J Euro Eco His.
ISSN : 0391-5115
Volume 26, Isue 1 (2026)

Transforming Future Managers: Ethical Awareness and Responsible AI Use as Core Learning Outcomes in AI-Enabled MBA Credential Pathways

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Abstract

As artificial intelligence (AI) becomes a structural pillar of management education, MBA programs increasingly function as critical precursor AI credential pathways that shape the moral compass of future business leaders. Grounded in the Theory of Planned Behavior and Rest's Four-Component Model, this study investigates the determinants of ethical awareness and its downstream influence on Behavioral Intention and Perceived Risk among 198 MBA students. Utilizing a quantitative design, the conceptual model was validated through Ordinary Least Squares (OLS) regression and mediation analysis.

The results demonstrate substantial explanatory power for the primary mediator, Ethical Awareness (R^2 = .694), revealing that AI Awareness, AI Perception, and the Institutional Ethics are significant predictors ($p < .001$). Notably, Ethical Awareness serves as a robust conduit, explaining significant variance in both Behavioral Intention (R^2 = .629, β = .877) and Perceived Risk (R^2 = .618, β = .955). Interestingly, Moral Reasoning showed a non-significant effect (p = .068), suggesting that Institutional Ethics exerts a more dominant influence than Moral Reasoning in high-stakes technological contexts. These findings underscore that ethical awareness is a cultivated educational outcome rather than an auxiliary byproduct of AI usage, emphasizing the critical role of institutional design in fostering responsible AI leadership and providing a framework for integrating "ethics-by-design" — the deliberate embedding of ethical principles into AI curricula from the outset — into professional AI credentials.

Keywords: Ethical Awareness, AI, Education, Management, Risk

1. Introduction

Artificial Intelligence (AI) is rapidly transforming higher education, reshaping not only teaching and learning practices but also the credentialing structures through which learners acquire future-ready skills. Universities worldwide are introducing AI-focused credentials such as certificates, micro-credentials, and specialized program pathways to prepare graduates for an

AI-driven economy. These credentials aim to enhance students' analytical capabilities, decision-making skills, and workforce readiness, particularly in professionally oriented disciplines such as business and management education.

Business schools, especially MBA programs, have emerged as key sites for the integration of AI-related content. AI-enabled MBA curricula increasingly include courses on data analytics, machine learning applications, generative AI, and AI-supported decision-making. While these initiatives strengthen technical and managerial competencies, they also position MBA programs as precursor AI credential pathways, offering structured and industry-relevant AI learning experiences that parallel formal AI credentials. As such, MBA-level AI education provides an important empirical context for examining the broader educational impact of AI credentials in higher education.

Alongside the rapid expansion of AI credentials, concerns have intensified regarding the ethical, social, and governance implications of AI adoption. Ethical challenges such as algorithmic bias, data privacy violations, opacity of automated decision systems, misuse of generative AI, erosion of human autonomy, and broader societal harms have raised questions about whether current AI-focused educational programs sufficiently prepare students to use AI responsibly. Global policy discussions and academic debates increasingly emphasize that AI credentials should extend beyond technical proficiency to cultivate ethical awareness, critical judgment, and responsible AI usage behaviors as core learning outcomes.

Despite this growing emphasis, empirical research examining ethical learning outcomes associated with AI-enabled education remains limited. Existing studies in business and management education have predominantly focused on technology adoption, skill development, or performance outcomes, with comparatively less attention given to students' ethical awareness, moral reasoning, and behavioral intentions related to responsible AI use. In particular, there is a lack of empirical evidence on how Institutional Ethics and Moral Reasoning interact with AI Awareness and perceptions to shape ethical outcomes within AI-focused educational pathways.

While this study is situated within MBA programs, these curricula function as specialized archetypes for AI credentialing, offering workforce-oriented learning that mirrors broader educational transformations. Accordingly, examining AI-enabled MBA education provides valuable insights into how AI credentials influence student learning outcomes, particularly ethical awareness and responsible AI use. This perspective aligns directly with emerging scholarship on AI credentials as catalysts for educational transformation in higher education. Despite the rapid diffusion of AI-enabled curricula, limited empirical attention has been paid to whether these initiatives translate into ethically grounded learning outcomes.

Against this backdrop, the present study investigates how MBA students' AI Awareness, AI Perception, Institutional Ethics, and Moral Reasoning influence their ethical awareness of AI.

Further, it examines how ethical awareness shapes students' Behavioral Intention and their Perceived Risk. By empirically assessing ethical awareness and responsible AI use as learning outcomes of AI-enabled business education, this study contributes to the literature on AI credentials by providing evidence-based insights into how ethics can be effectively embedded within AI-focused programs to support the development of ethically grounded future managers.

