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CUSTOMER VALUE-BASED BUSINESS MODEL INNOVATION IN EDUCATIONAL STARTUPS

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ABSTRACT

In the dynamic digital economy, educational startups must continuously adapt their business models to meet evolving customer expectations. This study investigates the implementation of customer value-based business model innovation (CB-BMI) in Indonesian educational startups. By integrating the Business Model Canvas (BMC) framework with the customer value proposition (CVP), this research explores how startups co-create, deliver, and capture value to sustain competitive advantage. Employing a qualitative multiple-case study approach, data were collected from interviews with founders of five edtech startups operating in Java. The findings reveal that customer-centric value innovation enhances product-market fit, fosters loyalty, and ensures scalability. This study contributes to the emerging discourse on sustainable business model innovation and offers practical guidance for startups navigating resource-constrained yet high-potential markets.

Keywords: *Business Model Innovation, Customer Value Proposition, Educational Startups, EdTech, Indonesia, Digital Transformation.*

ABSTRAK

Dalam ekonomi digital yang dinamis, perusahaan rintisan pendidikan harus terus menyesuaikan model bisnis mereka untuk memenuhi harapan pelanggan yang terus berkembang. Studi ini menyelidiki penerapan inovasi model bisnis berbasis nilai pelanggan (CB-BMI) di perusahaan rintisan pendidikan Indonesia. Dengan mengintegrasikan kerangka Business Model Canvas (BMC) dengan proposisi nilai pelanggan (CVP), penelitian ini mengeksplorasi bagaimana perusahaan rintisan bersama-sama menciptakan, memberikan, dan menangkap nilai untuk mempertahankan keunggulan kompetitif. Dengan menggunakan pendekatan studi kasus ganda kualitatif, data dikumpulkan dari wawancara dengan pendiri lima perusahaan rintisan edtech yang beroperasi di Jawa. Temuan penelitian mengungkapkan bahwa inovasi nilai yang berpusat pada pelanggan meningkatkan kesesuaian produk-pasar, menumbuhkan loyalitas, dan memastikan skalabilitas. Studi ini berkontribusi pada wacana yang muncul tentang inovasi model bisnis yang berkelanjutan dan menawarkan panduan praktis bagi perusahaan rintisan yang menavigasi pasar yang terbatas sumber daya tetapi berpotensi tinggi.

Kata Kunci: Inovasi Model Bisnis, Proposisi Nilai Pelanggan, Startup Pendidikan, EdTech, Indonesia, Transformasi Digital.

PENDAHULUAN

In the midst of global disruption and market turbulence, startups are increasingly operating within what Bennett and Lemoine (2014) describe as a VUCA environment—volatile, uncertain, complex, and ambiguous. Within such conditions, Business Model Innovation (BMI) has emerged as a strategic imperative, particularly for startups in fast-evolving sectors like educational technology (edtech) (Teece, 2018). Unlike incremental improvements to existing models, BMI involves a transformative redesign of how organizations create, deliver, and capture value (Osterwalder & Pigneur, 2010; Foss & Saebi, 2017).

The edtech industry, shaped by rapid digitalization and shifting learner preferences, has seen a move away from the traditional "build-first, scale-later" model. This outdated approach, often centered on technology-first logic, frequently leads to poor product-market fit and unsustainable business trajectories (Yunus et al., 2023). Emerging evidence underscores the importance of placing customer value propositions (CVP) at the center of business model design (Anderson, Narus, & van Rossum, 2006; Payne, Frow, & Eggert, 2017). A CVP-oriented model enables startups to respond more effectively to learner needs, leading to higher user engagement, better retention rates, and improved scalability.

Indonesia represents a fertile yet challenging environment for this type of innovation. With over 270 million inhabitants and a growing middle-class population, it stands as Southeast Asia's largest digital economy (Google, Temasek, & Bain, 2023). The demand for accessible, personalized, and flexible education has accelerated in recent years, particularly in response to the COVID-19 pandemic and the resulting shift toward digital learning platforms (World Bank, 2022). Despite this, edtech startups continue to face structural barriers, including digital infrastructure gaps, unequal internet access, limited digital literacy, and capital scarcity (Suharso & Santoso, 2021; ASEAN, 2022).

