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The Applied Research of E-commerce Technology from the Perspective of Communication Studies

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Abstract. With the rapid development of computer network technology and information technology, the e-commerce mode is constantly innovated and applied, which has injected new vitality into the commercial activities. In terms of technology, advanced technologies such as mobile payment, artificial intelligence, big data and AR technology have been widely used in the field of e-commerce, and the innovation of e-commerce technology has also promoted the enrichment of content and diversification of information dissemination. As a subject of information communication and communication, communication science provides important theoretical support and practical guidance for the development of e-commerce technology. From the perspective of communication science, this paper discusses in-depth the innovation and application of e-commerce technology, aiming to reveal the important role of the principle of communication science in the development of e-commerce technology, and discuss how to promote the sustainable development of e-commerce industry through technological innovation and application.

Keywords: Communication; E-commerce Technology; Application.

1. Overview of Communication Science and E-commerce

Communication science is a discipline that studies various communication activities by bringing together various perspectives and methodologies. It is the study of the occurrence and development of all human communication behavior and communication process law, as well as the relationship between communication and people and society, but also the study of social information system and its operation law of science. The theory related to communication science and e-commerce mainly has the following aspects:

1.1. Correlation

(1) Use and satisfaction theory: The theory emphasizes the motivation and purpose of the audience to use the medium, and how the medium meets these needs. In e-commerce, consumers use online platforms to shop, search for product information, and interact with other consumers to meet specific needs and expectations. By understanding these needs and expectations, enterprises can optimize the design and functions of the e-commerce platform and improve user experience and satisfaction.

(2) Opinion leaders play an important role in the two-level communication. They are the first or more exposed to mass media information and disseminate the reprocessed information to others. They intervene in mass communication, speeding up the transmission speed and expanding the impact. E-commerce opinion leaders (also known as e-commerce KOL) refer to people with high visibility and influence in the field of e-commerce. They influence the purchasing decisions of fans and potential consumers by sharing their shopping experience and evaluating products.

(3) Interaction theory focuses on the interactivity and feedback mechanisms in the propagation process. In e-commerce, consumers can interact with enterprises and other consumers through online comments, social media sharing, customer service communication and other ways. This interactivity helps to build brand loyalty, improve consumer satisfaction, and promote the spread and spread of information.

(4) Agenda setting theory focuses on how the media affects the public concern and perception of the issues. In e-commerce, enterprises can set their agendas through advertising, social media marketing

and other means to guide consumers to pay attention to specific products or brands. This agenda setting helps to build the brand image, promote new products or activities, and influence consumers' purchasing decisions.

1.2. The Connection between Communication Science and E-commerce

As a discipline that studies the process and effect of information dissemination, communication science provides theoretical support for e-commerce. E-commerce uses the principles and methods of applied communication to optimize its information communication strategy and improve user experience and transaction effect. Communication science provides the theoretical basis for information dissemination for electronic commerce. E-commerce, through the principles and methods of applied communication science, e-commerce can more accurately locate the target audience, select the appropriate communication channels and methods, and formulate effective communication content, so as to improve the dissemination effect and conversion rate of information.

2. The Current Situation of E-commerce Technology Application

2.1. Communication and Browsing Technology

E-commerce uses the Internet to provide a stable and efficient data transmission platform for e-commerce, enabling buyers and sellers to exchange information in real time, and complete a series of transaction processes such as commodity display, inquiry, quotation, negotiation, signing and payment. With the popularity of mobile Internet, mobile e-commerce technology has also been widely used, so that consumers to make online shopping and payment through their mobile phones anytime and anywhere. Through front-end technologies such as HTML, CSS and JavaScript, the e-commerce platform provides intuitive product display and interactive experience. Back-end technologies such as Java, PHP, and Python are responsible for processing complex business logic and data storage to ensure the stable operation of the platform.

2.2. Security Technology

The security of e-commerce is crucial, so the security technology is an indispensable part of e-commerce technology. These technologies include data encryption, authentication, firewall, etc., to ensure the security of the transaction process and the confidentiality of the data. In the face of increasing network security threats, e-commerce platforms also need to continuously strengthen security protection measures to deal with various potential attacks and threats.

2.3. Database Technology

In the business activities of e-commerce, it will involve a lot of information, such as user data, commodity information, transaction records, etc. Database technology is used to reasonably store this information, and can quickly extract it when needed, providing powerful data support for e-commerce. Through data mining and analysis technology, the e-commerce platform can also conduct in-depth analysis of a large amount of user data, to understand consumer behavior and market trends, and to provide strong support for the formulation of marketing strategies.

2.4. Electronic Payment Technology

Electronic payment technology provides a convenient and safe payment method for e-commerce. The application of various online payment systems, mobile payment, and digital currency technologies makes it easy for consumers to complete payment operations, while also reducing transaction risks.

3. Problems Existing in the Application of E-Commerce Technology

3.1. Problems Existing in the Application of E-Commerce Technology

With the rapid development of e-commerce, a large number of user data and transaction information are stored in various kinds of e-commerce systems, so it is particularly important to strengthen data encryption and implement access control. Among them, electronic payment is the core link of e-commerce, and there are a lot of security risks in the payment process.