To systematically address these research gaps and provide a granular understanding of the ethical learning pathway, the study is guided by the following objectives:

Primary Objective

To examine how AI Awareness, AI Perception, Institutional Ethics, and Moral Reasoning influence the development of Ethical Awareness and its mediating effect on Behavioral Intention and Perceived Risk among MBA students, with implications for the design of ethics-embedded AI credential pathways in higher education.

Secondary Objectives

1. To examine the influence of AI Awareness and AI Perception on the development of Ethical Awareness among MBA students in AI-enabled credential pathways.
2. To examine the influence of Institutional Ethics and Moral Reasoning on the development of Ethical Awareness among MBA students in AI-enabled credential pathways.
3. To quantify the predictive influence of Ethical Awareness on Behavioral Intention and Perceived Risk.
4. To derive implications for the development of AI-focused credentials that promote ethical competence, responsible AI use, and workforce readiness among future business professionals.

2. Literature Review

This study integrates moral psychology, institutional theory, and behavioral intention models to explain ethical learning outcomes in AI-enabled business education.

2.1 Foundations of Ethical Recognition: AI Awareness and AI Perception

Developing ethical competence within the realm of Artificial Intelligence (AI) begins with a fundamental level of literacy. Without a granular understanding of how algorithmic systems function, students often remain oblivious to "silent" threats such as data harvesting or systemic bias. Research highlights a concerning disconnect: while AI adoption is accelerating across higher education, student understanding of the underlying ethics remains fragmented at best. As Zawacki-Richter et al. (2019) argue, AI literacy is not an optional addition but a foundational prerequisite for any meaningful ethical recognition in technology-driven environments.

J Euro Eco His.
ISSN : 0391-5115
Volume 26, Isue 1 (2026)
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Furthermore, the lens through which students view technology and their AI Perception critically dictates their moral response. When AI is framed purely as a vehicle for profit maximization or operational efficiency, the ethical dimensions are frequently sidelined. This utilitarian framing risks diminishing ethical sensitivity, as students may prioritize technical output over the socio-moral implications of the systems they deploy (Floridi, 2019).

2.2 The Interaction of Institutional Ethics and Moral Reasoning

A core contribution of this research is the exploration of how external and internal influences collide. Business schools act as normative environments that signal to future leaders which behaviors are legitimate and which are not. Drawing on Institutional Theory (DiMaggio & Powell, 1983), we argue that when a school embeds AI governance into its formal AI credential pathways, it creates a "legitimacy pressure" that forces ethical reflection. Holmes et al. (2022) contend that ethical awareness does not emerge naturally through tech usage; rather, it must be an intentional pedagogical outcome.

However, institutional signals are never received in a vacuum. They are filtered through a student's Moral Reasoning. This aligns with Rest's (1986) Four-Component Model, specifically the stage of "moral sensitivity". This internal capacity allows an individual to perceive how their professional decisions ripple out to affect stakeholders. Thus, ethical awareness is born from the friction between a school's institutional cues and a student's Moral Reasoning.

2.3 Ethical Awareness as the Central Mediating Hub

In the proposed framework, Ethical Awareness of AI serves as the cognitive "tipping point" where technical data meets moral conscience. Within the context of higher education, this goes beyond surface-level honesty; it involves the specific ability to identify AI-driven risks such as algorithmic surveillance, data misuse, and socio-economic displacement. The academic consensus, reinforced by recent systematic evidence in the *International Journal of Educational Technology in Higher Education*, confirms that exposure to AI tools does not automatically translate into ethical competence. Bond et al. (2024) identify what they term a "pedagogical void" a systemic absence of structured ethical guidance within AI-integrated curricula — noting that rapid AI adoption has not been matched by appropriate ethical instruction.

To bridge this gap, this study distinguishes between technical selfefficacy - the belief in one's ability to use AI and ethical sensitivity. While learners may possess the curiosity and technical confidence required to adopt AI tools, these drivers do not inherently guarantee responsible application. If AI Awareness and curiosity provide the momentum for AI use, Ethical Awareness functions as the "steering wheel" that governs that power (Atalla et al., 2024).

This regulatory role is supported by the work of Atalla et al. (2024), who demonstrate that Ethical Awareness serves as a crucial moderator in high-stakes professional settings. Their

research found that ethical sensitivity acts as a bridge between AI perceptions and behavior; without it, even positive attitudes toward technology can lead to unguided or risky outcomes. By positioning Ethical Awareness as a central mediator in our model, we argue that raw AI knowledge must be ethically "transformed" through institutional guidance before it can manifest as Responsible AI Intentions or accurate Risk Perceptions. In this sense, Ethical Awareness is the essential cognitive regulator that ensures future managers do not merely use AI efficiently, but deploy it with moral intentionality.

