

# Digital Marketing and Competitive Advantage in Malaysian Education Agencies: Unveiling the Mediating Effects of Generation Z Interaction and Business Resilience

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**Abstract:** In the evolving educational sector of Malaysia, digital marketing has emerged as a pivotal tool in enhancing competitive advantage. This research aims to explore the role of digital marketing in shaping the competitive edge of Malaysian educational agencies, focusing on the mediating effects of Generation Z's engagement and business resilience. The study adopts a quantitative research methodology, employing a survey to gather data on digital marketing strategies (social media marketing, video marketing, viral marketing, and AI applications), Generation Z's Interactions, Business Resilience, and Competitive Advantage. Findings reveal that digital marketing not only directly influences competitive advantage but also mediates its effect through Generation Z interactions and organizational resilience. Specifically, digital marketing enhances business resilience, allowing agencies to adapt to market disruptions, while also fostering deeper connections with Generation Z, thus strengthening their competitive positioning. The study concludes that digital marketing is an essential component for the sustained success of educational agencies, particularly in navigating challenges posed by market shifts and generational preferences. Recommendations include the integration of advanced digital marketing techniques tailored to Generation Z, alongside strengthening digital resilience capabilities, to ensure long-term competitiveness in the Malaysian educational agencies sector.

**Keywords:** Digital Marketing, Competitive Advantage, Generation Z, Business Resilience, Malaysian Education Agencies.

## 1. Introduction

The education sector in Malaysia has become a field of concern for international students, backed by a network of educational agencies institutions that promote collaboration between such education institutions and potential learners. These Agency play a critical role in providing significant services, such as visas, orientation, and accommodation, and in enhancing Malaysia's competitive position in terms of a students' destination (MOHE, 2020). In 2019, international students generated an impressive RM7.9 billion for Malaysia's economy (Kovil Pillai & Hussin, 2017), and an ambitious target of 250,000 students in 2025 has been proposed by the (Ministry of Higher Education, 2024). Nevertheless, educational agencies face a variety of obstacles, including stringent reformative laws, high competition at an international level, and speedy development in terms of digital marketing techniques. To

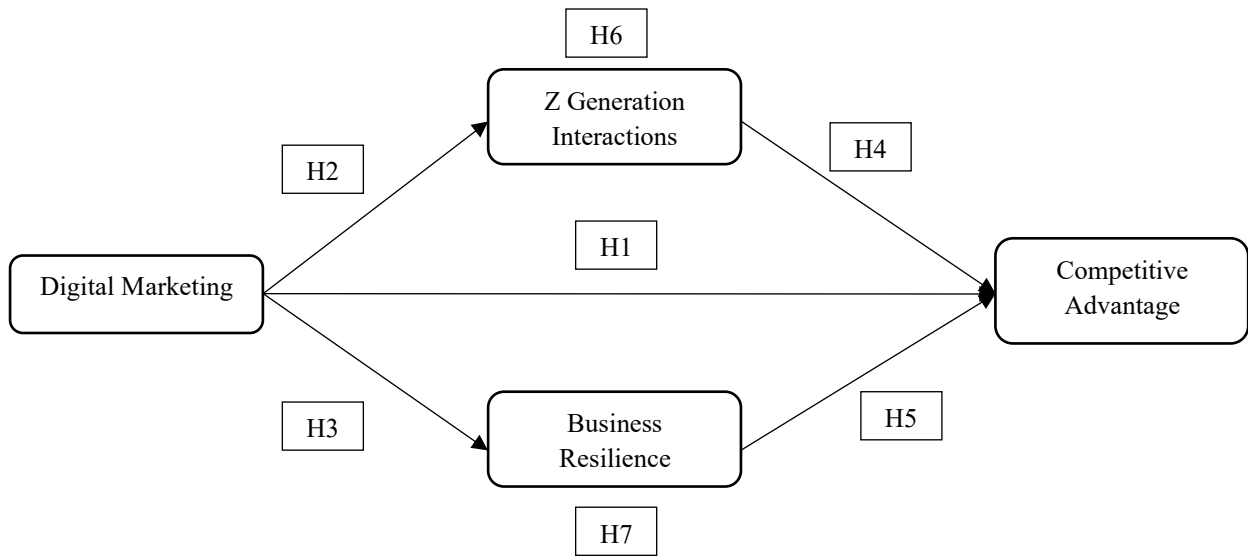
effectively overcome such obstacles, educational agency must apply digital marketing techniques. Digital marketing has become a critical tool, and through its use, agency can target a larger population (Shukla et al., 2020) and contact a variety of demographics through a variety of techniques, such as search engine optimization (SEO) (Panchal et al., 2021), social media marketing (Dwivedi et al., 2021), and video marketing (Bhardwaj & Sharma, 2020). Online channels such as YouTube, Instagram, and TikTok have proven effective in attracting Generation Z (Behbahani & Develi, 2023), a group characterized by its preference for personalized, immersive, and technology-intensive content (Mishra & Das, 2024; Sarker, 2024; Tabassum et al., 2020). Despite that, a slow integration of sophisticated tools such as artificial intelligence (AI) and big data analysis in Malaysia has generated a significant opportunity for full realization of the benefits of digital transformation. The significant disruptions experienced during the period of the COVID-19 pandemic have emphasized the critical role played by digital marketing (MOHE, 2020).

