RESEARCH ARTICLE

An Interview Regarding the Needs of Working Learners: Fostering Lifelong Learning Support

SeTin SeTin[1], Yvonne Augustine[2], Yuliana Gunawan[3*]

[1]Faculty of Digital Business and Law, Maranatha Christian University, Bandung, Indonesia
[2]Faculty of Business, Trisakti University, Jakarta, Indonesia
[3]Faculty of Digital Business and Law, Maranatha Christian University, Bandung, Indonesia

ARTICLE INFO	ABSTRACT
	Technological transformation demands lifelong learning. This study aims to identify changes in the workplace and the needs of working learners to continuously grow and remain competitive in the future. The study uses a qualitative approach with interviews conducted with 20 working learners in West Java, Indonesia. The data was analyzed thematically to identify common patterns and variations in needs related to changes in the workplace. The results show, first, that there are significant changes in jobs due to the adoption of new technologies; second, that the needs of working learners include appropriate and targeted ongoing training and education, financial support, career navigation, learning while working, and transparent recruitment practices. This study provides a foundation for all stakeholders to develop a learning ecosystem that supports lifelong learning.
*Corresponding Author: yuliana.gunawan@eco.maranatha.edu	

INTRODUCTION

The life plan of people in the past was quite simple: start learning from an early age, then work, build a career, perhaps start a family, and eventually retire (Weise, 2021). Thus, the life cycle was about learning, earning money, and then resting or retiring. However, slowly but surely, this life cycle has changed with the rapid transformation of technology in all areas (Kelly, 2016). Life is no longer as simple as learning, working, and retiring; instead, it now involves learning, working, learning while working, and working while learning. The world has entered an era of lifelong and continuous learning (Thwe & Kálmán, 2024), where increasing knowledge and ongoing skill development have become a way of life.

In America, those who were born in 1960 are known as the Baby Boomer generation, experienced at least twelve job changes before retirement (Weise, 2021). In 2014, a job search platform with the largest network in the world, based on the internet (LinkedIn), revealed that the most in-demand professions were ones that did not exist five years prior (Manyika et al., 2017), such as professions like iOS/Android developers, user interface/user experience designers, cloud managers, and big data architects. All of these professions emerged due to technological transformation.

Additionally, the COVID-19 pandemic in 2020 led to global lockdowns and further accelerated digital transformation. The International Labor Organization estimates that 40% of nearly 300 million jobs were lost due to the pandemic and will not return. The World Economic Forum also reported that, as a result of the pandemic, 94% of companies in the UK sped up the digitalization of their operations. In the United States, many companies adopted remote work technologies and automation. In

Germany, digitalization increased in the manufacturing and retail sectors, supported by government initiatives. In China, the pandemic accelerated the expansion of e-commerce and digital payments. In Indonesia, digitalization was also accelerated, especially in e-commerce, digital banking, and online education.

The rapid pace of digital transformation across various fields has increasingly made it uncertain that the knowledge gained in school or university would be sufficient until retirement (Weise & Christensen, 2015). Education previously acquired suddenly seems inadequate. No job or profession will be completely secure in the future. Technological transformation demands the development of new skills and knowledge (Weise et al., 2018). A 2021 study conducted by the Pew Research Center in the United States showed that 87% of working learners stated that they needed additional skills, skill development, and further education to advance their careers.

In the midst of rapid changes in the workforce, the concept of a lifelong career is fading, shifting toward the idea of lifelong learning. Education and training have become more important than ever, as learning is no longer just about gaining knowledge, but rather a key strategy for navigating potential job transitions. Learning now plays a crucial role in ensuring that individuals can adapt to changes in the workplace (Weise, 2021).

Considering the rapid technological advancements brought by the Industrial Revolution 4.0, which are dramatically transforming how organizations conduct business, it is crucial to understand the real changes experienced by working learners in their jobs due to technological shifts. It is also important to identify the needs of working learners in Indonesia to remain competitive in the labor market. This study provides in-depth insights into how the adoption of new technologies impacts the educational and skill requirements of working learners in Indonesia. It helps various stakeholders, such as educational institutions, companies, and policymakers, in designing a more relevant and adaptive learning ecosystem.