2.4 Behavioral Outcomes: Risk Perception and Responsible AI Intention

The final stage of this model, grounded in the Theory of Planned Behavior (TPB), links cognitive awareness to tangible outcomes: Risk Perception and Behavioural Intention. Recent studies into Generative AI tools like ChatGPT underscore this linkage. Kasneci et al. (2023) highlight a range of challenges including AI-generated misinformation and threats to academic integrity that cannot be resolved through technical instruction alone. Their findings indicate that students with stronger ethical awareness demonstrate more considered Perceived Risk and more deliberate intentions to use AI responsibly.

2.5 The Research Gap: Developing the Ethical Manager

While prior work has dissected AI ethics in isolation, we lack empirical evidence regarding the specific "learning pathway" for MBA students. There is a significant shortage of integrative models that map how school environments and personal values jointly produce an ethically aware manager. This study fills that void, moving the conversation beyond producing "Ethically Competent Practitioners" toward the development of "ethical stewards" who are prepared for the complexities of the modern AI-driven boardroom.

2.6 Theoretical Integration and Conceptual Framework

To address these identified gaps, this study proposes an integrated framework that views ethical behavior as a structured cognitive process. By synthesizing Rest's (1986) Four-Component Model with the Theory of Planned Behavior (Ajzen, 1991), we map the specific variables — foundational, institutional, and personal that converge to shape a student's ethical awareness and subsequent behavioral intentions (Figure 1).

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ISSN : 0391-5115
Volume 26, Isue 1 (2026)
THE JOURNAL OF EUROPEAN ECONOMIC HISTORY

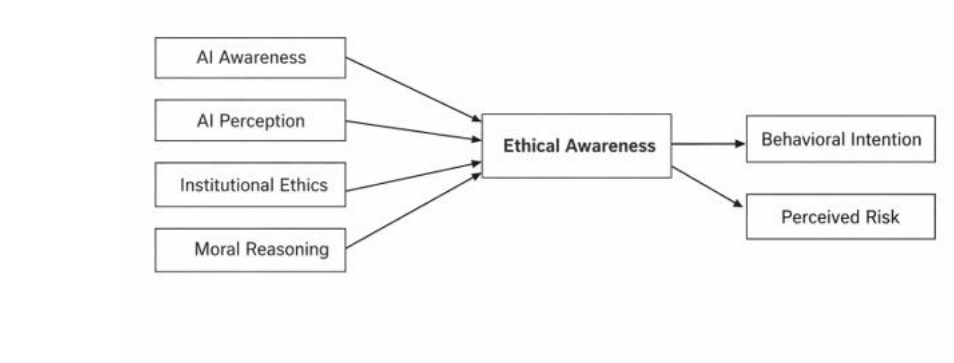

Figure 1: Proposed Conceptual Model of Ethical AI Learning Outcome

2.7 Hypotheses Development

Based on the integrated theoretical framework, the following hypotheses are proposed to test the relationships within the AI-enabled MBA credential pathway.

2.7.1 Foundations of Ethical Recognition

Ethical competence in AI-driven environments begins with foundational literacy. Without a granular understanding of algorithmic logic, students may remain "ethically blind" to risks such as systemic bias or data harvesting. Furthermore, if AI Perception is focused exclusively on efficiency or profit, it may attenuate moral sensitivity.

H1: AI Awareness has a positive and significant influence on Ethical Awareness.

H2: AI Perception has a significant positive influence on Ethical Awareness.

2.7.2 Institutional and Personal Determinants

Drawing on Institutional Theory (DiMaggio & Powell, 1983), we argue that when business schools embed AI governance into the curriculum, they create "legitimacy pressures" that catalyze ethical reflection. This institutional signal is filtered through a student's Moral Reasoning, aligning with the "moral sensitivity" stage of Rest's (1986) model.

H3: Institutional Ethics has a positive and significant influence on Ethical Awareness.

H4: Moral Reasoning has a positive and significant influence on Ethical Awareness.

2.7.3 The Mediating Role of Ethical Awareness and Outcomes

Grounding the model in the Theory of Planned Behavior (TPB), we position Ethical Awareness as the central mediating hub. As suggested by Atalla et al. (2024), this awareness acts as the "steering wheel," transforming technical knowledge and institutional cues into responsible intentions and risk-averse behaviors.

H5: Ethical Awareness has a positive and significant influence on Behavioral Intention.

H6: Ethical Awareness has a positive and significant influence on Perceived Risk.

