

An Preliminary Analysis of AI-integrated Workplaces on Higher Vocational Business English Students' Occupational Competence

-- Taking Nanjing Engineering Vocational College as an Example

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Abstract: The business field is ushering in the rise of AI-integrated workplace, a trend accompanied by the rapid development of AI technology. At the level of knowledge updating iteration, skill application and innovative thinking, this change poses a brand new challenge to the occupational ability of higher vocational business English students. Analyzing the case of Nanjing Engineering Vocational College, the article reveals the shaping of students' occupational ability in AI-integrated workplaces, the dilemmas encountered, and the strategies for coping with the change. The application of AI technology puts forward new requirements for learning styles and vocational skills, and at the same time gives rise to innovations in educational content and the expansion of practical opportunities, so that effective countermeasures for vocational development will significantly enhance students' adaptive and innovative abilities. The implementation of effective countermeasures for career development will significantly enhance students' adaptive and innovative abilities.

Keywords: AI-integrated Workplace, Higher Vocational Education, Business English students, Occupational competence, Education Reform.

1. Introduction

With the rapid progress of artificial intelligence technology, AI-integrated workplace has emerged, and this change has profoundly reshaped the traditional pattern of the business field and the connotation of vocational skills. At the stage of higher vocational education, the field of Business English has encountered the dilemma of rapid knowledge iteration and the difficulty of enhancing students' employ-ability. The study of the impact of AI-integrated work environment on the comprehensive quality of vocational skills of higher vocational business English students aims to explore the effective path to improve the overall vocational quality of students. The article adopts the empirical analysis method, taking Nanjing Engineering Vocational College as a sample, and through the combination of questionnaire survey and case study analysis, it discusses in-depth the strategies in the field of education to cope with the challenges of AI technology, aiming to enhance the students' vocational adaptability.

1.1. Definition and Characteristics of AI-integrated Workplace

The integration of AI technology in the workplace to achieve intelligence and automation of processes, collaboration and decision-making is called AI-integrated workplace[1][2]. Advanced technologies such as machine learning, natural language processing, and speech recognition are widely adopted in addition to traditional digital tools. Driven by AI, automation tools can be used, intelligent data analysis platforms can be built, virtual assistants can be realized, and integrated work management systems can be integrated, which together form the core components of the system[3]. Intelligent operating processes, real-time data

feedback, and personalized work styles make up its distinguishing features. Intelligent AI systems are able to accurately assign tasks based on the specific needs of employees, effectively optimize teamwork processes, and help automate decision-making processes[4].

In the workplace atmosphere described above, AI technology not only assumes the role of replacing tedious work, but also shoulders the important responsibility of providing data analysis and decision-making assistance, which significantly improves operational efficiency and accuracy[5]. In the AI-integrated workplace, new flexible and humane work models are gradually being promoted, greatly enhancing the enthusiasm and satisfaction of employees. In modern enterprises, the application of AI technology makes the workplace tend to be efficient and intelligent, and fully meets the urgent needs of enterprises for productivity enhancement and innovative development [6].

1.2. The Application of AI Technology in the Field of Business

In the business world, AI technology has penetrated into various fields, especially in the teaching and operation of business English, which is gradually revolutionizing the existing operation mode and business procedures. Cross-border business communication is made easier and more efficient by the extensive use of voice recognition and translation technologies[7]. With the help of AI translation tools and automatic speech recognition systems, Business English students can instantly translate documents and communicate with each other[8]. This significantly improves their language skills. Voice assistants and chat-bots rely on AI technology to effectively provide customer service, significantly reduce the need for human resources, and

significantly improve service quality and customer satisfaction.

Artificial intelligence not only excels in language applications, but also has unlimited potential in data analysis and market forecasting[9]. In Business English, AI-driven data analysis tools enable students to quickly capture market dynamics and consumer behaviors as a basis for making informed decisions[10]. By learning how to use AI tools, Business English students are better equipped to adapt to digital and global business scenarios, thus enhancing their competitiveness in the workplace.

The introduction of AI technology not only significantly improves work efficiency, but also facilitates the optimization of business processes. Based on past information, the AI system can independently build a sales trend prediction model, helping the enterprise to achieve efficient operation of the supply chain, precise placement of marketing strategies, and in-depth management of customer service[11]. In the field of business decision-making, the use of this technology makes the decision-making process more scientific, realizes the data-oriented decision-making mode, and effectively reduces the errors and deviations of manual decision-making.

