Within this epistemic framework, a transformative curriculum is not merely a pedagogical preference but an epistemological necessity in Islamic higher education, since learning is expected to orient learners toward the reconfiguration of worldview, moral agency, and responsible action rather than toward the accumulation of disciplinary knowledge alone (Irham, 2025; Masturin et al., 2022). Consequently, transformative learning in Islamic higher education can be understood as a curriculum-level commitment to integrating intellectual rigour with spiritual and ethical formation. This integration becomes particularly salient when curriculum design and pedagogical practices intentionally embed religious values alongside contemporary academic and professional demands, ensuring that educational outcomes reflect both scholarly competence and moral responsibility (Irham, 2025; Khalid et al., 2022; Kurniawati et al., 2023; Supriyanto, 2022).

The New Pedagogies for Deep Learning (NPDL) framework extends contemporary understandings of deep learning by emphasising six global competencies: character, citizenship, collaboration, communication, creativity, and critical thinking (Hernández et al., 2023; Tukiar et al., 2022). When contextualised within Islamic educational values, these competencies provide a coherent foundation for developing graduates who are intellectually capable, ethically grounded, and socially responsible (Arbani et al., 2022; Hernández et al., 2023; Ramdzan et al., 2022). Policy analyses at national and institutional levels further indicate a strong synergy between deep learning principles and transformative curriculum reforms in higher education (Kuang & Duan, 2025). Empirical studies on curriculum management and educational quality in Islamic higher education suggest that integrating deep learning–oriented pedagogies with national qualification frameworks can foster learning environments that are reflective, value-oriented, and responsive to global challenges (Haris, 2019; Pahrudin et al., 2023).

However, much of the existing literature, including studies on deep learning, the NPDL framework, and transformative curricula in Islamic higher education, continues to emphasise conceptual alignment, normative coherence, or descriptive policy outcomes (Chen et al., 2025; Drummy, 2020). While these studies provide important insights into curriculum reform and institutional readiness, they offer limited empirical explanation of how specific pedagogical dimensions such as meaningful learning, mindful learning, and joyful learning are operationalised in

classroom practice and how each dimension is associated with measurable student learning outcomes (Benu et al., 2025; Pahrudin et al., 2023; Ramadhan, 2025). Consequently, the distinct and combined contributions of these dimensions to students' academic achievement and learning experiences have received insufficient examination in prior empirical research (Cheng & Carolyn Yang, 2023). In particular, empirical modelling that systematically links these pedagogical dimensions to students' learning perceptions as an integrative outcome remains underdeveloped, especially within an Islamic epistemological framework. Addressing this gap requires a predictive analytical approach that bridges normative Islamic educational commitments with measurable pedagogical effects.

Methodologically, the pedagogical idea of deep learning bears an informative analogy to representation learning in artificial intelligence, where depth refers to hierarchical structures that enable abstraction and the construction of complex meaning (Azer et al., 2013). In educational contexts, this analogy illuminates how learners develop layered cognitive, reflective, and value-oriented structures through sustained engagement with learning experiences (Klopov et al., 2023). Despite the clear theoretical synergy between transformative learning, deep learning pedagogy, and Islamic educational philosophy, their integration has remained largely discursive-comparative rather than analytically synthesised. Dominant formulations of deep learning and transformative learning, largely developed within Western secular traditions, have not been systematically reinterpreted within Islamic epistemological constructs such as *ta'dīb* and *tawhid* (Naomi Fahma, 2025; Rachman, 2025).

In this respect, Meaningful, Mindful, and Joyful Learning are not treated in this study as merely transplanted constructs, but as epistemologically recontextualised dimensions. Meaningful Learning is reframed beyond cognitive relevance toward value-oriented purposefulness grounded in *tawhidic* integration; Mindful Learning is repositioned from metacognitive monitoring toward ethical self-regulation aligned with moral consciousness (*ta'dīb*); and Joyful Learning is reconstructed from affective engagement toward relational harmony rooted in spiritual and moral responsibility. However, empirical evidence explaining how these reinterpreted dimensions are operationalised within transformative curriculum practices in Islamic higher education institutions remains limited (Feriyanto & Anjariyah, 2024). Existing studies have primarily focused on curriculum management, policy alignment, or isolated pedagogical innovations, leaving a lack of holistic empirical models that integrate spiritual formation, intellectual development, and measurable student outcomes within a unified analytical framework (Nedungadi et al., 2024).

To address these gaps, this study aims to examine the implementation of a Deep Learning pedagogy encompassing meaningful, mindful, and joyful learning within a transformative curriculum framework in Islamic higher education. Specifically, this study seeks (1) to explore current instructional practices related to the three dimensions of Deep Learning across Islamic higher education institutions, (2) to analyze how these pedagogical dimensions are conceptualized and enacted within Islamic pedagogical contexts, and (3) to investigate the extent to which meaningful learning, mindful learning, and joyful learning predict students' learning perception as an integrative indicator of transformative learning experiences. Students' learning perceptions are used as an outcome variable because they reflect students' holistic appraisal of learning processes that combine cognitive relevance, reflective awareness, and emotional engagement, all of which are central to transformative curriculum implementation. By empirically linking these three pedagogical dimensions to students' learning perception, this study offers a novel contribution by clarifying how deep learning operates as an integrated pedagogical mechanism rather than as isolated instructional components. Theoretically, this study provides empirical insight into the application of transformative learning principles in Islamic higher education. At the same time, practically, it offers evidence-based implications for aligning curriculum design and pedagogical practice to support holistic, value-oriented learning experiences.

