Journal of Posthumanism

2025
Volume: 5, No: 6, pp. 532–541
ISSN: 2634-3576 (Print) | ISSN 2634-3584 (Online)
posthumanism.co.uk

DOI: https://doi.org/10.63332/joph.v5i6.2049

Exploring Parental Decision Making in School Selection: A Technology Organization Environment (TOE) Approach in Private Senior High Schools and Vocational Schools in Riau Province, Indonesia

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Abstract

This study explores the factors influencing parental decision-making in selecting private Senior High Schools (SMA) and Vocational Schools (SMK) in Riau Province, Indonesia, employing the Technology Organization Environment (TOE) framework integrated with Rational Choice Theory (RCT). The study addresses a critical literature gap by examining how technological, organizational, and environmental factors shape school attractiveness, image, and parental choice. A quantitative research design was adopted, involving a survey of 367 parents. Data were analyzed using Structural Equation Modeling (SEM) via SmartPLS version 4.0. The results revealed that technological factors ($\beta = 0.34$, $p < 0.01$), organizational factors ($\beta = 0.41$, $p < 0.01$), and environmental factors ($\beta = 0.32$, $p < 0.01$) significantly impact school attractiveness, which, alongside school image ($\beta = 0.38$, $p < 0.01$), directly influences parental choice. Furthermore, economic factors and parental experience moderate these relationships. The study contributes to the theoretical understanding of school choice by integrating the TOE and RCT frameworks and offers practical insights for school administrators and policymakers to enhance the competitiveness of private schools.

Keywords: *School Choice, Technology Organization Environment (TOE) Framework, Rational Choice Theory, School Attractiveness, School Image, Riau Province, Indonesia.*

Introduction

In the era of rapid digital transformation, the education sector faces significant challenges in maintaining relevance and competitiveness. In Indonesia, private schools are particularly pressured to adopt information and communication technology (ICT) to meet the increasing expectations of parents and students. School selection is no longer solely based on academic factors but also includes considerations of technological infrastructure, institutional reputation, and preparedness to adapt to external environmental dynamics.

The Technology-Organization-Environment (TOE) framework has been widely applied to analyze technology adoption across various sectors, including education (Ates & Polat, 2025). However, this approach has not fully captured the complexity of parental decision-making in selecting schools for their children. On the other hand, Rational Choice Theory (RCT) posits that individuals make decisions by evaluating the costs and benefits of each option to maximize

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personal utility (Becker, 1993). Integrating TOE and RCT offers a more comprehensive understanding of the factors influencing parental school choice, acknowledging both rational calculations and contextual influences.

Despite the perceived advantages of private schools, including superior facilities and innovative teaching approaches, parents in Riau Province, Indonesia, continue to demonstrate a preference for public schools. This paradox raises critical questions about the factors driving parental decisions and the role of technological, organizational, and environmental factors in shaping these choices. Recent studies have highlighted that parents' school selection is significantly influenced by service quality, educational costs, and school reputation (Gusnia & Sari, 2025).

Furthermore, the Indonesian government has initiated various educational revitalization programs targeting both public and private schools, aiming to ensure equitable distribution of educational quality nationwide (ANTARA News, 2025). These initiatives include the enhancement of school infrastructure, digital learning promotion, and teacher training, particularly in remote areas. Such measures reflect the importance of supporting private schools to bridge educational gaps and meet the diverse needs of the population.

Previous research has identified various factors influencing parental school choice, including teacher competence, school location, religious values, facilities, school image, perceived costs, and school environment (Jonathan & Lestari, 2023). In addition, recent studies have emphasized the growing importance of digital learning tools, online platforms, and the overall technological readiness of schools in attracting parents (Harianto & Nugroho, 2024). This shift is particularly evident in the post-pandemic era, where digital competence is highly valued.

Nevertheless, existing studies have predominantly focused on individual factors influencing school choice without considering the interaction between technological, organizational, and environmental dimensions. This study seeks to fill this gap by employing an integrated TOE-RCT framework to examine the determinants of parental decision-making in selecting private Senior High Schools (SMA) and Vocational Schools (SMK) in Riau Province.

