

Analyzing User Expectation and Experience to Formulate Data-Driven Strategy for Elevating Paid Subscription Engagement in Ai Educational Tools

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Abstract

The rapid advancement of artificial intelligence has significantly transformed educational landscapes, yet many AI-powered educational platforms struggle with converting free users to paid subscribers. This study investigates the expectation-experience gap affecting AIEdu, an AI educational tool by PT. EDTH in Indonesia, which demonstrates high user acquisition (27.99% monthly growth) but low conversion rates (0.41% average). Using a qualitative approach based on the Unified Theory of Acceptance and Use of Technology (UTAUT) framework extended with Perceived Value, Satisfaction with Free Trial, and Price Sensitivity constructs, this research analyzes user expectations and experiences through semi-structured interviews with 12 participants. The study employs thematic analysis supported by NVivo software to identify patterns between market expectations and actual user experiences. Findings reveal significant gaps in five key areas: performance expectancy (surface-level content vs. deep adaptive learning), effort expectancy (onboarding friction vs. seamless access), social influence (peer validation vs. promotional exposure), perceived value (quota limitations vs. academic enhancement), and price sensitivity (energy-based vs. time-based models). The research proposes a strategic implementation roadmap using the Kano Model, prioritizing foundational improvements (content accuracy, technical stability) before enhancement features (premium value proposition, flexible pricing). Results indicate that addressing these expectation-experience gaps through curriculum alignment, simplified onboarding, enhanced premium features, and student-friendly pricing models can significantly improve conversion rates and user engagement in the Indonesian educational technology market.

Keywords: AI education, user expectations, subscription conversion, UTAUT framework, educational technology, Indonesia

INTRODUCTION

The integration of artificial intelligence (AI) into educational contexts has fundamentally transformed how students approach learning, offering unprecedented opportunities for personalized, interactive, and efficient academic support (Luckin et al., 2016; Holmes et al., 2019). Recent research demonstrates that AI-powered educational tools can yield test-score gains of nearly 40% over conventional instructional designs through adaptive content delivery (Trianggara et al., 2024; Roll & Wylie, 2016). These systems can tailor feedback and learning paths to individual needs, thereby improving learning retention and engagement (Zawacki-Richter et al., 2019). However, despite the proven educational benefits and growing user interest, many AI educational platforms face a critical business challenge: converting free users into paying subscribers (Chen et al., 2021). Monetization in EdTech remains complex due to user expectations of free access, high development costs, and competitive market saturation (Wang & Hsu, 2022; West & Bleiberg, 2013).

PT. EDTH, a leading Indonesian educational technology company, exemplifies this challenge through its AI-powered platform, *AIEdu*. While the platform has achieved remarkable user acquisition growth of 27.99% monthly over eleven months, with a notable surge of 167.57% from May to June 2024, the conversion to paid subscriptions remains problematically low at a 0.41% average conversion rate. This significant disparity between user

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interest and monetization success reflects a broader pattern in the educational technology sector, where low conversion rates ranging from 0.1% to 1% are common (AskWonder, 2022).

The Indonesian market presents unique challenges for educational technology monetization. Cultural expectations that education should be accessible and state-funded create resistance to paying for supplementary digital learning tools (Bhardwaj et al., 2020; Kusuma & Rachmawati, 2022). This perception is rooted in Indonesia's long-standing public education model and societal emphasis on government responsibility in providing equitable learning opportunities (Suryani, 2019). Moreover, the proliferation of free and open-source learning platforms reduces the perceived necessity of premium educational services (Wulandari et al., 2021). The situation is further complicated by limited financial resources among student populations, particularly in rural and underserved areas (Azzahra, 2020; Wijaya & Adi, 2022). As a result, EdTech companies must articulate and deliver clear, tangible educational value to justify subscription fees (Rambe & Nel, 2022). Demonstrating personalized learning outcomes and integrating local curriculum content have emerged as key strategies in improving user willingness to pay.

This research addresses a critical gap in understanding how user expectations, formed through exposure to various AI tools, align with actual experiences on specialized educational platforms (Chiu, 2024). While previous studies have examined general AI adoption using frameworks like UTAUT (Menon & Shilpa, 2023), limited research has focused specifically on the post-adoption stage in educational contexts, particularly the factors influencing conversion from free trial to paid subscription.