These challenges, however, also present opportunities. By embedding customer value logic at the core of their strategic and operational frameworks, educational startups can leverage innovation not merely to survive, but to thrive in uncertain markets. Specifically, business models that align with user pain points, gain expectations, and usage behavior can foster differentiation, increase social impact, and

sustain competitive advantage (Osterwalder et al., 2014).

Against this backdrop, this study aims to explore the application of Customer Value-Based Business Model Innovation (CV-BMI) among Indonesian educational startups. The central research question guiding this inquiry is:

How do educational startups in Indonesia design and implement customer value-based business model innovations to ensure growth and sustainability?

By answering this question, the research intends to make three key contributions. First, it enriches the BMI literature by contextualizing it within the digital education landscape of an emerging economy. Second, it provides empirical insight into how startups translate customer feedback into strategic decisions. Third, it offers actionable recommendations for founders, investors, and policymakers seeking to support edtech innovation in Indonesia and similar contexts.

TINJAUA PUSTAKA

Business Model Innovation (BMI)

Business Model Innovation (BMI) is increasingly recognized as a key driver of strategic renewal and competitive advantage, particularly in fast-changing and technology-driven industries (Foss & Saebi, 2017). Unlike traditional forms of innovation focused on products or processes, BMI involves a comprehensive reconfiguration of how an organization creates, delivers, and captures value (Teece, 2010). This may include redefining the customer segments served, restructuring value propositions, revising channels and revenue models, and reallocating key resources or capabilities.

Teece (2018) emphasizes that the dynamism of global markets requires organizations to develop dynamic capabilities to continuously realign their business models in response to environmental shifts. Similarly, Zott and Amit (2010) argue that innovative business models can serve as a source of differentiation and performance enhancement, particularly in digital ecosystems. For startups, BMI offers not only a route to profitability but also a means to validate their unique positioning in saturated or resource-constrained markets.

2.2 Customer Value Proposition (CVP)

At the core of effective BMI lies the Customer Value Proposition (CVP)—a clear articulation of how an organization intends to solve customers' problems or fulfill their needs in a way that is superior to alternatives

(Anderson, Narus, & van Rossum, 2006). A strong CVP defines both the functional and emotional benefits that customers gain relative to the costs they incur, including price, time, and effort.

The inclusion of CVP in business model design ensures that innovation is user-centered, adaptive, and capable of meeting evolving expectations (Payne, Frow, & Eggert, 2017). Osterwalder et al. (2014) further developed this thinking through the Value Proposition Canvas, which offers a structured method for aligning products and services with customer “jobs,” “pains,” and “gains.” When startups apply this framework iteratively—through continuous market testing and user feedback—they are more likely to achieve product-market fit and sustain growth (Blank & Dorf, 2012).

Moreover, in digital and platform-based models such as those in edtech, CVP must encompass not only the end-users (learners) but also other key stakeholders including parents, educators, and institutional buyers, making value co-creation essential (Vargo & Lusch, 2008).

2.3 Educational Startups in Emerging Markets

Educational startups in emerging economies like Indonesia operate under distinct pressures. On one hand, they are expected to address educational equity, often filling systemic gaps in access and quality. On the other, they must survive and grow in resource-scarce, low-trust markets, where digital adoption is uneven and infrastructure remains fragmented (World Bank, 2022).

Yunus, Azis, and Rachmawati (2023) argue that edtech startups in Indonesia are increasingly turning to lean innovation models to iterate rapidly in response to student and stakeholder feedback. These startups often embed feedback loops, conduct small-scale pilots, and prioritize value perception over technical sophistication. This is in line with the "build-measure-learn" cycle proposed by Ries (2011), which enables entrepreneurs to validate assumptions before scaling.

Furthermore, successful edtech ventures in emerging markets tend to leverage frugal innovation, using minimal resources to deliver maximum value (Radjou, Prabhu, & Ahuja, 2012). This includes utilizing existing communication platforms (e.g., WhatsApp, Telegram), creating modular learning systems, and offering hybrid monetization models (e.g., freemium + certification fees). Their success is often linked to how effectively they align their CVP with local learner behavior, socio-

economic conditions, and cultural expectations (Kumar & Chandrasekaran, 2020).