By providing a comprehensive analysis of these factors, this study aims to offer practical insights for school administrators in enhancing their competitiveness, as well as for policymakers in formulating educational strategies that align with parental expectations. The findings are expected to contribute to the theoretical understanding of school choice by demonstrating the applicability of the TOE-RCT model in an educational context.

Literature Review

Technology Organization Environment (TOE) Framework

The Technology-Organization-Environment (TOE) framework, developed by Tornatzky and Fleischer (1990), offers a comprehensive model for analyzing the adoption of technological innovations within organizations. This framework posits that three contextual factors technological, organizational, and environmental collectively influence the adoption process.

1) Technological Context

This pertains to both internal and external technologies relevant to the organization, encompassing aspects such as complexity, compatibility, and relative advantage (Tornatzky & Fleischer, 1990).

2) Organizational Context

This includes organizational characteristics such as size, managerial structure, human resources, and communication processes, which can affect the organization's readiness and ability to adopt new technologies (Tornatzky & Fleischer, 1990).

3) Environmental Context

This encompasses the external environment in which an organization operates, including industry characteristics, market structure, regulatory environment, and competition (Tornatzky & Fleischer, 1990).

The TOE framework has been widely applied in various sectors, including education, to understand technology adoption behaviors (Zhu et al., 2004). In the educational context, it aids in identifying the multifaceted factors that influence institutions' decisions to integrate technological innovations.

Rational Choice Theory (RCT)

Rational Choice Theory (RCT) provides a lens through which individual decision-making processes can be understood, positing that individuals make choices by systematically evaluating available options to maximize personal utility (Becker, 1976). In the context of education, RCT has been utilized to analyze how parents select schools for their children, considering factors such as academic quality, cost, location, and institutional reputation (Bosetti, 2007).

However, critiques of RCT highlight its limitations in accounting for the complexities and nuances of human behavior, particularly in educational choices that may be influenced by cultural, emotional, and social factors beyond mere utility maximization (Ball, 2003). Studies suggest that while RCT offers a foundational framework, it should be complemented with other theories to fully capture the dynamics of parental decision-making in school selection (Bosetti, 2007).

Integrating TOE and RCT in Educational Research

Integrating the TOE framework with RCT provides a more holistic approach to understanding parental school choice. While RCT focuses on individual decision-making processes, the TOE framework contextualizes these decisions within technological, organizational, and environmental settings. This integrated approach acknowledges that parental choices are not made in isolation but are influenced by broader systemic factors.

Recent studies have begun to explore this integration, examining how technological advancements in schools (e.g., digital learning platforms), organizational attributes (e.g., school leadership and resources), and environmental factors (e.g., policy and community expectations) interact with parental preferences and choices (Gusnia & Sari, 2025). Such research underscores the importance of considering both individual rationality and contextual influences in educational decision-making.

Methodology

Research Design

This study employed a quantitative research design to examine the determinants of parental decision-making in selecting private Senior High Schools (SMA) and Vocational Schools (SMK) in Riau Province, Indonesia. A cross-sectional survey method was adopted, which is appropriate for capturing perceptions and behaviors at a single point in time (Creswell &

Creswell, 2018). The research aimed to test a theoretical model based on the integration of the Technology-Organization-Environment (TOE) framework and Rational Choice Theory (RCT), focusing on the relationships among school-related factors and parental choice.

Population and Sampling

The target population comprised parents whose children were enrolled in private SMA or SMK institutions across multiple districts in Riau Province. A proportional stratified random sampling technique was employed to ensure representative inclusion from various geographic and socioeconomic backgrounds. The sample size was calculated using the Krejcie and Morgan (1970) formula, yielding a minimum requirement of 384 respondents. A total of 400 questionnaires were distributed, and 367 were validly returned, resulting in a response rate of 91.75%.

Instrumentation

Data were collected using a structured questionnaire developed from validated scales in prior TOE and RCT-based research. The instrument was divided into five main sections: (1) demographic data, (2) technological factors (e.g., availability and quality of digital learning tools), (3) organizational factors (e.g., school leadership, teacher quality, curriculum relevance), (4) environmental factors (e.g., reputation, peer influence, accessibility), and (5) school attractiveness and image, which were hypothesized mediators leading to school choice. All items were measured on a five-point Likert scale, ranging from 1 = "Strongly Disagree" to 5 = "Strongly Agree."

