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RECONCEPTUALIZING HIGHER EDUCATION MARKETING IN THE ALGORITHMIC ERA: INSTITUTIONAL GENERATIVE AI AND MULTIDIMENSIONAL UNIVERSITY BRAND EQUITY

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Abstract. The digital transformation of higher education has entered a highly disruptive phase with the integration of generative artificial intelligence (GenAI) into institutional ecosystems. Moving beyond isolated academic integrity debates, this study explores GenAI as a strategic marketing touchpoint. Synthesizing the Customer-Based Brand Equity (CBBE) framework with the Technology Acceptance Model (TAM), we analyze how student interactions with custom institutional GenAI interfaces shape university brand equity. We utilize a mixed-methods approach combining a primary student survey (N = 412) with institutional secondary data (server logs, query volumes, and API traffic metrics from 14 universities). Structural equation modeling (PLS-SEM) reveals that custom-vetted institutional GenAI applications function as significant factors influencing institutional quality and prestige, whereas objective system utilization rates act as a significant positive moderator. Brand awareness and perceived quality operate as a dual-mediated sequential path transforming day-to-day technological utility into enduring institutional loyalty ($R^2 = 0.468$). The findings establish new empirical boundaries for algorithmic brand management in the modern higher education marketplace.

Keywords: Generative AI; University Brand Equity; PLS-SEM; Secondary Data; Higher Education Marketing; Student Loyalty.

Аннотация. Цифровая трансформация высшего образования вступила в новый, весьма динамичный этап, связанный с интеграцией генеративного искусственного интеллекта (GenAI) в институциональные экосистемы. Выходя за рамки отдельных дискуссий об академической добросовестности, данное исследование рассматривает GenAI как стратегическую точку взаимодействия в образовательном маркетинге. На основе синтеза модели капитала бренда, основанного на потребителе (CBBE), и модели принятия технологий (TAM) анализируется, каким образом взаимодействие студентов с кастомизированными институциональными GenAI-интерфейсами влияет на капитал бренда университета. В исследовании использован смешанный методический подход, объединяющий первичный опрос студентов (N = 412) и вторичные институциональные данные: серверные журналы, объёмы запросов и показатели API-трафика 14 университетов. Моделирование структурными уравнениями методом частичных наименьших квадратов (PLS-SEM) показало, что кастомизированные и проверенные институциональные GenAI-приложения выступают значимыми факторами формирования воспринимаемого качества и престижа учреждения, тогда как объективные показатели использования системы выполняют роль положительного модератора. Осведомлённость о бренде и воспринимаемое качество формируют последовательный двойной медиаторный путь, преобразующий повседневную технологическую полезность в устойчивую институциональную лояльность ($R^2 = 0{,}468$). Полученные результаты определяют новые эмпирические границы алгоритмического управления брендом на современном рынке высшего образования.

Ключевые слова: генеративный искусственный интеллект; капитал бренда университета; PLS-SEM; вторичные данные; маркетинг высшего образования; студенческая лояльность.

INTRODUCTION

Modern higher education institutions operate within an increasingly market-oriented and competitive global environment. To secure fiscal stability, student enrollment, and long-term research funding, university administrators have historically relied on conventional brand equity drivers—including physical campus aesthetics, legacy prestige, and historic alumni professional networks. However, the contemporary digital-native student cohort increasingly assesses institutional prestige through an algorithmic lens, focusing heavily on technological agility, operational speed, and personalized digital ecosystems.

The rapid development and diffusion of generative artificial intelligence (GenAI) has transformed from an emerging pedagogical innovation into a critical administrative and institutional touchpoint. While a vast body of early literature focuses narrowly on plagiarism, automated grading, or ethical dilemmas in the classroom, a significant gap remains regarding how GenAI architectures intersect with institutional marketing and brand valuation. When a university embeds white-labeled, proprietary large language model (LLM) interfaces into its digital learning environments, it fundamentally modifies the student-consumer journey.

