
An Overview of Work Ability of Employees Using Artificial Intelligence: A Phenomenological Study

Renata Noorawhita

Department of Master of Science Psychology, Faculty of Psychology, Universitas Surabaya, Indonesia
Corresponding: rnoorawhita@gmail.com

Abstract

Objective – The use of technology such as artificial intelligence in the workplace can change and reshape the job market, especially in terms of skills and knowledge that influence a person's work ability. This study aims to describe the work ability of workers after using AI in their work.

Design/Methodology/Approach – This research design uses a phenomenological approach and is conducted through semi-structured interviews, which are then analyzed using IPA. Sample selection is done using the snowball sampling technique. Interviews are conducted with 3 participants face-to-face.

Findings – The results of the interview analysis produce four themes in describing the work ability of workers, namely (1) perception of work effectiveness and efficiency using AI; (2) perception of the need for knowledge and skills development; (3) self-evaluation of AI use behavior; and (4) feelings after making decisions using AI.

Implications – This research provides an overview of the challenges faced in the era of the industrial revolution based on artificial intelligence technology so that it can help prospective workers, employees, and employers to prepare the knowledge and skills needed and help to maintain their abilities and performance.

Keywords: Work Ability, Artificial Intelligence, Technology, Industry.



INTRODUCTION

Work ability is one of the benchmarks organizations consider when assessing employee performance. One factor that can influence a person's work ability is the development of systems within society (Cadiz et al., 2019). These developments impact the resources used in work. Currently, a key development issue within society and industry is the shift from Industry 4.0 to Society 5.0. Industry 4.0 refers to the era of connectivity, advanced analytics, automation, and advanced manufacturing technology (Hidayat & Syam, 2019; Sabrina, 2021). Meanwhile, Society 5.0 emphasizes human-machine collaboration with more adaptive and flexible integration (Ledoh et al., 2024; Rusyanti, 2024). Industry in Indonesia is currently in the process of realizing Industry 4.0 (Devianto & Dwiasnati, 2020; Siska et al., 2023; Waluyo, 2024). Industry 4.0 is realized through the implementation of artificial intelligence technology (Ghobakhloo, 2020). Artificial intelligence is the study of how technology can be managed to function better and perform tasks that humans can do (Rich et al., 2009). This technology is a futuristic concept that could transform industries and reshape the job market (Camilleri, 2024).

The implementation of artificial intelligence in industry can change job assessment standards, one of which is the competency standards required for today's workers. The features of artificial intelligence, which provide a variety of options, benefits, and conveniences, can pose a challenge for workers and human resource management (Khan, 2024; Lampe et al., 2025; Sharma, 2024; Zhao et al., 2021). This challenge can include monitoring individual strategic achievements in meeting the required knowledge and skills standards for adaptive, effective, and efficient work (Suci et al., 2020; Zhao et al., 2021). This demonstrates the urgency for professionals to develop themselves to meet the required competency standards amidst the use of AI in the workplace.

Furthermore, work ability is also assessed based on the physical and psychological health of workers (Cabeceira et al., 2019). The benefits of artificial intelligence in assisting with task completion and easing work demands can impact the psychological well-being and happiness experienced by workers (Valeriya et al., 2024). Research by Kumar et al. (2023) and Bizoi & Bizoi (2024) found that artificial intelligence can increase anxiety and fear, leading to high levels of stress and the risk of burnout in employees. These studies have differing findings regarding the psychological condition of workers who use artificial intelligence. Furthermore, no research has yet described the work ability of workers after using artificial intelligence in their work.

Based on research by Zhao et al. (2021) and Khan (2024), it is known that artificial intelligence can pose challenges for workers and management in monitoring the fulfillment of required knowledge and skills standards. The authors believe that the use of artificial intelligence can impact workers' work ability (Werens & von Garrel, 2021). Therefore, the authors are interested in describing workers' work ability after using artificial intelligence in their work.