RESEARCH METHOD

This study employed an exploratory sequential mixed-methods design, in which qualitative findings informed the development of a quantitative instrument and subsequent hypothesis testing (Creswell & Plano Clark, 2018). In the qualitative phase, semi-structured interviews were conducted with heads of study programs and lecturers to explore how Meaningful, Mindful, and Joyful Learning were conceptualised and enacted in instructional practices within the Faculties of Education and Science and Technology. This phase aimed to identify context-specific manifestations of deep learning dimensions in Islamic higher education settings.

Qualitative data were coded and organised into themes and subthemes, which served as the basis for developing operational indicators and generating an initial pool of survey items (Creswell, 2014). A cross-sectional survey design was subsequently employed to examine the predictive effects of Meaningful, Mindful, and Joyful Learning on students' learning perceptions using multiple linear regression.

To ensure methodological integration between phases, a structured theme-to-item translation process was implemented. Interview themes were clustered into conceptual categories corresponding to the three deep learning dimensions, and these were operationalised into measurable indicators that informed the development of Likert-scale questionnaire items. This procedure ensured that the quantitative instrument was grounded in empirically derived instructional practices rather than solely adapted from existing theoretical scales.

Table 1 : Example of Theme-to-Item Translation Process

Qualitative Theme (Interview Findings)	Operational Indicator	Sample Questionnaire Item	Scale
Learning connected to real-life and social issues	Contextual relevance of instructional content	"The learning activities in this course are clearly connected to real-life and societal issues."	1 (Strongly Disagree) – 5 (Strongly Agree)
Encouragement of self-reflection and moral awareness	Reflective and ethical self-regulation	"I am encouraged to critically reflect on my assumptions and moral responsibilities during learning."	1–5 Likert
Positive emotional climate in classroom interaction	Affective engagement in learning	"The learning environment makes me feel motivated and emotionally engaged."	1–5 Likert
Integration of religious values into academic discussion	Value-oriented meaning construction	"Religious and ethical values are meaningfully integrated into classroom discussions."	1–5 Likert

To maintain epistemological coherence with Islamic educational paradigms, qualitative coding and indicator refinement were informed by the concepts of *ta'dīb* and *tarbiyah*, which emphasise the integration of knowledge, ethics, and character formation (Abdalla, 2025). These principles guided the operationalisation of meaningful learning as value-oriented relevance and mindful learning as ethically reflective awareness within Islamic higher education contexts.

Integration between qualitative and quantitative phases occurred at two stages: (1) instrument development, where qualitative themes informed variable operationalisation, and (2) interpretation, where quantitative findings were analysed in light of qualitative insights. This design enabled contextual grounding prior to predictive modelling across multiple Islamic higher education institutions.

Participants were drawn from three State Islamic Universities in Indonesia, namely UIN Raden Intan Lampung, UIN Sunan Gunung Djati Bandung, and UIN Sunan Kalijaga Yogyakarta. These institutions were selected based on theoretical and methodological considerations rather

than for statistical representativeness. All three universities are comprehensive State Islamic Universities in which the integration of Islamic knowledge and contemporary disciplines constitutes a core institutional mandate. In addition, each institution has comparable academic structures, including Faculties of Education and Faculties of Science and Technology. This structural similarity enabled analytical comparability across disciplinary domains while still capturing contextual variation in instructional practices. The selection, therefore, follows a maximum variation logic intended to enhance contextual richness while maintaining structural consistency across cases. Accordingly, the findings are analytically generalizable to similar institutional contexts, but not statistically generalizable to all Islamic higher education institutions in Indonesia.

The qualitative phase involved 27 participants, consisting of 9 heads and deputy heads of study programs and 18 lecturers from the Faculties of Education and Science and Technology across the three institutions. Participants were selected through purposive sampling based on their direct involvement in curriculum planning and instructional implementation. This criterion ensured that participants had informed perspectives on how Meaningful Learning, Mindful Learning, and Joyful Learning were conceptualised and enacted in classroom practice. The sample size was determined to ensure sufficient variation across institutional roles, faculties, and institutions. It was considered adequate to achieve thematic saturation through iterative coding and cross-case comparison.

The quantitative phase included 300 undergraduate students, with 100 students from each institution. To maintain balanced representation across disciplinary domains, each institutional group consisted of 50 students from the Faculty of Education and 50 students from the Faculty of Science and Technology. Students were selected through stratified purposive sampling to ensure structural equivalence across institutions and faculties while remaining aligned with the study's analytical objectives.

Although quantitative research is often associated with probabilistic sampling, the present study employed a non-probabilistic stratified approach to prioritise analytical comparability across structurally similar State Islamic Universities. Therefore, the results should be interpreted within the limits of analytical generalisation rather than statistical population inference.

The quantitative sample size of 300 respondents was considered adequate for multiple linear regression analysis with three predictor variables. Methodological guidelines indicate that samples exceeding 200 cases generally provide stable parameter estimation and sufficient statistical power for multivariate regression models. The use of an equivalent sampling structure across the three institutions reduced contextual imbalance and supported consistent cross-institutional analysis. However, the study was not designed to test institutional-level differences. Future research may incorporate inter-institutional comparisons or multi-level modelling to further strengthen external validity.

Two distinct types of instruments were used in this study, corresponding to the qualitative and quantitative phases of the research and aligned with the exploratory sequential mixed-methods design. The qualitative and quantitative instruments were different in form and function, serving complementary purposes within the overall research framework.