3. Methodology

3.1. Research Design

This study employs a quantitative, cross-sectional survey design to examine how AI Awareness, AI Perception, Institutional Ethics, and Moral Reasoning influence ethical awareness and responsible AI use among MBA students. The design enables empirical testing of the proposed conceptual model and hypotheses, providing evidence on ethical and attitudinal learning outcomes in AI-enabled business education.

3.2. Sample and Participants

The study targeted MBA students enrolled in AI-related courses or credential programs across multiple business schools. A total of 198 MBA students participated in the study. While convenience sampling was employed, the participants were specifically selected because they were embedded in specialized AI credential pathways, making them 'purposive' subjects for examining ethical learning outcomes in high-stakes business education.

3.3. Data Collection Instrument

Data were collected using a structured online questionnaire comprising multiple validated scales adapted from prior research:

1. **AI Awareness** – assessed students' knowledge of AI concepts, tools, and applications (Long & Magerko, 2020).
2. **AI Perception** – measured beliefs regarding AI's utility, relevance, and impact in business contexts (Vial, 2019).
3. **Institutional Ethics** – captured students' perceptions of the program's Institutional Ethics, pedagogy, and emphasis on AI ethics (Mayer et al., 2009)
4. **Moral Reasoning** – measured ethical decision-making tendencies and Moral Reasoning (Rest, 1986)
5. **Ethical Awareness of AI** – assessed recognition of ethical challenges, including bias, privacy, transparency, and societal impact (Siau & Wang, 2020)
6. **Behavioral Intention Toward Responsible AI Use** – measured students' intention to engage in ethical AI practices (Ajzen, 1991)
7. **Perceived Risk of Unethical AI Use** – captured students' awareness of potential harms arising from unethical AI practices (Pavlou, 2003)

All items were measured on a **5-point Likert scale** (1 = strongly disagree to 5 = strongly agree). The questionnaire was pilot tested with 20 MBA students to ensure clarity, reliability, and validity of items. The instrument is given in the annexure.

3.4. Data Analysis

Data were analyzed using a regression-based analytical approach to test the proposed conceptual model and hypotheses. All analyses were conducted using Python statistical libraries and followed established procedures in educational and behavioral research.

First, instrument reliability was assessed using Cronbach's alpha to evaluate the internal consistency of multi-item constructs. Alpha values above 0.70 were considered satisfactory, while values above 0.60 were deemed acceptable for exploratory research in educational contexts (Nunnally, 1978; Hair et al., 2019).

Second, descriptive statistics and Pearson correlation analysis were conducted to examine relationships among the study variables and to assess preliminary support for the hypothesized associations.

Third, Analyses were conducted using Python-based statistical environments (specifically Statsmodels) to perform OLS regression and mediation path analysis. Ordinary Least Squares (OLS) regression analysis was employed to test the structural relationships. Ethical Awareness was regressed on AI Awareness, AI Perception, Institutional Ethics, and Moral Reasoning. Subsequently, Behavioral Intention and Perceived Risk were separately regressed on Ethical Awareness. Model explanatory power was evaluated using R^2 values, and statistical significance was assessed at $p< 0.05$.

Fourth, mediation analysis was conducted using a regression-based approach to examine whether Ethical Awareness mediates the relationships between antecedent variables (AI Awareness, AI Perception, Institutional Ethics, and Moral Reasoning) and outcome variables (Behavioral Intention and Perceived Risk). Mediation was inferred based on the significance of the antecedent–mediator and mediator–outcome relationships, along with substantial explained variance in the outcome models.

Finally, data quality checks were performed, including assessments of multicollinearity and residual normality. Common method bias was addressed through procedural remedies, including ensured respondent anonymity and the psychological separation of scales within the instrument design.

4. DATA ANALYSIS AND RESULTS

4.1 Reliability Analysis

J Euro Eco His.
ISSN : 0391-5115
Volume 26, Isue 1 (2026)
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Internal consistency reliability was assessed using Cronbach's alpha. As shown below (Table 1), all constructs exceeded the recommended threshold of 0.70, except Institutional Ethics, which achieved an acceptable value for exploratory research.

Table 1: Internal Consistency and Reliability of Constructs

Construct	Cronbach's Alpha
AI Awareness	0.795
AI Perception	0.732
Ethical Awareness	0.863
Behavioral Intention	0.808
Perceived Risk	0.851
Institutional Ethics	0.611
Moral Reasoning	0.708

These values indicate adequate to strong reliability, supporting the internal consistency of the measurement instrument. While values for Institutional Ethics is less than 0.70, the values above 0.60 were deemed acceptable for exploratory research in educational contexts (Hair et al., 2019).