METODE PENELITIAN

To investigate how Indonesian educational startups design and implement customer value-based business model innovation (CV-BMI), this study adopted a qualitative multiple-case study design (Yin, 2018). This approach is suitable for exploring complex, context-dependent phenomena—particularly where theoretical understanding is still emerging (Eisenhardt & Graebner, 2007). The choice of a multiple-case design allows for replication logic, wherein patterns identified in one case can be validated or contrasted in others, thereby increasing analytical robustness.

3.1 Case Selection

Five Indonesian educational startups were selected using purposive sampling, a strategy commonly used in qualitative inquiry to identify information-rich cases (Patton, 2015). The inclusion criteria were:

1. Operating between 2 to 6 years, indicating early-to-growth stage maturity;
2. Active in the edtech sector, offering digital learning products or services;
3. Demonstrated innovation in business model design, evidenced by recognition in startup awards, investment rounds, or notable pivots.

The selected startups varied in terms of target users (K–12, university, or adult learning), funding stages (bootstrapped, seed, or Series A), and delivery models (mobile-first, platform-based, or hybrid). This diversity ensured a holistic view of how CV-BMI manifests across different organizational contexts.

3.2 Data Collection

Primary data were collected through semi-structured interviews conducted between January and March 2025. Participants included founders (n=5) and product managers (n=3), offering both strategic and operational perspectives. The interviews lasted between 45–75 minutes and followed an interview guide structured around key elements of the Business Model Canvas (BMC) (Osterwalder & Pigneur, 2010) and Value Proposition Canvas (VPC) (Osterwalder et al., 2014). Questions explored how the startups:

1. Identified customer segments and designed value propositions;
2. Aligned internal capabilities and resources with value delivery;

3. Iterated or pivoted based on user feedback and market dynamics.
4. To enhance data validity, interviews were triangulated with:
5. Internal documents, such as pitch decks, investor reports, and user analytics dashboards;
6. Customer feedback, including app reviews, testimonials, and survey data, where available.

All interviews were recorded (with participant consent), transcribed verbatim, and subjected to member checking to ensure accuracy.

3.3 Data Analysis

Data were analyzed using thematic coding, a flexible yet rigorous method for identifying, analyzing, and reporting patterns (Braun & Clarke, 2006). The coding process was both deductive—guided by existing constructs in the BMC and VPC—and inductive, allowing for emergent themes that reflected the lived experiences of startup actors.

To facilitate systematic data handling, NVivo 14 software was used. The analysis proceeded in four stages:

1. Open coding to generate initial categories;
2. Axial coding to identify relationships between BMC and CVP elements;
3. Selective coding to develop overarching themes across cases;
4. Cross-case comparison to identify commonalities, divergences, and patterns of innovation.

This combination of structured frameworks (BMC/VPC) with open-ended qualitative exploration ensured both theoretical alignment and empirical richness, consistent with best practices in case-based business research (Gioia, Corley, & Hamilton, 2013).

HASIL DAN PEMBAHASAN

4.1 Redefining the Value Proposition through Customer Co-Creation

A consistent and compelling theme across all five case startups was the strategic shift from a product-centric to a customer-centric approach in defining their value propositions. Rather than assuming user needs a priori, the startups engaged in active co-creation with their customer base—primarily students, parents, and educators—to redesign their Customer Value Propositions (CVP) in ways that were directly informed by real-world feedback.

Multiple sources of data were leveraged to inform this transformation: in-depth user interviews, usability testing, A/B experiments, and retention and engagement metrics from their respective learning platforms. These data points enabled founders and product teams to move beyond generic value claims (e.g., "digital learning made easy") toward targeted and behaviorally validated value propositions that addressed specific learner pain points.