3.2. Enterprises do not Pay Enough Attention to the Application of Logistics and Distribution Technology

The rapid development of electronic commerce put forward higher requirements for logistics distribution, but there are still some problems in logistics distribution system, such as delivery delay, distribution cost, logistics information opaque, etc., most of the cause of these phenomena is that some enterprises may recognize the value and potential of logistics technology, such as warehousing technology, packaging technology, distribution technology, logistics information technology, etc., but pay more attention to the traditional mode of logistics operation, and ignore the importance of technological innovation, or due to the limitation of capital cause insufficient investment in logistics technology application, thus limiting the logistics efficiency. This not only affects the shopping experience of consumers, but also restricts the further development of e-commerce.

3.3. The Data Processing and Analysis Ability of E-commerce Platforms is Poor

As the scale of e-commerce continues to expand, the amount of data that the platform needs to process has also increased dramatically. However, some e-commerce platforms still have deficiencies in data processing and analysis capabilities, unable to fully exploit and utilize the data value and provide strong support for the enterprise decision, which may bring a series of negative effects, which is not conducive to the long-term development and competitiveness of the enterprise. For example, without the support of data analysis, enterprises may be difficult to accurately understand the market demand and consumer behavior, and accurately formulate marketing strategies; without data analysis support, increases the risk of decision-making, unable to effectively manage customer relations.

4. Suggestions on the Optimization of E-commerce Technology under the Perspective of Communication Science

4.1. Key Opinion Leaders Lead the Application and Innovation of Security Technology

E-commerce KOL not only have rich knowledge and experience of e-commerce, and can pay attention to and understand the latest e-commerce security technology and trends, including professional bloggers, network celebrities, industry experts, or have high influence in ordinary consumers, with their own influence and authority, can spread safety knowledge to the public, promote the application and development of e-commerce technology.

First of all, KOL can popularize the importance of e-commerce technology security to the public through various channels, such as social media, blogs and lectures, explain the principles and functions of various security technologies, and help the public understand and pay attention to the security issues in e-commerce transactions. Secondly, recommend the latest security technologies, such as data encryption, identity authentication, payment security and other technologies. At the same time, they can also share their security experience in e-commerce transactions, such as choosing reliable e-commerce platforms, using secure payment methods, etc., to provide practical security advice for the public. Third, opinion leaders can also monitor and expose the security and privacy protection of e-commerce technology. They can pay attention to the security vulnerabilities and hidden dangers of e-commerce platforms, timely warn the public, avoid losses to users, expose some criminals using e-commerce technology to commit fraud and attacks, and help the public to identify

and prevent these risks. Finally, KOL can also promote the innovation and development of e-commerce technology security. They can pay attention to the latest developments of e-commerce technology, put forward their own opinions and suggestions; participate in the research and discussion, trial and development of new e-commerce technology, and contribute indirectly or directly to the development of e-commerce technology security.

4.2. Application of Logistics Distribution Technology to Improve Efficiency and Satisfaction

Interactive theory emphasizes the interaction and mutual influence between individuals, and this idea can be applied to every link in logistics technology. For example, in the logistics and warehousing link, through the introduction of automatic warehousing technology, such as automatic stacker, automatic guide car and other equipment, can realize the automation and intelligence of warehousing operations, improve storage efficiency and accuracy. In the logistics and transportation link, big data and artificial intelligence technology can be used to accurately predict the logistics needs, and make deployment and arrangements in advance. The application of this technology can reduce the waste and inefficient operation in the logistics process, and improve the intelligent level of logistics operation. Interactive theory can also help us understand the relationship between logistics technology and the social environment. As an important support for social and economic development, the development and application of logistics technology are also affected by the social environment. Through the application of interaction theory, we can analyze the interaction between logistics technology and the social environment, predict the future development trend, and provide decision support for the innovation and development of logistics technology. In addition, with the rapid development of e-commerce and new retail modes, customers have higher and higher requirements for the timeliness of logistics services.

4.3. Use Big Data Accurate Push Settings to Meet Customer Needs

Big data plays an irreplaceable role in e-commerce, which can not only improve user experience and shopping efficiency, but also bring higher profits and broader development space for enterprises. First of all, e-commerce relies on the Internet platform and has a massive customer resource, which means that we need to deeply understand the behavior and needs of users to guide the direction of data processing and analysis. In addition, through news reports and information transmission, the media can set an agenda on e-commerce for the public, and put issues, dynamics and innovative modes related to e-commerce in the public view, so as to guide the public to pay interest and attention to e-commerce. This increase in attention will help to promote the popularization and development of e-commerce, and increase the user base and activity of e-commerce platforms.

5. Conclusion

From the perspective of communication science, the application of e-commerce technology has achieved remarkable results, and has a broad development prospect in the future. The application of e-commerce technology has profoundly changed the way and efficiency of business information dissemination, and has set up a closer and more efficient communication bridge between businesses and consumers. The relevant theories of communication science provide theoretical support and practical guidance for the information communication strategy, consumer interaction and brand image building of e-commerce. Enterprises should pay attention to the application of communication theory in the field of e-commerce, especially the application of the ever-changing e-commerce technology. This is because in today's digital and information business environment, e-commerce has become an important part of the development of enterprises, and the theory of communication provides a strong theoretical support and guidance for the practice of enterprises in the field of e-commerce. Consumers should constantly adapt to and grasp these changes to achieve better information dissemination and shopping experience.

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