4.2 Descriptive Statistics and Correlation Analysis

The sample comprised 198 participants, including 108 males (54.5%) and 90 females (45.5%), as illustrated in Figure 2. Participants were distributed across six specializations (Figure 3). Human Resources and Finance were the most common specializations, while Business Analytics, Marketing, Operations, and Others had comparatively fewer participants. Gender-wise distribution was generally balanced across specializations, with a slightly higher representation of males in Operations.

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ISSN : 0391-5115
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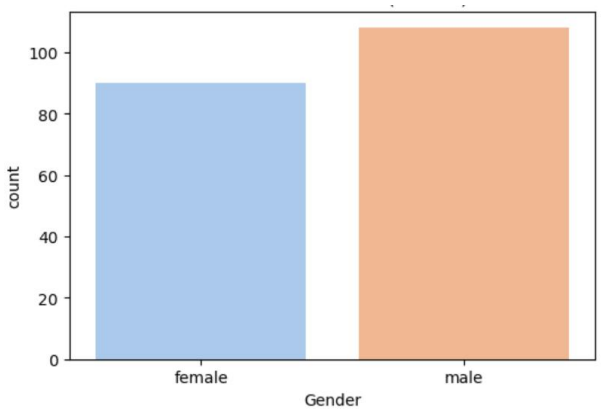

Figure 2: Gender Distribution of Respondents

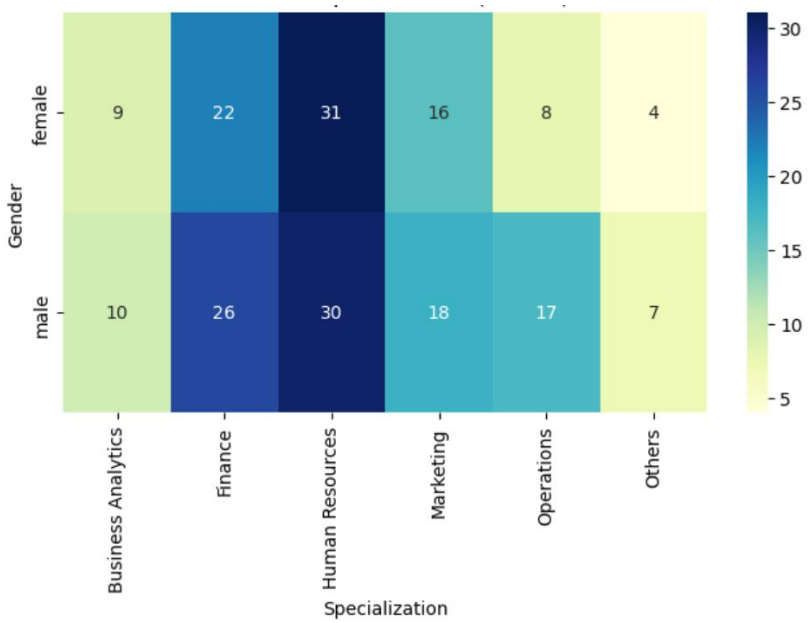

Figure 3: Comparative Distribution of Gender across MBA Specializations

Pearson correlation analysis was conducted to examine relationships among constructs, as shown in the correlation matrix (Figure 4).

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	AI_Awareness	AI_Perception	Ethical_Awareness	Behavioral_Intention	Perceived_Risk	Institutional_Ethics	Moral_Reasoning
AI_Awareness	1.000000	0.675935	0.724275	0.716440	0.682428	0.638084	0.601658
AI_Perception	0.675935	1.000000	0.732674	0.744438	0.730676	0.641959	0.641599
Ethical_Awareness	0.724275	0.732674	1.000000	0.793096	0.786326	0.724717	0.666251
Behavioral_Intention	0.716440	0.744438	0.793096	1.000000	0.762893	0.768428	0.671108
Perceived_Risk	0.682428	0.730676	0.786326	0.762893	1.000000	0.761362	0.666407
Institutional_Ethics	0.638084	0.641959	0.724717	0.768428	0.761362	1.000000	0.710577
Moral_Reasoning	0.601658	0.641599	0.666251	0.671108	0.666407	0.710577	1.000000

Figure 4: Correlation Matrix of Constructs

All correlations were positive and statistically meaningful, with no correlation exceeding 0.85, indicating no multicollinearity concerns.

Key observations:

- Ethical Awareness showed strong correlations with Behavioral Intention (r = 0.793) and Perceived Risk (r = 0.786).
- Institutional Ethics was strongly associated with Behavioral Intention (r = 0.768).
- Moral Reasoning showed moderate correlations across constructs, supporting its role as a personal value factor.

These results support the theoretical coherence of the conceptual model.