In the qualitative phase, data were collected using semi-structured interview guidelines designed to explore lecturers' and heads of study programs' perspectives on the implementation of meaningful, mindful, and joyful learning in higher education. The interview guide consisted of open-ended questions organised around key domains, including participants' conceptual understanding of meaningful, mindful, and joyful learning, instructional strategies used to promote these learning dimensions, integration of disciplinary, contextual, and value-based elements in teaching, and institutional or contextual factors influencing the enactment of deep learning-oriented

practices. Probing questions were used to encourage participants to elaborate on their experiences and provide concrete examples from their teaching practices.

Qualitative data were collected through individual interviews conducted in several stages, including identification of eligible participants based on predefined criteria, invitation and informed consent, scheduling of interviews, and data collection. Interviews were conducted either face-to-face or online, depending on participants' availability, with an average duration of approximately 45–60 minutes. All interviews were audio-recorded with participants' permission and subsequently transcribed verbatim for analysis. To ensure content validity and clarity of the interview questions, the interview guidelines were reviewed by education experts through expert judgment prior to data collection, and the wording and sequencing of the questions were refined based on their feedback.

Based on the qualitative findings, a quantitative survey instrument was developed to measure students' perceptions of meaningful, mindful, and joyful learning, as well as overall learning perception. The survey consisted of closed-ended Likert-scale items and was designed to operationalise the instructional themes identified in the qualitative phase. To establish the content validity of the quantitative instrument, education experts reviewed the initial pool of questionnaire items derived from the qualitative themes to assess their relevance, clarity, and representativeness of the intended constructs. This approach ensured alignment between qualitative insights and quantitative measurement.

Quantitative data were collected by administering the survey to undergraduate students in the three participating universities. Data collection was conducted at a single point in time (a cross-sectional design), meaning that data were collected once from participants without repeated measurements. This approach was appropriate because the study aimed to examine relationships and predictive effects among learning variables as perceived within a specific academic context, rather than to investigate changes or developments over time. Collecting data within the same period across institutions also helped ensure consistency and comparability of findings.

The qualitative data were analysed using thematic analysis, following the systematic, iterative procedure proposed by Braun and Clarke (2006). The analysis began with familiarisation through repeated reading of interview transcripts, followed by the generation of initial codes. Meaningful segments of data were then identified and organised into broader themes: Meaningful Learning, Mindful Learning, and Joyful Learning. Themes were reviewed, refined, and compared across faculties and institutions to identify recurring instructional patterns and variations in pedagogical practice. To enhance trustworthiness, cross-case comparison was conducted, and interpretations were grounded in verbatim excerpts to ensure that themes reflected collective instructional experiences rather than isolated perspectives.

Quantitative data were analysed using descriptive and inferential statistical techniques. Instrument reliability was first assessed using Cronbach's alpha coefficients for each construct. All constructs demonstrated acceptable to excellent reliability. Construct validity was examined in two stages. First, corrected item–total correlations were assessed, and items were retained when values exceeded 0.30. Second, an Exploratory Factor Analysis was conducted to examine the instrument's underlying factor structure and confirm the three-dimensional structure of Meaningful Learning, Mindful Learning, and Joyful Learning. Factor extraction was performed using principal axis factoring with appropriate rotation. Items were retained when factor loadings exceeded 0.50, and cross-loadings were minimal, ensuring construct clarity and dimensional stability.

To address potential common-method bias arising from self-report measures collected at a single time point, Harman's single-factor test was conducted. The results indicated that no single factor accounted for the majority of total variance, suggesting that common method variance did not substantially threaten the validity of the findings.

Multiple linear regression analysis was employed to examine the individual and combined predictive effects of Meaningful Learning, Mindful Learning, and Joyful Learning on students'

learning perceptions. This method allows simultaneous assessment of multiple independent variables in predicting a single dependent variable while estimating the relative contribution of each predictor.

Before regression analysis, key statistical assumptions were systematically tested. Multicollinearity was assessed using the Variance Inflation Factor, with values below accepted thresholds indicating the absence of multicollinearity. Normality of residuals was examined using the Kolmogorov–Smirnov test. Homoscedasticity was assessed using the Breusch–Pagan test. When heteroscedasticity was detected, regression coefficients were re-estimated using heteroskedasticity-consistent robust standard errors to ensure accurate statistical inference. This approach strengthened the robustness and credibility of the predictive model.

Based on the theoretical framework of Deep Learning and the exploratory findings from the qualitative phase, this study proposed the following research hypotheses to examine the predictive effects of meaningful learning, mindful learning, and joyful learning on students' learning perceptions:

- (1) H1: Meaningful Learning has a positive and significant effect on students' learning perceptions.
- (2) H2: Mindful Learning has a positive and significant effect on students' learning perceptions.
- (3) H3: Joyful Learning has a positive and significant effect on students' learning perceptions.

The hypotheses were tested using multiple linear regression analysis. Statistical decision-making was based on a significance level of $\alpha = 0.05$. A hypothesis was accepted if the regression coefficient was positive and the corresponding p-value was less than 0.05. Conversely, a hypothesis was rejected if the p-value was 0.05 or greater. All statistical tests were conducted using two-tailed significance testing.

FINDINGS AND DISCUSSION

Findings

1. Results of Instrument Feasibility Testing for Interview Guidelines and Questionnaires

Following expert judgment conducted before data collection, the feasibility of the semi-structured interview guidelines was further examined through their implementation during field data collection across multiple Islamic higher education institutions. Analysis of interview transcripts indicates that participants responded to the questions without requiring repeated clarification, suggesting that the wording and sequencing of the interview protocol were sufficiently clear and comprehensible across faculties.

The interview data generated detailed accounts of meaningful, mindful, and joyful learning practices, as well as of institutional policies and pedagogical challenges. Similar thematic patterns emerged across the Faculty of Education and the Faculty of Science and Technology in all participating institutions. This consistency suggests that the interview guidelines were able to capture the intended dimensions of deep learning pedagogy across varying academic contexts.