Literature Review

Work Ability

Work ability is an individual's ability to perform their work, considering aspects of health, work pressure, opportunities for development, and the support they have (Tuomi et al., 1998). Gould et al. (2008) define work ability as an individual's ability to work, which refers to the balance between an individual's internal resources and the characteristics of their work. McGonagle et al. (2015) explain work ability as an individual's assessment or evaluation of their ability to perform and continue work. In other words, work ability is an individual's ability to carry out their work, considering both subjective and objective aspects.

Work ability can be seen and measured through aspects of health, competencies, values, and work (Gould et al., 2008). Health related to physical health in the form of a history of illness, mental health in the form of stress and anxiety, and functional capacity in the form of limitations. Competencies relate to an individual's knowledge and skills. Values refer to an individual's motivation and attitude toward their work. Work relates to job demands, work pace, and management and leadership. Work ability can be influenced by the work environment, which includes the characteristics of the work environment, the worker's social environment, and the development of the social system or society (Gould et al., 2008).

Artificial Intelligence

Rich & Knight (1991) define artificial intelligence as the study of how technology can be managed to perform tasks that humans do better. This technology involves the use of algorithms and mathematical models to enable computers and other systems to learn from data, discover patterns, and make intelligent decisions (Erina & Zein, 2023). Areas within artificial intelligence include natural language processing, machine learning, deep learning, data mining, fuzzy interference systems, genetic algorithms, robotics, and generative AI (Erina & Zein, 2023).

Artificial intelligence is known to assist employees in completing their work tasks by providing various options and accelerating task completion times (Gusti et al., 2024). However, operating AI technology requires adequate expertise and knowledge (Bizoi, 2024). AI technology can shift employee performance standards due to the knowledge and competencies required to effectively utilize the technology (Werens & von Garrel, 2021).

METHODS

Research Design

This type of research is qualitative. Qualitative research is a descriptive research method used to understand social, cultural, or human behavioral phenomena in depth (Neuman, 2014). This study uses a phenomenological approach to understand the participants' work behaviors, using appropriate logic and theory to examine workers' work abilities after using artificial intelligence. A phenomenological approach is used to study the lived experiences or perspectives of individuals in perceiving and understanding a phenomenon (Littlejohn & Foss, 2010).

Participants

Participants in this study had the following criteria: (1) active workers in companies or agencies in Indonesia; (2) working using artificial intelligence; (3) willing to be participants in this study. The number of participants in this study was three men. The participants were aged 30, 35, and 47 years respectively. The participants' work locations were in different companies and cities, two participants worked at universities in Surabaya and another participant worked at a private company in Jakarta. All three participants had experience working using artificial intelligence for 2 years. The sampling technique used in this study was snowball sampling, sampling was carried out based on the recommendations of relevant initial participants (Alase, 2017, Smith et al., 2009). Before starting the interview, participants filled out an informed consent form given by the author to state their willingness to participate in this study.

Data Collection Strategy

Data collection in this study was conducted using semi-structured interviews. Semi-structured interviews are in-depth and flexible, aimed at uncovering problems more openly (Fiantika et al., 2022). The author designed an interview guide prior to conducting the interviews to guide the authors regarding aspects that needed to be discussed.

Data analysis

The data analysis technique used in this phenomenological research is Interpretative Phenomenological Analysis (IPA). IPA is used to investigate and interpret a person's experience of a particular phenomenon (Alase, 2017). Data analysis was carried out through several stages, namely (1) repeated reading of transcripts to understand the participants' experiences; (2) identifying initial themes that emerged; (3) developing initial themes to be more specific and structured; (4) looking for similarities and differences in patterns by comparing the themes obtained from each participant; and (5) interpreting the meaning of each theme based on the participants' experiences.

RESULTS AND DISCUSSION

Results

This research yielded several findings related to the theme of workers' employability after using artificial intelligence in their work. The analysis of the research results begins with a brief profile of each participant and the main themes that emerged from the analysis of the interview data.

