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ROLE OF AI TECHNOLOGY IN BRAND BUILDING OF CHINESE HIGHER EDUCATION INSTITUTIONS -- THOUGHT BASED ON INTEGRATED MARKETING COMMUNICATION

As the competitions among higher education institutions (HEIs) intensify, brand building has gradually become an important means for HEIs to build their images and enhance their competitiveness. For HEIs, the significance of integrated marketing communication lies in the integration of brand image communication content, communication channel and communication process. At present, the influence of traditional communication channels declines, the influence of self-established media is limited, and the negative information is not monitored well. Under such circumstances, AI technology can provide technical support for integrated marketing communications of HEI brand. In terms of communication content, VR/AR, UAV, interactive games and chatbot are mainly applied. In the aspect of communication channels, the data mining technique is mainly used to achieve differentiated communication, and the big data analysis technique is adopted to integrate brand image information communication channels. With regard to negative information monitoring, the natural language processing technology can provide high-efficiency, full-coverage and round-the-clock negative information monitoring.

Key words: Artificial intelligence; Higher Education Institutions; brand building; IMC

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Statement of the problem in general form and it's connection with important scientific or practical tasks. Currently, we have been in the age of attention economy, all kinds of media keep innovating in the aspects of communication channel, communication media and communication content, hoping to convey more information by competing for users' attention, so as to create a good image for commercial brands. Similar to brand competition in the business field, brand competition also exists among HEIs. For HEIs, a good brand image plays an important role for student enrollment, employment, talent recruitment and international development.

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As of June 30, 2020, there were 2740 regular HEIs in China, including 1955 government HEIs, 773 non-government HEIs, 10 Sino-foreign cooperative HEIs and 2 HEIs cooperatively run by Chinese mainland, Hong Kong, Macao and Taiwan [1]. With the reform of the college entrance examination system, most provinces have combined the enrollment batch of the first-tier and second-tier universities. As a result, government HEIs and non-government HEIs contend at the same starting line. The competition for student pool between non-government HEIs, between non-government HEIs and government HEIs, and between government HEIs will be more intense. As the “Belt and Road” initiative is implemented in more countries along the line, HEIs in China recruit international students and cooperate with foreign HEIs for international education, thus further enhancing competitiveness. In addition, there are also competitions among HEIs for funds, projects, talents and other resources. All of these require a good brand image as a support, making brand building gradually become an important means for Chinese HEIs to build their images, obtain resources and enhance their competitiveness.

Analysis of the latest research and publications, which initiated the solution of this problem and on which the author relies.

Study on HEI brand building. The research on HEI brand building mainly focuses on brand connotation, brand creation, brand strategy, brand influencing factor and brand communication strategy, etc. Rosen first discussed the effect of HEI brand in students’ school selection and its influence and proposed the main determinants of students’ selection of schools and the framework of brand elimination [2]. Shi Peihua and Lu Mingming indicated that the brand gene of HEIs was a system, and its carrier included university brand, the brand of superior disciplines, the brand of scientific research achievements and the talent brand. It is an aggregation of brands of various levels and various aspects [3]. Sevier put forward seven steps of HEI brand building from the aspects of identifying customer requirements, evaluating customer cognition, recognizing gaps, formulating response strategies, revising school demands, developing and implementing brand communication strategies, testing and improving brand strategies [4]. Zhou Guangli pointed out that, Chinese HEIs had begun to implement the brand competition strategy, and the brand influencing factors included political connections among HEI leaders, the relation between HEIs and the government, the relation between HEIs and consumers with higher status, the relation between HEIs and HEIs with higher status, and the relation between HEIs and third party educational evaluation organizations [5]. Ding Feng proposed to deepen consumers’ impression of HEI brands by comprehensively utilizing advertising, public relations, word-of-mouth and other communication strategies [6]. Wu Xiangzhi indicated that HEIs should build a good image and establish a good reputation through various three-dimensional and diversified communication activities, and in conjunction with mass communication, interpersonal communication, symbol communication and marketing activities [7]. Jing Chaoping expressed that, HEIs should attach importance to WeChat and other new media platforms, deem them as important display channels, strengthen the construction of system, personnel, content, typesetting, speed and audience, communicate the brand image of HEIs, and enhance the influence of HEIs [8].