LITERATURE REVIEW

Lifelong Learning

Lifelong learning is a continuous learning process throughout life, where individuals consistently develop skills, knowledge, and competencies to remain relevant and grow in various aspects of life (Laal & Salamati, 2012). Lifelong learning is crucial in the context of technological changes and the dynamic world of work(Weise, 2021). By continuously learning, individuals can update their skills in line with the demands of new technologies, ensuring they remain relevant and competitive in the job market.

Working Learners

Working learners are adult individuals who work while pursuing learning in various educational contexts, both formal and informal (Kaiser et al., 2023), and refer to learners who need to balance work responsibilities with the need to continuously improve skills and knowledge (Stevens et al., 2022). Working learners require flexible and relevant access to education and training that can be adapted to the ever-changing demands of their jobs (Weise, 2021). Additionally, they need learning options that can accommodate their work schedules and connect to clear career pathways. A similar opinion was expressed by (Lessky & Unger, 2023), stating that working learners need flexibility in academic and work schedules to effectively manage their workload and studies. Working learners also require learning materials that are relevant to their professional needs and access to resources that support the development of practical skills that can be immediately applied in the workplace (Kaiser et al., 2023).

Technology Transformation, Business and Changing Needs

The Industrial Revolution (IR) 4.0, which began around 2015, marked the start of the digital era. IR 4.0 leverages the virtual world, enabling digital connectivity between machines, data, and humans, based on the concept of the Internet of Things (Schwab K., 2016). Information technology in the IR 4.0 era, such as the Internet of Things, big data, business process automation, blockchain, artificial intelligence, and cloud computing, has had a significant impact on how organizations conduct business processes (Ali, 2019). This situation compels working learners to master relevant technical skills and have a deep understanding of the latest technologies to remain competitive in the job market (Santoro et al., 2018). To assist more working learners in successfully transitioning jobs and careers, it is crucial to build a new learning ecosystem (Weise et al., 2018). The foundation of this new learning ecosystem relies on the collaboration of stakeholders to develop a robust, open, and trustworthy data infrastructure (Weise, 2021). All involved parties collaborate and share data, leading to a shared understanding of sought-after skills and career paths, which in turn helps develop more targeted skill and knowledge enhancement programs.

MATERIALS AND METHODS

This research uses a qualitative approach using interviews to explore the needs and challenges faced by working learners in Indonesia. The interviews are conducted to gain a deep understanding of the real changes experienced by working learners in their jobs due to technological advancements, as well as what working learners need to ensure their job security in the future. To ensure a sufficient variation of perspectives, the study involves 20 working learners as participants.

Data collection from participants was conducted over a period of 6 months, from January to June 2024. The first step involved randomly selecting 35 potential participants from the alumni data of a private university in West Java. In the second step, these potential participants were contacted via phone and WhatsApp to inform them of the research objectives and esure their consent to participate. Fifteen individuals declined to participate. In the third step, the 20 agreeing participants underwent interviews either by phone or through the Zoom platform, according to their preference. All participants were provided with complete information about the study's objectives and consented to participate. To maintain confidentiality ethics, data was presented anonymously and participants were given the right to withdraw from the interview at any time without any consequences.

The interview will be conducted either in person or through online platforms (such as Zoom or Google Meet), lasting 15-20 minutes. It will include questions related to workplace changes that require new education and skills, as well as the most urgent and relevant needs of working learners in the context of work and learning. Two main questions will be asked: 'Have you observed any changes in your job that require new education and skills? What do you need to continue developing in your current job and to remain competitive in the future job market?' Data from participants will be analyzed using a thematic approach, where the main themes emerging from the data are identified and interpreted. This analysis helps to reveal common patterns, as well as differences in needs and challenges faced by working learners from various backgrounds.