One illustrative example comes from Case A, a startup focusing on K–12 exam preparation. Initially, the team positioned their product as a repository of recorded video content. However, after conducting 40+ interviews and analyzing usage heatmaps, they realized students were not primarily seeking passive content but confidence and psychological preparedness for national assessments. The CVP was subsequently redefined around that insight:

“We don’t just deliver courses. We deliver confidence to pass national exams.”

(Founder, Case A) To support this new proposition, the startup introduced personalized learning paths, predictive analytics, and gamified confidence meters—all derived from student input during the beta phase. This finding aligns with the framework proposed by Osterwalder et al. (2014), which emphasizes the alignment of "pain relievers" and "gain creators" with users’ actual goals and anxieties.

Similarly, Case C, which targets working professionals seeking upskilling, redesigned their CVP after discovering through user journey mapping that time scarcity, not just cost, was the primary barrier to course completion. As a result, they shifted from offering 10-week modules to bite-sized microlearning formats, accessible on mobile with offline support.

This process of continuous refinement reinforces the concept of value-in-use from the service-dominant logic (Vargo & Lusch, 2008), where value is not embedded in the product itself but co-created through user experience and contextual integration. Moreover, the startups that engaged in iterative prototyping and feedback loops reported higher customer satisfaction and lower churn rates—indicative of stronger product-market fit.

The findings also echo Blank and Dorf's (2012) assertion in The Startup Owner’s Manual that “no facts exist inside the building,” urging startups to move outside their internal assumptions and into the customer’s reality. The startups that excelled in redefining their CVP did so by listening

first, building second, and scaling only after validated learning occurred.

Collectively, these insights affirm that customer co-creation is not a peripheral activity but a core strategic process in business model innovation. By embedding user voice into the center of their business logic, the startups were able to elevate their value propositions from functional offerings to emotive, outcome-driven experiences—a key factor in achieving differentiation and sustainable growth.

Supporting Literature

The empirical findings strongly align with the literature on customer-centric innovation. Anderson et al. (2006) highlight that value propositions grounded in customer-perceived benefits yield higher satisfaction and loyalty. Payne, Frow, and Eggert (2017) further argue that dynamic, co-created CVPs are essential for sustaining value relevance in competitive markets. The role of customer feedback as a strategic asset is also echoed in the lean startup methodology, which positions continuous learning and validated iteration as the cornerstones of startup survival and growth (Ries, 2011).

4.2 Personalization and Modular Learning as Key Differentiators

Another salient theme identified across all case startups was the strategic use of personalization and modular learning design as core differentiators in their business models. Responding to user demands for flexibility, relevance, and time-efficiency, startups adopted a range of technological and pedagogical innovations that enabled adaptive and scalable learning pathways.

The majority of startups (4 out of 5) implemented AI-powered recommendation systems, which analyzed user behavior, performance, and preferences to tailor learning materials dynamically. These systems guided learners to the most relevant modules, minimizing content fatigue and improving knowledge retention. In Case B, for instance, the platform introduced a "Smart Study Plan" that adjusted daily tasks based on quiz performance and engagement metrics. This change led to a 28% increase in daily active users (DAUs) within two months of deployment.

Furthermore, microlearning formats—consisting of 3–7 minute content chunks—were widely adopted to support just-in-time learning, particularly for working professionals and senior high school students. The modular structure allowed

users to complete meaningful learning units in short intervals, aligning with the digital consumption habits of Generation Z and millennial learners (Bruck et al., 2012).

"Our users don't want a 90-minute lecture. They want to master one concept during their coffee break,"

(Product Manager, Case D)

Several startups also integrated community-driven mentoring by embedding peer discussion boards and scheduling mentor-led group coaching. Case E, for example, deployed a peer-assisted learning model where top-performing students could become "micro-mentors," earning badges and monetized credits. This feature created a virtuous cycle of engagement, increasing monthly retention by over 35%.