1.3. Trend of AI-integrated Workplaces

With the continuous evolution of AI technology, many workplaces are gradually moving towards the development of intelligence and automation. Numerous enterprises have regarded AI-integrated workplaces in Europe and the United States as a key strategy to enhance their competitiveness [12][13]. The digital transformation of the education system has been promoted in China's vocational colleges and universities, and the application of AI technology has been widely penetrated into various disciplines and professional fields. With the help of AI technology, enterprises have been able to improve operational efficiency and promote the fundamental innovation of industrial processes, which in turn helps the growth and cultivation of innovative talents[14].

Higher education institutions are experiencing a profound change in the intersection of AI technology and the workplace. The use of AI-assisted teaching promotes personalized learning for students, significantly enhances learning outcomes, and transcends the boundaries of traditional educational frameworks[15]. As educational content continues to iterate, curricula must embed knowledge of AI, aiming to enhance students' technological application skills and innovative thinking literacy. In an AI-integrated workplace environment, students need to improve their professional competence, and business English learners should not only be proficient in the language, but also skilled in the use of AI technology in order to efficiently complete tasks in intelligent workplace scenarios[16].

2. The Impact of AI-integrated Workplaces on the Occupational Competence of Higher Vocational Business English Students

2.1. Components of Occupational Competence

In a specific occupational environment, the comprehensive ability demonstrated by an individual, including the knowledge, skills and attitudes required, is called occupational competence. In the field of Business English in higher vocational education, the elements of professional

competence play a crucial role. In the field of Business English, students need to master the knowledge system of business communication, international trade and business writing, with the understanding and application of professional theories as the core[17]. The ability of students to use their knowledge to achieve tasks in real-life work situations is called a skill. Students need to have skills in language expression, information processing and cross-cultural communication. The resulting student mindset is a comprehensive picture of professionalism, collegiality, commitment, and enthusiasm for problem solving[18]. In the AI-converged office environment, students need to master a wealth of professional knowledge and skills, and develop a positive learning attitude to adapt to the rapid changes in technological advancement.

In the context of higher vocational business English education, students are required to possess occupational competencies not only limited to traditional language skills, but also extended to the application of information technology, cross-cultural adaptation, teamwork and innovative thinking. With the introduction of AI technology, students are required to grasp higher occupational competence, and they need to master the skills and mindsets related to AI[2][19].

2.2. Impact of AI-integrated Workplace on Students' Knowledge Dimension

The transformation of the AI-integrated workplace has transformed the way knowledge is acquired and applied, which in turn has had a profound impact on students' knowledge systems. In the AI-integrated workplaces, students are able to gain real-time insights into industry dynamics and new knowledge dynamics through assisted learning platforms and tools[20]. Business English professional knowledge, through the personalized learning path of AI technology, can accurately adjust the content according to the progress and needs of students, and then efficiently help students to quickly master[21]. In the process of student learning, the use of AI translation tools, voice recognition technology and intelligent Q&A systems and other auxiliary tools can significantly improve the efficiency of language learning and professional skills.

In the field of business English, students are able to grasp and apply professional knowledge in a more in-depth manner in real-life situations through the application of AI technology. With the power of AI technology, students are able to navigate large volumes of data and perform more complex language conversion and business data analysis tasks[22]. The integration of knowledge significantly improves students' academic effectiveness and enhances their practical skills in integrating professional knowledge and technology, building a solid foundation for future AI-powered careers.

2.3. Impact of the AI-integrated Workplace on Student Skill Levels

In the AI-integrated workplaces, more stringent specifications are imposed on student skills. In an AI-integrated context, students need to acquire both excellent verbal communication skills and skills in the use of AI tools and technologies, whereas the traditional skill requirements are centred on linguistic competence. Students need to be proficient in the use of AI-enabled translation devices, data parsing systems, voice capture programme, etc., to improve performance and accuracy. Nowadays, it is imperative that students learn to work with AI technologies to leverage the

unique benefits of AI in the workplace[23].

In an AI-integrated workplace environment, it is especially critical to train students to acquire interdisciplinary skills. Within the traditional framework of business English education, the focus has been on the integration of language and business domains, however, with the trend of AI integration, students need to master business English and develop IT skills, including programming and data parsing, in order to meet the needs of an increasingly intelligent office environment[12]. Using AI technology, students can cultivate their understanding and application of interdisciplinary knowledge, strengthen their ability to solve complex problems, and improve the cultivation of operational skills and resilience in real work.