Informant Profile

Participant Ri is a network management staff at a university in the Surabaya City area who is currently 30 years old. Ri has worked for 6 years and started working using AI when the organization where he works began implementing and introducing the use of AI technology for his work about 2 years ago. The AI technology that Ri uses in his work is a network controller software to assist in network maintenance and repair. The difficulty of working using AI technology was felt by Ri when the technology was first implemented in his workplace, the many new features owned by AI made Ri must develop knowledge and skills related to the technology to adapt and collaborate well to work effectively and efficiently and produce good and satisfactory output. The AI capabilities and skills that Ri currently has help him work better, and the ease and speed of problem solving generated by AI makes Ri feel happy with his current job. However, the habit of using AI in completing tasks makes Ri feel dependent on the technology.

Participant Ag is a 35-year-old IT programmer at a university in Surabaya. He has worked for 17 years specializing in website development and began working with AI when ChatGPT became a hot topic in the technology development world about two years ago. Ag uses generative AI in the form of ChatGPT and Co-Pilot to help improve the quality of website coding, image, and logo design. While working with AI, Ag has independently trained to understand the features and usage of generative AI, as well as to improve the knowledge and skills required to operate AI technology. This development of knowledge and skills has helped Ag complete tasks effectively and efficiently, making him feel satisfied and happy with his current job. The satisfaction and enjoyment he feels motivates him to explore and learn more about AI technology. However, the high intensity of AI technology use in his work has created a sense of dependency on Ag and confusion about the ethics associated with the technology.

Participant Au is a 47-year-old Associate Vice President (AVP) of programming interface product management at a telecommunications company in the DKI Jakarta area. Au has worked for 25 years specializing in developing artificial intelligence systems and applications, and began using AI technology for his work about 2 years ago when the company's Chief Executive Officer (CEO) began innovating the company's products. The AI technologies Au uses in his work include LMM for document and information management, and GPU as a graphics processor for AI solutions for product testing. Au received training resources on AI from his employer to develop the skills and knowledge needed to work with AI. Adequate skills and knowledge helped Au produce good output and increase effectiveness and efficiency in his work. The ease, regularity, and speed produced by AI through supporting features in the system increased Au's satisfaction and enjoyment of his work. However, the use of AI created doubts and confusion in Au regarding the ethics of its use, and a sense of dependency that could arise.

Interview Analysis Themes

The results of the interview data analysis revealed four themes, including (1) perceptions of the effectiveness and efficiency of work using AI; (2) perceptions of the need for knowledge and skills development; (3) self-evaluation of AI usage behavior; and (4) feelings after making decisions using AI.

Perception of work effectiveness and efficiency using AI

Perceptions of work effectiveness and efficiency relate to the three participants' views on the ease and speed of AI technology in supporting their work and assisting in completing tasks. Participant Ri's perception of effectiveness and efficiency is demonstrated by her statement that AI technology helps her focus on problems with the variety of options offered by the technology, thus reducing the time required to complete tasks.

"Hmm, that's really helpful. Before AI, troubleshooting or problem-finding was done step by step, from layer 1 to layer 7, and everything was tried. Now, with AI, it usually focuses directly on which layer needs to be checked first." (Ri, network management employee).

Meanwhile, according to Ag, he uses AI technology to support his work by leveraging its features. This technology helps him provide options for completing tasks and speeds up completion times.

"For example, coding to create a website, when we were initially confused because we didn't have a template, it took us 3 months. ... Now, using AI, it is even faster, almost a 50% reduction, I think. For simple things, it can be done in a matter of hours, days, or even weeks. ... I can't really determine the range, but it's more than half faster than if we were using it manually." (Ag, programmer).

Au echoed this sentiment by utilizing artificial intelligence technology to automate his daily work. This allows him to focus on completing other responsibilities and expedite the completion of his current tasks.

"Oh yes, it helps a lot. For example, if we have a document that has been AI-ed, it really helps the speed and accuracy of problem-solving" (Au, AVP programming interface product management).