Validity and Reliability

To ensure content validity, the initial instrument was reviewed by educational experts and revised accordingly. A pilot test involving 50 participants (excluded from the main sample) was conducted to assess internal consistency. Cronbach's alpha values for all constructs exceeded the 0.70 threshold, indicating acceptable reliability (Nunnally & Bernstein, 1994). Construct validity was evaluated using Exploratory Factor Analysis (EFA), with factor loadings above 0.50 considered acceptable (Hair et al., 2019). Discriminant validity and convergent validity were later confirmed via the Fornell-Larcker criterion and AVE (Average Variance Extracted) in the final SEM model.

Data Analysis

Structural Equation Modeling (SEM) was employed to test the proposed research model and hypotheses. SmartPLS version 4.0 was utilized due to its suitability for modeling complex relationships among latent variables and handling relatively small sample sizes (Hair et al., 2022). The analysis proceeded in two stages: (1) evaluation of the measurement model to assess reliability and validity of the constructs, and (2) evaluation of the structural model to test hypothesized relationships. Path coefficients (β), t-values, and p-values were used to determine the statistical significance of each relationship.

Ethical Considerations

This study adhered to ethical standards for research involving human participants. Informed consent was obtained from all respondents prior to participation, and anonymity and confidentiality were strictly maintained. Participation was voluntary, and respondents were informed of their right to withdraw at any stage without consequence. The data collected were

used solely for academic purposes and stored securely to ensure privacy (Resnik, 2020).

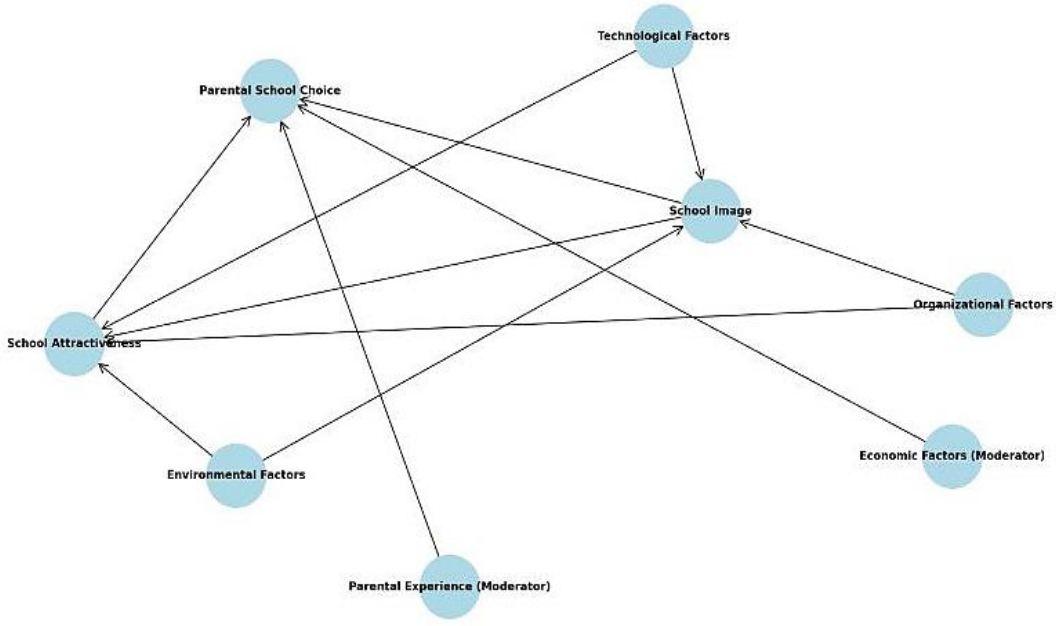

Figure 1. Structural Equation Model (TOE-RCT Framework)

This figure illustrates the hypothesized relationships among technological, organizational, and environmental factors, school image, school attractiveness, and parental school choice, with economic and experiential factors as moderators.