Interview And Discussion Results

Table 1: List of Participants

No.	Participants	Working Status	Last Education	Sector	Location
1	Participant A	Full-time worker	Bachelor	Information Technology	Bandung, West Java
2	Participant B	Part-time worker	Diploma	Education	Cimahi, West Java

3	Participant C	Full-time worker	Secondary Education	Manufacture	Bekasi, West Java
4	Participant D	Full-time worker	Postgraduate	Healthcare	Depok, West Java
5	Participant E	Part-time worker	Bachelor	Finance	Bogor, West Java
6	Participant F	Full-time worker	Secondary Education	Retail	Bandung, West Java
7	Participant G	Full-time worker	Diploma	Public Services	Sukabumi, West Java
8	Participant H	Part-time worker	Sarjana	Information Technology	Cirebon, West Java
9	Participant I	Full-time worker	Postgraduate	Education	Karawang, West Java
10	Participant J	Full-time worker	Secondary Education	Manufacture	Tasikmalaya, West Java
11	Participant K	Part-time worker	Bachelor Degree	Healthcare	Purwakarta, West Java
12	Participant L	Full-time worker	Diploma	Finance	Garut, West Java
13	Participant M	Full-time worker	Bachelor Degree	Information Technology	Sumedang, West Java
14	Participant N	Part-time worker	Secondary Education	Retail	Subang, West Java
15	Participant O	Full-time worker	Postgraduate	Public Services	Indramayu, West Java
16	Participant P	Part-time worker	Bachelor Degree	Education	Majalengka, West Java
17	Participant Q	Full-time worker	Secondary Education	Manufacture	Kuningan, West Java
18	Participant R	Full-time worker	Diploma	Healthcare	Ciamis, West Java
19	Participant S	Full-time worker	Bachelor Degree	Finance	Pangandaran, West Java
20	Participant T	Part-time worker	Secondary Education	Retail	Bandung Barat, West Java

Questions

1. Do you see changes in your job that require new education and skills?
2. What do you need in order to continue developing in your current job and to remain competitive in the job market in the future?

Participant A. A 32-year-old full-time worker with a Bachelor's degree in Information Technology, working as an IT specialist. They are responsible for managing, maintaining, and developing the IT infrastructure at their company, where they have been employed in their current position in Bandung for five years.

Yes, I have seen significant changes in my current job, specifically the adoption of artificial intelligence and automation technologies. Honestly, I face challenges due to my limited skills, as

my responsibilities require a deep understanding of these technologies. I need training in programming and cloud technology, as well as soft skills such as project management and communication.

I am also confused about the career path in the field of information technology. I hope there are short courses available that can enhance my skills and ensure I stay up-to-date with industry demands.

Participant B. A 27-year-old part-time worker with a Diploma in Education has been in their current position for two years in Cimahi.

Yes, my job as a high school teacher constantly requires me to master digital teaching methods and online learning platforms. Since the pandemic, I have regularly attended training on educational technology and digital skills. By participating in this training, I am able to teach more effectively. I intend to pursue a master's degree, but the cost is too high for me to cover on my own. I hope to receive scholarship assistance from the government or the university, and I also hope to find a college that allows me to continue working.

Participant C is a 35-year-old full-time worker with a secondary education, employed in the manufacturing sector as a production machine operator in Bekasi, and has been in this position for seven years. He is married with three children.

Yes, of course. In recent years, automation has been introduced at the factory where I work. I had to learn to operate more advanced machines and follow more complex procedures. I received technical training on how to operate and maintain automated machines, as well as a basic understanding of Industry 4.0 technology.

To advance in the future, I feel it is essential to pursue certification in production machinery or modern manufacturing technology. I am currently searching for information about this and looking for funding to attend these trainings. I hope there will be financial support from the company, government, or other institutions. I also wish to switch companies to gain new experiences and, hopefully, receive a salary increase. However, it is challenging to get clear information about recruitment and career advancement within a company.