The structure of the interview protocol also supported a coherent flow of discussion, enabling participants to elaborate on instructional experiences and contextual conditions. Although variations were observed in the level of institutional support and infrastructure, the interview guidelines remained functionally applicable across settings. These findings indicate that the interview instrument was operationally feasible and aligned with the research objectives during the qualitative phase of the study.

The quantitative questionnaire was subsequently evaluated using reliability and validity analyses, followed by diagnostic tests to assess whether the data met the fundamental assumptions

of multiple linear regression. These analyses were conducted to ensure the instrument's measurement quality and the regression model's statistical adequacy before interpreting the relationships among the study variables.

The quantitative questionnaire was subsequently evaluated using reliability and validity analyses, followed by diagnostic tests to assess whether the data met the fundamental assumptions of multiple linear regression. These analyses were conducted to ensure the instrument's measurement quality and the regression model's statistical adequacy before interpreting the relationships among the study variables.

Table 2 : Reliability of the Quantitative Instrument (Cronbach's Alpha)

Construct	Number of Items	Cronbach's Alpha
Meaningful Learning	5	0.86
Mindful Learning	5	0.844
Joyful Learning	5	0.864
Students' Learning Perception	5	0.85
Overall Scale	20	0.944

Note: N = 300

The reliability coefficients presented in Table 2 indicate a high level of internal consistency across all measured constructs. Cronbach's alpha values for meaningful learning, mindful learning, joyful learning, and students' learning perception range from 0.844 to 0.864, exceeding the commonly accepted threshold of 0.70 and reflecting good reliability. In addition, the overall scale demonstrates excellent internal consistency ($\alpha = 0.944$), indicating that the instrument is suitable for subsequent statistical analysis.

Table 3 : Validity of the Quantitative Instrument (Corrected Item – Total Correlation)

Construct	Minimum CITC	Maximum CITC
Meaningful Learning	0.493	0.689
Mindful Learning	0.497	0.591
Joyful Learning	0.553	0.679
Students' Learning Perception	0.633	0.7

The corrected item–total correlation values shown in Table 3 indicate that all items demonstrate adequate construct validity. For each construct, the minimum CITC values exceed the recommended cut-off of 0.30, suggesting that the items are sufficiently correlated with their respective total scores. This confirms that each item contributes meaningfully to the measurement of its underlying construct, and no items were removed from the instrument.

Table 4 : Summary of Regression Assumption Testing

Assumption	Indicator	Result
Multicollinearity	Max VIF	2.12
Normality	Kolmogorov–Smirnov	D = 0.055, p = 0.314
Homoscedasticity	Breusch–Pagan	BP = 20.92, p = 0.0001

Note: N = 300

As presented in Table 4, the maximum VIF value (2.12) is well below commonly accepted thresholds, indicating that multicollinearity is not a concern. The Kolmogorov– Smirnov test yielded a non-significant result (D = 0.055, p = 0.314), suggesting that the residuals do not significantly deviate from normality.

The Breusch–Pagan test indicated the presence of heteroskedasticity ($BP = 20.92$, $p = 0.0001$), suggesting that the assumption of constant error variance was violated. To address this issue, regression coefficients were re-estimated using heteroskedasticity-consistent robust standard errors. The regression results reported in Table 6, therefore, reflect robust estimates, ensuring valid statistical inference despite the detected heteroskedasticity.

2. Implementation of Meaningful Learning in Islamic Higher Education Institutions

The qualitative findings indicate that lecturers across the three Islamic higher education institutions implemented meaningful learning by emphasising contextual relevance and integrating values into instructional practices. Beyond pedagogical relevance, meaningful learning was framed epistemically as a value-oriented process of meaning-making, in which academic knowledge was positioned as ethically consequential and socially responsible rather than merely instrumental.

Meaningful learning was primarily enacted through locally contextualised case studies, project-based assignments, and inquiry-oriented tasks that connected course materials to students' real-life contexts and social realities. These practices functioned not only as instructional strategies but as epistemic mechanisms that enabled students to reinterpret disciplinary knowledge in relation to their lived experiences and social responsibilities. As one lecturer explained:

“Students are given project-based tasks that are closely related to issues in their environment. Through these projects, they can see why the material is important and how it can be applied.” (Lecturer, Faculty of Education).

Within these contextual learning designs, Islamic values and socio-cultural perspectives were consistently integrated into course content. Importantly, these values were not positioned as normative add-ons, but rather as epistemological references that shaped how knowledge was understood, evaluated, and enacted. One lecturer emphasised this orientation:

“We always try to integrate Islamic values into the learning process, so students do not see knowledge only as academic content, but also as guidance for attitudes and moral responsibility.” (Lecturer, Faculty of Education).

From an Islamic educational perspective, this orientation reflects the logic of *ta'dib*, in which learning is understood as the cultivation of responsible knowledge grounded in ethical awareness. Through this epistemological lens, meaningful learning functioned as a transformative process that reoriented students' understanding of knowledge from content to be mastered toward an ethical commitment to apply knowledge responsibly.

In addition, lecturers encouraged students to apply and transfer conceptual knowledge through research-oriented and problem-based activities that promoted deeper understanding and reflection. These activities facilitated a shift from surface learning toward reflective engagement, enabling students to internalise knowledge as part of their intellectual and moral development. As one participant noted:

“By involving students in small research activities and problem-solving tasks, they become more reflective and understand the material more deeply, not just memorise it.” (Lecturer, Faculty of Science and Technology).