The recent pandemic in the world, caused by the COVID-19 virus, has emphasized the imperative for digital resilience (Lee et al., 2024). In a move to counteract the pandemic's challenge, governments have been forced to use virtual recruitment processes and develop a strengthened digital infrastructure (Azman & Abdullah, 2021). Organizations that failed to effectively transition have experienced drops in earnings and operational effectiveness, and in consequence, have uncovered deep vulnerabilities in competitiveness in a period of crisis. Digital marketing, a sophisticated tool with numerous benefits including heightened awareness and enhanced relations with customers (Nuseir & Refae, 2022), has been adopted in the Malaysian educational recruitment agency sector in a disorganized manner, with high fragmentation in many cases. There is a wealth of academic studies supporting the effectiveness of digital marketing in recruitment processes (Al-Thagafi et al., 2020; Anute et al., 2019), but little work investigating its impact on competitive advantage, specifically through intermediate factors of Gen Z engagement and business resilience. Gen Z's digital behavior and orientation require new approaches, but its impact on competitiveness is not yet researched in detail enough. Business resilience, important in countering disruptions such as a pandemic, is not yet incorporated in competitive advantage frameworks, even though it plays a key role in operational continuity and adaptability.

This study seeks to bridge a gap through an examination of how digital marketing impacts the competitive advantage of educational institutions in Malaysia. It addresses how Generation Z engages and the resilience of such institutions. By filling in this gap, the study seeks to develop a concise model for competitiveness in an increasingly digital and interconnected educational environment. Social Cognitive Theory (SCT) and Resource Dependence Theory (RDT) underpin discussion regarding how digital marketing impacts educational institutions in Malaysia, particularly in terms of Generation Z's behavior and business resilience. Drawing on SCT, this study considers how Generation Z's perception, attitude, and behavior towards information about digital marketing impact its behavior towards educational institutions and its decision regarding higher studies. In addition, analysis employs RDT in explaining educational institution use of digital marketing tools and capabilities for enhancing its resilience and competitiveness in the higher studies marketplace. Figure 1 model consists of four segments: digital marketing, Generation Z behavior, business resilience, and competitive advantage.

**Figure 1**

*Hypothetical Model*



Hypotheses formed based on the hypothetical model framework include:

- H1. Digital marketing has a positive effect on the competitive advantage of education agency services in Malaysia.
- H2. Digital marketing has a positive effect on the Z Generation Interactions of education agency services in Malaysia.
- H3. Digital marketing has a positive effect on the Business resilience of education agency services in Malaysia.
- H4. Generation Z Interactions has a significant positive effect on Competitive Advantage of education agency services in Malaysia.
- H5. Business resilience has a significant positive effect on Competitive Advantage of education agency services in Malaysia.
- H6. Digital Marketing has an indirect effect on Competitive Advantage through Generation Z Interactions.
- H7. Digital Marketing has an indirect effect on Competitive Advantage through Business Resilience.

## 2. Method

### 2.1 Research Design

This study employs a quantitative research methodology, specifically the survey method, to gather comprehensive insights into the digital marketing practices of educational agencies in Malaysia. The survey's primary focus areas include social media marketing, video marketing, and AI marketing, and their respective impacts on competitive advantage, business resilience, and interactions with Generation Z. The questionnaire employed for data collection was structured with closed-ended questions and divided into two primary sections. The initial section gathered demographic information, including age, gender, educational background, and work experience, to contextualize the analysis. The subsequent section comprised multiple-choice questions pertaining to the study constructs, encompassing competitive advantage, digital marketing strategies, business resilience, and interactions with Generation Z. Each construct was measured using a Likert scale, enabling the quantification of respondents' attitudes and perceptions (Sekaran, 2016).

## 2.2 Theoretical Underpinning

Each variable involved in this study is explained based on its own parameters and determined based on the justification explained in table 1.

**Table 1**

*Theoretical foundation and justification of each Variable and Parameter*

Variable	Parameter Used	Source	Justification
<b>Digital marketing (DM)</b>	<b>Social Media Marketing (SMM):</b> Engagement Rate	Digital Marketing Theory (Kotler & Godin, 1990)	Engagement rate captures the interaction level with social media content, reflecting audience engagement and content relevance.
	<b>Video Marketing (VIM):</b> View Count	Digital Marketing Theory (Kotler & Godin, 1990)	View count indicates the number of times video content is watched, a direct measure of its appeal and reach.
	<b>Viral Marketing (VM)</b>	Digital Marketing Theory (Kotler & Godin, 1990)	
	<b>AI:</b> Personalization Score	Digital Marketing Theory (Kotler & Godin, 1990)	Personalization score assesses the effectiveness of AI in delivering tailored content to users, enhancing customer experience.
<b>Z Generation Interaction (ZG)</b>	Engagement Rate	Uses and Gratifications Theory (Katz et al., 1973)	Engagement rate reflects the level of active participation and interaction by the Z Generation with the content.
<b>Business Resilience (BR)</b>	Financial Stability	Resource Dependence Theory (Pfeffer & Salancik, 1978)	Financial stability indicates the organization's capacity to endure economic challenges and invest in growth, key for resilience.
<b>Competitive Advantage (AD)</b>	Customer Conversion Rate	Derived from the theoretical framework	Customer conversion rate measures the ability to convert potential clients into actual clients, indicative of strong competitive positioning and effective marketing strategies.