This research addresses this gap by investigating how student engagement with institutional GenAI systems shapes multidimensional university brand equity. Utilizing partial least squares structural equation modeling (PLS-SEM), we merge primary psychometric survey data (N = 412) with objective secondary data derived from university digital infrastructure logs. By differentiating between proprietary, university-vetted systems and generic, student-initiated external tools, this paper offers a rigorous empirical framework for higher education marketers navigating the shifting dynamics of algorithmic brand management.

LITERATURE REVIEW

2.1 The Evolution of Place and Institutional Branding

The theoretical roots of academic branding stem from broader frameworks of place marketing and competitive identity. The evolutionary trajectory of this domain shows a clear shift from macro-level identities to micro-level digital experiences. Anholt's foundational Nation Branding Hexagon first conceptualized how macro-level geographic entities manage identity and public perception, a theme mirrored by Kotler et al. in early place marketing frameworks that treated regions as commercial entities.

As these paradigms migrated toward specific corporate and service sectors, travel and destination branding equity frameworks emerged, demonstrating that consumer loyalty is heavily dictated by consistent quality signaling and cognitive awareness. In higher education, a university acts as a complex corporate destination. Students do not merely consume a short-term product; they reside within an extended service ecosystem where digital platforms serve as primary brand touchpoints. The logical progression of this theoretical lineage leads to the contemporary necessity of an AI-Driven Destination Branding framework, where automated intelligence serves as the primary curator of institutional value.

2.2 TAM and Customer-Based Brand Equity (CBBE) Integration

To evaluate the impact of automated platforms on institutional standing, this paper merges Keller's Customer-Based Brand Equity (CBBE) framework [12] with Davis's Technology Acceptance Model (TAM). Under TAM, user behavior is governed by perceived usefulness and perceived ease of use. Within our integrated framework, when an institutional GenAI tool offers high academic utility, such as automated administrative navigation, customized 24/7 research synthesis, and personalized tutoring, this technical utility transcends pure functional value. It becomes a core indicator of institutional excellence, feeding directly into cognitive dimensions of brand awareness and perceived educational quality.

2.3 Hypothesis Development and Research Model

We propose that technological capabilities act as an antecedent to macro-level behavioral perceptions. Rather than viewing technology as isolated software, we position institutional GenAI utility as an active driver of brand prestige.

- Hypothesis 1 (H_1): Perceived utility of institutional GenAI systems directly and positively influences university brand awareness.
- Hypothesis 2 (H_2): Perceived utility of institutional GenAI systems directly and positively impacts the perceived overall quality of the university.
- Hypothesis 3 (H_3): Objective institutional GenAI adoption rates (secondary resource data) positively moderate the link between perceived utility and perceived quality.
- Hypothesis 4 (H_4): University brand awareness significantly enhances perceived institutional quality.
- Hypothesis 5 (H_5): University brand awareness significantly improves long-term student brand loyalty.

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• Hypothesis 6 (H_6): Perceived university quality serves as a direct positive predictor of institutional brand loyalty.

• Hypothesis 7 (H_7): Brand awareness and perceived quality form a sequential mediating pathway that translates subjective technological utility into enduring student loyalty.

Research Methodology

This study employs a mixed-methods, multi-source quantitative design, combining primary cross-sectional psychometric surveys with objective institutional secondary resource data to cross-validate behavioral responses.

3.1 Primary Data and Measurement Development

Primary data were collected over a multi-month window utilizing an online instrument distributed to active university students. The final clean sample comprised N = 412 respondents (72% undergraduate, 28% postgraduate) across multiple fields of study, including business, engineering, and digital humanities. All latent variables were mapped using multi-item Likert scales (1 = Strongly Disagree, 5 = Strongly Agree) adapted from established technology adoption [13] and corporate branding literature:

Institutional GenAI Utility (GAIU)

• GAIU1: Official AI services of our university significantly save my time when searching for study materials and solving academic tasks.

• GAIU2: The generative AI technologies implemented by the university increase the efficiency of my independent work and studies.

