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Designing a Model for Developing Digital Marketing Skills among Marketing Students

ABSTRACT

This study aimed to design and validate a comprehensive model for developing digital marketing skills among marketing students. This applied-developmental study used a sequential exploratory mixed-methods design. In the qualitative phase, 15 academic experts and digital marketing professionals were selected through purposive and snowball sampling, and semi-structured interviews continued until theoretical saturation. The data were analyzed using Braun and Clarke's six-phase thematic analysis in MAXQDA. In the quantitative phase, 660 digital marketing specialists and university faculty members were selected using stratified random sampling. Data were collected through an 80-item researcher-developed questionnaire derived from the qualitative findings. Reliability and validity were evaluated using Cronbach's alpha, composite reliability, average variance extracted, and the Fornell–Larcker criterion. The structural model was tested using partial least squares structural equation modeling in SmartPLS, and the Friedman test was applied to prioritize the model dimensions. All measurement constructs demonstrated acceptable psychometric properties, with Cronbach's alpha ranging from 0.909 to 0.936, composite reliability from 0.925 to 0.946, and AVE from 0.553 to 0.637. All hypothesized structural paths were positive and statistically significant at $p < 0.001$. Experiential learning and practice-oriented education significantly predicted digital marketing knowledge and strategic understanding ($\beta = 0.541$), technological and analytical competence ($\beta = 0.628$), and communication and content-based competence ($\beta = 0.574$). Technological and analytical competence had the strongest direct effect on overall digital marketing skill development ($\beta = 0.368$), followed by communication and content-based competence ($\beta = 0.284$), digital marketing knowledge and strategic understanding ($\beta = 0.247$), and professional adaptability and continuous learning ($\beta = 0.231$). The final model explained 69.4% of the variance in overall digital marketing skill development ($R^2 = 0.694$). Developing digital marketing skills among marketing students requires an integrated educational framework that combines strategic knowledge, technological and analytical capabilities, communication and content competencies, experiential learning, and continuous professional adaptability.

Keywords: Digital Marketing Skills; Marketing Students; Experiential Learning; Technological Competence

Introduction

The rapid expansion of digital technologies has fundamentally transformed the nature of marketing, changing not only the tools through which organizations communicate with customers but also the competencies required of future marketing professionals. Contemporary marketing increasingly relies on social media platforms, data analytics, search technologies, marketing automation, artificial intelligence, digital content production, customer relationship management systems, and real-time performance measurement. As a result, graduates entering the marketing profession are expected to possess a combination of conceptual knowledge, technological proficiency, analytical capability, strategic thinking, communication skills, and adaptability to continuously evolving digital environments. The increasing integration of data-driven systems into marketing has made the ability to collect, interpret, and apply information central to both strategic and operational decision-

making. Data-driven approaches are now widely used not only in commercial marketing but also in educational marketing, student outreach, market segmentation, and institutional communication, demonstrating the growing importance of analytical literacy and evidence-based decision-making within contemporary marketing practice [1]. Accordingly, higher education institutions face increasing pressure to reconsider how marketing students are prepared for employment and whether conventional curricula adequately develop the competencies demanded by digitally transformed organizations.

The transformation of marketing has accelerated further with the emergence of artificial intelligence and intelligent marketing technologies. Artificial intelligence is increasingly incorporated into customer segmentation, predictive analytics, personalized communication, recommendation systems, automated content generation, customer service, campaign optimization, and consumer behavior analysis. These developments are redefining the role of marketers by shifting some routine activities toward automated systems while increasing the importance of strategic judgment, data interpretation, ethical reasoning, and the ability to work effectively with intelligent technologies. In the educational context, this transformation suggests that marketing programs should extend beyond teaching traditional marketing principles and familiarization with digital communication channels. Students must increasingly understand how artificial intelligence, automated decision-making, algorithmic targeting, and digital analytics influence the design and implementation of marketing strategies [2]. Therefore, digital marketing education needs to be considered as a multidimensional process that integrates theoretical understanding with technological, analytical, behavioral, and professional capabilities.

At the same time, the changing expectations of students and employers have intensified discussion regarding the broader responsibilities of universities in preparing graduates for contemporary labor markets. Higher education institutions are no longer evaluated exclusively on the basis of academic content delivery; their social responsibility, educational service quality, reputation, responsiveness, student satisfaction, and trust have become increasingly important dimensions of institutional performance [3, 4]. From this perspective, universities have a responsibility to align educational programs with emerging professional requirements while also preserving the educational mission of higher education. This issue is particularly relevant in marketing education, where students themselves are exposed to sophisticated digital marketing practices as consumers, audiences, and participants in online communities. Discussions concerning the marketing of education and the conceptualization of students as consumers have emphasized the complexity of balancing market responsiveness with educational values and developmental objectives [5]. Thus, the challenge is not merely to satisfy students as recipients of educational services, but to design learning environments that equip them with substantive competencies for long-term professional performance.

The characteristics of contemporary students further reinforce the need for revised educational approaches. Generation Z students have grown up in environments characterized by social media, smartphones, online communities, instant access to information, digital content consumption, and highly personalized communication. Their interaction with brands, institutions, and educational systems is therefore strongly influenced by digital experiences and expectations concerning immediacy, relevance, participation, personalization, and interactivity. Modern marketing requirements in higher education increasingly reflect these characteristics, as universities attempt to communicate with and engage students through contemporary marketing channels and digital environments [6]. However, students' familiarity with digital platforms as users does not necessarily translate into professional competence in digital marketing. Effective professional practice requires the ability to understand campaign objectives, select appropriate channels, segment audiences, develop content strategies,

analyze metrics, interpret consumer data, manage online relationships, and evaluate the financial and strategic implications of marketing decisions. Consequently, educational programs must distinguish between everyday digital familiarity and systematic professional skill.

Research on student competencies has also demonstrated the importance of integrating broader entrepreneurial and professional capabilities into university education. Entrepreneurial competencies, including opportunity recognition, creativity, problem-solving, initiative, communication, risk assessment, and decision-making, are increasingly viewed as important outcomes of university education from the perspectives of both faculty members and students [7]. These competencies overlap substantially with the requirements of digital marketing, where professionals often operate in uncertain, rapidly changing environments and must respond to emerging technologies, new consumer behaviors, and evolving market opportunities. The development of digital marketing skills therefore cannot be limited to technical instruction in software or platforms. It requires an integrated educational framework that also cultivates strategic thinking, entrepreneurial orientation, communication ability, and adaptive learning.