## 2.3 Population and Sampling

The sampling technique employed in this study is convenience sampling, a non-probability sampling method that selects participants based on their availability and accessibility. This approach is particularly appropriate given the logistical constraints and the need for timely data collection from a diverse and dispersed population of education agency employees in Malaysia. The sample used in this study was 250 samples. By utilizing existing networks and digital platforms, researchers can efficiently gather data from a representative subset of the target population, ensuring that the findings are both relevant and actionable (Berman et al. 2000; Sileyew 2019).

## 2.4 Data Analysis

### 2.4.1 Descriptive Statistic

These statistics provide simple summaries about the sample and the measures. They include measures of central tendency such as mean, median, and mode, as well as measures of variability like standard deviation and range. Descriptive statistics help in understanding the general distribution and characteristics of the data, which is essential before moving on to more complex analyses (Field, 2013).

### 2.4.2 Covariant-Based Structural Equation Modelling (CB-SEM)

To find out how digital marketing mediated by Z Generation Interaction and Business Resilience can predict Competitive Advantage, Covariant-Based structural equation modelling (CB-SEM) was carried out. CB-SEM is a multivariate statistical technique that combines factor analysis and path analysis to test hypothesized relationships between observed and latent variables. The path analysis was conducted through the following steps:

1. Model Specification
2. Multivariate kurtosis value was computed to confirm the multivariate normality (Kline, 2015);
3. MahalaNobis distances were calculated to determine the outliers (Westfall and Henning, 2013);
4. Goodness of fit of the hypothesized model was tested (Shek and Yu, 2014);
5. R-square (R<sup>2</sup>) were computed to illustrate the explained variation; and
6. Standard estimate coefficients ( $\beta$ ) of the significant paths were calculated to quantify the “magnitude” of the effect of one variable on another.

## 3. Findings

### 3.1 CB-SEM Measurement Model Evaluations

The study’s factor loadings demonstrated strong reliability across all constructs as seen on table 2, with outer loadings for observed variables consistently exceeding the 0.7 threshold. Notably, the Competitive Advantage (AD) indicators exhibited exceptionally high reliability, ranging from 0.957 to 0.966. Similarly, Digital Marketing constructs—comprising AI, SMM, VM, and VIM—showed robust loadings, all surpassing 0.799. Business Resilience (BR) indicators also reflected high consistency, with values between 0.951 and 0.966, while Generation Z (ZG) indicators maintained uniformly strong loadings above 0.944. Overall, these results confirm that the observed variables are highly reliable and effectively capture their respective latent constructs, validating the measurement model’s robustness.