• GAIU3: The integration of AI into the university's educational environment makes the process of interacting with the institution simpler and clearer.

• GAIU4: Overall, the official AI tools of our university are extremely useful for my academic activities.

Brand Awareness (BAW)

• BAW1: Our university is widely known as one of the leaders in implementing modern technologies and artificial intelligence.

• BAW2: When it comes to innovative and digital education, our university is one of the first that comes to my mind.

• BAW3: I frequently notice news and mentions about successful technological and AI initiatives of our university.

Perceived Quality (PQL)

• PQL1: Our university provides educational services and digital experiences of the highest level.

• PQL2: The implementation of modern AI technologies makes studying at our university higher in quality than at competing institutions.

• PQL3: The digital infrastructure of our university fully meets the highest global educational standards.

• PQL4: I believe that the degree from our university is highly valued in the labor market due to its progressive approach to learning.

Brand Loyalty (BLY)

• BLY1: I am proud to tell other people that I study (or studied) at this specific university.

• BLY2: I would confidently recommend our university to friends and acquaintances as an excellent place to get an education.

• BLY3: If I had to choose a university all over again, I would choose this institution again.

• BLY4: In the future, I plan to stay connected with the university, participate in the alumni association, or continue my education here.

3.2 Secondary Resource Data Integration

To alleviate common-method bias typical of self-reported surveys, we obtained anonymized, high-level secondary operational datasets from the information technology infrastructure branches of 14 participating higher education institutions. This secondary data pool consisted of weekly server requests, API utilization metrics (token consumption), and platform retention rates over a full academic semester. These secondary indices were standardized and computed as an objective institutional adoption density metric, deployed within our PLS-SEM framework as an interaction variable to evaluate the structural integrity of self-reported utility claims.

ANALYSIS AND RESULTS

4.1 Evaluation of the Measurement Model (Reflective Construct Verification)

Before shifting the analytical lens to structural transitions, we subjected our measurement blocks to a series of rigorous psychometric reliability and validity tests to guarantee indicator integrity. Rather than relying

on a single baseline standard, we examined internal reliability, individual indicator patterns, and structural validity simultaneously.

As documented in our primary summary (Table 1), individual item loadings exceeded the standard 0.707 threshold, indicating that the chosen manifest variables capture a substantial share of variance within their respective latent spaces. Turning to internal consistency, both Cronbach's alpha (α) and Jöreskog's composite reliability (CR) parameters exceeded the commonly accepted 0.80 threshold. To satisfy convergent validity demands, we calculated the Average Variance Extracted (AVE) across all four blocks, which easily cleared the 0.50 threshold.

Table 1
Reflective Measurement Framework Properties[1]

Latent Construct	Indicator Items	Loadings	Cronbach's Alpha (α)	Composite Reliability (CR)	Average Variance Extracted (AVE)
GenAI Utility (GAIU)	GAIU1 GAIU2 GAIU3 GAIU4	0.785 0.821 0.844 0.799	0.834	0.889	0.667
Brand Awareness (BAW)	BAW1 BAW2 BAW3	0.812 0.865 0.838	0.812	0.880	0.711
Perceived Quality (PQL)	PQL1 PQL2 PQL3 PQL4	0.830 0.811 0.852 0.789	0.851	0.900	0.692
Brand Loyalty (BLY)	BLY1 BLY2 BLY3 BLY4	0.845 0.872 0.819 0.833	0.868	0.910	0.716

Finally, we tackled discriminant validity. While the classical Fornell–Larcker matrix remains common, it has known blind spots in PLS-SEM. Therefore, we leaned on Henseler's stricter Heterotrait-Monotrait (HTMT) ratio of correlations (Table 2). Every single coefficient comfortably stayed beneath the conservative 0.85 safety ceiling, confirming that our constructs are truly distinct and not capturing identical behavioral phenomena.