The need for such an integrated approach is particularly evident in areas such as influencer marketing and social media communication. Social media influencers have become important intermediaries between brands and consumers, affecting perceptions, attitudes, trust, identification, and purchase-related behaviors. Research examining influencer marketing among university students has shown that social media influencers may exert meaningful psychological effects on consumers, particularly through mechanisms such as perceived credibility, attractiveness, identification, and social influence [8, 9]. For marketing students, understanding these mechanisms requires more than familiarity with popular platforms. Students need competencies in consumer psychology, communication strategy, audience analysis, ethical evaluation, content assessment, and campaign measurement. The growth of influencer-based marketing consequently illustrates the broader shift toward marketing practices in which technological channels and behavioral knowledge must be integrated.

Social media has similarly become central to marketing relationships and engagement. Online relational marketing emphasizes the development of trust, satisfaction, and sustained interaction between organizations and their audiences. Evidence indicates that online relational marketing can influence satisfaction through the development of online trust, highlighting the importance of relationship-building capabilities in digital environments [10]. In higher education settings, social media marketing activities have also been shown to contribute to behavioral engagement among prospective students, partly through mechanisms related to brand equity [11]. Moreover, social media marketing activities may affect students' intentions through brand identity, perceived value, and satisfaction, demonstrating that digital communication functions through interconnected cognitive, emotional, and relational processes rather than through exposure alone [12]. These findings have important implications for marketing education because they indicate that digital marketing professionals require competencies not only in technology use but also in trust creation, value communication, customer experience, brand management, and relationship development.

The diversity of digital consumers also requires marketers to understand differences among audience segments. Generation Z, for example, has been extensively targeted through digital marketing because of its high level of online activity, dependence on social media, and responsiveness to digital content. Research on digital marketing strategies directed toward Generation Z has emphasized the importance of authenticity, visual content, social interaction, personalization, and digital engagement in attracting and retaining these consumers [13]. Marketing students therefore need to develop the ability to

connect consumer behavior knowledge with platform characteristics and communication strategies. They should be able to identify the psychological and behavioral characteristics of target groups, translate these insights into digital campaigns, and evaluate the effectiveness of such campaigns through appropriate indicators.

The complexity of digital marketing becomes even greater when markets involve culturally diverse or international audiences. Intercultural online marketing competence has been identified as an important capability among students in fields such as tourism, where marketers frequently communicate across linguistic, cultural, and geographic boundaries [14]. In digital environments, cultural misunderstanding can rapidly affect brand reputation, customer relationships, and campaign effectiveness. Accordingly, professional digital marketing competence should include sensitivity to cultural differences, adaptation of messages to different audiences, and awareness of how values, norms, language, and communication styles influence online interaction. The increasing internationalization of markets and the ease with which organizations can reach global audiences make intercultural competence an increasingly relevant dimension of digital marketing education.

International student marketing provides another example of the growing sophistication of digital marketing applications. Institutions increasingly employ digital strategies to identify, attract, communicate with, and retain international students. Marketing approaches used in this context include digital advertising, targeted communication, social media engagement, search optimization, personalized follow-up, and content designed around the informational needs of prospective students [15]. Statistical prediction and recommendation techniques have also been applied to the consumer behavior of international students, reflecting the increasing use of data analytics to understand preferences and support marketing decisions [16]. These developments demonstrate that effective digital marketing increasingly depends on the ability to integrate predictive methods, behavioral insights, communication strategies, and digital platforms. For marketing students, exposure to these applications can help bridge the gap between abstract marketing concepts and the realities of contemporary professional practice.

Financial and behavioral literacy also contribute to effective marketing decision-making. Students' behaviors are influenced by complex interactions among knowledge, emotional characteristics, and values. For example, financial literacy has been associated with financial behavior through factors such as emotional intelligence and moral values among students, illustrating the multidimensional nature of decision-making processes [17]. Although this line of research is not limited to marketing, it has implications for digital marketing education because marketers frequently make decisions concerning campaign budgets, customer value, pricing, advertising expenditure, return on investment, and resource allocation. Consequently, digital marketing competence requires at least a functional understanding of financial implications in addition to communication and technological skills.

Ethical and social considerations also occupy an important position in modern marketing. Digital marketers increasingly manage personal data, behavioral information, targeted advertising, online communities, and persuasive communication systems, all of which raise questions regarding transparency, trust, social responsibility, and responsible use of influence. Research emphasizing participation and social trust within marketing-oriented models indicates that trust can function as a central mechanism connecting communication, participation, and stakeholder relationships [18]. This is particularly important in digital environments, where a loss of trust may spread rapidly through networks and negatively affect organizational reputation. Digital marketing education should therefore incorporate ethical judgment, social responsibility, privacy awareness, and responsible communication alongside technical competence.

A related issue concerns students' psychological and developmental experiences as they move through educational environments and prepare for professional roles. Adjustment processes among students can be influenced by psychological well-being and related personal factors, indicating that educational development should account for the broader psychosocial context in which learning occurs [19]. Professional education, particularly in dynamic fields such as digital marketing, requires students to tolerate uncertainty, adapt to rapid technological change, engage in continuous learning, and transition from student identities toward professional identities. These processes are not purely cognitive; they also involve confidence, motivation, resilience, self-efficacy, and willingness to participate in authentic professional activities.

For this reason, educational experiences that promote engagement and value co-creation may be especially important. Student participation in value co-creation within e-learning environments has been associated with learning experience and satisfaction, suggesting that active involvement may strengthen the educational process [20]. In digital marketing education, active learning could include campaign development, collaborative projects, content production, analytics exercises, simulations, client-based assignments, and industry partnerships. Such approaches allow students to move beyond passive acquisition of knowledge and engage in authentic problem-solving activities that resemble professional marketing work. This is particularly relevant because digital marketing tools and platforms change rapidly; therefore, memorization of current technologies is unlikely to be sufficient for long-term employability. Students need learning experiences that help them develop transferable principles, problem-solving approaches, and the capacity to independently acquire new technological skills.

Professional identity and motivation are similarly important. Educational validation and meaningful recognition can help students perceive themselves as emerging professionals rather than simply as learners completing academic requirements [21]. In marketing education, professionalization can be strengthened by exposing students to real campaigns, industry standards, professional feedback, internships, portfolio development, and authentic performance expectations. Such experiences may help students understand the difference between academic knowledge and professional competence, while also allowing them to identify areas requiring further development. This orientation is particularly valuable in digital marketing because employers frequently evaluate candidates on the basis of demonstrable practical capabilities in addition to formal qualifications.

