

Factors Influencing Parents' Decisions in Selecting Mental Mathematics Education Centers for Their Children in Ho Chi Minh City

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ABSTRACT: The demand for education and intellectual development for children has become a top priority for parents worldwide, and this holds true for the parent community in Ho Chi Minh City. In this context, choosing a cognitive math training institution for their children is a crucial decision parents face. This raises the question of which factors influence their decision. This research focuses on analyzing the factors that parents in Ho Chi Minh City consider when deciding on a cognitive math training institution for their children. A deeper analysis of these factors will help understand parents' decisions better and may provide specific recommendations to improve the quality of education and support their decision-making process. The research methodology will involve structured interviews and multivariate analysis to collect and analyze data from a random sample of parents within the research area. The expected results will provide an overview and detailed insight into the most important factors influencing parents' decisions.

KEYWORDS: Mental mathematics, education, intellectual development, training facilities, parental decisions.

I. INTRODUCTION

Thinking represents a higher-order stage of the cognitive process through which objective reality is reflected in the human mind in the form of concepts, judgments, and reasoning (Tran Ngoc Lan & Truong Thi To Mai, 2009). Mathematical thinking emphasizes reflection and problem-solving through mathematical modes of inquiry, with the aim of helping learners develop their capacities for observation, analysis, judgment, creativity, and application (Zhan, 2020). Mathematical thinking is regarded as one of the most fundamental objectives of mathematics education. It serves not only as a foundation for learners' cognitive development but also as a critical basis for their sustained growth and long-term achievement in mathematics (Li et al., 2019).

According to Stanford University (United States), mental mathematics is defined as an innovative pedagogical approach to mathematics instruction that differs fundamentally from the conventional teaching methods commonly employed in mainstream school mathematics education. Traditional mathematics education in schools often directs learners toward theory-oriented learning processes aimed at solving highly structured and routine problems. In this context, success in school mathematics may be said to depend largely on learning to think "inside the box." In contrast, mental mathematics is grounded in learners' mathematical thinking, emphasizing the application of creative thinking processes in problem-solving and mathematical reasoning tasks.

II. HYPOTHESES AND RESEARCH MODEL

Based on prior empirical studies and the characteristics specific to learners aged 4–12 in Ho Chi Minh City, this study proposes six hypotheses representing the key factors influencing parents' decisions in selecting mental mathematics education centers for their children:

2.1. Human-Related Factors Influencing Parents' Decision-Making

Any decision-making process may be influenced, to varying degrees, by external social actors such as family members, friends, and broader social networks. According to Chapman (1981), the influence of these individuals on decision-making may occur through three primary mechanisms. First, their opinions may shape parents' expectations regarding the quality and suitability of a particular mental mathematics education center. Second, they may provide direct recommendations concerning where parents should enroll their children. Third, in cases involving close acquaintances, parents may be influenced by the educational choices already made by those within their social circles, particularly when acquaintances have enrolled their own children in a specific institution.

Accordingly, family members, relatives, and friends may constitute important social determinants influencing parents' selection decisions. Based on this group of human-related influencing factors, support the following hypothesis:

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H1: Recommendations from family members and close acquaintances are positively associated with parents' decisions to select mental mathematics education centers for their children.

2.2. Institutional Characteristics of Mental Mathematics Education Centers

The characteristics of mental mathematics education centers include dimensions such as curriculum design, physical facilities, teaching staff, and admission procedures. Parents tend to examine these characteristics carefully before making enrollment decisions. Education centers that better align with parents' expectations and preferences are more likely to attract enrollment intentions for their children.

According to Ming (2010), institutional characteristics—including location, academic programs, reputation, infrastructure, and financial support policies—significantly influence selection decisions. Nguyen Phuoc Quy Quang et al. (2020), building upon the frameworks of Chapman (1981) and Ming (2010), further suggested that institutional characteristics should also encompass teaching quality and faculty-related attributes. On the basis of this category of institutional characteristics, the following hypothesis is proposed:

H2: The characteristics of mental mathematics education centers are positively associated with parents' selection decisions.