Table 2
Heterotrait-Monotrait (HTMT) Inter-Construct Ratios[2]

Construct	**GAIU**	**BAW**	**PQL**	**BLY**
GAIU	-			
BAW	0.412	-		
PQL	0.488	0.612	-	
BLY	0.395	0.543	0.698	-

4.2 Structural Estimation and Hypothesis Assessment

With the outer model verified, we moved to the inner structural estimations. Multicollinearity checks yielded inner Variance Inflation Factors (VIF) between 1.42 and 2.15, falling safely below the problematic 2.30 threshold. The framework accounted for 38.2% of the variance in Perceived Quality ($R^2 = 0.382$) and a substantial 46.8% of the variance in target Brand Loyalty ($R^2 = 0.468$), which represents a robust explanatory capacity for an empirical study of student consumer behavior. Significance testing was executed via a non-parametric bootstrapping routine utilizing 5,000 resamples (Table 3).

1 Source: Author's calculations based on primary survey data and institutional secondary data processed through PLS-SEM.
2 Source: Author's calculations based on primary survey data and institutional secondary data processed through PLS-SEM.

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Table 3
Structural Hypotheses Path Direct Estimates[3]

Path Designation	Structural Track	Path Value (β)	Standard Error	t-Statistic	Significance (p)	Outcome
H_1	GAIU → BAW	0.412	0.045	9.155	< 0.001	**Supported**
H_2	GAIU → PQL	0.285	0.052	5.480	< 0.01	**Supported**
H_3	SecData × GAIU → PQL	0.142	0.039	3.641	< 0.01	**Supported**
H_4	BAW → PQL	0.494	0.048	10.291	< 0.001	**Supported**
H_5	BAW → BLY	0.213	0.061	3.491	< 0.05	**Supported**
H_6	PQL → BLY	0.541	0.055	9.836	< 0.001	**Supported**

Looking closely at the paths, the direct link from Generative AI Utility to Brand Awareness (H_1) was strong and significant (β = 0.412, p < 0.001), indicating that a seamless AI interface actively builds top-of-mind recall. Similarly, its direct impact on Perceived Quality (H_2) was verified (β = 0.285, p < 0.01). A key addition to this study is the interaction term (H_3), where we introduced normalized secondary server logs and API traffic (SecData) as a moderator. The interaction coefficient came back positive and significant (β = 0.142, p < 0.01), indicating that when subjective student perceptions of utility are backed by objective, high-volume server utilization at the university level, the positive impact on the institution's perceived quality becomes substantially steeper.

4.3 Sequential Mediation Analysis

To evaluate the deeper narrative of how day-to-day tool utility converts into long-term institutional commitment (H_7), we isolated the specific indirect effect running sequentially from GAIU → BAW → PQL → BLY using advanced bootstrap procedures.

The analysis confirmed that this multi-stage mediation path is highly stable and statistically meaningful (β = 0.110, t = 4.231, p < 0.01). Rather than acting as an isolated technical upgrade, the utility of a university's custom AI tools triggers a sequential cognitive effect. It first expands the student's mental awareness of the institution's digital capabilities. This awareness then drives up the perceived prestige and quality of the entire educational experience, which ultimately secures deep, long-term brand loyalty. With the total combined indirect effect of AI utility on loyalty reaching β = 0.298 (p < 0.001), the findings provide empirical support for the dual-mediation model proposed in H_7.

4.4 Theoretical Insights

This investigation expands higher education marketing scholarship by positioning automated generative platforms as an active institutional touchpoint within the corporate branding landscape. Historically, university brand architectures isolated technology as a background administrative element, placing human relationships and physical assets at the forefront of brand building. Our data signals a structural shift: custom, university-sanctioned technological experiences can directly construct mental frameworks of brand awareness and educational caliber.

Crucially, incorporating objective secondary system data [6] demonstrates that technological benefits do not operate purely through subjective student sentiment. When institutional platforms achieve high adoption rates and processing volumes, they create an objective infrastructure of service quality. This validates the integration of TAM [13] and CBBE models, proving that user-centric tool utility translates directly into asset value for service organizations.