The growing importance of satisfaction, perceived value, and loyalty within higher education further demonstrates that students' educational experiences are shaped by expectations concerning practical relevance and service quality. Studies of university students have shown that perceived value contributes to satisfaction and loyalty, suggesting that students assess educational experiences partly in terms of the benefits they believe they receive relative to their expectations and investments [22]. This reinforces the importance of designing marketing curricula that students perceive as relevant to employment and contemporary professional practice. If university programs remain heavily theoretical while the labor market increasingly prioritizes analytics, social media, artificial intelligence, content strategy, and digital platforms, a perceived gap may emerge between academic preparation and professional requirements.

Accordingly, the central challenge for marketing education is not simply whether digital marketing should be included in curricula, but how the competencies required for digital marketing should be identified, structured, taught, and evaluated. Existing research provides valuable insights into individual dimensions of the problem, including social media engagement, influencer marketing, consumer behavior, educational marketing, intercultural competence, student satisfaction,

entrepreneurial competencies, data-driven decision-making, and emerging technologies. However, these dimensions are frequently examined separately. The literature consequently provides less clarity regarding how they can be integrated into a comprehensive competency framework specifically designed to guide the systematic development of digital marketing skills among marketing students. A coherent model is needed to clarify which skill domains are essential, how they relate to one another, and what educational mechanisms can facilitate their development.

Such a model should reflect the multidimensional nature of digital marketing by integrating digital marketing knowledge, strategic planning, technological literacy, analytics, content development, online communication, customer engagement, experiential learning, professional adaptability, and continuous learning. It should also recognize that digital marketing competencies must remain responsive to technological change. The knowledge and tools that define digital marketing today may be substantially altered by advances in artificial intelligence, automation, data infrastructure, platform algorithms, and consumer technologies. Therefore, students must be prepared not only to use existing tools but also to learn new ones, evaluate their strategic relevance, and apply them responsibly in changing market conditions.

The empirical development of such a model requires both exploration and validation. Expert knowledge from academics and industry professionals can identify the competencies considered most important in practice and provide insight into how these competencies should be organized conceptually. Quantitative validation can subsequently determine whether the identified dimensions form reliable and distinct constructs and whether the proposed relationships among them are empirically supported. Combining qualitative exploration with quantitative modeling therefore provides an appropriate basis for developing a comprehensive educational framework that is theoretically grounded and practically relevant.

Accordingly, the aim of this study was to design and empirically validate a comprehensive model for developing digital marketing skills among marketing students by identifying its principal dimensions, components, and educational mechanisms through an exploratory sequential mixed-methods approach.

Methodology

This study was applied-developmental in terms of its purpose and employed a sequential exploratory mixed-methods design consisting of qualitative and quantitative phases. The qualitative phase was conducted first to identify and conceptualize the dimensions, components, and indicators required for designing a model for developing digital marketing skills among marketing students. The quantitative phase was subsequently implemented to validate the proposed conceptual model, examine the relationships among its dimensions and components, and determine the relative importance of the identified dimensions. In the qualitative phase, thematic analysis was conducted according to the six-phase framework proposed by Braun and Clarke, including familiarization with the data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final thematic structure. The participants in this phase consisted of 15 academic experts and industry professionals with expertise in digital marketing. Participants were selected through purposive sampling supplemented by snowball sampling to ensure access to individuals with sufficient theoretical knowledge and practical experience in the field. The inclusion criteria for academic experts were holding a doctoral degree and having a documented record of research, teaching, or scholarly activity related to digital marketing, marketing education, digital business, or closely related areas. Industry experts were required to hold at least a master's degree and have a minimum of five years of professional experience in digital marketing or related digital business activities. Semi-structured

interviews were continued until theoretical saturation was achieved, meaning that additional interviews no longer generated substantively new concepts, codes, or themes relevant to the research objectives. In the quantitative phase, the statistical population consisted of digital marketing specialists and faculty members from leading universities in the country who possessed relevant expertise in marketing, digital marketing, electronic commerce, digital business, or related fields. The initial sample size was estimated at 384 participants using Cochran's formula for an unlimited population. However, to increase statistical precision, strengthen the stability of parameter estimates, compensate for incomplete or unusable questionnaires, and provide an adequate sample for structural equation modeling, the target sample size was increased to 660 participants. Participants in the quantitative phase were selected using stratified random sampling so that the principal professional and academic groups represented in the population could be adequately reflected in the final sample.

Data collection in the qualitative phase was carried out through semi-structured interviews developed in accordance with the objectives and research questions of the study. The interview protocol focused on identifying the knowledge, competencies, practical abilities, technological capabilities, analytical skills, communication skills, strategic competencies, and educational requirements considered necessary for the development of digital marketing skills among marketing students. The semi-structured format enabled the researchers to maintain consistency across interviews while allowing participants to elaborate on their professional experiences and introduce additional concepts that had not been anticipated in the initial interview framework. With the participants' consent, interviews were recorded and subsequently transcribed verbatim. The transcripts were repeatedly reviewed to ensure familiarity with the data and to identify meaningful units relevant to digital marketing skill development. The resulting qualitative data were imported into MAXQDA software for systematic coding and management. Initial codes were generated from the interview transcripts and were progressively compared, refined, merged, and categorized. Conceptually related codes were organized into basic themes, which were subsequently grouped into organizing themes and overarching themes. This hierarchical thematic structure provided the foundation for the preliminary conceptual model and for the development of the quantitative instrument. In the quantitative phase, data were collected using a researcher-developed questionnaire consisting of 80 items derived directly from the themes, components, and indicators identified during the qualitative phase. The questionnaire was designed to operationalize the dimensions of the proposed digital marketing skills development model and to enable empirical assessment of the relationships among its latent constructs. The content validity of the instrument was evaluated by a panel of experts in digital marketing, marketing education, and research methodology. The experts examined the relevance, clarity, comprehensiveness, and conceptual correspondence of the items with the dimensions identified during the qualitative phase, and necessary modifications were made before administration of the final questionnaire. The psychometric quality of the measurement model was further assessed during the quantitative analysis. Internal consistency reliability was evaluated using Cronbach's alpha and composite reliability coefficients. Convergent validity was examined using the average variance extracted (AVE), with the measurement model being considered satisfactory when the constructs demonstrated acceptable levels of shared variance with their respective indicators. Discriminant validity was assessed using the Fornell–Larcker criterion by comparing the square root of the AVE for each latent construct with its correlations with other constructs. Collectively, these procedures were employed to ensure that the researcher-developed questionnaire provided a sufficiently reliable and valid operationalization of the dimensions of digital marketing skills identified in the qualitative phase.