Participant D. A 40-year-old woman works full-time in the healthcare industry as a nurse in Depok. She has held her current position for eight years. She is also a wife and a mother of one child, and is currently pursuing postgraduate studies.

Yes, in the healthcare industry, particularly in relation to my work as a nurse, there have been changes in the use of medical technology and telemedicine. With the advent of advanced medical tools and digital platforms for patient consultations, I sometimes feel overwhelmed because these changes demand higher technical skills and quick adjustments in clinical practice.

Regarding my future career, I feel the need for further training in the latest medical technology and telemedicine to stay competent and not fall behind in this profession. In addition, I would like some career guidance to help clarify my development path, including opportunities for taking the right courses or certifications. If possible, financial support would be very helpful in achieving my career goals in this ever-evolving healthcare industry.

Participant E. A 29-year-old man, working part-time in finance as a financial analyst in Bogor, is unmarried and has been in this position for three years.

Yes, there have definitely been significant changes. As a financial analyst, I have really felt the impact of the rise of fintech and new technologies in the financial industry. Now, I not only have to understand traditional financial reports, but also need to be knowledgeable about data analysis, blockchain, and

the latest trends in fintech. These technologies require me to keep learning and developing new skills to stay relevant.

To continue growing, I need training in the latest financial technologies, such as data analysis and blockchain. In addition, I need access to courses and certifications that focus on fintech to remain competitive in the job market. Building a professional network is also important for gaining insights and new opportunities in this industry.

Participant F. A 37-year-old woman, working full-time in retail as a store manager in Bandung, married with two children, and has held this position for six years.

As a retail store manager, I've really noticed the changes brought about by the rise of e-commerce and online shopping. Now, I don't just manage a physical store, but I also need to understand how to sell online, manage digital inventory, and improve the shopping experience for customers through digital platforms. So, I have to learn many new things to remain effective.

To continue growing, I also need training in e-commerce, digital marketing, and tech-based inventory management so that both the physical and online stores can run smoothly together. Additionally, having a network with other retail professionals would help me stay updated and competitive in this constantly evolving market.

Participant G. A 34-year-old man, working full-time in public service as an administrative staff member in Sukabumi, is married with one child and has been in this position for four years.

There have been changes in how public services are delivered, with many now being online-based, and I need to learn how to use this system. I require training in the use of public administration software as well as skills in financial support, which would greatly assist me in pursuing additional training essential for my job. I also need an educational program that is more relevant to current public service tasks.

Participant H. A 28-year-old woman works part-time in the information technology field as a cloud computing specialist in Cirebon. She is unmarried and has been in this position for two years.

Yes, of course, there have been changes in cloud computing and cybersecurity, and these changes have certainly affected how I work. I have to continuously update my skills. I need training in cybersecurity, cloud management, and problem-solving skills to tackle new challenges. To be honest, I am also confused about my career in IT due to the rapid changes. I need guidance to navigate my career in a more focused direction, especially in a specific technology specialization. I also hope that companies have clear career paths or promotion tracks in the IT industry.

Participant I. A 42-year-old woman works full-time in education as a high school teacher in Karawang. She is married with three children and has held this position for ten years.

Yes, I definitely feel that there have been changes related to my job as a teacher. The curriculum changes that integrate digital technology require us, as teachers, to acquire new teaching skills. Fortunately, the school provides training on digital learning technologies and innovative teaching strategies. However, despite the support from the school, I still feel that I need to independently strive to enhance my skills as a teacher. Time is also a challenge, as I am waiting for an opportunity that will allow me to continue learning while working, so that I can improve my teaching skills while still engaging with students. I also need financial support to attend digital education training, which is quite expensive.

Participant J. A 36-year-old man, working full-time in the manufacturing sector as a production analyst in Tasikmalaya, married with two children, and has been in this position for eight years.

Certainly, a lot of changes have occurred in my department, which has made me feel quite uncomfortable. For example, there have been technological advancements and restructurings. I find it difficult to adapt to these changes. The company also expects employees to quickly learn and understand on their own. I hope to attend external training programs and expect support in terms of funding and time from the company.

