

THE INFLUENCING OF PERSONAL FACTORS, EXTERNAL FACTORS, AND ENVIRONMENTAL FACTORS ON ONLINE LEARNING SATISFACTION: A CASE OF SIAS UNIVERSITY IN ZHENGZHOU, CHINA

Lu NIU¹ and Sirikawin KRUTKRONGPAN²

1 Faculty of International Program, Thongsook College, Thailand;
1285878710@qq.com

2 Faculty of Educational Administration, Thongsook College, Thailand

ARTICLE HISTORY

Received: 19 April 2024

Revised: 3 May 2024

Published: 17 May 2024

ABSTRACT

This study aims to investigate the effects of personal factors, external factors, and environmental factors on satisfaction with online learning: using Zhengzhou Sias University as an example. These samples are from 400 undergraduate students at Zhengzhou Sias University. Collect data using a questionnaire survey method and a purposeful and convenient sampling method. The data analysis adopts the method of structural equation modeling. The results indicate that personal factors have the greatest impact on satisfaction with online learning. This study ends with a survey to improve satisfaction with online learning and thus enhance learning efficiency.

Keywords: Personal Factors, External Factors, Environmental Factors, Online Learning Satisfaction

CITATION INFORMATION: Niu, L., & Krutkrongphan, S. (2024). The Influencing of Personal Factors, External Factors, and Environmental Factors on Online Learning Satisfaction: A Case of Sias University in Zhengzhou, China. *Procedia of Multidisciplinary Research*, 2(5), 53.

INTRODUCTION

At present, China's network education has formed a multi-level and multi field network education system based on higher education (Kang & Chen, 2019). First, in higher education, colleges and universities have launched online education projects and established a number of high-level online education platforms. For example, China higher education student information network, China distance education network, etc. (Liang, 2024), these platforms not only provide a large number of online course resources, but also provide a series of perfect teaching services such as online learning, examination and evaluation. Secondly, in terms of vocational education, vocational colleges provide students with broad learning opportunities through the network education platform. Thirdly, in terms of continuing education, online education also provides convenient ways for staff to continue education (Search Encyclopedia, 2024).

The development of network education has had a positive impact on China's education system. First of all, network education breaks through the limitation of time and space, so that students can study anytime and anywhere. Students can freely choose the time and place of learning according to their actual situation, which improves the flexibility and autonomy of learning. Secondly, network education enriches teaching means and resources. Through the online education platform, students can obtain rich and diverse learning resources, such as various online courses, teaching videos, teaching materials, etc. students can choose the appropriate learning content according to their own needs. (Zheng, 2020) At the same time, online education also pays more attention to the cultivation of students' practical operation ability and innovation ability. Through online experiments, online discussions and other ways, the learning effect of students is improved. In addition, online education also promotes teachers' professional development. Through the network education platform, teachers can exchange teaching experience with peers all over the country to jointly improve the teaching level. (The support and promotion of the network education platform for the professional development of teachers, 2024).

Although China's online education has made remarkable progress, there are still some problems and challenges. First of all, the quality of online education has always been the focus of controversy. Although the online education platform provides a large number of learning resources, it is often difficult for students to find high-quality online courses due to the uneven quality of education. Secondly, the shortage of teachers for online education is also a problem (Liu, 2023). Network education teachers need to master the Internet technology and teaching theory, and also need to have rich practical experience, which has high requirements for teachers. In addition, the supervision and evaluation of online education also need to be strengthened. Strengthening the monitoring and evaluation of the quality of online education is a key link to improve the level of online education (Xie, 2022).

Through the study of personal factors, external factors, and environmental factors on the satisfaction of online learning, these factors interact with each other and affect students' attitudes and experiences towards online learning, which has important guiding significance for improving the quality and effectiveness of online learning:

Understanding personal factors can help colleges and universities to better design and optimize online learning courses for different types of students, provide personalized learning support and services, thereby enhancing students' learning motivation and effects. It is necessary to improve and strengthen to improve the quality and effect of online learning. For example, improving the quality of teaching resources, strengthening teaching support and services, and formulating more complete online learning policies can help improve students' satisfaction and learning effectiveness; understanding the environmental conditions of students can help colleges and universities better way to better way Equipped with students' learning equipment and resources, providing more suitable learning support and services. At the same time, it can

also improve students' online learning experience and satisfaction by improving the learning environment, strengthening social and cultural support, and providing more family support.