Qualitative and quantitative data were analyzed separately in accordance with the sequential exploratory mixed-methods design and were subsequently integrated in the interpretation of the final model. In the qualitative phase, thematic analysis was performed using Braun and Clarke's six-stage procedure. Following transcription and repeated reading of the interviews, meaningful statements and segments related to the development of digital marketing skills were identified and assigned initial codes. Similar or conceptually overlapping codes were compared and consolidated, after which relationships among codes were examined to construct higher-order categories. These categories were successively organized into basic, organizing, and overarching themes. The emerging thematic structure was repeatedly reviewed against the original interview data to ensure internal coherence within themes and conceptual distinction between themes. MAXQDA software was used to facilitate the organization, retrieval, comparison, and systematic management of the qualitative codes and themes. The final qualitative framework served as the conceptual basis for constructing the 80-item questionnaire and specifying the hypothesized measurement and structural models. In the quantitative phase, the collected data were initially entered into SPSS for data screening, coding, descriptive statistical analysis, examination of response patterns, and preparation of the dataset for structural modeling. The proposed model was then evaluated through partial least squares structural equation modeling (PLS-SEM) using SmartPLS. The measurement model was assessed before interpretation of the structural relationships. Indicator performance, internal consistency reliability, composite reliability, convergent validity through AVE, and discriminant validity through the Fornell–Larcker criterion were examined to establish the adequacy of the latent constructs. After confirmation of the measurement model, the structural model was evaluated by examining the magnitude, direction, and statistical significance of the hypothesized path coefficients as well as the explanatory capacity of the endogenous constructs. The significance of the estimated relationships was assessed using the bootstrapping procedure available in SmartPLS. This analytical approach was selected because PLS-SEM is appropriate for prediction-oriented and model-development research involving multiple latent variables and complex relationships among constructs. Finally, the Friedman test was conducted to compare and rank the dimensions of the proposed model according to their relative importance. The integration of qualitative thematic analysis with quantitative PLS-SEM validation and comparative ranking enabled the study to move from inductive identification of digital marketing skill dimensions to empirical confirmation and prioritization of the components incorporated into the final model.

Findings and Results

A total of 660 completed questionnaires were included in the quantitative phase of the study. Of the respondents, 372 participants (56.36%) were men and 288 (43.64%) were women. In terms of professional position, 264 participants (40.00%) were university faculty members or academic specialists in marketing and related fields, whereas 396 respondents (60.00%) were digital marketing professionals, consultants, managers, or specialists working in industry. The mean age of the participants was 38.74 years (SD = 7.92), with ages ranging from 27 to 59 years. Regarding educational attainment, 286 participants (43.33%) held a master's degree and 374 (56.67%) held a doctoral degree. The mean professional experience in marketing, digital marketing, digital business, or related fields was 10.86 years (SD = 5.21). Overall, 168 respondents (25.45%) had 5–7 years of relevant professional experience, 219 (33.18%) had 8–10 years, 164 (24.85%) had 11–15 years, and 109 (16.52%) had more than 15 years of experience. The demographic composition therefore indicated that the quantitative sample consisted predominantly of experienced academic and professional respondents with substantial familiarity with

digital marketing practices, digital technologies, marketing education, and the competencies required by contemporary labor markets.

The qualitative analysis of the 15 semi-structured expert interviews resulted in the identification of 428 initial codes. After repeated comparison, elimination of redundant codes, and conceptual integration of closely related concepts, 126 refined codes remained. These codes were subsequently organized into 24 basic themes, eight organizing themes, and four overarching themes. The four overarching themes represented the principal domains required for developing digital marketing skills among marketing students and consisted of digital marketing knowledge and strategic understanding, technological and analytical competence, communication and content-based competence, and applied learning and professional development mechanisms. The eight organizing themes included digital marketing foundations, strategic digital planning, digital platforms and technologies, data analytics and performance measurement, digital content creation, digital communication and customer engagement, experiential learning and practice-oriented education, and professional adaptability and continuous learning. Table 1 presents the thematic structure derived from the qualitative phase.

Table 1

Qualitative thematic structure of the model for developing digital marketing skills among marketing students

Overarching theme	Organizing theme	Basic themes	Number of refined codes
Digital marketing knowledge and strategic understanding	Digital marketing foundations	Understanding digital marketing concepts; knowledge of digital consumer behavior; familiarity with digital marketing channels	17
Digital marketing knowledge and strategic understanding	Strategic digital planning	Digital campaign planning; segmentation, targeting, and positioning in digital environments; integration of online and offline marketing strategies	16
Technological and analytical competence	Digital platforms and technologies	Social media platform competence; search engine marketing tools; marketing automation and CRM technologies	15
Technological and analytical competence	Data analytics and performance measurement	Web analytics; marketing metrics and KPI interpretation; data-driven decision-making	18
Communication and content-based competence	Digital content creation	Content planning and production; multimedia content development; search-engine-oriented content creation	14
Communication and content-based competence	Digital communication and customer engagement	Online customer interaction; community management; relationship building and personalized communication	15
Applied learning and professional development mechanisms	Experiential learning and practice-oriented education	Project-based learning; internship and industry collaboration; simulation and real campaign implementation	17
Applied learning and professional development mechanisms	Professional adaptability and continuous learning	Continuous updating of digital knowledge; adaptability to technological change; ethical and professional responsibility	14
Total	8 organizing themes	24 basic themes	126

As shown in Table 1, the qualitative findings indicated that digital marketing skill development should not be conceptualized solely as the acquisition of technical proficiency in digital tools. Instead, the expert interviews supported a multidimensional structure integrating theoretical knowledge, strategic thinking, technological ability, analytical competence, content and communication skills, experiential learning, and continuous professional development. Among the organizing themes, data analytics and performance measurement contained the largest number of refined codes, suggesting that experts placed considerable emphasis on students' ability to interpret digital data, evaluate campaign performance, and make evidence-based marketing decisions. Digital marketing foundations, strategic digital planning, and experiential learning also accounted for substantial proportions of the extracted codes. The findings further demonstrated that industry-oriented educational experiences, such as internships, practical projects, campaign simulations, and collaboration with firms, were regarded as essential mechanisms through which conceptual knowledge could be transformed into operational competence. Based on these qualitative results, the eight organizing themes were operationalized as the principal latent dimensions of the

quantitative model, and their associated indicators were converted into the 80 questionnaire items used in the subsequent validation phase.