Taken together, these findings demonstrate that meaningful learning was enacted through the integration of contextual relevance and ethical orientation as a unified epistemic process, rather than as separate pedagogical techniques. The consistency of this pattern across institutions suggests that meaningful learning was not merely a conceptual ideal, but a consciously applied pedagogical–epistemic approach within Islamic higher education institutions.

3. Implementation of Mindful Learning Practices

The qualitative findings indicate that mindful learning was implemented through instructional practices that encouraged students to become aware of their learning processes,

ethical considerations, and personal responsibilities as learners. Beyond reflective technique, mindful learning functioned epistemically as a process of cultivating ethical awareness and self-regulation, positioning learning as an intentional and morally accountable activity.

Mindful learning was primarily enacted through structured reflective activities, including learning journals and guided reflection tasks. These practices enabled students not only to review academic content but also to examine their dispositions, intentions, and ethical orientation toward learning. As one lecturer explained:

“At the end of the course, students write reflective notes about their learning journey, including their attitudes, discipline, and responsibility in completing academic tasks.” (Lecturer, Faculty of Education).

In addition to written reflection, mindful learning was reinforced through classroom dialogues focused on values, ethics, and the consequences of academic and professional actions. These dialogues functioned as epistemic spaces in which knowledge was critically examined in relation to integrity, accountability, and future professional conduct. One lecturer highlighted this process:

“We often discuss ethical issues related to knowledge and professional responsibility, so students understand that learning is not only about mastering content, but also about maintaining integrity and honesty.” (Lecturer, Faculty of Science and Technology).

Interview data further indicate that these mindful learning practices contributed to students’ ability to maintain focus, regulate their learning behaviour, and uphold academic honesty. This pattern suggests a transformative mechanism in which reflective awareness mediates the transition from externally driven compliance toward internalised ethical commitment. As one participant noted:

“When students are encouraged to reflect and think about the impact of their actions, they become more disciplined and more aware of their responsibilities as learners.” (Lecturer, Faculty of Science and Technology).

From the perspective of Islamic education, this orientation resonates with the logic of *ta’dib* and *tarbiyah*, where learning is understood as a gradual cultivation of ethical consciousness, self-discipline, and moral responsibility. Within this epistemological frame, mindful learning operated as a transformative process that shaped students’ ways of knowing, evaluating, and governing their learning practices.

Taken together, these findings demonstrate that mindful learning was enacted through the integration of reflective writing and ethical dialogue as a unified epistemic process, rather than as isolated pedagogical techniques. The consistency of these practices across institutions suggests that mindful learning was not incidental, but consciously embedded as a pedagogical–epistemic strategy to support students’ holistic development within Islamic higher education.

4. Implementation of Joyful Learning Practices

The qualitative findings indicate that joyful learning was implemented through instructional practices that emphasised emotional engagement, a positive classroom atmosphere, and active student participation. Beyond creating a pleasant learning environment, joyful learning functioned epistemically as a relational mechanism that fostered psychological safety, learner agency, and mutual trust between lecturers and students.

Joyful learning was primarily enacted through interactive and collaborative methods, such as role-play activities, group discussions, and studio-based or project-oriented tasks. These practices positioned students as active contributors to knowledge construction rather than passive recipients, thereby reducing anxiety and encouraging expressive participation. As one lecturer explained:

“Through role-play and group discussions, students become more enthusiastic. They are not passive listeners, but actively involved in the learning process.” (Lecturer, Faculty of Science and Technology).

In addition to interactive methods, lecturers emphasised the importance of recognising and appreciating students’ creative and expressive contributions. Such recognition operated not merely as motivational feedback but as an affirmation of students’ intellectual dignity and agency within the learning process. One lecturer noted:

“When students’ ideas are appreciated, and their creativity is acknowledged, they feel more confident and motivated to participate.” (Lecturer, Faculty of Education).

Interview data further suggest that joyful learning practices contributed to increased student engagement, interaction, and willingness to collaborate. This pattern indicates a transformative mechanism in which emotional safety and relational affirmation reduce fear of failure and enable meaningful participation. As one participant observed:

“When the learning process is enjoyable, students are more active, more communicative, and more willing to collaborate with their peers.” (Lecturer, Faculty of Education).

From the perspective of Islamic education, this orientation resonates with pedagogical values grounded in *rahmah* (compassion), *ta’aruf* (mutual recognition), and respect for human dignity. Within this epistemological frame, joyful learning serves as a relational foundation that enables deeper engagement in meaningful, mindful learning, rather than as a superficial affective add-on.

Taken together, these findings demonstrate that joyful learning was enacted through the integration of relational climate, interactive pedagogy, and recognition of student agency as a unified epistemic–relational process. The consistency of these practices across institutions suggests that joyful learning was consciously embedded as a pedagogical–epistemic strategy that supports transformative learning by integrating emotional, relational, and moral dimensions within Islamic higher education.

Although a broadly consistent orientation toward deep learning practices was observed across institutions, the depth and systematic integration of these practices varied across faculties. In several instances, lecturers acknowledged that meaningful and mindful learning were enacted primarily through individual pedagogical initiatives rather than through formally articulated curriculum frameworks. This indicates that, while the pedagogical orientation was widely endorsed, the levels of institutional formalisation and structural embedding varied across contexts.

5. Challenges in Implementation

Despite the positive implementation of Meaningful, Mindful, and Joyful Learning practices, several challenges emerged across the participating institutions. These challenges reflected not only technical limitations but also structural and contextual constraints that shaped the depth and sustainability of transformative pedagogy. Variations in lecturers’ digital competence, combined with limited digital infrastructure and unequal access to learning technologies, compromised the consistency of technology-supported instructional practices, particularly in courses that rely on project-based, inquiry-oriented, and collaborative learning designs. In faculties with limited resources, lecturers tended to rely on more conventional teaching approaches, thereby reducing opportunities for student-centred, experiential, and contextual learning.