LITERATURE REVIEWS

Definition and characteristics of online learning

Network learning refers to education and learning activities conducted through Internet platforms such as the Internet. Compared with traditional classroom teaching, online learning has time and space flexibility, and learners can arrange learning according to their personal time and place (Xiao, 2021). Online learning is an educational activity conducted through the Internet and digital technology. It allows students to obtain educational resources and participate in learning activities through electronic equipment (such as computers, tablets, mobile phones, etc.) at anytime and anywhere. Wang (2020) defines online learning as "a computer-based learning activity in the network environment, and students can participate in learning at different times and place." According to this definition, online learning emphasizes the flexibility and convenience of learning, enabling students to study and learn the rhythm based on their own time.

The characteristics of network learning include convenient and fast, rich resources, strong interaction, and diversified learning methods.

Learning satisfaction refers to the experience and evaluation of the learner's experience and results. It is a comprehensive concept, which involves the experience, cognition and behavior in the learning process. The constituent factors of learning satisfaction include teaching quality, learning experience, learning effectiveness, and learning environment. Measurement of learning satisfaction usually uses questionnaire surveys and in -depth interviews to evaluate the level of learning satisfaction by collecting the feedback and emotional experience of learners.

Network learning satisfaction has an important impact on individual learning behavior. High satisfaction learners are more willing to participate in learning activities and actively explore and learn new knowledge; and low satisfaction learners may have learning and dislikes, affecting learning motivation and effects.

In the theoretical framework of network learning satisfaction, several important theories and models have been widely used and studied.

Composition and measurement of learning satisfaction

Learning satisfaction is the indicator of students 'satisfaction of students' learning and learning results. Its composition usually includes students' evaluation of teaching content, teaching methods, teachers, and learning environment. For example, Xu (2024) divided learning satisfaction into several dimensions such as teaching quality, teacher behavior, learning results, and learning environment. In addition, Zhang and Guo (2019) proposes a multi -dimensional learning satisfaction model including teaching content satisfaction, teaching method satisfaction, learning experience satisfaction, to evaluate students' satisfaction more comprehensively. Questionnaire survey is one of the most commonly used methods for measuring learning satisfaction. Through the design -oriented questionnaire, students' evaluation of teaching content, teaching methods, teachers and other aspects is collected to understand the satisfaction of students. For example, Mellalieu et al. (2009) uses a questionnaire including multiple dimensions to evaluate students' satisfaction with online learning.

Factors influencing online learning

Learning Motivation : Learning motivation is the inherent driving force for learners to participate in learning activities, which directly affects the learning behavior and learning results of learners. Studies have shown that there is a close relationship between learning motivation and learning satisfaction. Learners with high motivation are more inclined to

actively participate in learning activities, and it is easier to obtain learning achievements, so as to obtain higher learning satisfaction (Gumasing & Castro, 2023). The impact of learning motivation on network learning satisfaction is mainly implemented through the following aspects: First of all, active learning motivations can promote learners to focus more on learning tasks, improve the effect and sense of achievement, and enhance learning satisfaction. Secondly, learning motivation can also affect the selection and goal setting of learners' learning strategies, which then affects the experience and feelings in the learning process, and ultimately affect the formation of learning satisfaction (Liu, 2023).

Learning Style : Effective learning methods can help learners to master knowledge and skills more quickly and reduce learning costs. In online learning, by selecting the right learning method, learning can use time and resources more effectively to improve learning efficiency; adopting effective learning methods can improve the learning experience of learners and increase learning fun and interest. Through the diverse learning resources and tools provided by the network learning platform, in the network learning, learners can choose the appropriate learning method according to their own learning characteristics and needs, thereby improving the quality and satisfaction of learning.