Before examining the structural relationships among the dimensions of the proposed model, the reliability and convergent validity of the measurement model were assessed. Cronbach's alpha, composite reliability, and average variance extracted were calculated for each latent construct. All standardized indicator loadings were also examined, and the retained indicators demonstrated acceptable relationships with their respective constructs. The results of the measurement model assessment are presented in Table 2.

Table 2

Reliability and convergent validity of the measurement model

Construct	Number of items	Cronbach's alpha	Composite reliability	AVE
Digital Marketing Foundations	10	0.912	0.927	0.561
Strategic Digital Planning	10	0.918	0.932	0.579
Digital Platforms and Technologies	10	0.924	0.937	0.598
Data Analytics and Performance Measurement	10	0.936	0.946	0.637
Digital Content Creation	10	0.909	0.925	0.553
Digital Communication and Customer Engagement	10	0.921	0.934	0.586
Experiential Learning and Practice-Oriented Education	10	0.931	0.942	0.620
Professional Adaptability and Continuous Learning	10	0.915	0.930	0.570

The results presented in Table 2 confirmed satisfactory internal consistency and convergent validity for all dimensions of the proposed model. Cronbach's alpha coefficients ranged from 0.909 for digital content creation to 0.936 for data analytics and performance measurement, and all values exceeded the conventional threshold of 0.70. Composite reliability coefficients ranged from 0.925 to 0.946, providing further evidence that the indicators associated with each construct consistently measured the same underlying concept. The average variance extracted values ranged from 0.553 to 0.637, and all constructs therefore exceeded the recommended minimum value of 0.50. Among the dimensions, data analytics and performance measurement demonstrated the highest internal consistency and convergent validity, with a Cronbach's alpha of 0.936, composite reliability of 0.946, and AVE of 0.637. Experiential learning and practice-oriented education also demonstrated particularly strong measurement properties, with a composite reliability coefficient of 0.942 and an AVE of 0.620. These findings indicated that the questionnaire provided a reliable and convergently valid measurement of the eight dimensions identified in the qualitative phase and supported proceeding to the assessment of discriminant validity and the structural model. Discriminant validity was examined using the Fornell–Larcker criterion. According to this criterion, the square root of the AVE for each construct should be greater than the correlations of that construct with the other latent variables. The results are shown in Table 3, with the square roots of the AVE values displayed on the diagonal.

Table 3

Discriminant validity based on the Fornell–Larcker criterion

Construct	DMF	SDP	DPT	DAPM	DCC	DCCE	ELPE	PACL
Digital Marketing Foundations (DMF)	0.749							
Strategic Digital Planning (SDP)	0.621	0.761						
Digital Platforms and Technologies (DPT)	0.574	0.638	0.773					
Data Analytics and Performance Measurement (DAPM)	0.548	0.646	0.667	0.798				
Digital Content Creation (DCC)	0.603	0.592	0.611	0.573	0.744			
Digital Communication and Customer Engagement (DCCE)	0.588	0.609	0.586	0.604	0.652	0.766		
Experiential Learning and Practice-Oriented Education (ELPE)	0.617	0.659	0.641	0.681	0.598	0.626	0.787	
Professional Adaptability and Continuous Learning (PACL)	0.551	0.584	0.602	0.625	0.566	0.608	0.672	0.755

As indicated in Table 3, the square root of the AVE for every construct was greater than its correlations with all other constructs, thereby confirming adequate discriminant validity based on the Fornell–Larcker criterion. For example, the square root of the AVE for data analytics and performance measurement was 0.798, which exceeded its highest correlation with experiential learning and practice-oriented education (r = 0.681). Similarly, the square root of the AVE for experiential learning and practice-oriented education was 0.787, exceeding its correlations with professional adaptability and continuous learning (r = 0.672), data analytics and performance measurement (r = 0.681), and strategic digital planning (r = 0.659). Although moderate positive relationships were observed among the eight dimensions, none of the inter-construct correlations exceeded the corresponding diagonal value. These results demonstrated that the dimensions were empirically related but sufficiently distinct from one another to represent separate components of the broader digital marketing skill development model. Taken together with the reliability and convergent validity findings, the discriminant validity results supported the adequacy of the proposed measurement model.

After confirmation of the measurement model, the structural relationships among the principal dimensions were examined using PLS-SEM. On the basis of the qualitative findings, experiential learning and practice-oriented education was modeled as a central educational mechanism influencing the development of the three principal competency domains, while digital marketing knowledge and strategic understanding, technological and analytical competence, and communication and content-based competence were specified as predictors of overall digital marketing skill development. Professional adaptability and continuous learning was also modeled as a direct predictor of overall skill development. Bootstrapping was performed to test the significance of the structural paths. The results are presented in Table 4.

Table 4

Structural model results for the development of digital marketing skills

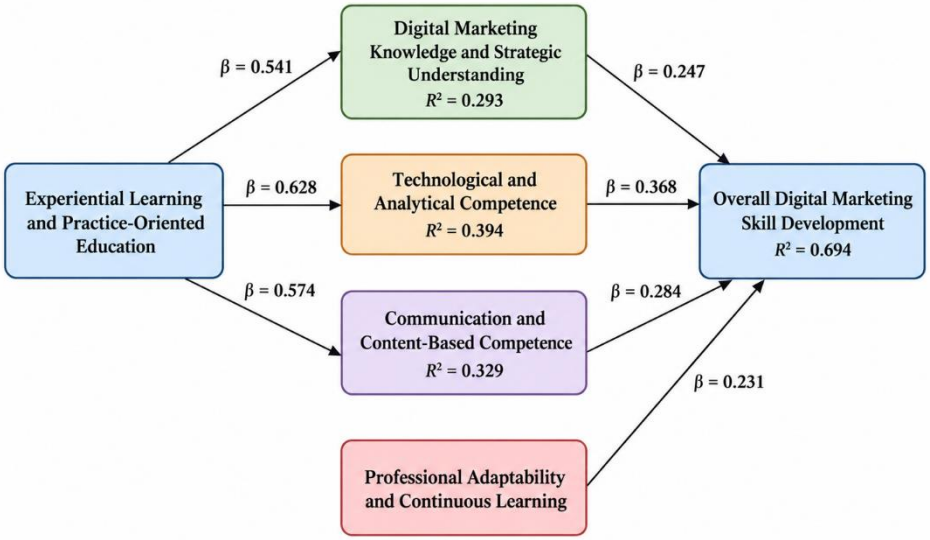
Structural path	Path coefficient (β)	t-value	p-value	Result
Experiential Learning and Practice-Oriented Education → Digital Marketing Knowledge and Strategic Understanding	0.541	13.284	<0.001	Significant
Experiential Learning and Practice-Oriented Education → Technological and Analytical Competence	0.628	17.965	<0.001	Significant
Experiential Learning and Practice-Oriented Education → Communication and Content-Based Competence	0.574	15.207	<0.001	Significant
Professional Adaptability and Continuous Learning → Overall Digital Marketing Skill Development	0.231	5.984	<0.001	Significant
Digital Marketing Knowledge and Strategic Understanding → Overall Digital Marketing Skill Development	0.247	6.722	<0.001	Significant
Technological and Analytical Competence → Overall Digital Marketing Skill Development	0.368	9.614	<0.001	Significant
Communication and Content-Based Competence → Overall Digital Marketing Skill Development	0.284	7.533	<0.001	Significant