4.3 Structural Model Results

An Ordinary Least Squares (OLS) regression analysis was conducted to examine the determinants of Ethical Awareness (Figure 5). The model demonstrated strong explanatory power (R^2 = 0.694; Adjusted R^2 = 0.688; F = 109.5, $p < 0.001$), indicating that the predictors jointly explained a substantial proportion of variance in Ethical Awareness.

AI Awareness ($\beta = 0.231$, $p < 0.001$), AI Perception ($\beta = 0.265$, $p < 0.001$), and Institutional Ethics ($\beta = 0.249$, $p < 0.001$) exhibited significant positive effects on Ethical Awareness. In contrast, Moral Reasoning showed a positive but statistically non-significant relationship ($\beta = 0.082$, $p = 0.068$). These findings suggest that institutional signals and cognitive AI literacy dominate the development of ethical awareness, effectively displacing (or 'crowding out') the influence of Moral Reasoning, suggesting that structured pedagogical interventions in MBA programs are the primary drivers of ethical recognition.

OLS Regression Results

Dep. Variable:	Ethical_Awareness	R-squared:	0.694
Model:	OLS	Adj. R-squared:	0.688
Method:	Least Squares	F-statistic:	109.5
Date:	Wed, 28 Jan 2026	Prob (F-statistic):	1.54e-48
Time:	18:03:41	Log-Likelihood:	-37.015
No. Observations:	198	AIC:	84.03
Df Residuals:	193	BIC:	100.5
Df Model:	4		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	0.7208	0.157	4.578	0.000	0.410	1.031
AI_Awareness	0.2309	0.048	4.832	0.000	0.137	0.325
AI_Perception	0.2653	0.055	4.844	0.000	0.157	0.373
Institutional_Ethics	0.2488	0.056	4.455	0.000	0.139	0.359
Moral_Reasoning	0.0821	0.045	1.835	0.068	-0.006	0.170

Omnibus:	2.284	Durbin-Watson:	2.009
Prob(Omnibus):	0.319	Jarque-Bera (JB):	2.213
Skew:	-0.006	Prob(JB):	0.331
Kurtosis:	3.518	Cond. No.	60.2

Figure 5: Structural Path Analysis of the Determinants of Ethical Awareness

Subsequently, Ethical Awareness was regressed on Behavioral Intention and Perceived Risk in separate models. Ethical Awareness significantly predicted Behavioral Intention ($\beta = 0.877$, $p < 0.001$), explaining 62.9% of the variance ($R^2 = 0.629$). Similarly, Ethical Awareness had a strong and significant positive effect on Perceived Risk ($\beta = 0.955$, $p < 0.001$), accounting for 61.8% of the variance ($R^2 = 0.618$).

Overall, the results establish Ethical Awareness as a central explanatory construct, influenced primarily by AI Awareness, AI Perception, and Institutional Ethics, and serving as a key driver of both Behavioral Intention and Perceived Risk.

4.4 Mediation Analysis

Mediation analysis was conducted to examine whether Ethical Awareness mediates the relationships between the antecedent variables (AI Awareness, AI Perception, Institutional Ethics, and Moral Reasoning) and two outcome variables: Behavioral Intention toward responsible AI use and Perceived Risk of unethical AI use.

The first condition for mediation was established in Section 4.3: the antecedent variables (AI Awareness, AI Perception, and Institutional Ethics) significantly predicted Ethical Awareness ($R^2 = 0.694$), while Moral Reasoning did not reach significance. The analyses below confirm that Ethical Awareness in turn significantly predicts both outcome variables, completing the mediation chain.

Both outcome models confirmed the second condition for mediation. The Behavioral Intention model (F = 332.3, p< 0.001) and the Perceived Risk model (F = 317.5, p< 0.001) both demonstrated strong overall fit, corroborating the path coefficients reported in Section 4.3. Ethical Awareness thus functions as the mechanism through which AI Awareness, AI Perception, and Institutional Ethics are translated into Behavioral Intention and Perceived Risk.

The validated model with empirical path coefficients is presented in Figure 6. Taken together, these results provide strong evidence that Ethical Awareness functions as a central mediating mechanism through which AI Awareness, AI Perception, and Institutional Ethics influence both Behavioral Intention and Perceived Risk. The high explanatory power across all models supports the conclusion that ethical learning outcomes in AI credential programs are largely realized through the development of Ethical Awareness.

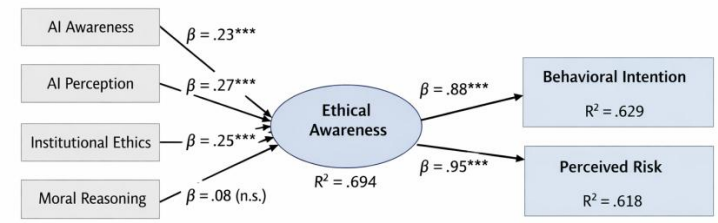

Figure 6: Validated Conceptual Model of Ethical AI Learning Outcomes with Path Coefficients

The significant paths from the antecedents to Ethical Awareness, and from Ethical Awareness to the outcomes, satisfy the requirements for mediation. This confirms that Ethical Awareness is the primary cognitive conduit through which AI-enabled MBA curricula translate technical literacy into ethical professional practice.