Skills Level: Skills level directly affect their learning effect in online learning. Teachers with a certain level of skills may be easier to understand and master the learning content, so as to achieve better learning results. The level of skills of learners is closely related to their learning motivation. Teachers with a certain level of skill may have more confidence and motivation to deal with learning tasks, so as to maintain the enthusiasm and motivation of learning, and improve learning satisfaction. In the online learning environment, learners need to have a certain level of skills to adapt and use each of all each Planting learning tools and resources. Learners with lower skills may encounter more difficulties and obstacles in the learning process, affecting the smooth progress and satisfaction of learning (Liu, 2024).

Social support : In online learning, learners usually face challenges and difficulties from the learning process, such as technical problems, learning disabilities, etc. Good social support can provide emotional support and encouragement, helping learners overcome difficulties, and maintain the enthusiasm and motivation of learning (Chen et al., 2022). This emotional support can reduce the anxiety and pressure of learners, improve the comfort and satisfaction of learning; social support also includes information support, that is, the help of communication and sharing of knowledge and experience. In online learning, learners can obtain suggestions, opinions and feedback from other people through social platforms, online forums and other channels to help them better understand learning content, solve problems, improve learning effects and learning satisfaction; Collaborate and other methods to complete learning tasks together. In the online learning environment, learners can cooperate with others through group discussions and team projects to discuss problems and solve challenges, thereby improving learning effects and learning satisfaction. This practice support can promote interaction and cooperation between learners, enrich the learning experience, and enhance learning motivation.

Educational Resources : The convenience and ease of use of the technical tools relied on educational resources directly affect the learning experience of learners. High -quality technical tools should have friendly user interface, stable operating performance and rich functions, which can help learners to easily obtain and use educational resources, improve learning efficiency and learning satisfaction; learning support services is also an important thing to affect learning satisfaction. One of the factors. High -quality learning support services include online instructors, technical support, learning guidance, etc., which can timely solve the problems and difficulties encountered by learners in the learning process, and provide personalized learning support. Good educational resources can provide diverse and rich learning content, including text, pictures, videos, audio and other forms. These diverse resources can meet the different learning needs and learning styles of learners, and provide a

more attractive and effective learning experience. Reasonable distribution of educational resources can support personalized learning and differentiated education. By providing a variety of learning resources and tools for learners, enough teaching resources and support services, and ensuring that all learners can enjoy equal learning opportunities, thereby improving teaching results and learning results, thereby improving the overall quality of education.

Technical Facilities : Technical facilities can support learners to get timely feedback and evaluation, helping them understand their learning progress and performance. For example, online testing, work submission system, learning analysis tools, etc. can help learners understand their learning situation in time, and adjust the learning strategy according to feedback to improve the learning effect; enable learners to access the various learning resources required for online learning. Including online courses, electronic books, video tutorials, learning platforms, etc. These resources provide learners with convenient ways to obtain knowledge and information, and promote the in -depth and extensive learning of learning; support learners to personalized learning, and choose learning content and learning methods based on their interests, abilities and learning rhythms.

Learning Environment : A good learning environment can create a positive learning atmosphere, which is conducive to the concentration of attention and maintaining the motivation of learning; the quality of technical equipment and network connection in the learning environment directly affects the smooth progress of network learning. Stable network connection and high -performance computing equipment can ensure that learners can smoothly access learning resources, participate in online classrooms, and improve their learning effects. A good learning environment can provide learners with social support and cooperation environment, and promote exchanges, cooperation and mutual assistance between learners. For example, learning groups, online discussion boards, real -time communication tools, etc. can help learners communicate and cooperate with classmates and teachers, and enrich their learning experience.

Determine the research variables according to the research direction, and Figure 1 is the research framework :