The structural model results presented in Table 4 indicated that all hypothesized relationships were positive and statistically significant. Experiential learning and practice-oriented education exerted its strongest effect on technological and analytical competence ($\beta = 0.628$, $t = 17.965$, $p < 0.001$), followed by communication and content-based competence ($\beta = 0.574$, $t = 15.207$, $p < 0.001$) and digital marketing knowledge and strategic understanding ($\beta = 0.541$, $t = 13.284$, $p < 0.001$). These findings suggested that educational environments incorporating real projects, internship experiences, campaign simulations, and direct exposure to digital marketing technologies may substantially contribute to the acquisition of practical competencies. Among the direct predictors of overall digital marketing skill development, technological and analytical competence demonstrated the strongest effect ($\beta = 0.368$, $t = 9.614$, $p < 0.001$). Communication and content-based competence was the second strongest predictor ($\beta = 0.284$, $t = 7.533$, $p < 0.001$), followed by digital marketing knowledge and strategic understanding ($\beta = 0.247$, $t = 6.722$, $p < 0.001$) and professional adaptability and continuous learning ($\beta = 0.231$, $t = 5.984$, $p < 0.001$). The coefficient of determination for overall digital marketing skill development was $R^2 = 0.694$, indicating

that approximately 69.4% of the variance in the dependent construct was explained jointly by the major competency domains and professional adaptability. The R^2 values for digital marketing knowledge and strategic understanding, technological and analytical competence, and communication and content-based competence were 0.293, 0.394, and 0.329, respectively, demonstrating that experiential learning and practice-oriented education explained a meaningful proportion of the variance in each competency domain. These results supported the explanatory capacity of the proposed model and highlighted the central role of practice-based education and technological-analytical capability in developing digital marketing competence among marketing students.

Figure 1

Final structural model for developing digital marketing skills among marketing students



The final model illustrated in Figure 1 integrates the qualitative and quantitative phases of the research and demonstrates that digital marketing competence among marketing students emerges through the interaction of educational mechanisms, professional adaptability, and multiple interrelated competency domains. The model positions experiential learning and practice-oriented education as a foundational developmental mechanism that strengthens students' knowledge and strategic understanding, technological and analytical competence, and communication and content-based competence. These competency domains, together with professional adaptability and continuous learning, contribute directly to overall digital marketing skill development. The relatively stronger structural coefficient associated with technological and analytical competence indicates that mastery of digital platforms, marketing technologies, web analytics, performance metrics, and data-driven decision-making constitutes a particularly influential component of contemporary digital marketing capability. Nevertheless, the statistically significant effects of all modeled dimensions demonstrate that the proposed framework is fundamentally multidimensional and that effective skill development cannot be reduced to technical proficiency alone.

To determine the relative priority of the eight dimensions included in the proposed model, the Friedman test was conducted. The test revealed a statistically significant difference among the mean ranks of the dimensions, $\chi^2(7) = 486.72$, $p < 0.001$, indicating that respondents did not assign equal importance to all components of digital marketing skill development. Data analytics and performance measurement received the highest mean rank (5.72), followed by experiential learning and practice-oriented education (5.46), digital platforms and technologies (5.12), strategic digital planning (4.79), digital communication and customer engagement (4.43), professional adaptability and continuous learning (4.08), digital content

creation (3.52), and digital marketing foundations (2.88). Although digital marketing foundations received the lowest relative rank, its absolute evaluation remained above the scale midpoint, indicating that respondents considered it an essential prerequisite rather than an unimportant component. The ranking pattern showed that respondents assigned greater priority to competencies that enable students to operate effectively in dynamic digital environments, particularly the ability to analyze marketing data, work with technological tools, participate in authentic practical experiences, and translate strategic knowledge into measurable marketing actions. At the same time, the significant contribution of all eight dimensions confirmed that the final framework should be implemented as an integrated educational model rather than as a set of isolated technical training activities.

Discussion and Conclusion

The present study developed and empirically validated a comprehensive model for developing digital marketing skills among marketing students through an exploratory sequential mixed-methods design. The qualitative phase identified four overarching themes comprising digital marketing knowledge and strategic understanding, technological and analytical competence, communication and content-based competence, and applied learning and professional development mechanisms. These overarching themes were further organized into eight dimensions: digital marketing foundations, strategic digital planning, digital platforms and technologies, data analytics and performance measurement, digital content creation, digital communication and customer engagement, experiential learning and practice-oriented education, and professional adaptability and continuous learning. The quantitative findings subsequently confirmed the reliability and validity of these dimensions and demonstrated that all hypothesized structural paths were positive and statistically significant. In particular, technological and analytical competence emerged as the strongest direct predictor of overall digital marketing skill development, while experiential learning and practice-oriented education exerted substantial effects on the three principal competency domains. The final model explained 69.4% of the variance in overall digital marketing skill development, indicating that the integrated set of educational, technological, analytical, communicative, and adaptive factors accounted for a substantial proportion of students' digital marketing competency development.

One of the most important findings was the central role of technological and analytical competence. This dimension had the strongest direct effect on overall digital marketing skill development and also received a high priority in the Friedman ranking, particularly through the subdimension of data analytics and performance measurement. This result reflects the transformation of marketing from a predominantly communication-oriented function into a data-intensive and technology-mediated discipline. Contemporary marketers are increasingly required to interpret digital metrics, evaluate user behavior, measure campaign performance, identify patterns in customer data, and make evidence-based decisions. The growing importance of data-driven decision-making in academic marketing and student outreach confirms that the capacity to convert data into actionable marketing insights has become a core professional requirement [1]. Similarly, the increasing incorporation of artificial intelligence into marketing functions has expanded the range of technological and analytical competencies that future marketers are expected to possess, including familiarity with automated targeting, predictive tools, personalization systems, intelligent content generation, and algorithm-supported decision-making [2]. Therefore, the strong effect observed for technological and analytical competence is consistent with the broader digitalization of marketing practice.