2.3. Learner-Related Individual Capability Factors

Chapman's (1981) model suggests that learner-related individual characteristics constitute one of the most influential determinants of parents' educational selection decisions. Among these, children's capabilities and personal interests appear to be the most salient factors affecting parental choice of educational institutions. Building on these two dimensions—learner capability and learner interest—the authors propose the following hypothesis:

H3: The greater the alignment between the educational program and the learner's abilities or interests, the stronger the parents' propensity to select a particular mental mathematics education center.

2.4. Expected Developmental Benefits from Mental Mathematics Learning

Both Chapman (1981) and Cabrera and La Nasa identified future educational expectations as a significant determinant of educational choice behavior. Parents are likely to consider the anticipated developmental and academic benefits that a learning program may provide for their children when making enrollment decisions. Based on the learner's anticipated future educational opportunities, the following hypothesis is proposed:

H4: Parents are more likely to select a mental mathematics education center when they perceive that it offers superior future learning opportunities for their children compared with alternative institutions.

2.5. Reputation of Mental Mathematics Education Centers

Institutional reputation is developed cumulatively over time through the evaluations and experiences of learners, parents, and relevant educational stakeholders. In addition, the reputation of a training institution may be reflected in learners' academic achievements upon course completion, as well as parents' recognition of the quality and effectiveness of the educational programs offered. Accordingly, the following hypothesis is proposed:

H5: The reputation of a mental mathematics education center is positively associated with parents' selection decisions.

2.6. Communication and Promotional Efforts Targeting Parents

Chapman (1981) also emphasized the important role of institutional communication efforts in influencing parents' educational decision-making. Such efforts may include brand-building activities, promotional campaigns, enrollment counseling, tuition incentive programs, and broader communication strategies implemented through media channels such as television, magazines, cultural events, and sports sponsorships to enhance brand visibility and attract parental attention.

Similarly, Hossler and Gallagher suggested that direct exposure to educational institutions—such as campus visits or participation in trial classes—may significantly influence parents' perceptions and subsequent selection decisions. Based on this category of communication and promotional efforts, the following hypothesis is proposed:

H6: The greater the communication and promotional efforts undertaken by mental mathematics education centers toward parents, the greater the likelihood that parents will select those institutions for their children.

Accordingly, the proposed research hypothesis model is presented in Figure 1 below:

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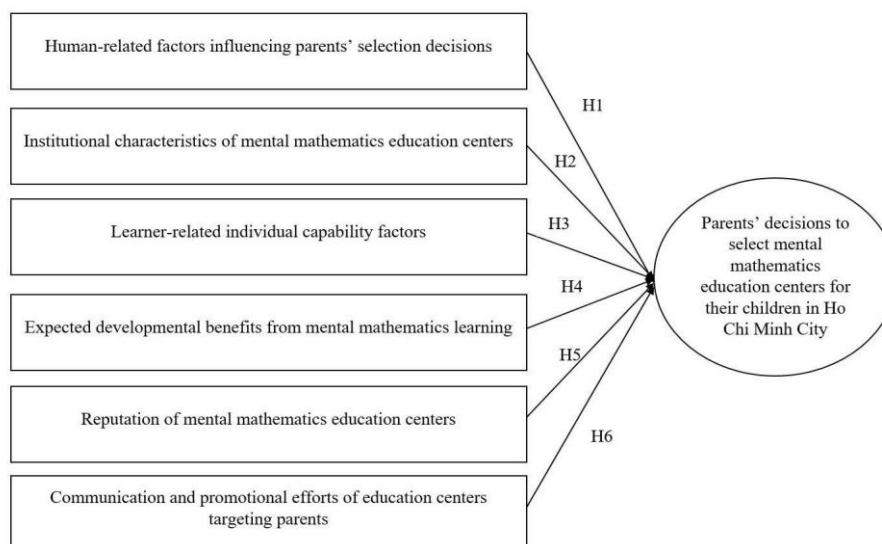


Figure 1 Proposed research model

III. RESEARCH DESIGN

3.1. Research method

This study adopts a mixed-method research design, combining qualitative and quantitative approaches to examine the factors influencing parents' decisions in selecting mental mathematics education centers for their children in Ho Chi Minh City. The qualitative phase was conducted to refine the conceptual framework, validate the proposed constructs, and ensure the contextual relevance of the measurement items. Expert interviews were undertaken with educational administrators, including principals, vice principals, and parent association representatives, to assess the appropriateness of the proposed research model. In addition, in-depth discussions with managers of mental mathematics education centers were conducted to evaluate the clarity, relevance, and practical applicability of the preliminary questionnaire. Following the qualitative phase, a quantitative approach was adopted to empirically test the proposed hypotheses and examine the relationships among the study variables.