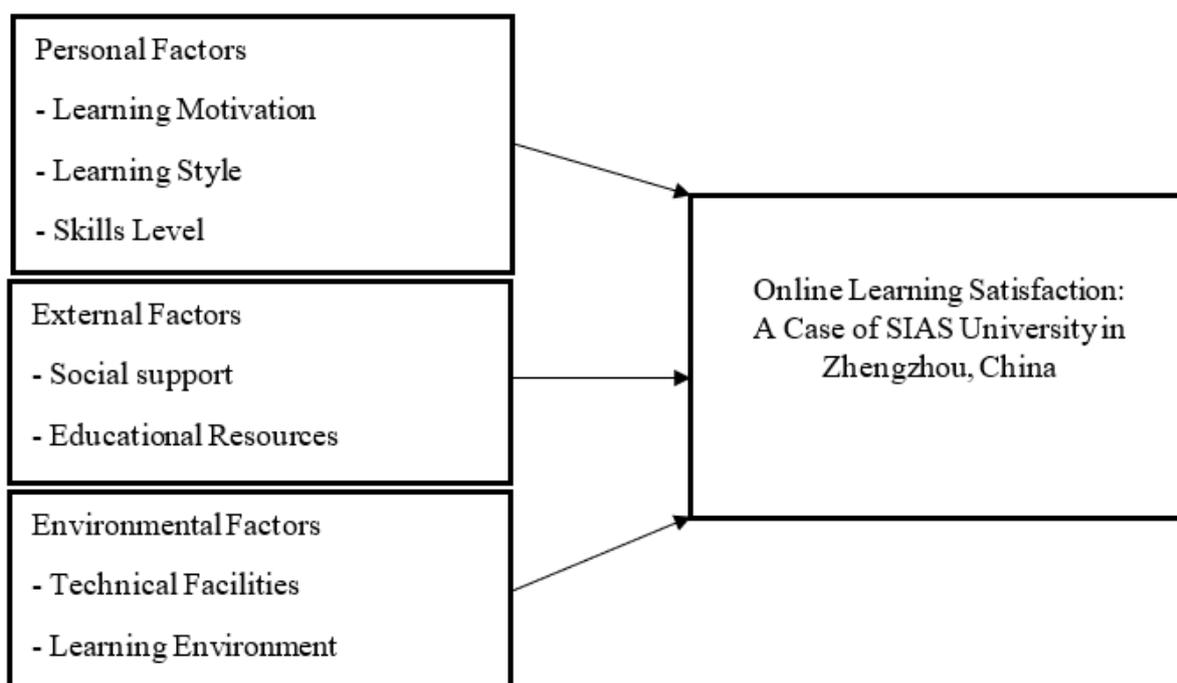


Figure 1 Conceptual Framework

RESEARCH METHODOLOGY

In order to explore the effects of personal factors, external factors, and environmental factors on satisfaction with online learning, this study adopts a quantitative research method. The population of this study included 24000 undergraduate students from SIAS University in Zhengzhou, using the Yamane (1973) formula as a method to calculate the sample size of known or countable populations. Estimating the overall mean and establishing a 95% confidence value with an error of no more than 5%, a sampling method that focuses on using purposeful and convenient sampling techniques. The survey questionnaire consists of six parts. In the first part of the questionnaire, it includes demographic information such as gender, age, education, marital status, and salary. Then, the second to fifth parts are the Likert scale, consisting of 1-5 rating scales, ranging from 1 indicating "very unpleasant" to 5 indicating "very pleasant."

The tools used in this study are questionnaires from the research direction, research literature review, and related research and development, to determine the scope of the problem that matches the research goals, divided into the following six parts: 1) Part 1 Investigate personal information, comprises a questionnaire on the general information of respondents, consisting of six questions covering gender, age, Student parents' income, Monthly living expenses for students, Grade and College. 2) Part 2 Investigate personal factors, consists of a questionnaire focusing on Learning Motivation, Learning Style and Skills Level. 3) Part 3 Investigate external factors, consists of a questionnaire focusing on Social support and Educational Resources. 4) Part 4 Investigate environmental factors, consists of a questionnaire focusing on Technical Facilities and Learning Environment. 5) Part 5 Investigate online Learning Satisfaction, consists of a questionnaire focusing on whether it can keep up with the times and society, Feasibility and Testing and reminders. 6) Part 6 Survey on Other suggestions and comments.