**Table 2**

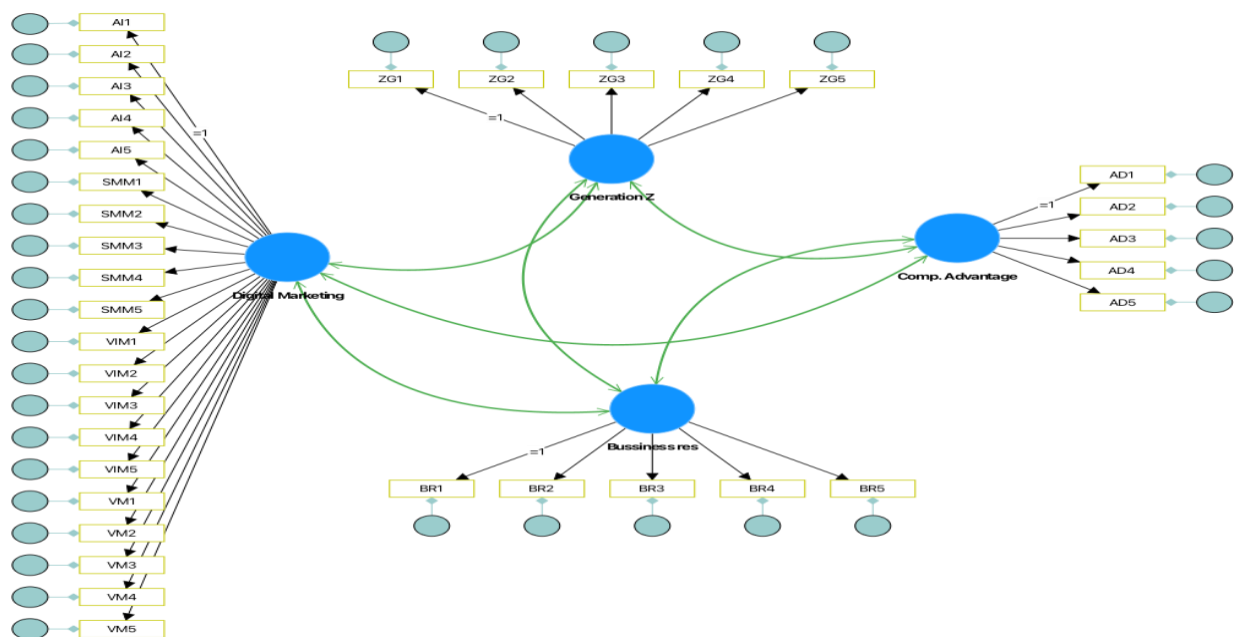
*Outer Loadings Result*

Outer Loading		Outer Loading	
AD1 <- Comp. Advantage	0.965	SMM3 <- Digital Marketing	0.900
AD2 <- Comp. Advantage	0.966	SMM4 <- Digital Marketing	0.912
AD3 <- Comp. Advantage	0.966	SMM5 <- Digital Marketing	0.906
AD4 <- Comp. Advantage	0.957	VIM1 <- Digital Marketing	0.914
AD5 <- Comp. Advantage	0.958	VIM2 <- Digital Marketing	0.912
AI1 <- Digital Marketing	0.821	VIM3 <- Digital Marketing	0.905
AI2 <- Digital Marketing	0.832	VIM4 <- Digital Marketing	0.923
AI3 <- Digital Marketing	0.820	VIM5 <- Digital Marketing	0.916
AI4 <- Digital Marketing	0.816	VM1 <- Digital Marketing	0.865
AI5 <- Digital Marketing	0.799	VM2 <- Digital Marketing	0.850
BR1 <- Business res	0.951	VM3 <- Digital Marketing	0.835

	Outer Loading		Outer Loading
BR2 <- Business res	0.966	VM4 <- Digital Marketing	0.849
BR3 <- Business res	0.954	VM5 <- Digital Marketing	0.871
BR4 <- Business res	0.956	ZG1 <- Generation Z	0.944
BR5 <- Business res	0.953	ZG2 <- Generation Z	0.950
SMM1 <- Digital Marketing	0.893	ZG3 <- Generation Z	0.954
SMM2 <- Digital Marketing	0.910	ZG4 <- Generation Z	0.948
		ZG5 <- Generation Z	0.950

**Figure 2**

*Graphical output of the measurement model*



Assessment of reliability and validity in table 3 revealed robust psychometric properties across all constructs. Both Cronbach's Alpha and Composite Reliability (CR) exceeded 0.9 for every construct, demonstrating excellent internal consistency. Average Variance Extracted (AVE) values further supported convergent validity, with Competitive Advantage (AD) at 0.926, Business Resilience (BR) at 0.914, Digital Marketing at 0.763, and Generation Z (ZG) at 0.901—all well above the 0.5 threshold, confirming that the constructs account for a substantial proportion of variance in their indicators. Discriminant validity was also established: HTMT ratios remained below the 0.85 benchmark, and the Fornell-Larcker criterion showed that the square roots of each construct's AVE surpassed its correlations with other constructs. Together, these results affirm the measurement model's reliability, convergent validity, and distinctiveness between constructs.

**Table 3**

*Validity and Reliability*

	<b>HTMT/ Fornell-Locker Validity</b>				<b>Cronbach's alpha (standardized)</b>	<b>Composite reliability (rho_c)</b>	<b>Average variance extracted (AVE)</b>
	<b>Business res</b>	<b>Comp. Advantage</b>	<b>Digital Marketing</b>	<b>Generation Z</b>			
<b>Business resilience</b>	-/0.956				0.981	0.981	0.914
<b>Comp. Advantage</b>	0.560/0.560	-/0.962			0.984	0.984	0.926
<b>Digital Marketing</b>	0.487/0.489	0.700/0.699	-/0.873		0.985	0.984	0.763
<b>Generation Z</b>	0.332/0.334	0.587/0.586	0.676/0.671	- /0.949	0.979	0.979	0.901

### 3.2 CB-SEM Structural Model Evaluations

The path analysis revealed significant relationships between latent constructs, with all hypotheses supported at  $p < 0.001$ . Digital Marketing exhibited strong direct effects, positively influencing both Business Resilience ( $\beta = 0.427$ ,  $T = 8.779$ ) and Competitive Advantage ( $\beta = 0.422$ ,  $T = 6.959$ ), underscoring its pivotal role in enhancing organizational adaptability and market positioning. Additionally, Digital Marketing showed a pronounced impact on Generation Z engagement ( $\beta = 0.637$ ,  $T = 12.644$ ), highlighting its effectiveness in resonating with younger demographics. Business Resilience ( $\beta = 0.330$ ,  $T = 6.311$ ) and Generation Z ( $\beta = 0.223$ ,  $T = 3.926$ ) further contributed directly to Competitive Advantage, reinforcing their roles as critical drivers of organizational success.