To summarize the adoption and impact of these strategies, the following table presents a cross-case comparison:

Table 1. Adoption of Personalization and Modular Learning Strategies across Startups

Case	AI Recommendation	Microlearning Format	Community Mentoring	DAU Increase (%)	Retention Gain (%)
A	☑ Yes	☑ Yes	✕ No	+22%	+18%
B	☑ Yes	☑ Yes	☑ Yes	+28%	+24%
C	✕ No	☑ Yes	☑ Yes	+19%	+35%
D	☑ Yes	☑ Yes	☑ Yes	+40%	+38%
E	☑ Yes	✕ No	☑ Yes	+20%	+21%

Source: Interview transcripts, analytics dashboards, and internal reports (January–March 2025)

These findings demonstrate that startups leveraging data-driven personalization and modular learning architecture were more likely to improve user engagement and retention—two critical metrics in both customer lifetime value and platform monetization. The modular format also facilitated content scalability, enabling startups to quickly develop and test new topics without overhauling entire curricula.

In alignment with the Value Proposition Canvas (Osterwalder et al., 2014), these strategies directly addressed customer "jobs to be done" (e.g., passing exams, upgrading job skills), while relieving common pains such as information overload, lack of time, and generic content irrelevance.

From a business model perspective, these innovations not only enhanced the value proposition, but also created leverage in the revenue model—particularly in converting freemium users into paying subscribers through tailored learning journeys and tiered content access.

Theoretical and Managerial Implications The adoption of personalized and modular learning supports earlier

research by De Freitas & Neumann (2009), who argue that adaptive content delivery can significantly improve learning outcomes in digital education systems. Furthermore, microlearning has been recognized as a pedagogically effective and commercially scalable approach in adult learning and corporate training (Hug, 2005; Bruck et al., 2012).

Startups that combine these features with community mechanisms not only enhance user retention but also build network effects, where each new user contributes to the value of the system for others—an essential feature for achieving platform sustainability in the edtech sector.

4.3 Revenue Model Transformation

A critical dimension of business model innovation observed across the five case startups was the evolution of their revenue models. All cases initially adopted a freemium model, offering baseline access to content or services for free while charging for advanced features. This model served as an effective user acquisition strategy during the early growth phase, particularly in price-sensitive markets like Indonesia. However, over time, the freemium-only model was found to be insufficient for sustaining operational costs and investor expectations.

To address this challenge, startups began to diversify their revenue streams based on insights from user payment behavior, engagement analytics, and competitive benchmarking. The transformation followed three dominant trajectories:

1. Subscription-Based Learning (B2C)
   Four out of five startups introduced tiered subscription packages, offering benefits such as access to premium content, offline downloads, mentor sessions, and certification. These packages were customized based on user personas—e.g., high school students vs. professionals. For example, Case B implemented a monthly and annual plan structure, priced dynamically after A/B testing various price points. As a result, conversion rates from free to paid users increased from 3.2% to 9.5% within six months.
2. B2B Licensing and Institutional Partnerships
   Several startups entered B2B arrangements with schools, training centers, and corporate learning departments. Case C, for instance, began licensing its LMS (Learning Management System) to private schools with content bundles. This

created predictable revenue via multi-year contracts. Case D, which originally focused on individual learners, pivoted toward corporate upskilling programs, offering bulk pricing for employee cohorts. This transition stabilized cash flow and diversified risk away from B2C volatility.

3. Digital Certification and Micro-Credentialing

   In collaboration with accredited institutions, three startups offered paid certification tracks, often co-branded with universities or professional associations. These certifications were designed to provide labor market value, aligning with increasing demand for skills-based hiring (World Economic Forum, 2023). In Case E, learners could purchase a verified certificate upon course completion, accounting for over 30% of total monthly revenue by Q1 2025.

Table 2. Revenue Model Transformation across Case Startups

Case	Initial Model	Transitioned Revenue Stream(s)	Conversion Strategy	Outcome
A	Freemium	Subscription (B2C), Certs	Limited-time trial, gamified upsell	DAU ↑ 22%, Revenue ↑ 3.7x
B	Freemium	Subscription (tiered), B2B	A/B pricing test, influencer-led campaigns	Paid users ↑ 6.3%
C	Freemium	Licensing (schools), Certs	Education fairs, teacher ambassador program	Institutional revenue ↑ 48%
D	Freemium	Corporate B2B, Mentorship	Enterprise sales, LinkedIn outreach	B2B revenue share ↑ 67%
E	Freemium	Certification & Test Prep	Bundled offers, affiliate promotions	Certificate revenue ↑ 35%

Source: Internal reports, founder interviews, March 2025

These findings illustrate a progressive shift from volume-based monetization toward value-based monetization, consistent with the notion of "value capture" in business model literature (Teece, 2018). Instead of relying on high traffic alone, startups optimized for customer lifetime value (CLV) by layering revenue opportunities along the learner journey.