The study aims to answer three fundamental research questions: (1) What are market expectations of AI tools for educational purposes, and how do these expectations shape subscription decisions? (2) How does the experience provided by *AIEdu* align with user expectations in the context of AI for education? (3) What strategic directions can *AIEdu* pursue to better fulfill user expectations and enhance paid subscription growth?

Using a qualitative approach grounded in the UTAUT framework, extended with constructs of Perceived Value, Satisfaction with Free Trial, and Price Sensitivity, this research analyzes the expectation-experience gap through semi-structured interviews with students who have experience with AI learning tools. The findings contribute both theoretical insights into AI educational tool adoption and practical recommendations for improving conversion rates in emerging markets.

Theoretical Foundation

The adoption of AI technologies in education represents a convergence of technological capability and pedagogical innovation. AI in education encompasses various applications from intelligent tutoring systems to adaptive learning platforms, each designed to enhance personalized learning experiences. Research indicates that AI-powered educational tools can significantly improve learning outcomes through features such as real-time feedback, adaptive content delivery, and personalized learning pathways (Kaledio et al., 2024).

However, the success of AI educational tools depends not only on their technical capabilities but also on user acceptance and sustained engagement. The Technology Acceptance Model (TAM) and its evolution into the Unified Theory of Acceptance and Use of Technology (*UTAUT*) provide robust frameworks for understanding the factors that influence technology adoption in educational contexts.

UTAUT Framework in Educational Technology

The *UTAUT* model, developed by Venkatesh et al. (2003), integrates eight prominent technology acceptance models to explain user intentions and subsequent usage behavior. The framework identifies four key constructs: Performance Expectancy (perceived usefulness), Effort Expectancy (perceived ease of use), Social Influence (social factors affecting usage), and Facilitating Conditions (organizational and technical infrastructure support).

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Recent applications of *UTAUT* in AI educational contexts have demonstrated its relevance for understanding adoption patterns. Menon and Shilpa (2023) successfully applied *UTAUT* to assess user intentions toward ChatGPT, highlighting the importance of performance expectancy and effort expectancy in sustained adoption. Similarly, studies of educational AI tools have shown that students' trust in AI capabilities and perceived academic benefits significantly influence continued usage (Wicaksono et al., 2024).

Extended UTAUT Constructs for Subscription Models

While traditional *UTAUT* constructs effectively explain initial adoption, freemium educational platforms require additional considerations related to subscription behavior. This study extends *UTAUT* with three critical constructs:

- *Perceived Value* encompasses users' evaluation of benefits relative to costs, particularly important in freemium models where users must justify upgrading from free access. Research demonstrates that perceived value significantly impacts behavioral intention in mobile learning systems (Alturki & Aldraiweesh, 2022).
- *Satisfaction with Free Trial* relates to users' fulfillment during complimentary usage periods. Paradoxically, highly satisfying free trials can reduce upgrade motivation when users' immediate needs are met without requiring premium features (Reza et al., 2021).
- *Price Sensitivity* reflects the influence of cost considerations on subscription decisions. In markets like Indonesia, where education is often viewed as a public good, price sensitivity significantly affects willingness to pay for educational technology services (Bhardwaj et al., 2020).

Expectation-Experience Gaps in Technology Adoption

The concept of expectation-experience gaps draws from the Expectation-Confirmation Model (*ECM*), which posits that satisfaction occurs when experiences meet or exceed prior expectations (Bhattacharjee, 2001). In educational technology contexts, these gaps can emerge from various sources: exposure to other AI tools, social media representations, peer experiences, and promotional materials.

When actual experiences fall short of expectations, users may experience dissatisfaction leading to disengagement, even when the technology functions adequately. This phenomenon is particularly relevant for AI educational tools, where users often form high expectations based on exposure to advanced AI systems like ChatGPT or promotional materials promising transformative learning experiences.

RESEARCH METHOD

Research Design

This study employs a qualitative descriptive-analytical approach to explore the expectation-experience gap affecting *AI Edu*'s subscription conversion. The qualitative design was selected to capture the subjective experiences, perceptions, and decision-making processes that quantitative methods might overlook. This approach allows for in-depth exploration of user motivations, expectations, and the contextual factors influencing subscription decisions in the Indonesian educational technology landscape.

Participants and Sampling

The research utilized purposive and convenience sampling to recruit 12 participants across two distinct groups:

1. Non-*AI Edu* Users (n = 6): Students who have used AI tools for learning but not *AI Edu*, representing broader market expectations
2. *AI Edu* Users (n = 6): Current platform users, including both free (n = 3) and paid (n = 3) subscribers

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Participants ranged from 14 to 22 years old, representing junior high school to university levels, with 75% female representation. This demographic composition aligns with typical users of educational technology platforms in Indonesia.