5. DISCUSSION

This study establishes Ethical Awareness as the core psychological mechanism underlying responsible AI behavior in AI-enabled business education. The findings demonstrate that AI Awareness (β = .231) and AI Perception (β = .265) significantly enhance Ethical Awareness. This indicates that students who possess a clearer understanding of AI concepts and their business

implications are more capable of recognizing the moral complexities associated with AI deployment. This reinforces the importance of AI literacy as a foundational requirement for ethical decision-making rather than treating it as a purely technical competency.

Institutional Ethics emerged as a strong and significant predictor of Ethical Awareness (β = .249), underscoring the critical role of the educational environment. Institutions that encourage ethical discourse, establish clear policies, and embed ethics within AI-related courses provide the normative and pedagogical scaffolding (Vygotsky, 1978) necessary for ethical learning. This finding supports institutional theory (DiMaggio & Powell, 1983) by demonstrating that ethical behavior is contextually reinforced by Institutional Ethics rather than being an assumed individual trait.

Interestingly, Moral Reasoning did not exert a statistically significant influence on Ethical Awareness (β = .082, p = .068), making this one of the most theoretically noteworthy findings of the study. This result challenges the common assumption that individuals with stronger pre-existing moral values will naturally develop higher ethical awareness in AI contexts. Instead, it suggests that within a structured MBA credential pathway, the normative influence of the institution effectively overrides individual variations in moral disposition. This finding aligns with institutional theory (DiMaggio & Powell, 1983), which posits that organizational environments exert isomorphic pressures that standardize behavior regardless of individual predispositions. In practical terms, it implies that ethical AI competence cannot be assumed to emerge from personal character alone — it must be explicitly cultivated through curriculum design, faculty modeling, and institutional policy. For educators and curriculum designers, this is an empowering result: it means that the ethical formation of future managers is not fixed at entry but is genuinely malleable through intentional pedagogical intervention.

Ethical Awareness was found to strongly influence both Behavioral Intention (β = .877) and Perceived Risk (β = .955), directly addressing the study's primary objective of mapping ethical awareness as a mediating mechanism. Ethically aware students not only demonstrate stronger intentions to use AI responsibly but also exhibit a heightened sensitivity to potential societal and organizational risks. This dual effect positions ethical awareness as what Atalla et al. (2024) describe as a cognitive "steering mechanism" — here termed a "cognitive regulator" — that shapes both proactive ethical behavior and precautionary risk sensitivity simultaneously. The high explanatory power for both outcomes (R^2 = .629 and R^2 = .618 respectively) confirms that ethical awareness is not merely a passive attitude but a robust behavioral driver.

Overall, the findings suggest that responsible AI behavior is cultivated through a combination of cognitive understanding and institutional reinforcement. Ethical awareness acts as the essential bridge between AI education and ethical outcomes, confirming its pivotal role in future AI education frameworks.

6. CONCLUSION

This study empirically validates a comprehensive model explaining ethical learning outcomes and responsible AI behavior within AI-enabled business education. The results demonstrate that AI Awareness, AI Perception, and the Institutional Ethics significantly contribute to the development of Ethical Awareness among MBA students.

Ethical Awareness emerged as the primary mediating construct, effectively translating AI-related knowledge and institutional signals into Behavioral Intention and heightened risk sensitivity. A significant finding of this research is that Institutional Ethics and AI Awareness play a more decisive role in shaping Ethical Awareness than Moral Reasoning alone. This suggests that ethical competence in the age of AI is a dynamic, learned capability rather than a static personal trait.

Ultimately, these findings provide a robust empirical foundation for the integration of 'ethics-by-design' into professional AI credentials, ensuring that future business leaders are prepared to navigate the complex socio-technical landscape of the AI-driven economy. Taken together, the results confirm that fostering responsible AI use is not merely a matter of personal values but a measurable outcome of intentional educational design — a conclusion that carries direct implications for curriculum developers, accreditation bodies, and business school leaders worldwide.

7. Theoretical and Practical Implications

By highlighting the mediating role of Ethical Awareness, this study contributes to the AI ethics literature by emphasizing the importance of pedagogical scaffolding (Vygotsky, 1978) and Institutional Ethics. For business schools and credentialing bodies, the results underscore a critical need to move beyond purely technical AI instruction. To prepare future professionals for high-stakes decision-making, programs must actively integrate ethical frameworks into AI curricula, fostering an environment where ethical discourse is as rigorous as technical training.