3.2. Sampling method and data collection

The target population consisted of parents and relevant stakeholders associated with mental mathematics education centers in Ho Chi Minh City. A purposive sampling technique was employed to ensure that respondents possessed relevant experience and familiarity with the research context. Data were collected through a structured questionnaire survey distributed directly to participants across selected mental mathematics education institutions. The final sample size comprised 150 valid responses, which was considered adequate for exploratory factor analysis and multiple regression analysis, in accordance with established methodological recommendations (Hair et al., 2006; Tabachnick & Fidell, 1996). Data collection was conducted under conditions intended to maximize respondent comfort and response accuracy.

3.3. Measurement method

The scales used in this study were developed based on the proposed conceptual framework and relevant prior studies. All the items used a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The collected data were analyzed using SPSS. Descriptive statistics were first employed to summarize respondent characteristics and key variables. The reliability of the measurement scales was assessed using Cronbach's alpha. Exploratory factor analysis (EFA) was then conducted to examine construct validity and identify the underlying factor structure. Finally, correlation analysis and multiple linear regression were performed to test the proposed hypotheses and evaluate the direct effects of the independent variables on parents' selection decisions.

IV. RESULTS AND DISCUSSION

4.1. Respondent Profile and Measurement Reliability

A total of 150 valid responses were included in the final analysis. The respondent profile indicates that the majority of parents possessed relatively high educational attainment, with 60% holding undergraduate degrees and 22% holding postgraduate qualifications, suggesting that the sample largely comprised well-educated parents with considerable awareness of educational

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investment decisions for their children. In terms of income, most respondents belonged to middle- to upper-income groups, reinforcing the relevance of educational service quality and long-term developmental expectations in parental decision-making. The reliability analysis demonstrated satisfactory internal consistency across all measurement constructs. Cronbach's alpha coefficients exceeded the recommended threshold of 0.60 for all constructs, indicating acceptable reliability of the measurement scales. Notably, the human-related factor construct exhibited particularly strong reliability (Cronbach's alpha = 0.933), suggesting high consistency among the observed indicators measuring interpersonal and social influence on parental choice.

Exploratory factor analysis (EFA) was subsequently conducted to evaluate construct validity and dimensional structure. The adequacy of the sample for factor analysis was confirmed through the Kaiser–Meyer–Olkin (KMO) test, while Bartlett's test of sphericity demonstrated statistical significance, supporting the appropriateness of factor extraction. Collectively, these findings indicate that the measurement instrument possessed adequate psychometric properties for subsequent regression analysis.

4.2. Hypothesis Testing

Multiple linear regression analysis was employed to examine the influence of the proposed independent variables on parents' decisions to select mental mathematics education centers for their children. The regression model demonstrated strong explanatory power, with an R^2 value of 0.897 and an adjusted R^2 of 0.893, indicating that approximately 89.3% of the variance in parental selection decisions could be explained by the predictors included in the model. This suggests substantial model fit and strong predictive capacity.

The ANOVA results further confirmed the overall statistical significance of the regression model ($F = 208.272$, $p < 0.001$), indicating that the proposed theoretical framework adequately explained the observed behavioral outcomes.

The regression findings revealed that four factors exerted statistically significant positive effects on parental decision-making. Among these, communication and promotional efforts emerged as the most influential predictor ($\beta = 0.662$, $p < 0.001$), followed by human-related social influence ($\beta = 0.324$, $p < 0.001$), learner-related capability factors ($\beta = 0.080$, $p = 0.009$), and expected developmental benefits from mental mathematics learning ($\beta = 0.061$, $p = 0.005$).

In contrast, institutional characteristics ($\beta = 0.018$, $p = 0.677$) and institutional reputation ($\beta = -0.030$, $p = 0.398$) were found to be statistically insignificant, suggesting that these factors did not meaningfully influence parents' final selection decisions in this context.

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Accordingly, hypotheses H1, H3, H4, and H6 were supported, whereas H2 and H5 were rejected.