Data Collection

Semi-structured interviews lasting 30–60 minutes were conducted via video conferencing platforms. The interview guide was developed based on *UTAUT* constructs and extended variables, with questions designed to explore:

- Performance Expectancy: Academic utility and learning effectiveness
- Effort Expectancy: Ease of use and interaction experience
- Social Influence: Peer recommendations and social validation
- Facilitating Conditions: Technical accessibility and device compatibility
- Perceived Value: Cost-benefit evaluation and upgrade motivation
- Satisfaction with Free Trial: Trial experience and limitation impact
- Price Sensitivity: Pricing preferences and payment willingness

All interviews were audio-recorded with participant consent and transcribed verbatim for analysis.

Data Analysis

Thematic analysis was conducted using NVivo software, employing a hybrid approach combining deductive coding based on *UTAUT* constructs and inductive coding for emergent themes. The analysis process followed Braun and Clarke's (2006) six-phase framework:

1. Familiarization with transcripts
2. Initial coding of relevant data
3. Theme generation and organization
4. Theme review and refinement
5. Theme definition and naming
6. Report writing with illustrative quotes

Data triangulation was achieved by incorporating Net Promoter Score (NPS) data from *AI Edu*'s internal records to validate patterns identified in interview analysis.

RESULTS AND DISCUSSION

Market Expectations of AI Educational Tools

Analysis of non-AIEdu users revealed five major expectation categories that shape how students evaluate AI educational tools:

Perceived Educational Benefit

Students expect AI to function as an always-available academic assistant providing accurate, curriculum-aligned content with deep explanatory capabilities. Key expectations include:

- **Personalized and Adaptive Learning Support** (33 total references): Students desire AI that adapts to individual learning styles and provides interactive discussions similar to private tutoring
- **Accuracy and Source Validation** (25 references): Expectations for factually correct answers with credible, verifiable sources
- **Clarity and Structure in Learning Content** (22 references): Need for organized, sequential explanations that support independent learning

One participant articulated this expectation: *"My expectation towards technology like AI is adapting to each person's learning style... AI can provide step-by-step explanations according to the user's level of understanding"* [P1].

Ease of Use and Interaction Experience

Students expect frictionless access with intuitive interfaces requiring minimal learning curves. This includes expectations for:

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- Immediate usability without complicated processes
- Contextual understanding and conversational responses
- Helpful error guidance and auto-save features

Technical Reliability and Accessibility

Expectations center on seamless compatibility across devices and network conditions, with particular emphasis on:

- Functionality on low-spec devices common among students
- Performance during weak internet connectivity
- Clear error messaging and recovery guidance

Social and Environmental Drivers

Social influence significantly shapes initial expectations, with students often trying AI tools based on peer success stories or social media exposure. Effective recommendations typically come from trusted sources like teachers or successful peers.

Value Consideration and Payment Expectations

Students evaluate premium features based on clear academic added value compared to free alternatives. Key expectations include:

- Transparent differentiation between free and paid features
- Flexible, affordable pricing models (daily/weekly access)
- Academic value that justifies cost without relying on discounts

AIEdu User Experience Analysis

Analysis of AIEdu users revealed both strengths and significant gaps compared to market expectations:

Performance Strengths

AIEdu demonstrated effectiveness in several areas:

- **Clarity and Understanding** (6 participants): Clear, step-by-step explanations that help users grasp difficult concepts
- **Academic Support and Relevance** (4 participants): Effective exam preparation assistance, particularly for subjects requiring formula-based solutions

As one paid user noted: "*AIEdu helps every time I want to take an exam... there is a discussion that explains how to get the answer*" [PA1].

Performance Gaps

Despite strengths, significant limitations emerged:

- **Generalization and Surface-Level Delivery:** Explanations often lack depth and feel too generic for advanced academic needs
- **Accuracy and Coverage Issues:** Limited subtopic coverage and occasional topic mismatches between questions and answers
- **Robotic Interaction Style:** Responses perceived as mechanical rather than conversational

Usability Challenges

While generally intuitive, AIEdu faced specific friction points:

- Lengthy onboarding processes that delay engagement
- Lack of system feedback during technical errors
- Performance issues on older devices

Value Perception Gaps

A critical finding was the unclear value proposition of premium features:

- Free users uncertain about premium benefits beyond quota removal
- Premium users questioning whether upgrades justify costs
- Energy-based pricing system confusing compared to time-based alternatives

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One free user explained: *"The subscription system is limited to using energy... it would be better if not limited to energy but to duration"* [PA5].