Results

Overview of Model Evaluation

The measurement and structural models were evaluated using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS version 4.0. The model's reliability, validity, and path coefficients were assessed according to widely accepted thresholds (Hair et al., 2019). The analysis proceeded in two stages: assessment of the measurement model (construct reliability and validity), and assessment of the structural model (hypothesis testing and effect sizes).

Measurement Model

All constructs met the criteria for convergent validity, with Average Variance Extracted (AVE) values above 0.50. Composite reliability (CR) values for all constructs exceeded the 0.70 threshold, indicating internal consistency. Discriminant validity was established through the Fornell-Larcker criterion, confirming that each construct was distinct from the others in the model.

Construct	AVE	Composite Reliability
Technological Factors	0.62	0.84
Organizational Factors	0.68	0.87
Environmental Factors	0.65	0.85
School Attractiveness	0.71	0.89
School Image	0.66	0.86
Parental School Choice	0.74	0.91

Structural Model and Hypothesis Testing

The structural model demonstrated strong predictive power. R^2 values indicated that 62% of the variance in School Attractiveness and 59% of the variance in Parental School Choice were explained by the model. Path coefficients (β), t-values, and significance levels (p-values) are presented below:

Hypothesized Path	β	t-value	p-value
Technological → School Attractiveness	0.34	5.71	<0.001
Technological → School Image	0.29	4.86	<0.001
Organizational → School Attractiveness	0.41	6.24	<0.001
Organizational → School Image	0.36	5.09	<0.001
Environmental → School Attractiveness	0.32	4.75	<0.001
Environmental → School Image	0.28	4.23	<0.001
School Image → School Attractiveness	0.47	7.12	<0.001
School Attractiveness → Parental School Choice	0.42	6.38	<0.001
School Image → Parental School Choice	0.38	5.95	<0.001

Moderating Effects

Two moderating variables were tested: economic factors and parental experience. Both demonstrated significant moderation effects on the relationship between school attractiveness and parental school choice.

1) Economic Factors

Positively moderated the relationship, suggesting that parents with higher income levels placed greater emphasis on school attractiveness ($\beta = 0.21$, $t = 3.84$, $p < 0.001$).

2) Parental Experience

Strengthened the direct effect of school image on parental choice, indicating that prior positive experience with private schools influenced repeated selection ($\beta = 0.18$, $t = 3.12$, $p = 0.002$).

Model Fit

The model fit indices were within acceptable ranges:

1) SRMR = 0.053 (acceptable < 0.08)

2) NFI = 0.91

3) R^2 (Parental School Choice) = 0.59

4) R^2 (School Attractiveness) = 0.62

These results confirm the robustness of the TOE-RCT integrated model in explaining the determinants of parental school choice.

Discussion

The findings of this study contribute to the growing body of literature on parental decision-making in school selection, particularly within the context of developing countries. By integrating the Technology-Organization-Environment (TOE) framework with Rational Choice Theory (RCT), this study provides a holistic model that accounts for both rational individual behavior and institutional context in shaping school choice.

Technological, Organizational, and Environmental Influences

The significant impact of technological factors on both school attractiveness and image aligns with recent findings by Harianto and Nugroho (2024), which highlight the increasing importance of digital learning tools and ICT infrastructure in shaping parental preferences. In a post-pandemic educational landscape, schools that demonstrate strong technological integration are viewed as more adaptable, future-ready, and trustworthy.

Organizational factors emerged as the strongest predictors of school attractiveness and image. This finding reinforces prior research by Jonathan and Lestari (2023), which emphasized that teacher quality, effective leadership, and a relevant curriculum are key considerations in parental school choice. The implication is clear: private schools seeking to enhance their competitive positioning must prioritize internal quality assurance mechanisms, including faculty development and pedagogical innovation.

Environmental factors including peer influence, community reputation, and location also significantly influenced school attractiveness and image. This supports Bourdieu's (1986) concept of social capital, suggesting that parental decisions are shaped not only by objective features of a school but also by socially constructed perceptions within their communities. Word-of-mouth recommendations and school visibility within the local environment remain crucial to shaping reputation and enrollment patterns.