4.5 Actionable Institutional Directives

For institutional marketing officers, academic IT leads, and chancellors, these empirical insights demand a shift from passive, unbranded technology adoption. Relying on students using generic, third-party unvetted web systems does not generate institutional brand equity. To build brand equity, universities must deploy proprietary, white-labeled, and deeply embedded generative environments that carry distinct university branding throughout the user interface. Every prompt processed for study support or registration guidance should structurally remind the user of the institution's innovative capabilities. Furthermore, university recruitment operations should leverage verified digital infrastructure capabilities as core competitive advantages in admissions messaging.

3 Source: Author's calculations based on primary survey data and institutional secondary data processed through PLS-SEM.

CONCLUSION AND SUGGESTIONS

This study applied a multi-data PLS-SEM design to confirm that official, university-vetted generative AI systems act as important antecedents to contemporary institutional brand equity. The structural insights demonstrate that systemic technical utilities actively catalyze visibility and quality assessments, forming the basis for student advocacy and brand loyalty.

Several limitations delineate the applicability of the current findings. First, the cross-sectional nature of the primary data restricts our capacity to establish definitive causal links among the constructs. To mitigate this constraint, future studies should adopt longitudinal research designs capable of tracking how institutional brand equity evolves alongside the maturation of university-sanctioned LLM interfaces. Additionally, as this study focused exclusively on the student perspective, future inquiries should widen their empirical lens. Higher education marketing researchers are encouraged to sample a broader matrix of stakeholders, including faculty members, university administrators, and corporate recruiters.

REFERENCES

[1] Hemsley-Brown, J., & Oplatka, I. Universities in a competitive global marketplace: A systematic review of the literature on higher education marketing. International Journal of Public Sector Management. 2006;19(4):316–338.

[2] Chapleo, C. Do universities have “successful” brands? International Journal of Educational Advancement. 2005;6(1):54–64.

[3] Pinar, M., Trapp, P., Girard, T., & Boyt, T. E. University brand equity: An empirical investigation of its dimensions. International Journal of Educational Management. 2014;28(6):616–634.

[4] Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. Systematic review of research on artificial intelligence applications in higher education — where are the educators? International Journal of Educational Technology in Higher Education. 2019;16:39.

[5] Crompton, H., & Burke, D. Artificial intelligence in higher education: The state of the field. International Journal of Educational Technology in Higher Education. 2023;20:22.

[6] Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. Sources of method bias in social science research and recommendations on how to control it. Annual Review of Psychology. 2012;63:539–569.

[7] Davenport, T. H., Guha, A., Grewal, D., & Bressgott, T. How artificial intelligence will change the future of marketing. Journal of the Academy of Marketing Science. 2020;48(1):24–42.

[8] Anholt, S. Competitive Identity: The New Brand Management for Nations, Cities and Regions. London: Palgrave Macmillan; 2007.

[9] Kotler, P., Haider, D. H., & Rein, I. Marketing Places: Attracting Investment, Industry, and Tourism to Cities, States, and Nations. New York: The Free Press; 1993.

[6] Morgan, N., Pritchard, A., & Piggott, R. New Zealand, 100% Pure: The creation of a powerful niche destination brand. Journal of Brand Management. 2002;9(4–5):335–354.

[11] Jillapalli, R. K., & Jillapalli, R. Do professors have customer-based brand equity? Journal of Marketing for Higher Education. 2014;24(1):22–40.

[12] Keller, K. L. Conceptualizing, measuring, and managing customer-based brand equity. Journal of Marketing. 1993;57(1):1–22.

[13] Davis, F. D. Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly. 1989;13(3):319–340.

[14] Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). 3rd ed. Thousand Oaks: Sage Publications; 2022.

[15] Jöreskog, K. G. Structural analysis of covariance and correlation matrices. Psychometrika. 1978;43:443–477.

[16] Henseler, J., Ringle, C. M., & Sarstedt, M. A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science. 2015;43(1):115–135.

[17] Preacher, K. J., & Hayes, A. F. Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. Behavior Research Methods. 2008;40(3):879–891.

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