The importance assigned to data analytics is also supported by research demonstrating the increasing use of predictive techniques and recommendation systems in understanding consumer behavior. Statistical modeling has been used to predict the consumption patterns and preferences of international students, showing that marketing decision-making is progressively becoming dependent on quantitative analysis and data interpretation [16]. This tendency has direct implications for marketing education because students who are able to work with analytics platforms, evaluate key performance indicators, interpret customer journeys, and assess digital campaign outcomes are more likely to transfer academic knowledge into contemporary professional environments. The present findings therefore suggest that digital marketing education should not treat analytics as an optional specialist skill, but as a core dimension of general marketing competence.

The second major finding concerned the importance of experiential learning and practice-oriented education. This dimension had strong positive effects on digital marketing knowledge and strategic understanding, technological and analytical competence, and communication and content-based competence. These relationships indicate that practical educational experiences may function as a mechanism through which multiple dimensions of digital marketing competence develop simultaneously. Students may acquire conceptual knowledge in classrooms, but their ability to use this knowledge effectively is strengthened when they work with actual campaigns, marketing platforms, simulated projects, analytics dashboards, digital content tasks, or industry-based assignments. This result aligns with evidence showing that student engagement in value co-creation contributes positively to e-learning experience and satisfaction, suggesting that active participation and involvement can improve the quality of learning outcomes [20]. In a digital marketing context, experiential learning allows students to become active producers, analysts, planners, and decision-makers rather than passive recipients of theoretical information.

The importance of practical education is also consistent with research emphasizing professional development and the transition from student identity to professional identity. Validation, professional recognition, and meaningful exposure to real-world expectations can help students develop the confidence and motivation needed to function as future professionals [21]. The present results extend this perspective by indicating that practice-oriented education does not merely enhance motivation but may directly strengthen knowledge, analytical capacity, technological competence, communication ability, and content-related skills. Internship opportunities, client-based projects, industry mentoring, campaign simulations, and portfolio development may therefore represent important mechanisms for integrating academic and professional learning. These findings also correspond with the growing emphasis on entrepreneurial competencies in university curricula, including problem-solving, initiative, opportunity recognition, communication, and adaptive decision-making [7]. Such competencies are highly relevant in digital marketing, where professionals frequently operate in uncertain, rapidly changing, and innovation-intensive environments.

Another important finding was the significant contribution of communication and content-based competence to overall digital marketing skill development. Digital marketing requires marketers to design messages, create relevant content, select appropriate platforms, interact with audiences, and maintain meaningful relationships across multiple digital touchpoints. The positive structural effect of this dimension supports the view that technical proficiency alone is insufficient for effective marketing performance. Digital marketers must understand how communication influences trust, satisfaction, engagement, perceived value, and customer relationships. Previous research has shown that online relational marketing can contribute to satisfaction through online trust, highlighting the importance of relationship-building and credible communication in digital

environments [10]. Similarly, social media marketing activities have been associated with behavioral engagement among prospective students through brand equity, demonstrating that strategic communication through digital platforms can influence audience behavior [11].

The role of communication and content competence is further supported by research on students' responses to social media marketing. Social media marketing activities may influence students' intentions through brand identity, perceived value, and satisfaction, illustrating that digital communication operates through several psychological and relational mechanisms [12]. The findings of the present study suggest that marketing students should therefore be trained not only in content production but also in audience analysis, digital storytelling, personalization, engagement strategy, relationship management, and evaluation of communication outcomes. These skills become especially important in markets dominated by Generation Z, where authenticity, immediacy, interaction, and personalized content have become central to attraction and retention [13]. The strong role of digital communication in the proposed model is thus consistent with the behavioral realities of contemporary digital markets.

Influencer marketing provides another clear example of why communication competence must be integrated with psychological and strategic understanding. Social media influencers can affect consumer attitudes and behavior through perceived credibility, identification, attractiveness, and social influence [8, 9]. Students who understand only the operational use of social media platforms may therefore remain insufficiently prepared for professional marketing tasks. Effective influencer marketing requires the ability to assess source credibility, audience characteristics, message fit, platform culture, campaign objectives, and psychological responses. The qualitative identification of digital communication and customer engagement as a distinct dimension is therefore supported by previous research demonstrating the complexity of contemporary social media influence.

The findings also showed that digital marketing knowledge and strategic understanding made a statistically significant contribution to overall skill development. Although its direct structural coefficient was lower than that of technological and analytical competence, its role remains fundamental because technology and analytics must ultimately be guided by strategic objectives. The fact that digital marketing foundations received a lower mean rank in the Friedman analysis should not be interpreted as evidence of low importance. Rather, it may indicate that respondents viewed foundational knowledge as an expected prerequisite, whereas analytical and technological capabilities were perceived as more differentiating in contemporary professional practice. A solid understanding of segmentation, targeting, positioning, consumer behavior, channel integration, campaign objectives, and marketing strategy remains necessary for the meaningful use of digital tools. This interpretation is consistent with research showing that marketing activities directed toward prospective students become more effective when integrated with strategic concepts such as brand equity and behavioral engagement [11].

The significance of strategic understanding is also evident in international and intercultural marketing contexts. Intercultural online marketing competence has been identified as an important capability among tourism students, emphasizing the need to understand how cultural differences affect digital communication and audience responses [14]. Marketing strategies designed for international students similarly require careful integration of digital channels, targeted communication, search strategies, personalized content, and audience segmentation [15]. Accordingly, strategic competence enables students to select and coordinate tools appropriately rather than treating digital platforms as isolated technical instruments.

Professional adaptability and continuous learning also had a significant positive effect on overall digital marketing skill development. This finding is particularly important because digital marketing is characterized by rapid technological change. Platforms, algorithms, content formats, measurement systems, advertising policies, artificial intelligence applications, and consumer expectations may change within short periods. Therefore, competence cannot be understood as a fixed set of skills acquired once during university education. Students must develop the ability to continuously update their knowledge, acquire unfamiliar tools, interpret emerging trends, and respond to new ethical and strategic challenges. The need for continuous adaptation is reinforced by the expanding role of artificial intelligence and intelligent systems in marketing practice [2]. The present model therefore appropriately positions adaptability as a direct contributor to digital marketing skill development rather than as a peripheral personal characteristic.