In addition, high administrative workloads significantly reduced the time available for lecturers to engage in reflective practice and instructional redesign. This workload pressure constrained the epistemic processes central to mindful learning, such as deliberate reflection, ethical dialogue, and iterative refinement of learning activities. Institutional pressures also influenced the emotional and relational dimensions of teaching, as time constraints limited lecturers’ capacity to sustain relational engagement, provide feedback, and foster creative interaction. Consequently,

joyful learning practices were often implemented on an ad hoc basis rather than systematically embedded into instructional design.

Taken together, these findings indicate that although Deep Learning practices were present across institutions, their implementation varied in intensity and coherence due to structural, technological, and organisational factors. Within a transformative curriculum grounded in Islamic educational values, these constraints highlight the importance of institutional alignment, capacity building, and workload management. Without addressing these systemic conditions, the transformative potential of meaningful, mindful, and joyful learning risks being reduced to isolated pedagogical practices rather than sustained epistemic transformation.

6. Descriptive Profile of Study Variables

Descriptive statistics summarise the central tendency and dispersion of meaningful learning, mindful learning, joyful learning, and students' learning perception based on responses from 300 undergraduate students. As shown in Table 5, the mean scores and standard deviations provide an overview of students' overall perceptions of the learning experiences reflected by each construct.

Table 5 : Descriptive Statistics of Study Variables

Variable	N	Mean	Standard Deviation
Meaningful Learning	300	20.46	2.84
Mindful Learning	300	21.37	2.62
Joyful Learning	300	20.85	2.82
Students' Learning Perception	300	20.69	2.59

Note: Mean scores were calculated based on composite scores derived from five Likert-scale items for each variable (possible range: 5–25)

As indicated in Table 1, the mean scores across all variables are relatively high, reflecting generally positive student perceptions of meaningful, mindful, and joyful learning, as well as students' perceptions of their own learning. Among the four constructs, Mindful Learning has the highest mean score, suggesting that students tend to experience a high level of awareness and attentiveness during their learning activities. Joyful Learning and Students' Learning Perception also show comparably high mean values, indicating favourable emotional engagement and positive overall evaluations of the learning experience. Meaningful Learning demonstrates a similarly strong mean score, suggesting that students generally perceive their learning experiences as relevant and meaningful. The standard deviation values for all variables are moderate, indicating an adequate level of variability in responses without excessive dispersion, and suggesting a relatively consistent pattern of perceptions among the respondents.

7. Multiple Linear Regression Results

Prior reliability and validity analyses indicated satisfactory measurement quality. Corrected item–total correlations exceeded 0.30 for all items, and Exploratory Factor Analysis confirmed a stable three-factor structure representing Meaningful Learning, Mindful Learning, and Joyful Learning (KMO = 0.936; Bartlett's test $p < 0.001$; total variance explained = 64.5%). Factor loadings exceeded 0.50 with minimal cross-loadings, supporting construct validity.

To assess potential common-method bias arising from self-report measures collected at a single time point, Harman's single-factor test was conducted. The first unrotated factor accounted for 49.03% of the total variance, which is below the commonly referenced 50% threshold, suggesting that common method variance was not dominant in the dataset.

Multiple linear regression analysis was conducted to examine the predictive associations of Meaningful Learning, Mindful Learning, and Joyful Learning with students' learning perceptions.

Diagnostic testing indicated the presence of heteroskedasticity (Breusch–Pagan $p = 0.0001$). Therefore, regression coefficients were re-estimated using heteroskedasticity-consistent robust standard errors to ensure valid statistical inference. The results reported below reflect these robust estimates.

Table 6 : Multiple Linear Regression Results

Predictor	B	Robust Std. Error	β	t	p-value
Constant	2.19	0.71	—	3.1	0.002
Meaningful Learning	0.36	0.04	0.39	8.91	< 0.001
Mindful Learning	0.17	0.04	0.17	3.97	< 0.001
Joyful Learning	0.36	0.04	0.39	8.66	< 0.001

Model fit: $R^2 = 0.717$; Adjusted $R^2 = 0.714$; $F = 250.10$; $p < 0.001$

Note: $N = 300$

The regression model was statistically significant and explained approximately 71.7% of the variance in students' learning perceptions. The adjusted R^2 value (0.714) indicates that the explanatory power remains stable after accounting for the number of predictors.

At the individual level, Meaningful Learning and Joyful Learning demonstrate equally strong positive predictive associations with students' learning perceptions ($\beta = 0.39$, $p < 0.001$), while Mindful Learning also shows a statistically significant positive association with a comparatively smaller standardised coefficient ($\beta = 0.17$, $p < 0.001$).

Although the coefficient of determination is relatively high for a perception-based cross-sectional study, prior construct validity analyses and common-method bias testing indicated a stable multidimensional structure and the absence of a single dominant latent factor. The substantial explanatory power, therefore, appears to reflect the conceptual alignment between pedagogical dimensions and students' evaluative learning perceptions rather than a statistical artifact alone.

Taken together, these findings indicate strong predictive relationships between the three dimensions of deep learning pedagogy and students' learning perceptions within the studied institutional contexts. However, given the cross-sectional design, these relationships should not be interpreted as evidence of causal mechanisms.