Worker perceived effectiveness and efficiency reflect their ability to execute and complete their tasks. AI technology provides a supporting resource to enhance employee capabilities and achieve effectiveness and efficiency in their work.

Perception of the need for knowledge and skills development

Knowledge and skills are crucial for workers working with AI technology. Implementing a new system in an organization requires workers to adapt and collaborate with it, requiring them to undergo training to develop the required knowledge and skills to meet standards. Participant Ri had trouble operating the AI software initially due to her unfamiliarity with the new system. Her knowledge and skills are currently developing due to her motivation to practice.

"At first, yes. Because using a new tool can be confusing and overwhelming... and it can lead to failures in meeting superiors' expectations, and tasks take a long time to complete. But once I've mastered the basics and AI skills, my performance catches up and improves." (Ri, network management employee)

According to Ag and Au, training is essential to support knowledge and skills in the workplace. Without sufficient knowledge and skills, a person will lack adequate capabilities.

"Okay, actually, yes. Sometimes it feels like some of the many attempts fail to produce the desired result. But as far as I know, there is no training, so it is more of a trial-and-error approach. But there should be training, because each AI has a different way of composing its prompts." (Ag, programmer)

"Oh yeah, there's training, so uhm... the training starts from the management level. So, it starts from the leadership level and continues down to the next layer down to the employees. ... So, it is quite helpful for employees to be more... more advanced in the use of AI, Miss Ren. That is what is important because if they do not have the skills, how are they going to complete their work?" (Au, AVP programming interface product management)

Self-evaluation of AI usage behavior

Self-evaluation includes workers' attitudes and behaviors towards their current jobs after using artificial intelligence. Changes in the work system can affect employees' attitudes and behaviors towards their jobs. The attitudes and behaviors that emerge can be positive, such as satisfaction and engagement with work, or negative, such as reduced motivation. The implementation of AI in the workplace creates feelings of satisfaction and happiness in Ri, Ag, and Au. Ri, Ag, and Au feel satisfied with their work results and become happier with their jobs after using AI technology. The availability of various features in AI helps Ri, Ag, and Au in completing their work with more optimal results.

"Hmmm... yes, I'm satisfied because AI helps us in doing our work, automatically improving our work to be better and more efficient. So, I'm satisfied." (Ri, network management employee).

"Yes, that's it, I'm really satisfied. I mean, it feels like I am amazed, like how is this possible? Sometimes, for example, if we must search on Google first, we must choose, then we must read the whole thing one by one, if we use AI, it is already found or if it is not quite right, there is a feature that helps in detailing. If I was confused before, I'd ask my boss, ask my friends, now my friend is AI, ask AI questions." (Ag, programmer).

"Oh yeah, heeh, I'm really happy. So, things that might require daily, usually daily tactics, are really helped, so maybe we can... have more time to think strategically for the next 5 years, the next 10 years. So, there's more time to think about that because it's helped by AI." (Au, AVP programming interface product management)

The satisfaction and enjoyment Ag felt motivated him to further enhance his knowledge and expertise through further exploration of AI systems.

"Oh, really, really happy, bro. Moreover, I want to explore more like drawing because the results are so good. AI is fun, not only for work, it allows us to explore many things" (Ag, programmer).

The positive behavior and attitudes shown by workers after changes in the work system indicate that workers have good work abilities to carry out their jobs.

Feelings after decision making using AI

Systemic changes in the workplace often impact individuals' emotional well-being. After working with AI, all three participants experienced feelings of confusion and dependence on it. Their habit of relying on AI to solve problems and accomplish tasks led Ri, Ag, and Au to become inextricably linked with AI, leading to feelings of confusion when they had to work without its assistance.

"This is how I feel now... I am starting to feel a bit tied down after working with AI. Sometimes it is like we have been spoiled, so to speak, if the task is a bit complicated, we are used to going straight to AI because, uhm... the AI's responses are structured, so we feel comfortable following them. ... If AI were to disappear, we would feel confused because our expectations have risen because of AI, so it is like it is easy, we can do it, and it is fast. If AI were to disappear, we would have to think manually again, one by one, and it might require more effort." (Ri, network management employee).