Effect of AI technology in marketing communication. AI, as a comprehensive interdisciplinary discipline, usually refers to the construction of intelligent systems based on computer technology and completion of the activities which can only be completed by intelligent creatures or humans in the traditional sense such as pattern recognition, natural language processing, data mining and automation. Since the concept of AI was first proposed in 1956, the development of AI technology has experienced several twists and turns. With the breakthrough of AI core algorithms, the rapid improvement of computer technology and the support of big data, AI technology has made significant progress in machine learning in recent years. At present, AI technology has achieved great breakthroughs in computer vision, speech

recognition, generation and natural language processing, and has been widely used in medical treatment, health care, finance, education, security and smart home. With the introduction of a series of national strategies such as *Made in China 2025* and the *Next Generation Artificial Intelligence Development Plan*, China have all witnessed a boom in scientific research, talent investment, investment, entrepreneurship, and market application of AI in recent years. In the media field, AI technology has a lot of results that have come into use, such as face recognition, face generation, automatic writing, virtual anchor, speech synthesis, intelligent content review, image search and sound search. Ruo Dong indicated that, with the help of AI, big data, cloud computing, blockchain, AR/VR/MR, 5G, intelligent Internet of Things and other new information technologies, marketing communication developed intelligent and automated digital marketing tools and platforms and provided intelligent matching, intelligent labeling, intelligent acquisition, intelligent execution and other services under the digital ecology, which is the reform of marketing communication [9]. Zhan Lingqi pointed out that, with the integration of voice interaction and face recognition into the creative content of advertising communication, AI technology drove the emergence of new forms and new ideas of advertising communication, and that the communication content achieved personalized precise distribution. The communication patterns became more dimensional and more three-dimensional. The communication idea changed from users' passive reception of information to focusing on users' "immersive interactive experience" and reshaping users' lifestyle and value concept [10]. Ding Junjie indicated that, AI technology, characterized by intelligent matching, created immersive experience for users in an all-around three-dimensional manner, enhanced users' sense of participation and interaction, and realized the return of users' multi-sensory experience. It was reshaping the ecology of the advertising industry [11]. Liao Bingyi and Yao Jinming carried out visualized analysis of intelligent marketing communication, and divided intelligent marketing communication into three main application forms: computer advertising, intelligent speech recognition technology, augmented reality (AR) and virtual reality (VR) [12]. Wang Xiaohong and Jin Yingying proposed that in the face of a public emergency, AI technology could improve the pertinence and effectiveness of public opinion response from the four dimensions (public opinion warning, analysis and judgment, emergency response and intervention, and information distribution), and help improve brand credibility with more calm and efficient responses [13].

Highlighting the previously unresolved parts of the general problem to which the article is devoted. With the rapid development of mobile internet, the main front of HEI brand building has also shifted from traditional media to new network media represented by social media, which brings an opportunity for the application of AI in HEI brand building. In the HEI brand communication process, AI technology will play an important role in precision distribution of communication content, integration of communication channel, negative information monitoring and management.

Formulation of the purpose of the article (statement of the problem). We tried to explore how to implant integrated marketing communication into the process of HEI brand building and communication, and proposed the application approach of AI technology in the integrated marketing communication of HEI brand, hoping to improve the effect of HEI brand building and communication.

Statement of the main material of the research with full justification of the scientific results obtained.

Main problems in the brand building of Chinese HEIs. Relevant research results show that, there are some problems in the policy, concept and practical operation of HEI brand building, restricting the development of HEI brand building, such as lack of brand awareness, inaccurate positioning, non-distinctive brand characteristics, lack of brand core

competitiveness, lack of brand building integration, unsound brand building, limited communication content, undefined communication audience, insufficient connection between emotion and the brand, and low communication efficiency. We mainly sort out three problems in the brand communication process.

Decline in the influence of traditional communication channels. Traditional communication media usually adopted by HEIs include newspapers, journals, TV, radio, websites and other channels, which are lack of two-way interaction. With the rapid rise of social media in recent years such as Weibo, WeChat, APP, micro video and live streaming, the market of traditional media has been gradually replaced by social media with strong interaction, easy sharing and communication and high participation degree.