In addition to short-term training, if given the opportunity, I would really like to pursue a master's degree to improve my skills and be more competitive in the future. I am also currently seeking information about career paths in the manufacturing industry across various companies.

Participant K. A 31-year-old woman working part-time in the healthcare field as a medical assistant in Purwakarta, married with one child, has been in this position for three years. Recently, the job as a medical assistant has become increasingly challenging, especially with the new technology that needs to be used daily.

Sometimes, I feel overwhelmed trying to keep up with all of this, especially when there are advanced medical devices or new digital systems that suddenly need to be learned. Frankly, I really need additional training so I don't fall behind and can continue working well. Additionally, I'm also concerned about the future of my job, afraid that if I can't adapt, I might become irrelevant. That's why I feel the need for career guidance, perhaps with courses or certifications that can help me develop and remain secure in this job. If possible, I would also appreciate support, both financial and time-wise, so I can focus more on learning without feeling burdened.

Participant L. A 29-year-old man working full-time in the finance industry as an accountant in Garut, unmarried, and has been in this position for two years.

As an accountant, I've experienced significant changes with the advent of automated accounting software and technologies like AI entering the finance world. Now, I not only need to understand numbers and financial reports but also need to be proficient with new software and grasp more complex data analysis. Clearly, I need additional skills to keep up with these developments. To continue growing, I require more training in the latest accounting software and data analysis. I also want to enroll in courses or certifications focused on financial technology to stay competitive. Additionally, I need access to industry trend updates and professional networks to keep me up-to-date and relevant in the job market.

Participant M. A 33-year-old man, working full-time in information technology industry as a data analyst in Sumedang, married with two children, and has been in this position for six years.

Yes, absolutely. I have really noticed the rapid changes in technology, especially in AI and big data. I continuously learn to stay up-to-date, and in the near future, I will also be attending training on big data analysis. I am also looking for a university to pursue a master's degree in data analysis, preferably one that offers scholarships. Additionally, I need a lot of information about potential career paths that align with my skills in data analysis.

Participant N. A 35-year-old woman works part-time in retail as an online marketing professional in Subang. She is married with three children and has been in this position for four years.

Yes, I definitely feel the changes. Social media algorithms and digital trends are constantly evolving, so I always have to learn new ways to grab customers' attention and create relevant content. Additionally, data analysis has become increasingly important, so I need skills in understanding and leveraging data for marketing strategies. I also need digital marketing training, especially in SEO, SEM, and data analytics. I need the latest tools to manage marketing campaigns more effectively, as well as courses on how to adapt to ever-changing social media algorithms. And of course, access to a professional marketing community would greatly help me stay up-to-date with the latest trends.

Participant O. A 45-year-old man works full-time in public service as an administrative staff member in Indramayu. He is married with two children and has held this position for twelve years.

As an administrative staff in public service, I've noticed a lot of changes, especially with the increasing digitization of the systems we use. In the past, everything was done manually, but now almost all documents and processes have shifted online. I've had to learn how to use new software and understand data security, which wasn't a major focus before. So, I've had to keep up with technological advancements to avoid being left behind. To continue growing, I need specialized training to manage the new digital systems and gain a deeper understanding of data security. I also need support to adapt to these changes, perhaps through courses or mentoring. To remain competitive, I also want to learn more about time management and new ways to work efficiently, especially in the digital environment that has now become standard in public services. I've also faced time constraints as I have to attend to my two children, who have been left by their mother. I hope that in the future, I can find part-time work that allows me some time to continue learning.

Participant P. A 29-year-old woman, working part-time in the healthcare industry as a nutritionist in Kuningan, is unmarried and has held this position for three years.

As a nutritionist, I face significant changes with the advancement of technology and the constant emergence of new diet trends. I must quickly learn to use the latest apps and digital tools to monitor my clients' health and food intake. Moreover, the ever-changing diet trends require me to continuously update my knowledge and skills to provide accurate advice. My main challenge is keeping up with the rapidly evolving information and ensuring I stay current with the latest data. To feel secure in the future, I need additional training in the latest technology and regular updates on nutrition science. Support in attending courses or obtaining certifications, as well as access to relevant resources, would be greatly beneficial in helping me remain competent and relevant in this profession.