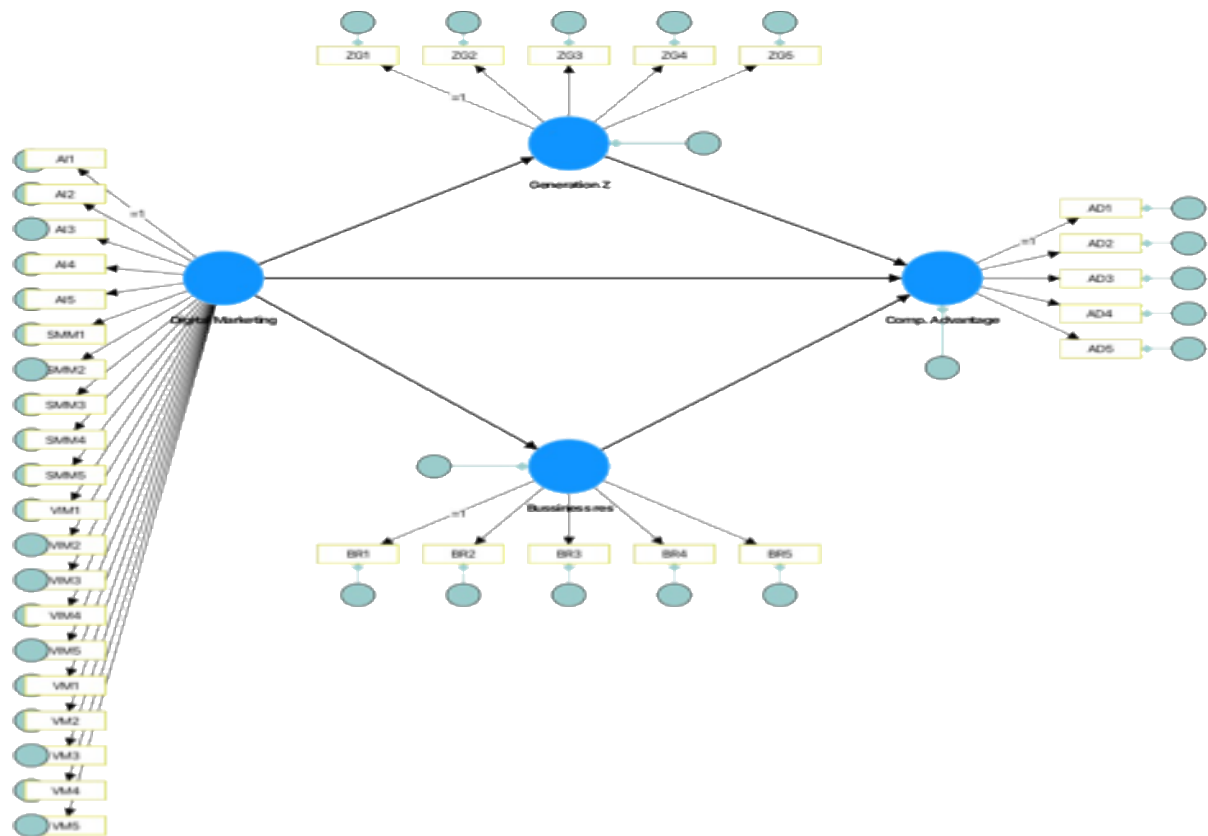
**Table 4**

*Hypothesis Testing*

<b>Hypothesis</b>	<b>Path Coefficient (<math>\beta</math>)</b>	<b>T-Value</b>	<b>P-Value</b>	<b>Conclusion</b>
Business Resilience $\rightarrow$ Competitive Advantage	0.330	6.311	0.000	Significant
Digital Marketing $\rightarrow$ Business Resilience	0.427	8.779	0.000	Significant
Digital Marketing $\rightarrow$ Competitive Advantage	0.422	6.959	0.000	Significant
Digital Marketing $\rightarrow$ Generation Z	0.637	12.644	0.000	Significant
Generation Z $\rightarrow$ Competitive Advantage	0.223	3.926	0.000	Significant

**Figure 3**

*Structural Model Graphical Output*



The analysis also uncovered meaningful indirect effects, refer to table 5, confirming mediation pathways. Business Resilience partially mediated the link between Digital Marketing and Competitive Advantage ( $\beta = 0.140$ ), suggesting that digital strategies amplify competitiveness by fostering organizational resilience. Similarly, Generation Z engagement mediated the relationship between Digital Marketing and Competitive Advantage ( $\beta = 0.141$ ), indicating that targeting younger audiences enhances market differentiation. These findings collectively emphasize that Digital Marketing not only directly strengthens resilience and competitiveness but also leverages generational engagement as a strategic intermediary, offering a multifaceted pathway to sustainable advantage.

**Table 5**

*Indirect Effect*

	Specific indirect effects
Digital Marketing → Business res → Comp. Advantage	0.140
Digital Marketing → Generation Z → Comp. Advantage	0.141

The table 6 shows structural model demonstrated excellent alignment with the data, as evidenced by key goodness-of-fit indices. The Chi-Square/df ratio (1.042) and RMSEA (0.012) both fell well within their respective thresholds ( $\chi^2/df < 3$ , RMSEA  $< 0.08$ ), indicating an ideal model fit. Additional indices, including SRMR (0.021), CFI (0.999), and TLI (0.998), exceeded recommended benchmarks,



further validating the model's accuracy. While the GFI (0.905) and AGFI (0.892) approached the 0.90 threshold, both were deemed acceptable, with GFI classified as "good" and AGFI marginally below the ideal cutoff. Collectively, these results confirm that the hypothesized relationships among constructs are robust and well-supported by the data.