Limited influence of self-established media of HEIs. HEIs usually have their own media for external and internal publicity, including school newspaper, radio station, TV station, website, official Weibo and official WeChat. Traditional media, such as school newspaper, radio station and TV station, are only limited to students and teachers. The communication function of the official website is limited. In general, the visitors only include teachers, students and examinees in the school, and the periodical fluctuation of the page view is obvious. New media, such as official Weibo, official WeChat and Douyin short videos, have a large coverage, covering teachers, students, some alumni and parents, as well as examinees and social groups. Official Weibo, official WeChat and Douyin short videos play an important role in brand building. However except some very characteristic HEIs, the attention of new media public accounts of general HEIs mainly depends on the number of students and alumni, and social influence is limited.

Improper negative information monitoring and management. In the field of brand image management, it is difficult to monitor and manage negative information as well as search it with the traditional manual method. Negative information publishers are often individual teachers, students, staff and parents of students, and the information sources generally include personal Weibo, and open forums (such as Tieba and Zhihu). Besides, the communication path and speed are often uncontrollable. Where the negative information is sensitive or released in a sensitive stage, if handled improperly, it may be upgraded to an online public opinion event, causing a large negative impact on the image of the school.

Application of AI technology in integrated marketing communication of HEI brand.
Connotation of integrated marketing communication of HEI brand. Integrated marketing communication (IMC) is an important theory in commercial brand building, and has been successfully applied in the business field. We can also apply it in HEI brand building. In the view of Schultz, integrated marketing communication is a strategic business process that can be used to plan, develop, execute and evaluate coordinated, measurable, and persuasive brand communication programs relate to consumers, customers and other targets and connecting external and internal audiences [14]. In his opinion, integrated marketing communication includes five steps: identify customers and potential customers, evaluate the value of customers and potential customers, create and transmit information, evaluate customer return on investment, budget, allocate and estimate. From the perspective of communication, the path of information communication is “information source-media-audience”. The important significance of integrated marketing communication is to integrate brand image communication content into a clear and unified brand image, and make overall planning of communication content, communication channels and communication process to maximize the effect of brand communication. Based on the definitions of previous researchers for integrated marketing communication, the integrated marketing communication of HEI brand is defined as a process of establishing a good brand image through the integration of communication channels, communication content and communication process, and is mainly reflected in the following

aspects: (1) brand image integration. HEIs should have uniform image logos during information release and external exchange. For the same event, the messages from different departments should corroborate and coordinate each other, instead of self-contradiction. (2) Integration of brand communication channels. HEIs should fully study advantages and disadvantages of existing communication channels, consider characteristics of information audiences, the communication effect of different media at different time and the advantages of different communication channels, and make an optimized combination scheme. (3) Integration of brand communication process. The active behaviors of brand communication, brand image building and brand repair are integrated with user interaction so as to improve the effect of brand image building. The ultimate purpose of integrated marketing communication of HEI brand is to establish a good brand image, and the direct effect is to help HEIs recruit high-quality student pools and high-level teaching staff, enhance the employment competitiveness of graduates, improve HEI's ability to obtain various resources (policy, project and fund) and expand international influence and competitiveness.

Utilize AI technology to integrate communication content and improve brand attractiveness of HEIs. (1) Apply VR/AR to generate experiential content. Various map apps offer free display of campus maps and satellite maps, and HEIs can add panoramic images and 3D videos to some campus landscapes, laboratories and libraries, further enriching the form of campus elegance exhibition. If possible, HEIs may establish online VR campus experience hall, bringing more visual experience to examinees and parents. In recent two years, some HEIs add AR QR code to the offer, and AR dynamic effect can be generated through mobile scanning, which is vivid and interesting and makes the topic of improving school image. (2) Use UAV technology to make aerial content. The consumer-grade UAV technology has become more mature, and it has become a trend to use UAV aerial photographs and videos as news materials in large-scale activities on campus. (3) Use interactive mini-games to promote user forwarding and sharing. At present, image synthesis technology can generate group photos with a strong sense of reality, and can be used in important occasions like freshmen enrollment, school anniversary and graduation to create an atmosphere and promote users to share. (4) Use chatbots to optimize user experience. The chatting program supported by AI can effectively improve the response of recruitment consultation, WeChat and Weibo consultation to solve the problem of insufficient staff during peak hours and provide uninterrupted consulting services.