In higher vocational business English education, the introduction of the AI integrated workplace model strongly promotes the overall improvement of students' interdisciplinary, technological operation and innovative thinking skills, helping them to better meet the challenges of the future workplace[17].

3. Challenges of AI-integrated Workplace

3.1. Lagging Technology Adaptability and Educational Content

Students in higher vocational colleges and universities will encounter various challenges in AI-integrated workplaces. Students' proficiency and learning progress in emerging AI tools and applications vary significantly due to different levels of technological literacy when facing the challenge of technological adaptability[24]. Higher vocational colleges

and universities are often insufficient in updating their curricula, and their curricula may not be able to respond to the actual demand for skills in the field of AI technology, which may result in students entering the workplace with a lack of both technological reserves and hands-on experience.

There is a significant disconnect between the curriculum and the actual needs of the industry. In many higher vocational colleges and universities, the curriculum generally fails to go beyond the scope of traditional business English teaching, and seldom sees the integration of AI technology into the interdisciplinary curriculum system, and the weakening of the competitiveness of employment stems from this phenomenon[25]. At the same time, students often feel uncomfortable when they encounter the wide application of AI technology after entering the society, and they can't meet the demand for high-end technical talents in the workplace.

3.2. Substitution of Traditional Jobs by AI Technology

With the rapid development of AI technology, traditional employment positions are facing the challenge of being replaced [1]. In the context of business English, such as machine translation and AI-enabled customer service systems are gradually eroding certain areas of traditional translation and customer service functions. This change in the job market has profoundly touched and reshaped the future direction of employment for students specializing in Business English, and their career planning is facing a re-examination[1][7]. Students need to proactively explore the new opportunities brought by AI technology rather than passively face the risk of being replaced. Seeing the following table1 and table 2.

Table 1. Public Awareness of Artificial Intelligence in in Everyday Activities

Common use of AI	% of U.S adults can identify AI's role
Wearable fitness trackers that analyze exercise and sleeping patterns	68%
A chatbot that immediately answers customer questions	65%
Product recommendations based on previous purchases	64%
A security camera that sends an alert when there is an unrecognized person at the door	62%
A music playlist recommendation	57%
The email service categorizing an email as spam	51%

*Source: PEW Research Center, 2023

Table 2. AI Driven Job Growth

Expected impact of trends on jobs	Negative	Neutral	Positive
Big-data analytics	7	29	65
Artificial Intelligence(AI)	23	28	49

*Source: Future of Jobs, World Economic Forum, April 2023

With the widespread penetration of AI technology, many new opportunities have emerged in the career field[25]. In the process of maintaining and optimizing AI technology and its implementation of business decision support, corresponding skills are required for higher vocational talents. Business English students who master AI technology can explore new career paths in the fields of data analysis, market prediction and customer relationship maintenance.

3.3. Lack of Students' Innovation and Thinking Ability

In the AI-integrated office field, the mastery of innovative awareness and problem-solving skills is especially critical. In

the current model of higher vocational education, knowledge transfer dominates, while the cultivation of innovation ability is often neglected[26]. In the context of rapid changes in the technological environment and the increasing complexity of work tasks, higher vocational students generally show a certain degree of inadequacy in the field of innovative thinking[27]. The leap in efficiency accompanied by the wide application of AI technology has invariably compressed the thinking space of students, induced them to form an excessive dependence on technology, and then diluted the importance of shaping innovative ability.

4. Improving the Occupational Competence of Higher Vocational Business English Students

4.1. Combination of Curriculum System and AI Technology

In terms of improving the vocational adaptability of higher vocational business English students, the construction of the curriculum urgently needs to incorporate elements related to AI technology. At the level of higher vocational colleges and universities, it is necessary to make timely adjustments to the content of the curriculum in accordance with the needs of the industry and the trend of scientific and technological development, and expand the teaching modules covering AI technology, with the aim of making students proficient in the application of contemporary technology[27]. Courses covering the fundamentals of AI, AI business applications, and data analysis and processing are offered with the aim of significantly enhancing students' technological application strength[16][27]. The integration of interdisciplinary courses such as Information Technology and Business English not only helps students improve their language skills, but also exercises their comprehensive ability to solve practical problems through the application of AI technology.