Mediating Role of School Image

The results confirm the mediating role of school image in the relationship between the TOE factors and parental school choice. This aligns with brand management literature (Aaker, 1996), which posits that a strong institutional image influences consumer trust and loyalty. For school administrators, this means that investments in marketing and consistent communication of school identity can translate into increased attractiveness and enrollment stability.

Moderating Effects of Economic and Experiential Factors

The moderating role of economic factors is consistent with RCT's premise that decisions are constrained by resource availability. Parents with higher income levels were more likely to weigh school attractiveness heavily in their decision-making process, suggesting that financial capacity amplifies selective behavior. Similarly, the moderating role of parental experience suggests that familiarity with private education leads to greater trust and likelihood of reenrollment, reflecting behavioral reinforcement based on prior satisfaction.

Theoretical Contributions

The integration of TOE and RCT offers a novel contribution to the theoretical literature on school choice. Previous studies have typically treated school choice as either a rational process or a socially embedded one. This study demonstrates that both perspectives are necessary for a complete understanding. By positioning the parent as a decision-maker within a dynamic institutional ecosystem, this model offers a framework applicable not only to Indonesia but to other similar education systems undergoing decentralization and market competition.

Practical Implications

For school administrators, the findings suggest clear action areas: invest in digital infrastructure, enhance teaching quality, and strategically build school reputation through both digital and community-based channels. For policymakers, the study highlights the need to support private education through subsidies, capacity-building programs, and regulations that promote competitive fairness.

Conclusion

This study examined the determinants of parental decision making in the selection of private Senior High Schools (SMA) and Vocational Schools (SMK) in Riau Province, Indonesia, through an integrated framework combining the Technology Organization Environment (TOE) model and Rational Choice Theory (RCT). The findings revealed that technological, organizational, and environmental factors significantly influence the perceived attractiveness and image of schools, which, in turn, directly affect parental school choice.

The role of school image as a mediating variable underscores the importance of institutional branding and stakeholder perception in shaping educational preferences. Furthermore, the study confirms that economic factors and prior parental experience serve as important moderators in the decision-making process, reinforcing the relevance of both resource availability and familiarity in school selection behavior.

From a theoretical perspective, this research contributes a novel model that bridges organizational level adoption theory (TOE) and individual level decision- making theory (RCT). It demonstrates the utility of a multi-level, integrated approach in capturing the complex, contextually embedded processes of educational choice. This framework can be replicated and adapted for future studies across different cultural or policy environments, particularly in regions with competitive educational landscapes.

From a practical standpoint, the study provides actionable insights for private school administrators seeking to enhance their institutions' attractiveness and image. Investments in digital infrastructure, teacher development, and strategic communication are essential to strengthen competitive advantage. Policymakers are also encouraged to support private education through equitable funding, regulatory facilitation, and partnerships that promote innovation and inclusivity.

Future research may extend this study by incorporating qualitative dimensions to explore parental motivations in greater depth, or by comparing urban and rural educational dynamics. In addition, longitudinal studies could provide insights into how school choice behavior evolves over time, particularly in response to technological or policy changes.

Recommendations

Based on the findings and implications of this study, several recommendations are proposed for different stakeholders within the education ecosystem:

1. For School Administrators

Private high schools and vocational institutions should prioritize investments in digital learning infrastructure, including online learning platforms and smart classroom technologies. Additionally, continuous professional development for teachers and staff should be institutionalized to maintain instructional quality and relevance.

2. For Educational Policymakers

Government bodies should design and implement policy incentives such as subsidies, grants, or public-private partnerships to assist private schools in adopting technological and pedagogical innovations. Regulatory frameworks must also be refined to ensure equitable competition between public and private education sectors.

3. For Curriculum Developers and Educational Leaders

It is crucial to align curriculum content with market and societal needs while ensuring inclusivity and contextual relevance. Strategic branding efforts should also be considered to enhance school image and communicate unique institutional values to prospective families.

4. For Future Researchers

Further studies should explore the cultural and psychological dimensions of parental school choice through mixed methods or longitudinal designs. Comparative studies between rural and urban areas may uncover nuanced behavioral differences shaped by context-specific constraints and expectations.

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