Utilize AI technology to optimize information communication modes and improve brand communication effect of HEIs. (1) Use the data mining technique to identify customers, evaluate customer value, and achieve differentiated communication. Social media users have a unique identification number, which provides the technical possibility for us to add tags to users through their interactive behaviors such as forwarding, leaving comments and messaging. Through backstage data analysis, we can label each user, classify them by rules, and then evaluate the value of the user. The label may be identity, like teacher, student, alumni and parent or age group, active period, active users, region and industry. During releasing the brand communication content, we may accurately push differentiated content according to different tags, so as to achieve a better brand communication effect. (2) Use big data analysis technique to integrate brand image information communication channels. To better operate social media, all kinds of social media public accounts have the data analysis function at the backstage, and can analyze the reading amount, forwarding amount and readers of the published content, combine the time mark to obtain the change rate of reading/sharing quantity and the peak of reading/sharing quantity and make statistics according to different categories of tags. The communication rules of different social media accounts can be summarized by combining the data of multiple social media accounts and websites in HEIs. These data can provide support for content production and push of HEI social media accounts, realize the organic integration

of brand communication channels, and build a cross-media communication matrix.

Utilize natural language processing technology to improve the monitoring effect of negative information. Negative information monitoring and management must be paid attention to anytime in the process of brand communication, construction and repair. Just a little carelessness will seriously affect the effect of brand building. In the era of geometric growth of network information, traditional manual network monitoring has been unable to cope with the massive Internet information. Hence, it will be a future development trend to use the public opinion monitoring system with natural language processing technology. Natural language processing technology can judge the emotional tendency of network information through semantic analysis, and it is combined with keyword matching recognition, so as to achieve high-efficiency, full-coverage and all-weather negative information monitoring.

Conclusions from this research and prospects for further developments in this area. As a universal technology with rapid development and rich connotation, AI has developed rapidly in the fields of scientific research and business. With the progress of AI algorithm and computer hardware, there will be more application scenarios of AI technology, and it will become more popular. AI technology has been applied in the medial field. With the increasingly fierce competitions among HEIs, integrated marketing communication of HEI brand will become a future development trend. Brand building is a system project, and rational application of AI technology in HEI brand marketing communication can effectively improve the effect of brand building. AI technology can provide technical support for integrated marketing communications of HEI brand. In terms of communication content, VR/AR, UAV, interactive games and chatbot are mainly applied. In the aspect of communication channels, the data mining technique is mainly used to achieve differentiated communication, and the big data analysis technique is adopted to integrate brand image information communication channels. With regard to negative information monitoring, the natural language processing technology can provide high-efficiency, full-coverage and round-the-clock negative information monitoring.

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Роль штучного інтелекту в побудові брендів китайських ЗВО на основі інтегрованих маркетингових комунікацій.

По мірі загострення конкуренції серед закладів вищої освіти, створення брендів поступово стає важливим засобом для формування їх іміджу та підвищення конкурентоспроможності. Для ЗВО значення інтегрованих маркетингових комунікацій полягає в інтеграції контенту комунікації, іміджу бренду, каналу комунікації та процесу комунікації. В даний час вплив традиційних каналів комунікації зменшується, вплив певних засобів масової інформації обмежений, а негативна інформація погано контролюється. За таких обставин технологія ШІ може забезпечити технічну підтримку інтегрованих маркетингових комунікацій бренду ЗВО. За контентом спілкування в основному застосовуються VR/AR, БЛА, інтерактивні ігри та чат-бот. З каналів зв'язку використовуються: техніка отримання даних для досягнення диференційованої комунікації та техніка аналізу великих даних для інтеграції інформаційних каналів інформації про імідж бренду. Для моніторингу негативної інформації використовується технологія обробки природної мови, яка може забезпечити високоефективне, повне охоплення та цілодобовий моніторинг негативної інформації.

Ключові слова: штучний інтелект; заклади вищої освіти; побудова бренду; інтегровані маркетингові комунікації

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