**Table 6**

*Model Fit*

Fit Index	Model Fit Value	Recommended Threshold	Interpretation
Chi-Square/df	1.042	< 3	Excellent Fit
RMSEA	0.012	< 0.08	Excellent Fit
SRMR	0.021	< 0.08	Good Fit
CFI	0.999	> 0.90	Excellent Fit
TLI	0.998	> 0.90	Excellent Fit
GFI	0.905	> 0.90	Good Fit
AGFI	0.892	> 0.90	Acceptable Fit

The model's explanatory power was further substantiated by  $R^2$  values, which quantify the variance accounted for by predictor constructs. Digital Marketing explained 23.9% of the variance in Business Resilience ( $R^2 = 0.239$ ) and 45.1% of the variance in Generation Z engagement ( $R^2 = 0.451$ ), reflecting moderate to substantial predictive influence. Notably, Competitive Advantage exhibited the highest explanatory power ( $R^2 = 0.575$ ), with 57.5% of its variance attributed to the combined effects of Digital Marketing, Business Resilience, and Generation Z. This underscores the synergistic role of these constructs in shaping competitive outcomes, with the model demonstrating strong predictive validity, particularly for organizational competitiveness.

**Table 7**

*The Goodness-of-Fit*

Construct	$R^2$ Value	Interpretation
Business Resilience	0.239	Digital Marketing explains 23.9% of variance in Business Resilience.
Competitive Advantage	0.575	Business Resilience, Generation Z, and Digital Marketing explain 57.5% of Competitive Advantage.
Generation Z	0.451	Digital Marketing explains 45.1% of variance in Generation Z engagement.

Competitive Advantage ( $R^2 = 0.575$ ) has the highest explanatory power, confirming that the predictors (Business Resilience, Digital Marketing, Generation Z) explain a substantial portion of its variance

Digital Marketing exerts both direct and indirect effects on Competitive Advantage, with Business Resilience (BR) serving as a partial mediator. The analysis revealed a significant direct effect of Digital Marketing on Competitive Advantage ( $\beta = 0.422$ ,  $p < 0.001$ ), alongside an indirect pathway through Business Resilience ( $\beta = 0.140$ ). This partial mediation arises because Digital Marketing enhances Business Resilience ( $\beta = 0.427$ ,  $p < 0.001$ ), refer on table 3, which in turn strengthens Competitive Advantage ( $\beta = 0.330$ ,  $p < 0.001$ ). The persistence of a robust direct effect after accounting for BR indicates that Digital Marketing contributes to competitiveness not only by fostering resilience—such as improving adaptability to market shifts and innovation capacity—but also through independent mechanisms (e.g., brand visibility, customer reach). Thus, while Business Resilience amplifies Competitive Advantage, it does not fully encapsulate Digital Marketing's impact, underscoring the multifaceted nature of digital strategies.

Similarly, Generation Z (Gen Z) engagement mediates the relationship between Digital Marketing and Competitive Advantage, though its role differs from Business Resilience. Digital Marketing strongly drives Gen Z engagement ( $\beta = 0.637$ ,  $p < 0.001$ ), which subsequently bolsters Competitive Advantage ( $\beta = 0.223$ ,  $p < 0.001$ ), yielding an indirect effect of 0.141. This near-equivalent magnitude to BR's mediation (0.140) highlights Gen Z's strategic importance. However, unlike resilience-focused pathways, Gen Z's influence operates through consumer behavior dynamics—such as heightened brand loyalty, social media interaction, and trend adoption—rather than organizational adaptability. The direct effect of Digital Marketing on Competitive Advantage ( $\beta = 0.422$ ) remains intact, confirming that Gen Z engagement complements, rather than replaces, digital strategies' direct competitive benefits. These findings position Gen Z as a critical demographic lever, where targeted digital efforts translate into market differentiation and sustained advantage

## **4. Results**

### **4.1 Prediction of Digital Marketing, Generation Z Interaction, and Business Resilience Toward Competitive Advantage**

The structural model confirms DM to be a significant predictor of competitive advantage (CA) in Malaysian educational agencies, with a high direct impact. As in previous studies, DM's function in creating awareness (Makrides et al., 2019), driving activity (Gani & Faroque, 2021), and extending span is supported in its high direct impact (Ijomah et al., 2024). High factor loads for DM constructs (AI, SMM, VM, VIM) also verify that high-tech tools such as AI analysis (van Esch & Stewart Black, 2021) and video marketing (Tafesse, 2020) enable agencies to respond to changing requirements in the marketplace. Not only do these tools make operations easier, but through value differentiation, they position agencies in a position of competitive differentiation over similar ones. Previous research such as that conducted by (Kano et al., 2022) stated that digital marketing has an important influence on the competitive advantage of a business. On the other hand, digital marketing does not stand alone, mediation from Generation Z Interaction, and Business Resilience plays an important role.