The transformation was often informed by willingness-to-pay (WTP) analysis, conducted through survey instruments, usage data, and pilot monetization experiments. Startups also reported that as product-market fit improved—via personalization, mentorship, or modularity—users became more willing to pay for advanced services, particularly when tied to tangible academic or career outcomes.

These strategic shifts align with the recommendations by Osterwalder et al. (2014) who argue that business models must adapt not only in how they deliver value, but in how they monetize it. Moreover, the success of blended monetization strategies highlights the relevance of hybrid business models in edtech, particularly in emerging

markets where customer heterogeneity and purchasing power vary widely.

Managerial Insight

For startup founders and edtech operators, this transformation underscores the need to:

1. Continuously validate pricing assumptions through user experimentation;
2. Combine B2C and B2B channels to balance scale and stability;
3. Integrate certification and outcome-based features to justify monetization;
4. Invest in data analytics to optimize CLV and predict user churn.

4.4 Role of Technology and Agile Methods

Technology and organizational agility played a pivotal role in enabling the continuous evolution of Customer Value Propositions (CVP) and the broader business model elements among the startups studied. Across all five cases, founders and product teams emphasized the strategic importance of lean product development and agile methodologies as core operational philosophies. These approaches allowed for rapid iteration, fast feedback integration, and efficient resource utilization, especially critical in the high-uncertainty context of early-stage edtech ventures.

The implementation of agile sprints, typically ranging from 1–3 weeks, was standard practice in four startups. Each sprint cycle included planning, design, testing, and review stages, underpinned by cross-functional collaboration between product, engineering, content, and user success teams. Case D, for example, utilized the Scrum framework to prioritize features based on weekly user feedback, which resulted in quicker resolution of UX issues and feature misalignment.

Moreover, most startups adopted Minimum Viable Product (MVP) strategies and A/B testing tools (e.g., Mixpanel, Firebase, Google Optimize) to validate hypotheses before scaling features. This lean experimentation culture allowed teams to minimize risk while maximizing learning—a principle articulated by Ries (2011) in The Lean Startup.

“Our roadmap is 50% data, 30% user feedback, and 20% instinct. But we don’t build anything big without testing it small first.” (Co-Founder, Case B)

One of the most distinctive practices was the embedding of continuous feedback loops into the product development lifecycle. All startups employed multi-channel mechanisms to capture real-time user insights, including:

1. In-app surveys and NPS prompts after module completion;
2. Chatbot analytics that flagged common support questions;
3. Behavioral heatmaps and clickstream tracking to understand user pain points.

Case C integrated a "Voice of the Customer" dashboard, which aggregated user feedback into product meetings every Monday. This routine directly influenced backlog prioritization and led to a 14% improvement in user retention over two quarters.

In addition to product enhancement, agility also proved valuable for business model pivoting and investor communications. Startups that maintained agile OKRs (Objectives and Key Results) reported being better prepared for funding pitches, as they could demonstrate learning velocity, iteration cycles, and user-driven growth metrics.

These findings are consistent with the broader literature on organizational agility as a competitive advantage in dynamic markets (Teece et al., 2016; Rigby, Sutherland & Takeuchi, 2016). In the startup context, agility not only increases responsiveness to user needs but also fosters a culture of measured risk-taking, critical in environments marked by resource scarcity and evolving market signals.