Discussion

This study offers an empirically grounded interpretation of how meaningful, mindful, and joyful learning operate within a transformative curriculum and relate to students' perceptions of learning in Islamic higher education. Rather than functioning as independent pedagogical elements, the three dimensions appear to form an integrated learning ecology that connects cognitive relevance, reflective awareness, and emotional engagement. Within this ecology, affective engagement may contribute to creating relational and psychological conditions that support meaning-making and reflective awareness in classroom practice. This integrative pattern supports contemporary perspectives on deep learning that emphasise holistic learner development over narrow cognitive attainment (Taylor & Tisdell, 2017; Wergin, 2019) and aligns with broader, deeper learning arguments highlighting the interplay of cognitive, intrapersonal, and interpersonal dimensions in higher education settings (Hernández et al., 2023).

Meaningful Learning is closely associated with instructional practices that emphasise contextual relevance, real-life application, and the integration of Islamic values into academic content. The findings indicate that meaningful learning in Islamic higher education extends beyond pedagogical relevance and may be understood as an epistemic orientation in which knowledge is framed in relation to ethical purpose and moral responsibility.

Learning experiences that connect disciplinary knowledge with students' social realities and ethical frameworks appear to support the construction of knowledge perceived as purposeful and

applicable beyond formal academic requirements. In this sense, relevance can be interpreted as contributing to meaning-making rather than functioning solely as an instructional technique. Such practices align with prior scholarship highlighting relevance and transferability as central features of meaningful learning (Salmi et al., 2023), while also situating meaning-making within a value-informed epistemological context. Within Islamic higher education, this orientation resonates with epistemological traditions grounded in ta'dīb and tawhid, where intellectual inquiry is conceptually linked to moral and spiritual formation (Arbani et al., 2022; Fathurrohman et al., 2025).

The strong contribution of Meaningful Learning to students' perceptions of learning offers a contextual refinement of transformative learning theory within Islamic higher education. The findings suggest that meaning-making in this setting extends beyond critical reflection on assumptions alone and may involve value-oriented contextualization that integrates disciplinary knowledge with ethical purpose and moral commitment, aligning learning with students' lived experiences and moral orientations (Singer-Brodowski, 2023; Southworth, 2022).

From the perspective of Islamic educational epistemology, this pattern may resonate with tawhidic integration, in which knowledge is understood conceptually as a unified moral–intellectual endeavour rather than a value-neutral cognitive activity. While constructs such as adab al-‘ilm and amanah were not directly measured in this study, the observed alignment between ethical framing and students' learning perceptions may reflect value-informed dimensions of knowledge formation emphasised in Islamic educational thought. Rather than challenging dominant formulations of transformative learning, these findings contribute to ongoing discussions by highlighting ethical and cultural framing as potentially significant dimensions of meaningful educational transformation within value-laden higher education contexts.

Mindful Learning is reflected in practices that cultivate reflective awareness, ethical sensitivity, and self-regulation. Activities such as reflective writing, guided reflection, and ethical dialogue encourage learners to become more attentive to how they learn and to the responsibilities associated with knowledge. Rather than directly shaping immediate learning perceptions, these practices may be understood as contributing to learners' ethical orientation and self-governance over time. Such practices are consistent with theoretical accounts that position mindful learning as a process of metacognitive awareness and contextual attentiveness (Stuckey et al., 2022; Sweet, 2023). The comparatively smaller statistical contribution of Mindful Learning in this study may therefore reflect the possibility that reflective awareness operates in less immediately evaluative ways, potentially influencing learning perceptions in more gradual, indirect ways. In Islamic educational contexts, this reflective orientation may resonate with traditions of moral introspection and self-discipline that frame learning as an ethically informed process rather than a purely instrumental activity (Aflah et al., 2025; Supriyanto, 2022).

Building on this finding, the comparatively smaller contribution of Mindful Learning invites interpretive reflection rather than confirmatory causal explanation. Reflective awareness and ethical sensitivity are often described in the literature as processes that develop gradually and may not immediately translate into evaluative perceptions of learning. The present findings suggest that mindfulness-oriented pedagogical practices are more closely associated with internal orientation and reflective depth than with short-term perceptual evaluation. While temporal or mediated effects were not directly examined in this cross-sectional design, the observed pattern is consistent with theoretical accounts emphasising the gradual influence of reflective and metacognitive processes (Stuckey et al., 2022; Sweet, 2023).

Within Islamic pedagogical traditions, such reflective orientations may resonate with concepts such as muraqabah and muhasabah, which emphasise sustained moral awareness and ethical self-examination. However, these constructs were not directly measured in this study. Accordingly, any parallel should be understood as a conceptual interpretation rather than an empirical demonstration. In this sense, Mindful Learning may be interpreted as supporting ethical

self-regulation and reflective depth that complement other dimensions of deep learning, rather than functioning as an immediate predictor of short-term perceptual outcomes.

Joyful Learning emerges as a particularly influential dimension associated with students' learning perceptions. Rather than functioning merely as an affective enhancer, Joyful Learning may be understood as an affective entry point that supports deeper engagement with learning processes. Emotionally engaging learning environments characterised by interaction, collaboration, and supportive lecturer–student relationships are associated with higher levels of participation and reduced affective barriers to learning. By cultivating psychological safety and relational trust, joyful learning may facilitate learners' receptivity to meaning-making and reflective engagement. Prior research has emphasised emotional engagement as an important factor in sustaining motivation and participation in deep learning environments (Cheng & Carolyn Yang, 2023; Hernández et al., 2023). The present findings contribute to this literature by highlighting affective engagement as a substantively important dimension within Islamic higher education contexts, rather than merely a peripheral support.