RESEARCH RESULTS

Respondents' Profiles and Studied Variables

According to the general data analysis of the respondents, 212 respondents (53.0%) were females, with males being males. 188 people (47.0%) aged 20-23, 248 people (62.0%), with a monthly income of 15000-25000 yuan. 175 students (43.8%), while 144 students have a monthly living allowance of over 2500 yuan (36.0%), most of whom are first-year students. 4.164 students (41.0%), mainly studying in the School of Computer and Software Engineering and the School of Art and Design. 41 people (10.3%)

The survey results showed that the overall opinion of the respondents was the highest ($\bar{X} = 4.66$, $SD = 0.23$). Considering variables, the respondents had the highest opinion on external factors ($\bar{X} = 4.70$, $SD = 0.23$). Next are environmental factors ($\bar{X} = 4.69$, $SD = 0.22$), followed by personal factors ($\bar{X} = 4.64$, $SD = 0.41$) and minimal online learning. Satisfaction ($\bar{X} = 4.61$, $SD = 0.41$)

Assuming test results

Table 1 The influencing of personal factors, external factors, and environmental factors on online learning satisfaction

Factors	Online Learning Satisfaction						
	B	Std. Error	β	t	p-value	Tolerance	VIF
(Constant)	0.701	.383		1.829	.068		
Personal Factors							
- Learning Motivation (X1)	0.302	.062	.300	4.889	.000*	0.377	2.653
- Learning Style (X2)	0.076	.070	.080	1.088	.277	0.262	3.813
- Skills Level (X3)	0.271	.054	.323	5.031	.000*	0.344	2.906
External Factors							
- Social Support (X4)	0.029	.093	.016	0.313	.755	0.515	1.942
- Educational Resources (X5)	0.070	.078	.048	0.898	.370	0.491	2.035
Environmental Factors							
- Technical Facilities (X6)	0.101	.088	.056	1.149	.251	0.587	1.705
- Learning Environment (X7)	-0.009	.086	-.005	-0.100	.921	0.469	2.130
R =.667, R2 =.445, Adjusted R2 =.435, SEEST =.311, F = 44.945, p-value =.000*							

* p-value <.05

Table 1: Personal factors, external factors, and environmental factors that affect satisfaction with online learning. Students from SIAS University in Zhengzhou, China are influenced by their learning motivation and skill level. The impact on the satisfaction of students with online learning at SIAS University in Zhengzhou, China is statistically significant, with a score of .00 and predictive ability. 43.5% of skill levels have more influence than learning motivation. The research results can be written as the following equation:

$$= 0.701 + 0.302 * X1 + 0.076 X2 + 0.271 * X3 + 0.029 X4 + 0.070 X5 + 0.101 X6 - 0.009 X7$$

DISCUSSION & CONCLUSION

Personal factors have the greatest impact on satisfaction with online learning, for the following reasons: 1) Learning motivation: Learners' learning motivation directly affects their investment and participation in online learning. If a learner is interested in the content they are learning and has clear learning objectives, they are more likely to demonstrate higher satisfaction in online learning. 2) Learning style: Everyone has a different learning style, some people prefer independent learning, while others prefer collaborative learning with others. Online learning platforms should consider the learning styles of different learners and provide corresponding learning support and resources to improve their satisfaction. 3) Technical ability: The technical ability and proficiency of learners can also affect their satisfaction with online learning. If a learner is not familiar with technical tools and platforms, they may feel frustrated and confused, thereby reducing their satisfaction. 4) Time management skills: Online learning usually requires learners to manage their time and progress independently, so good time management skills are crucial for the success of online learning. If learners can effectively manage their learning time, they are more likely to achieve satisfactory results in the learning process. 5) Emotional state: The emotional state of learners, such as emotions, stress, and anxiety, can also affect their perception and satisfaction with online learning. If a learner is in a good emotional state, they may be more willing to engage in learning and feel satisfied with the learning experience. For factors that affect online learning satisfaction, personal factors are the most difficult to control. Including skill level and learning motivation. For online learners, an

important goal is to improve their skills through learning. If learners can feel that their skills have improved during the learning process, they are likely to be satisfied with the learning experience. The improvement of skill level often accompanies the enhancement of learners' confidence. When learners feel that their skills have been improved, they will have more confidence in facing challenges in learning and are more willing to engage in learning. The match between a learner's skill level and the difficulty of the selected course or learning content directly affects their learning satisfaction. If the learner's skill level does not match the level required by the course, they may feel frustrated and discouraged; On the contrary, if the matching degree is high, learners may feel satisfied and have a sense of achievement. Good learning motivation can help learners maintain lasting interest and motivation during the learning process. When learners have clear learning goals and motivations, they are more likely to maintain a positive attitude when facing difficulties and challenges, thereby improving learning satisfaction. And learning motivation can help learners clarify their learning goals and strive to achieve them. When learners realize that their learning is aligned with their personal goals and values, they become more engaged in learning and are more likely to feel satisfied. The research results show that the majority of respondents have an overall opinion on personal factors at the highest level ($\bar{X} = 4.64$, $SD = 0.41$). When considering each aspect individually, the majority of respondents rated 'Learning Motivation' the highest ($\bar{X} = 4.71$, $SD = 0.41$).