8. Limitations and Future Research

While this study provides robust evidence of the determinants of Ethical Awareness, it is limited by its cross-sectional design, which captures attitudes at a single point in time. Future research should employ longitudinal methods to determine how these ethical intentions translate into actual professional behavior over time. Additionally, expanding the sample to include a wider variety of global institutional contexts would further validate the universal applicability of this model. The common method bias inherent in single-source survey data also warrants attention in future designs, which could incorporate peer or faculty ratings alongside student self-reports.

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Annexure

Section B: Awareness and Understanding of AI

Statement	1	2	3	4	5
1. I have a clear understanding of what Artificial Intelligence (AI) means.					
2. I can identify common examples of AI applications in daily life.					
3. AI is increasingly influencing business decision-making.					
4. I understand how AI tools are used in marketing, finance, or HR contexts.					
5. I am aware of how data is collected and used by AI systems.					

Section C: Perception of AI in Business

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Volume 26, Issue 1 (2026)
THE JOURNAL OF EUROPEAN ECONOMIC HISTORY

Statement	1	2	3	4	5
1. AI will significantly improve business efficiency and productivity.					
2. AI can create unemployment by automating human jobs.					
3. AI should be used cautiously to avoid misuse.					
4. AI-based decisions can be more objective than human decisions.					
5. The benefits of AI outweigh the potential risks.					
6. AI can create both positive and negative impacts in business and society.					

Section D: Ethical Awareness

Statement	1	2	3	4	5
1. AI systems should always be transparent and explainable. (Transparency / Explainability)					
2. I have a basic understanding of how AI systems make decisions.					
3. AI developers must be accountable for unethical outcomes. (Accountability)					
4. Data privacy is a serious ethical concern in AI. (Privacy)					
5. AI-generated misinformation may influence public opinion (Algorithmic Bias / Fairness)					
6. AI surveillance without consent violates individual rights.					
7. Using AI to morph or manipulate images/videos without consent is unethical.					
8. Deepfakes and AI-generated misinformation can cause social and reputational harm.					
9. AI can be dangerous when used for identity theft or impersonation. (Safety / Security)					
10. AI-generated content can influence public opinion and elections unethically.					
11. AI should be designed to promote human well-being and dignity. (Beneficence)					
12. AI should ensure fair treatment and avoid discrimination or bias.					
13. AI systems should not override human decision without consent.(Human Autonomy)					
14. The misuse of AI in education or business raises ethical issues.					
15. There should be strict laws and policies to regulate AI misuse.					

Section E: Behavioral Intention / Personal Responsibility

Statement	1	2	3	4	5
1. I use AI tools (like ChatGPT, image generators, etc.) responsibly.					
2. I avoid using AI for plagiarism or cheating in assignments.					
3. I would never use AI to create or share manipulated images or voices of others.					
4. If I see someone using AI unethically, I would report or					

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ISSN : 0391-5115
Volume 26, Isue 1 (2026)
THE JOURNAL OF EUROPEAN ECONOMIC HISTORY

discourage it.					
5. I understand the long-term consequences of unethical AI use.					
6. I feel responsible for promoting ethical AI use in my future career.					
7. I am interested in learning more about AI ethics and its business implications.					
8. I believe AI should be used to promote positive societal and environmental outcomes.					

Section F: Perceived Risk of AI

Statement	1	2	3	4	5
1. AI could make humans overly dependent on technology.					
2. AI may replace human judgment in critical decisions.					
3. AI-generated misinformation can mislead consumers and investors.					
4. AI can be used for cybercrimes or hacking.					
5. AI might violate human privacy and security.					
6. AI bias can result in unfair treatment or discrimination.					
7. AI can manipulate consumer behavior and market trends.					
8. Without proper regulation, AI could create significant risks for society.					

Section G: Institutional Ethical Climate / Ethical Learning Environment

Statement	1	2	3	4	5
1. My college encourages discussions on ethics and technology.					
2. Faculty members emphasize responsible use of AI tools.					
3. There are clear policies about plagiarism or misuse of AI.					
4. My institution offers structured AI-related courses, certifications, or credentials.					
5. Ethical use of AI is explicitly discussed within AI-related courses or credential programs.					

Section H: Moral Reasoning / Personal Ethical Values

Statement	1	2	3	4	5
1. I believe ethical choices matter even when they reduce profit.					
2. I value honesty and responsibility when using technology.					
3. Organizational benefit does not justify the unethical use of AI.					

J Euro Eco His.
ISSN : 0391-5115
Volume 26, Issue 1 (2026)