Business resilience (BR) and Gen Z interaction (ZG) entered directly into prediction of CA, respectively. BR's contribution signifies its role in generating adaptability, such that agencies can survive disruptions (e.g., economy shifts, technology shifts) and maintain service quality. Research from (Hokmabadi et al., 2024) explains Digital transformation, which includes technologies that help businesses adapt, recover, and perform better during disruptions and then underlines the important role of digital marketing in increasing business resilience. Besides that, Gen Z's contribution, in contrast, signifies the group's growing purchasing power (Kahawandala et al., 2020) and preference for first-touch, digital experiences (Bhalla et al., 2021). This is reflected in the results of high outer loadings for ZG items reveal social media platforms' strong draw for Gen Z's communicative behavior, translating directly into advocacy and loyalty (Mishra & Das, 2024; Priya & Agrawal, 2024).

The combined explanatory value of DM, BR, and ZG ( $R^2 = 0.575$ ) proves a synergistic effect. DM is a root driver, with BR and ZG being complementary drivers, whose competitiveness is amplified. This trichotomic theme mirrors the imperative for Malaysian educational agencies to apply whole-brain methodologies—leveraging technology tools in engaging Gen Z and, in parallel, creating organizational agility. High dependability of CA indicators (loadings 0.957–0.966) again proves that these constructs in combination embody competitive success in the educational sphere in its multidimensional form .

## **5. Mediating Effect of Generation Z Interaction**

The study reveals that Gen Z interaction partially mediates the relationship between DM and CA. DM's strong direct impact on ZG ( $\beta = 0.637$ ) demonstrates its efficacy in capturing Gen Z's attention through platforms like Instagram, TikTok, and AI chatbots. This cohort's preference for visually engaging, instantaneous, and personalized content (Gentilviso & Aikat, 2019) makes DM strategies—such as viral video campaigns or interactive AI tools—critical for fostering meaningful engagement. The mediation effect signifies that DM's value extends beyond operational efficiency; it serves as a bridge to connect with a demographic that prioritizes digital authenticity and social proof (Sarker, 2024). Gen Z's role as a mediator also highlights behavioral dynamics unique to this generation. Their

tendency to share experiences on social media amplifies brand visibility organically, creating a ripple effect that enhances CA (Tabassum et al., 2020). For instance, education agencies that leverage user-generated content not only engage Gen Z but also benefit from peer-to-peer endorsements. However, the partial mediation (compared to full mediation) implies that DM's impact on CA is not solely contingent on Gen Z. Other factors, such as service quality or pricing, may independently drive competitiveness, though Gen Z's influence remains pivotal in Malaysia's youth-dominated market.

Practically, these findings urge agencies to refine their DM strategies to align with Gen Z's values—such as sustainability, inclusivity, and interactivity. For example, virtual campus tours (VIM) or AI-powered career guidance tools can cater to Gen Z's desire for immersive, tech-driven experiences. The moderate  $R^2$  value for ZG (0.451) suggests room for further exploration, such as integrating emerging technologies like augmented reality to deepen engagement and strengthen mediation pathways.

## **6. Mediating Effect of Business Resilience**

Business resilience (BR) partially mediates the DM-CA relationship, illustrating how DM enhances organizational adaptability. DM's direct effect on BR indicates that digital tools—such as real-time data analytics or cloud-based CRM systems—equip agencies to anticipate market shifts, mitigate risks, and recover swiftly from crises. For instance, during the COVID-19 pandemic, agencies using DM to pivot to online learning retained enrollment rates, showcasing BR's role in sustaining operations. The high AVE (0.914) and CR (0.966) for BR confirm its reliability as a mediator tied to strategic agility.

The partial mediation suggests DM contributes to CA through both resilience-dependent and resilience-independent pathways. While BR strengthens CA by improving resource allocation and innovation capacity, DM's direct effects (e.g., global reach via SMM) operate independently. This duality implies that even resilient organizations must continuously innovate their DM strategies to maintain competitiveness. For example, AI-driven predictive analytics could preempt enrollment declines, while VM content might attract international students, diversifying revenue streams.

These insights are particularly relevant for Malaysian education agencies operating in a competitive, regulatory-driven environment. Investing in DM infrastructure not only future-proofs operations but also builds systemic resilience against sector-specific challenges, such as policy changes or demographic fluctuations. However, the study's focus on partial mediation invites future research to explore additional mediators, such as organizational culture or leadership dynamics, which may further explain DM's indirect effects on CA.

## **7. Model of Influence: Digital Marketing, Gen Z Interaction, Business Resilience, and Competitive Advantage**

The integrated model explains DM, ZG, and BR's contribution towards shaping CA, explaining 57.5% of its variance. DM is the foundation, having a direct positive contribution towards CA and, in addition, energizing two important mediators: Gen Z engagement and organizational resilience. Two-way model accords with theory in the form of the Resource-Based View (RBV) (Chatterjee et al., 2023), with DM being a strategic asset whose contribution, when supplemented with ZG's consumer-facing dynamics and BR's adaptability, creates unreplicable competitive assets. High  $R^2$  for CA (0.575) mirrors the model's high performance in explaining the confluence of digital, demographic, and organizational factors.

The model's fit indices (e.g., RMSEA = 0.012, CFI = 0.999) validate its theoretical soundness, and such a model can thus be embraced in Malaysian educational agencies for investment prioritization. For instance, investing in AI-facilitated marketing tools can yield twin dividends: attracting Gen Z and developing data-enforced resilience. The near-equal indirect effects of ZG (0.141) and BR (0.140) go to reiterate balanced approaches—no mediator can be overlooked in favor of the other one.