Table 1: Conclusion of Hypothesis Testing

Independent Variable	Hypothesis	Hypothesis Statement	Result
Human-Related Factors (HF)	H1	Recommendations from family members and close acquaintances are positively associated with parents' decisions to select mental mathematics education centers for their children.	Accepted
Institutional Characteristics (IC)	H2	The characteristics of mental mathematics education centers are positively associated with parents' selection decisions.	Rejected
Learner-Related Capability Factors (LC)	H3	The greater the alignment between the educational program and the learner's abilities or interests, the stronger the parents' propensity to select a particular mental mathematics education center.	Accepted
Expected Developmental Benefits (EDB)	H4	Parents are more likely to select a mental mathematics education center when they perceive that it offers superior future learning opportunities for their children compared with alternative institutions.	Accepted
Institutional Reputation (IR)	H5	The reputation of a mental mathematics education center is positively associated with parents' selection decisions.	Rejected
Communication and Promotional Efforts (CPE)	H6	The greater the communication and promotional efforts undertaken by mental mathematics education centers toward parents, the greater the likelihood that parents will select those institutions for their children.	Accepted

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4.3. Discussion

The findings provide important insights into parental educational decision-making within the supplementary education market, particularly in the context of mental mathematics education in Ho Chi Minh City.

First, communication and promotional efforts were identified as the strongest determinant of parental choice. This finding suggests that parents are highly responsive to information accessibility, institutional visibility, and persuasive communication strategies. In contemporary educational markets, parents are increasingly exposed to multiple information channels, including social media, institutional websites, referral systems, promotional campaigns, and educational consultants. As a result, centers that actively engage in strategic communication may significantly enhance parental trust and selection likelihood.

This finding aligns with Chapman's educational choice framework, which emphasizes the importance of institutional communication in shaping stakeholder perceptions and decision behavior. However, in the present context, the magnitude of this effect appears particularly strong, likely reflecting the highly competitive and commercially driven nature of Vietnam's private educational services sector.

Second, human-related social influence significantly affected parental decision-making. Recommendations from family members, relatives, friends, and trusted acquaintances appear to play a substantial role in shaping educational choices. This result is theoretically consistent with collectivist cultural characteristics, particularly in Asian contexts, where social endorsement and interpersonal trust often outweigh purely objective institutional evaluations.

This finding suggests that parental decisions regarding children's supplementary education are not solely rational or utility-based but are also socially embedded. Informal social validation may serve as a heuristic mechanism that reduces uncertainty when evaluating educational alternatives.

Third, learner-related capability factors positively influenced selection decisions, although the magnitude of this effect was comparatively modest. This indicates that parents do consider the fit between their child's abilities, interests, and the educational program when making enrollment decisions. This supports person-environment fit perspectives, which suggest that perceived compatibility between learner characteristics and educational environments contributes to more favorable choice outcomes.

However, the relatively weaker effect suggests that parental perceptions may prioritize external signals (e.g., communication, recommendations) over individualized pedagogical matching.

Fourth, developmental expectations regarding future educational benefits also significantly influenced parental decisions. Parents appear to regard mental mathematics not merely as a short-term enrichment activity but as an investment in long-term cognitive development, academic readiness, and broader intellectual growth. This finding is consistent with consumer decision theories emphasizing expected utility and future-oriented evaluation in educational consumption behavior.

Interestingly, institutional characteristics and reputation did not significantly influence decision-making. This result diverges from much of the higher education choice literature, where institutional quality, facilities, and reputation are often strong determinants of selection behavior.

Several explanations may account for this discrepancy. First, the supplementary education market differs fundamentally from formal educational settings. Parents may perceive mental mathematics centers as service providers rather than long-term academic institutions, reducing the salience of formal reputation markers. Second, strong communication strategies may effectively substitute for objective institutional evaluation, particularly in highly promotional markets. Third, because many mental mathematics providers offer similar curricula, facilities, and service structures, differentiation based on institutional characteristics may be relatively weak.

Overall, the findings suggest that parental decision-making in this context is shaped more strongly by social influence, perceived developmental promise, and communication effectiveness than by conventional institutional quality indicators.

These results contribute to the growing literature on educational consumer behavior by highlighting how parental decision-making in supplementary education may differ from traditional school choice models, particularly in emerging education market.

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