Expectation-Experience Gap Analysis

The comparison between market expectations and AIEdu experiences reveals systematic gaps across all major dimensions:

Table 1. Expectation-Experience Gap Summary

Dimension	Market Expectation	AIEdu Experience	Gap Impact
Performance	Always-on adaptive tutor with curriculum alignment	Structured explanations but surface-level content	Reduced academic trust and engagement
Ease of Use	Intuitive, immediate access	Interface intuitive but onboarding barriers	Early user friction
Technical Access	Seamless cross-device functionality	Generally accessible but limited error guidance	Compatibility limitations
Social Influence	Peer-validated effectiveness	Mixed recommendation impact	Conversion gaps from promotional exposure
Perceived Value	Clear academic benefits in premium	Unclear premium differentiation	Low upgrade motivation
Trial Experience	Sufficient exploration time	Limited trial capacity	Inadequate premium evaluation
Pricing	Flexible, student-friendly models	Confusing energy-based system	Subscription hesitation

These gaps collectively explain AIEdu's low conversion rate, as users encounter friction points that gradually erode motivation to subscribe.

Strategic Implementation Framework

Based on the gap analysis, this study proposes a strategic roadmap using the Kano Model to prioritize improvements:

Table 2. Strategic Priority Framework

Solution	Kano Category	Priority	Expected Impact
Enhanced Relevance	Learning Must-Be	Phase 1 (Months 1-3)	Foundational trust building
Technical Optimization	Performance Must-Be	Phase 1 (Months 1-3)	Reduced friction
Redesigned Trial Experience	Performance	Phase 2 (Months 3-5)	Improved engagement
Simplified Pricing Models	Performance	Phase 2 (Months 3-5)	Clearer value perception
Premium Enhancement	Value Attractive	Phase 3 (Months 5-6+)	Conversion improvement

Phase 1: Foundation Building

- Align content with Indonesian national curriculum and UTBK standards
- Improve AI accuracy and intent recognition
- Optimize technical performance across device types

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- Implement informative error messaging

Phase 2: Experience Enhancement

- Redesign onboarding for immediate engagement
- Shift to time-based trial models (3-5 day unlimited access)
- Introduce flexible pricing options (daily/weekly passes)
- Add student verification discounts

Phase 3: Value Differentiation

- Develop exclusive premium academic tools
- Integrate verified source materials
- Create personalized study planning features
- Launch exam-specific preparation modules

Conclusion

This research reveals that *AI Edu*'s conversion challenge stems not from functional deficiencies but from systematic expectation-experience gaps that gradually erode user motivation to subscribe. While the platform successfully attracts users through effective marketing and genuine utility, it fails to meet the elevated expectations students form based on exposure to advanced AI systems and idealized educational assistance concepts. The study identifies five critical gap areas: performance expectancy (shallow vs. adaptive content), effort expectancy (onboarding friction vs. seamless access), social influence (peer validation vs. promotional exposure), perceived value (quota limitations vs. academic enhancement), and price sensitivity (energy-based vs. time-based models). These findings extend previous *UTAUT* applications by demonstrating how expectation-experience gaps specifically affect subscription behavior in educational technology contexts. Organizations developing AI educational tools should prioritize expectation management alongside feature development. This involves aligning product capabilities with *market* expectations through curriculum integration, simplified user journeys, transparent value propositions, and pricing models that reflect student usage patterns. The proposed three-phase implementation framework provides a systematic approach to closing these gaps while maintaining development efficiency. This research extends *UTAUT* application to post-adoption subscription contexts, demonstrating how perceived value, trial satisfaction, and price sensitivity become decisive factors beyond initial technology acceptance. The expectation-experience gap framework provides a structured approach for analyzing conversion challenges in freemium educational technology platforms. Further studies should examine cross-platform comparisons between specialized educational AI tools and general-purpose systems, investigate the role of socioeconomic factors in pricing sensitivity, and explore longitudinal impacts of expectation-experience alignment on academic performance and learning outcomes. The findings suggest that successful AI educational platforms must evolve beyond functional adequacy to become genuine learning partners that not only meet but strategically exceed user expectations, particularly in culturally sensitive markets where educational accessibility remains a fundamental concern.

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