At the same time, the strong association of Joyful Learning with students' learning perceptions invites reconsideration of how affective engagement is positioned within deep learning theory. Dominant formulations often emphasise cognitive depth and critical reflection as central dimensions, while affective engagement is frequently treated as supportive (Wergin, 2019). The prominence of Joyful Learning in this study suggests that emotional engagement may play a more substantial role than typically assumed, potentially functioning as an enabling condition for meaningful and reflective learning experiences within this context.

Rather than challenging existing theory, these findings offer contextual refinement, indicating that affective dimensions may assume greater salience under specific epistemic and cultural conditions, particularly when relational harmony, emotional safety, and collective participation are pedagogically emphasised. In Islamic higher education, such conditions are shaped by epistemological commitments that integrate moral, relational, and, in some interpretations, spiritual dimensions into educational practice. The combined explanatory power of meaningful learning, mindful learning, and joyful learning suggests that students' learning perceptions are associated with the interaction of cognitive, reflective, and emotional dimensions. Accordingly, Deep Learning may be interpreted in this context as an integrated epistemic orientation rather than a predominantly cognitive model, extending its application to Islamic higher education without redefining its core theoretical foundations.

Institutional conditions further shape how these pedagogical dimensions are enacted. Variations in digital infrastructure, professional development opportunities, and workload management influence the consistency and depth of implementation across faculties. These conditions may function as enabling or limiting structural factors that affect the perceived effectiveness of Meaningful, Mindful, and Joyful Learning within a transformative curriculum. Such challenges can be understood as a combination of structural factors related to institutional policy and resource allocation, cultural factors associated with academic norms and leadership priorities, and technical factors linked to digital competence.

From this perspective, the transformative potential of deep learning pedagogy appears closely associated with the degree of institutional alignment with its epistemological commitments, rather than relying solely on individual lecturers' instructional efforts. This interpretation aligns with literature on institutional transformation and academic development, which emphasises that pedagogical innovation is more sustainable when supported by organisational alignment rather than isolated instructional change (El-Annan & Hassoun, 2025; Kuang & Duan, 2025).

Overall, this study contributes to theoretical and empirical discussions on transformative pedagogy by extending deep learning theory into the epistemological context of Islamic higher education and offering a contextual reinterpretation of the Transformative Curriculum as an

integrated epistemic orientation rather than merely a collection of pedagogical techniques. The findings suggest that meaningful, mindful, and joyful learning are closely associated, reflecting the interplay of affective, cognitive, and reflective dimensions in shaping students' learning perceptions. Through this interaction, spiritual and emotional dimensions may assume a more prominent role than is often emphasised in mainstream formulations of transformative learning, particularly in value-informed educational contexts. When supported by institutional readiness and lecturer capacity, this integrative pedagogical orientation may enhance the quality of learning experiences in Islamic higher education institutions.

CONCLUSION

This study concludes that Meaningful, Mindful, and Joyful Learning are positively associated with students' learning perceptions within a transformative curriculum in Islamic higher education. The three dimensions demonstrate strong predictive associations across the cognitive, reflective, and affective domains, suggesting that deep learning may be understood as an integrated pedagogical orientation rather than a set of isolated instructional strategies in this context. While the findings indicate substantial explanatory power, the observed relationships should be understood as predictive associations rather than causal mechanisms, given the study's cross-sectional design.

In particular, Joyful Learning exhibited a strong association with students' learning perceptions. Although this pattern may suggest that affective engagement plays a central enabling role in classroom experience, such an interpretation remains theoretical rather than empirically causal. The observed associations indicate that emotional engagement, contextual relevance, and reflective awareness tend to co-occur in shaping students' evaluative perceptions of learning. These findings extend discussions of deep learning theory into the epistemological context of Islamic higher education by highlighting the contextual salience of ethical and relational dimensions, without redefining its core theoretical foundations.

From a practical perspective, the findings suggest that effective implementation of deep learning in Islamic higher education may benefit from instructional designs that intentionally integrate contextual relevance, reflective practice, and positive emotional engagement. Institutional alignment in terms of curriculum policy, lecturer development, workload management, and digital readiness appears to be closely associated with the consistency of implementation across faculties.

Several limitations should be acknowledged. First, the cross-sectional design limits causal inference and does not permit examination of longitudinal or mediated effects among the three dimensions. Second, the quantitative findings rely on students' self-reported perceptions, which socio-religious response tendencies may influence in value-laden educational contexts. Although Harman's single-factor test indicated that common method variance was not dominant, the possibility of shared method bias cannot be fully excluded. Third, learning perception was used as an evaluative indicator of transformative learning, but this may not fully capture behavioural, cognitive, or long-term developmental outcomes.

Future research is therefore encouraged to employ longitudinal designs to examine temporal dynamics among Meaningful, Mindful, and Joyful Learning. Multi-source data collection, including classroom observations, assessment outcomes, and lecturer reports, would strengthen construct validity. Structural Equation Modelling may also be employed to test potential mediation or interaction models among the three dimensions under more rigorous causal assumptions.

DECLARATIONS

Author contribution statement

The First Author conceptualised the study, developed the theoretical framework, oversaw the overall research design, and ensured that the methodology aligned with the standards of Islamic

education research. The Second Author collected the data, conducted quantitative processing and statistical analysis, prepared the results section, and integrated the qualitative findings with the quantitative outcomes. The Third Author contributed to instrument development, content validation, literature analysis, and final manuscript editing. All authors collaboratively interpreted the findings, prepared the discussion and conclusion sections, and thoroughly reviewed and approved the final version of the manuscript before submission.

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Data availability statement

The dataset supporting the findings of this study is stored in a private Google Drive repository. Due to privacy and institutional restrictions, the data cannot be made publicly available. However, the dataset can be obtained from the corresponding author upon reasonable request.

Declaration of interests statement

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

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