Practically, this model promotes a "360-degree" transformation in a digital manner. Agencies can introduce SMM campaigns for Gen Z in conjunction with such resilience-promoting programs such as cybersecurity improvements or flexible workforce training. There could be future studies extending this model with such moderators such as agency size and geographical location, and such moderators could

have an impact on such relationships' intensity. In conclusion, the study creates a blueprint for Malaysian educational agencies to utilize digital environments, demographic trends, and capacities for long-term competitiveness in an increasingly changing sector.

## **8. Discussion**

The significant improvement in children's creativity, as evidenced by the data analysis underscores the impact of collaborative learning. The increase in fluency, originality, elaboration, and flexibility scores demonstrates that when children engage in creative activities with the active involvement of their parents, they are more likely to develop and enhance their creative abilities. These findings align with Vygotsky's socio-constructivist theory, which emphasizes the role of social interaction and collaborative engagement in cognitive development. The integration of collaborative learning in early childhood education, particularly through collage art projects using natural materials, presents a multifaceted approach to fostering creativity (Dias, 2019).

Collaborative learning, which involves parents and teachers working together with children, significantly enhances the creative process. This approach provides a supportive environment where children feel encouraged to experiment and express their ideas freely. Research has shown that collaborative learning can substantially improve children's creative and critical thinking abilities. For instance, a study by Sundari et al. (2023) found that collaborative learning increased creativity by 77.9% and critical thinking by 27.1%. Parents play a vital role in this collaborative process. Their involvement not only boosts the child's motivation and interest in learning but also enhances the quality of the creative output. Kaukab (2016) highlights that collaborative learning with parents creates a positive learning environment that fosters creativity and helps children feel more confident in their abilities. This method allows for a deeper connection between the child and the learning process, making education a more holistic experience. This collaborative effort bridges the gap between home and school, ensuring a consistent and supportive approach to learning.

Engaging in collage art offers numerous benefits for young children. It develops fine motor skills as children manipulate small objects and materials, which is crucial for tasks such as writing and using tools. Maghfuroh (2020) notes that activities like collage-making enhance children's fine motor skills and concentration. Additionally, it promotes patience and perseverance as children learn to carefully place and arrange materials to create their desired outcomes. Collage art also fosters spatial awareness and problem-solving skills. Children must decide how to fit different pieces together, which involves planning and executing their vision. This process helps develop cognitive skills and encourages innovative thinking. Furthermore, it allows children to experiment with color, texture, and composition, broadening their understanding of artistic principles and aesthetics. Children's responses to collage art projects indicate high levels of enthusiasm and creativity. For instance, participants in the study enjoyed using materials like beras (rice), kacang hijau (mung beans), and jagung (corn) to create their artwork. This hands-on activity allows them to experiment with different combinations and develop unique artistic expressions. The process of selecting and arranging these materials encourages children to think critically and creatively, exploring various possibilities (Hariyani et al., 2021).

Parental involvement in educational activities, particularly in creative projects like collage art, has been shown to enhance children's learning experiences. Parents' active participation provides children with emotional support and practical assistance, making the learning process more enjoyable and effective. As observed, children who worked on collage projects with their parents displayed higher levels of creativity and enthusiasm. The collaborative effort not only strengthens the parent-child bond but also creates a positive learning environment at home. The study's findings indicate that parents who engage in collaborative learning activities with their children help to cultivate a culture of learning that extends beyond the classroom (Maruddani & Sugito, 2022). This approach allows parents to better understand their child's educational needs and contribute meaningfully to their development. For example, activities such as making collage art using natural materials or engaging in outdoor learning experiences help children to appreciate their surroundings and learn creatively.

## 9. Conclusion

The role of digital marketing (DM) in fostering competitive advantage (CA) for Malaysian education agencies, with Generation Z (Gen Z) engagement and business resilience (BR) acting as mediators. DM directly enhances CA through tools like social media marketing, viral marketing, video marketing and AI marketing, in line with global trends in digital transformation. Additionally, DM indirectly influences CA by connecting with Gen Z preferences and strengthening organizational adaptability. The model explains a substantial portion of CA's variance, emphasizing the synergy between digital strategies, generational dynamics, and resilience-building. Gen Z's engagement boosts brand loyalty, while DM enhances business agility to counter disruptions. These findings align with the Resource-Based View (RBV), showing DM as a strategic asset when combined with generational insights and adaptability. The study also contributes to understanding partial mediation in digital ecosystems, where direct effects of DM persist independently. Practically, it suggests Malaysian education agencies adopt comprehensive digital strategies, focusing on Gen Z-centric content and investing in infrastructure for enhanced resilience. The study calls for institutionalizing digital literacy and agile frameworks and proposes future research to refine the model further, providing a roadmap for leveraging digital ecosystems to remain competitive in Malaysia's evolving education sector.

## 10. Co-author Contribution

Xinrui Liang carried out the field work, prepared the literature review and overlooked the writeup of the whole article. Wan Mohd Hirwani Wan Hussain wrote the research methodology and did the data entry. Rabiah Abdul Kadir carried out the analysis and interpretation of the results.

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