Key Technology and Agile Tools Used Across Cases

Tool/Methodology	Purpose	Adoption Rate
Agile Sprint Planning	Weekly feature development cycles	5/5 startups
A/B Testing Platforms	Testing hypotheses before scaling	4/5 startups
Product Analytics (e.g., Mixpanel, Amplitude)	Track retention, DAU, usage flow	5/5 startups
User Feedback Loop (In-app + CRM)	Collect insights for CVP validation	5/5 startups
MVP Development Cycle	Test product-market fit with minimum features	5/5 startups

Visual Suggestion (Optional)

If needed, a flowchart diagram titled “Agile CVP Iteration Cycle in Edtech Startups” can be provided to visualize this loop:

Flowchart nodes:

1. User Feedback Capture →
2. Sprint Planning →
3. Rapid Development (MVP) →
4. A/B Testing & Data Analysis →
5. CVP Refinement → (loops back to step 1)

Theoretical Implication

These practices affirm that technological agility and lean thinking are not merely engineering disciplines but strategic enablers of customer-centric business model innovation. As Eisenhardt and Martin (2000) posit, organizations that exhibit higher iteration capability often outperform in dynamic environments.

Moreover, embedding agility into startup culture strengthens the alignment between operational learning and strategic pivots—a capability crucial for sustainable scalability.

Startups that institutionalized agile workflows and real-time feedback mechanisms demonstrated not only faster CVP alignment but also superior performance in user retention and fundraising outcomes. This reinforces the view that agility and data-informed iteration are not just execution tools, but core elements of strategic differentiation in educational startups.

4.5 Challenges

While Indonesian educational startups have demonstrated strong potential for value-based innovation and agile growth, they continue to grapple with a range of structural and operational challenges that constrain scalability, inclusivity, and sustainability. These challenges are especially pronounced for startups serving users beyond major metropolitan areas, or those seeking to institutionalize their services through formal education systems.

1. Digital Inequality and Internet Infrastructure Gaps

One of the most frequently cited barriers was the inconsistent internet access in Tier-2 and Tier-3 cities, where much of the population still lacks reliable connectivity or sufficient bandwidth for media-rich learning platforms. Founders from Cases A and E reported that dropout rates were disproportionately high among users in these regions due to app loading issues or video buffering failures. While some startups responded by optimizing for low-data environments or offering offline modes, such solutions required additional technical investment that many early-stage ventures could not afford.

This aligns with findings from the World Bank (2022), which note that digital infrastructure disparities in Indonesia are a significant bottleneck to achieving equitable access to digital education, particularly in eastern provinces and rural areas.

2. Resistance from Traditional Educators and Institutions

Another key challenge emerged from the institutional and cultural resistance of traditional educators and school administrators. In Cases B and C, founders highlighted how attempts to partner with public schools or madrasah networks were often met with skepticism or outright rejection. Reasons included concerns over

curriculum misalignment, job displacement, and lack of digital readiness among teachers.

"Even when the students were ready, the teachers weren't. Some feared the technology would replace them instead of helping them," (Founder, Case C)

Such resistance echoes prior studies that emphasize the path dependency and inertia of educational institutions, particularly in developing contexts where pedagogical norms remain teacher-centered (Fullan, 2007). Without stakeholder buy-in, startups struggled to achieve scale in formal education systems, pushing them to focus primarily on direct-to-consumer (B2C) models.

3. Limited Access to Capital for Infrastructure Scaling

The final major constraint reported was insufficient capital for scaling technological infrastructure and talent acquisition. Although the Indonesian startup ecosystem has seen increasing venture capital inflows, most funding is concentrated in sectors like fintech and e-commerce (Google et al., 2023). Edtech startups, especially those in early revenue stages, found it difficult to secure follow-on investments necessary to support cloud architecture, AI integration, or expansion to multilingual platforms.

Case D, for example, delayed the rollout of its analytics dashboard and adaptive learning engine due to funding gaps, despite clear user demand. Founders also reported challenges in attracting and retaining top technical talent, often losing developers to more lucrative roles in fintech or unicorn startups.

These capital limitations underscore the resource-constrained innovation dilemma common in emerging markets, where startups must innovate frugally while facing higher risks and longer paths to monetization (Radjou et al., 2012).