4.2. Enhancement of Practical and Simulation Teaching

Practice is regarded as the key to the cultivation of occupational competence. Higher vocational colleges and universities need to strengthen the close connection with enterprises, expand and enrich practice platforms, especially internships and practice programme involving AI technology, so that students can experience and skillfully use AI technology in real work scenarios[23][28]. Through cooperation with enterprises, students are able to have close contact with cutting-edge AI technologies and workflows, which effectively strengthens their technical application skills and industry knowledge[29]. The creation of a simulated AI workplace, led by the school, aims to create a simulated environment where students can practise their practical skills and ability to deal with emergencies through role-playing. Hands-on skills are significantly enhanced during the practical and simulation teaching process, and students are more easily integrated into future career scenarios.

4.3. Cultivate Students' Innovation and Lifelong Learning Ability

Under the AI integration environment in the workplace, innovative thinking and lifelong learning skills constitute the key elements of vocational competence[9][19]. In higher education institutions, the implementation of project-based teaching and case studies aims to forge students' innovative thinking and problem-solving skills. By implementing specific projects, students not only master professional knowledge, but also enhance their skills in dealing with practical problems and significantly improve their level of innovative thinking. In the process of promoting the concept of lifelong learning, students are advocated to pay continuous attention to technological innovation and knowledge updating in order to continuously improve their self-competence[29]. The workplace environment is ever-changing, and the ability of lifelong learning helps individuals adapt to the changes and drives the continuous progress of their careers.

5. Practical Exploration of Nanjing Engineering Vocational College

5.1. Current Situation and Challenges of AI Education in College

Nanjing Engineering Vocational College, located in Jiangsu Province, has begun exploring the field of workplace education in the integration of AI and business English courses, aiming to explore an effective path to enhance students' career adaptability through technology integration[27][30]. In the process of implementation, the school has encountered a number of difficulties, and the lack of AI technology hardware and professional teachers has become one of the key constraints to the development of the school[31]. The technological lag in the application of AI tools has led to a general lack of effective practical experience when students come into contact with such tools, and the effectiveness of education has been limited by the limitations of the curriculum design, as the current curriculum fails to adequately integrate AI technology, which has resulted in a lack of adequate technical and practical skills in the application of technology, and the updating of the curriculum content. The current curriculum fails to fully integrate AI technology, resulting in a lack of students' ability to apply the technology, and the updating and integration of curriculum content needs to be strengthened.

5.2. Successful Cases and Summary of Experience

Nanjing Engineering Vocational College has successfully incubated a series of AI-related courses and practical projects by joining hands with enterprises and deeply integrating them. A number of institutions and enterprises work together to organize AI technology training and practical activities periodically, aiming to promote students to integrate academic theory with practical operation[22]. Students are able to get close to and master cutting-edge AI technologies through a variety of channels such as enterprise internships, virtual training platforms and industry lectures set up by schools. In the field of business English, with the help of AI-assisted learning platform, students' practical skills have been significantly improved[19]. Numerous examples show that the college has made clever use of existing resources such as teachers, industry ties and teaching equipment to significantly improve the overall quality and competitiveness of students in the workplace.

5.3. Future Development Direction and Suggestions

In the field of vocational education, Nanjing Engineering Vocational College is expected to deepen the in-depth integration of AI technology and professional teaching in the future, so as to promote the comprehensive quality of students[31]. In the process of improving the quality of education, the school urgently needs to strengthen the layout of AI courses and expand AI-related courses covering multiple subject areas, with a view to adapting to the industry's thirst for skilled talents. Enterprise cooperation, which is actively promoted by the school, aims to enhance students' practical skills through internship training and jointly develop AI projects to promote school-enterprise co-operation and co-construction[1][4][26]. The successful practice of Nanjing Engineering Vocational School reveals

that the combination of integrating AI technology into teaching, strengthening the development of practical teaching, and fostering the ability to think innovative is a key way for higher vocational institutions to improve students' vocational ability. Many institutions can learn from such successful experiences and implementation strategies in order to promote the practice of AI education[17].

6. Conclusion

Higher vocational business English students are exposed to an AI-integrated workplace, which has a significant impact on the enhancement of their vocational competence, especially in the areas of knowledge absorption, skill shaping, and innovative thinking development[30]. The application of AI technology in the field of education is facing a number of challenges, and this study proposes coping strategies to optimize the curriculum configuration, strengthen practical teaching and enhance the ability of innovation[26]. Although this study has shown its uniqueness in revealing the relevant areas, its limitations cannot be ignored, mainly reflected in the limitations of the sample scope and data bias. In the future, the in-depth application of AI technology will trigger profound changes in higher vocational education, especially in the shaping and transformation of Business English education, which will have a significant impact[31]. Higher vocational colleges and universities must take the initiative to accept AI technology and deepen educational reform to meet the development needs of the future workplace.

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