In today's rapidly developing society, the proportion of online education has been increasing, and schools and society are also paying more attention to and supporting the development of online education. Including the introduction of laws and regulations by the government and relevant departments, and the formulation of policies to support the development of online education. These policies may include encouraging investors and businesses to participate in the online education industry, regulating the operation and management of online education platforms, promoting the sharing of online education resources, etc.; Schools, higher education institutions, training institutions, etc. will also provide support for online education to a certain extent. They may actively participate in the development and promotion of online education by collaborating with online education platforms, offering online courses, and providing teaching resources. Under policy support, the impact of external factors on online learning satisfaction will become smaller and smaller.

In today's society, it is no longer a time of material scarcity and financial constraints, and the investment in education is also increasing. This includes the fact that the Chinese government has been increasing investment in network infrastructure construction, committed to improving network coverage and quality. This includes building more broadband network base stations in urban and rural areas, improving network speed and stability to meet people's demand for high-quality online learning; The Chinese government has issued a series of policies and regulations to support the development and standardization of online education. For example, the Cybersecurity Law of the People's Republic of China has been promulgated to strengthen the protection of network information and ensure the security of online learning; The Education Law of the People's Republic of China has been formulated, clarifying the status and development direction of online education. In a favorable environment, the learning environment and direction of online learning have become increasingly clear.

Through research, many practical and strategic suggestions can be obtained, including improving the effectiveness of online learning: learning interest is an important driving factor for learning motivation and enthusiasm, which can stimulate learners' learning interest, help improve their participation and engagement in learning, and thus enhance the effectiveness and effectiveness of online learning.

Enhancing learner retention and loyalty: By gaining a deeper understanding of the factors that influence online learning interests, more attractive and personalized learning experiences can be designed to enhance learner satisfaction and experience, thereby enhancing their retention

and loyalty to online learning platforms. Promoting educational equity and inclusiveness: The development of online learning provides convenient and flexible learning opportunities for learners, but there are differences in interests, motivations, and abilities among different learners. By studying the factors that affect interest in online learning, we can better meet the needs of different learners, promote educational equity and inclusiveness, and reduce the gap between learners.

Promoting educational innovation and technological application: Online learning is an important innovation and development direction in the field of education. Studying the factors that affect interest in online learning can help discover and explore new educational concepts, methods, and technological applications, and promote innovation and reform in education. Supporting talent cultivation and continuous learning: With the acceleration of knowledge economy and technological progress, the demand for talents is constantly changing, and continuous learning has become an important ability in modern society. By studying the factors that influence interest in online learning, more effective support and guidance can be provided for talent cultivation and continuous learning, promoting the development of individuals and organizations.

REFERENCES

- Kang Le, & Chen Xiaoyu. (2019). The changing trend of scientific research cooperation in Chinese universities: from the perspective of complex network analysis. *Education Economics Review* (04), 39-56.
- Gumasing, M. J. J., & Castro, F. M. F. (2023). Determining ergonomic appraisal factors affecting the learning motivation and academic performance of students during online classes. *Sustainability*, 15(3), 1970.
- Chen Yibing, & Cai Zhenhong. (2023). Exploration of Adaptive Network Learning for Community Network Learners. *Digital Technology and Applications* (08), 28-30.
- Kang Le, & Chen Xiaoyu (2018). Trends in the Publication of Academic Papers in Chinese Universities: From the Perspective of Total Factor Productivity. *Peking University Education Review* (01), 115-137.
- Chen Aixia, Fan Qin, & Gong Lifang. (2022). A comparative study on the learning experience of the three major online learning platforms in China *Journal of Guangdong Open University* (01), 18-23.

Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Conflicts of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.



Copyright: © 2024 by the authors. This is a fully open-access article distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0).