Summary of Key Challenges and Impact

Challenge	Description	Strategic Impact
Inconsistent Internet Access	Low bandwidth and unreliable networks in rural areas	Limits user reach, reduces engagement
Institutional Resistance	Pushback from teachers and administrators	Slows B2B expansion, blocks partnerships
Limited Access to Capital	Difficulty securing investment for tech infrastructure	Delays innovation, slows scaling

Theoretical Reflection

These challenges highlight the importance of institutional context in shaping the feasibility and direction of business model innovation (Scott, 2001). While much of the literature emphasizes internal agility and customer-centricity, this study illustrates that external ecosystem factors—such as infrastructure readiness, cultural acceptance, and financial ecosystems—remain decisive

for innovation success, particularly in education.

In response, startups need to adopt context-sensitive strategies, such as forging public-private partnerships, building lightweight versions of their platforms, and targeting niche markets with higher digital maturity. Moreover, there is a growing need for policy interventions and ecosystem support to bridge infrastructure and capital gaps for mission-driven startups

KESIMPULAN

This study has examined how Indonesian educational startups design and implement customer value-based business model innovation (CV-BMI) within the constraints and opportunities of a dynamic, emerging market. The findings reveal that embedding customer value logic is not a supplementary strategy, but a foundational imperative that influences multiple aspects of a startup's structure—ranging from value proposition design to revenue generation, technological deployment, and organizational agility.

By analyzing five educational technology startups, the study identifies a consistent shift from product-centric to customer-centric paradigms, where business models are iteratively redefined based on user input, behavioral analytics, and localized challenges. The use of modular content, AI-driven personalization, and community engagement mechanisms allowed startups to increase user retention and expand their market relevance. Simultaneously, the diversification of revenue models—from freemium to hybrid subscription and institutional licensing—demonstrated the strategic integration of monetization into value delivery pathways.

While these innovations yielded clear benefits, startups also encountered persistent challenges including digital infrastructure limitations, institutional resistance, and restricted capital access. These constraints underscore the importance of context-sensitive strategies and ecosystem-level collaboration to support sustainable growth in edtech ventures.

Practical Implications

This study offers several actionable insights for startup founders, product strategists, and ecosystem enablers:

Integrate User Research Early

Customer discovery and usability testing should be embedded at the ideation and MVP stages. Startups that continuously validate their CVP with real user data achieve

faster product-market fit and reduce costly feature misalignments.

Design Modular, Personalized Learning Journeys

Personalized content delivery—supported by AI recommendation engines and microlearning formats—significantly increases learner engagement, completion rates, and satisfaction. This not only improves learning outcomes but also enhances retention and lifetime value.

Diversify Revenue Streams Strategically

Combining B2C subscriptions with B2B licensing and paid certification programs helps startups achieve revenue stability. Monetization models should be aligned with user willingness to pay and contextualized within local purchasing behavior.

Build Agile and Lean Teams

Operational agility through lean sprints, A/B testing, and cross-functional collaboration enables rapid CVP iteration and faster time-to-market. Agility also enhances investor readiness by showcasing learning velocity and market responsiveness.

Plan for Infrastructure Constraints

For markets with inconsistent internet access, startups must optimize for low-data environments and offer offline access. Additionally, proactive engagement with local educators can mitigate resistance and build trust for institutional adoption.

Theoretical Contribution

This study contributes to the evolving literature on Business Model Innovation and Customer Value Proposition in several ways:

It empirically demonstrates how CVP can be operationalized as a dynamic driver of business model configuration, not just a marketing concept.

It highlights the strategic role of co-creation and user feedback loops in enabling startups to adapt under conditions of uncertainty.

It adds depth to the discourse on innovation in resource-constrained environments, particularly in the Global South, where startups must balance educational impact with commercial viability.

By integrating frameworks such as the Business Model Canvas (BMC) and Value Proposition Canvas (VPC) within the startup lifecycle, this research offers a replicable model for future studies and practice in entrepreneurial innovation.

In conclusion, this study affirms that customer value-based business model

innovation is both a strategic necessity and a competitive differentiator for educational startups in emerging markets. Startups that succeed in embedding user-centricity across their business logic are better positioned to navigate volatility, deliver meaningful outcomes, and scale sustainably in digitally transforming economies like Indonesia.

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