The relevance of adaptability is also consistent with evidence concerning students' psychological adjustment and educational transitions. Adjustment processes can be influenced by psychological well-being and related personal factors, demonstrating that students differ in their ability to cope with changing educational and developmental demands [19]. In professional education, adaptability may similarly influence how effectively students respond to unfamiliar technologies, complex assignments, feedback, and changing market expectations. Digital marketing programs should therefore foster not only knowledge acquisition but also curiosity, self-directed learning, tolerance of uncertainty, and confidence in learning new technologies.

The broader educational implications of the model are consistent with current discussions regarding the responsibilities of universities. Higher education institutions are increasingly evaluated according to educational service quality, reputation, student satisfaction, trust, and responsiveness to stakeholder expectations [4]. University social responsibility similarly emphasizes the wider role of educational institutions in producing socially and professionally relevant outcomes [3]. The present findings suggest that providing students with competencies aligned with contemporary digital labor markets can be regarded as an important component of this responsibility. Universities should therefore ensure that their marketing curricula are not disconnected from the technological, analytical, and communication practices currently shaping the profession.

At the same time, the emphasis on labor-market relevance should not reduce higher education to a purely consumer-oriented service. The conceptualization of students as consumers has been critically discussed because education involves developmental, intellectual, and professional objectives that extend beyond immediate satisfaction [5]. The present model offers a way to reconcile these perspectives by emphasizing student-centered and practice-oriented education without reducing learning to customer satisfaction alone. Students can be actively engaged in their learning while still being challenged to develop rigorous analytical, strategic, ethical, and professional competencies. The importance of perceived value and satisfaction among university students also suggests that students are more likely to evaluate educational programs positively when they perceive them as relevant and beneficial [22]. Therefore, strengthening digital marketing competence may simultaneously contribute to professional readiness and enhance students' perceived educational value.

The findings concerning communication, trust, and professional responsibility also point toward the ethical dimension of digital marketing education. Digital marketers regularly work with consumer data, personalized advertising, persuasive content, online communities, and algorithmic systems. These activities create ethical issues involving privacy, manipulation, transparency, trust, and social responsibility. Research highlighting the role of social trust in marketing-oriented participation models demonstrates that trust is an important foundation for sustainable relationships and engagement [18]. In digital

marketing education, students should therefore learn to evaluate not only whether a campaign is technically effective but also whether it is ethically defensible and socially responsible.

Another relevant implication concerns the interaction between digital marketing competence and broader decision-making abilities. Financial literacy has been linked to financial behavior through emotional and moral mechanisms among students, suggesting that effective decision-making involves both cognitive knowledge and personal values [17]. Although financial literacy is not identical to digital marketing competence, the finding is relevant because marketers frequently make decisions concerning budgets, advertising expenditure, customer acquisition costs, return on investment, and resource allocation. Therefore, digital marketing curricula may benefit from integrating financial reasoning with analytics and strategic planning.

Overall, the present findings support a multidimensional view of digital marketing competence. The results indicate that successful preparation of marketing students requires the simultaneous development of strategic knowledge, technological proficiency, analytical capability, communication competence, practical experience, and professional adaptability. The model's substantial explanatory power demonstrates that these dimensions collectively form a coherent framework rather than a collection of disconnected skills. The findings are consistent with previous research emphasizing data-driven decision-making, artificial intelligence, social media engagement, relational marketing, influencer effects, intercultural competence, student engagement, professional identity, perceived value, and university responsibility [1, 2, 6, 11]. Accordingly, digital marketing education should move from fragmented instruction toward an integrated competency-development model in which students learn how to combine strategic reasoning, technological tools, behavioral understanding, communication, analytics, and continuous professional learning.

The present study has several limitations that should be considered when interpreting the findings. First, the quantitative sample consisted of academic experts and digital marketing professionals rather than marketing students themselves; therefore, the model primarily represents expert judgments regarding the competencies students should develop rather than direct assessments of students' actual skill acquisition. Second, the cross-sectional quantitative design captured perceptions at a single point in time and could not determine how digital marketing competencies evolve during university education. Third, although the mixed-methods design strengthened the conceptual and empirical basis of the model, the qualitative phase included a relatively limited number of experts, and other participants may have identified additional competencies. Fourth, the use of self-report questionnaires may have introduced response biases such as socially desirable responding or differences in interpretation of questionnaire items. Finally, digital marketing is a rapidly changing field, meaning that some technological competencies identified in the present model may require periodic revision as new platforms, artificial intelligence applications, and analytical methods emerge.

Future research should examine the proposed model in different educational and institutional contexts and should include marketing students, recent graduates, employers, and digital marketing practitioners in comparative analyses. Longitudinal studies are recommended to assess how students' digital marketing competencies change over the course of their university education and during the transition from study to employment. Future studies may also test the model experimentally by introducing structured digital marketing training programs and evaluating their effects on specific competencies before and after intervention. Cross-cultural research could determine whether the relative importance of the identified dimensions differs across countries, educational systems, and labor markets. Researchers may also extend the model by examining

emerging competencies associated with generative artificial intelligence, marketing automation, privacy regulation, advanced analytics, immersive technologies, and algorithmic advertising. Further research could additionally investigate potential mediating and moderating variables such as self-efficacy, digital readiness, learning motivation, previous work experience, entrepreneurial orientation, and access to technological resources.

From a practical perspective, universities and marketing departments should redesign curricula so that digital marketing competencies are developed progressively and systematically throughout the academic program rather than being concentrated in a single elective course. Programs should combine theoretical instruction with practical work in digital analytics, social media management, content production, search marketing, customer relationship management, digital advertising, and campaign evaluation. Universities should establish stronger partnerships with industry to provide internships, real-client projects, mentoring, workshops, and exposure to contemporary marketing platforms. Assessment should increasingly emphasize demonstrable competencies through projects, portfolios, campaign reports, analytics tasks, and problem-solving exercises rather than relying exclusively on conventional written examinations. Faculty development is also necessary so that instructors remain familiar with current digital marketing technologies and practices. Finally, curricula should include explicit training in continuous learning, ethical digital practice, professional adaptability, and responsible use of consumer data so that graduates are equipped not only to perform current digital marketing tasks but also to respond effectively to future technological and professional changes.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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