"Thank God, I've never had that, but I usually code and now I'm dependent on AI. Then there's one thing that's stuck with AI, we can't use AI anymore, and that's where I often feel confused because I have to use manual methods." (Ag, programmer).

"Well, this is actually the risk... that must be immediately medicated or anticipated. So, let us not get so engrossed in AI that the old ones are forgotten. ... Well, that is it, right now I still cannot imagine it, right?" (Au, AVP programming interface product management).

Discussion

Systemic changes, including the use of AI technology to support and assist work in the workplace, can impact employee performance (Werens & von Garrel, 2021). Employees are required to adapt to these changes to maintain high performance (Popescu & Sebestova, 2024; Pulakos et al., 2000). One form of adaptation that can be achieved is by developing knowledge and skills through training (Nandini et al., 2022). Knowledge and skills are key aspects in assessing and measuring individual work ability. Good work ability is accompanied by adequate knowledge and skills (Gould et al., 2008). This is consistent with the findings of this study, where the three participants were able to perform and complete their work effectively because they possessed adequate knowledge and skills.

Appropriate and sufficient knowledge and skills can increase employee work productivity (Nishu & Lalrinzuala, 2021; Zhang et al., 2020). Productivity is characterized by an employee's ability to work effectively and efficiently (Huang et al., 2019; Sadowski & Zimmermann, 2019). Work ability is positively related to employee productivity (Gumilar et al., 2024). Gould et al. (2008) stated that speed or time efficiency in working is one indicator of worker work ability. The use of artificial intelligence technology has been found to increase employee work productivity levels (Gusti et al., 2024). The variety of options, benefits, and conveniences offered by AI can help employees work effectively and efficiently (Gusti et al., 2024; Kumar et al., 2023; Valeriya et al., 2024). This is in accordance with the findings of the interview results of this study, where all three participants stated that AI technology is very helpful in the effectiveness and efficiency of task completion. The three

participants perceived the effectiveness of AI technology through the features it possesses and offers. Meanwhile, the efficiency of AI technology was perceived through the speed of task completion.

The speed of task completion and the high quality of work results supported by AI technology can create satisfaction for workers. Job satisfaction is one indicator of worker work ability measurement (Gould et al., 2008). This is because satisfaction is a subjective aspect that shows a person's work ability (Tuomi et al., 1998). Individuals with good work abilities will be able to complete their work well (McGonagle et al., 2015). Success in completing work will increase individual satisfaction (Punnett et al., 2007). Valeriya et al (2024) found that the use of AI significantly increased worker satisfaction by 46%. Based on the results of interview analysis, the effectiveness and efficiency produced by AI can make the three participants feel satisfied with their work results and create a feeling of happiness towards their work.

However, the use of artificial intelligence technology was found to cause feelings of confusion and dependency in the three participants, caused by the habit of relying on AI to solve problems and work. Technology dependency is categorized as a compulsive urge to use the internet, digital devices, or certain platforms (Association, 2025). Technology dependency has been found to reduce productivity, which affects an individual's work ability (Washington, 2021). This aligns with the statements of the three participants regarding the confusion they felt when having to work without AI. The feelings of confusion and dependency experienced by the three participants after using AI indicate that AI technology can reduce employees' pure work ability. AI technology can change the standards for assessing employee work ability (Camilleri, 2024; Malik et al., 2021).

CONCLUSION

The use of AI technology can change the standards for assessing employee performance. This is evident in workers' feelings of confusion and dependency after using AI, which impacts their ability to work traditionally. This technology is known to require individuals to possess sufficient specialized knowledge and skills regarding AI to perform and complete tasks more optimally and effectively. So far, the picture of workers' performance after using AI technology indicates that they have relatively good performance. This is evident in their work effectiveness and efficiency, knowledge and skill development, and positive attitudes and behaviors toward their work.

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