Participant Q. A 41-year-old man works full-time in manufacturing as a technician in Majalengka. He is married with three children and has been in this position for nine years.

Last year, I was at risk of being laid off because my skills were insufficient to handle the new technology being implemented at my workplace. Thankfully, I gradually adapted to robotics and automation, allowing me to keep my job. However, I realize that I urgently need relevant training, and I must take the initiative to seek out more information. Additionally, to secure my future employment, I hope for clearer and more transparent job openings and career development information to navigate better opportunities in the manufacturing industry. I know I have a lot of catching up to do in terms of learning, but I don't have much time and still need to support my family.

Participant R. A 30-year-old woman works full-time as a doctor in Ciamis. She is unmarried and has held this position for four years.

As a doctor, I have witnessed significant changes due to the continuous advancement of medical technology, such as electronic medical record systems and new diagnostic techniques. I also need additional skills in big data analysis and the use of the latest technological tools to remain effective in my job. Continuous learning and specialized courses in the latest technologies and data analysis are essential. Moreover, support to attend conferences and seminars, along with having a strong professional network, is crucial to staying competitive and at the forefront of the medical field.

Participant S. A 38-year-old man works full-time in finance as a customer relationship manager in Pangandaran. He is married with children and has been in this position for seven years.

As a customer relationship manager, I've really noticed the changes. Nowadays, with so many digital platforms and social media, I have to understand how to manage customer communication online and be proficient in data analytics to interpret customer behavior. This is vastly different from the traditional approach, which was more focused on direct interactions, so it clearly requires new skills to keep up. To continue growing, I need training in social media management, digital marketing, and data analytics. I also need the right tools to manage online customer interactions, as well as courses that focus on customer experience strategies. Equally important, having a strong professional network will help me stay up-to-date with the latest trends and new ways to enhance customer satisfaction.

Participant T. A 44-year-old woman works part-time in retail as a product manager in West Bandung. She is married with four children and has held this position for six years.

As a retail product manager, I've clearly seen many changes, especially with the rise of online shopping. Nowadays, it's not enough to just focus on store shelves; I also need to understand how to make products appealing on digital platforms, grasp customer data, and keep up with constantly changing trends. So, I really need to learn new things to stay on track. To continue growing, I need in-depth training in e-commerce and consumer data analysis, as well as access to technology that can help me understand product trends more quickly. Additionally, attending workshops or seminars on digital marketing strategies would better prepare me to face the increasingly fierce competition in the retail market. If given the opportunity, I also want to pursue further studies and obtain a master's degree, with the hope of advancing my career in the future.

RESULTS OF ANALYSIS AND DISCUSSION

Based on a thematic approach, participants' responses were analyzed, and several key themes emerged. The first theme is "**Adaptation to New Technology**." All participants experienced significant changes in their work due to the adoption of new technologies, such as artificial intelligence, automation, medical technology, fintech, and others. They expressed that the demands of today's work increasingly require a deep understanding and higher technical skills. This theme indicates that new technology is a major driver of the need for new skills across various work sectors.

Secondly, "The need for continuous, relevant, and targeted training and education." Participants expressed a strong need for ongoing training and education to develop skills that are pertinent to changes in their respective industries. For example, this includes training in programming, cloud technology, certification in production machinery, and even master's level education. They emphasized the importance of access to courses, certifications, and training that can enhance their skills and ensure they remain competitive in the job market. Participants highlighted a clear need for education that is specific and relevant to the evolving demands of their industries. Additionally, they require targeted (accurate and relevant), affordable education that can be completed in a short time to minimize costs and quickly secure good new job opportunities. For instance, a financial analyst stressed the importance of training in data analysis and blockchain to stay relevant in the job market. Appropriate and targeted education helps participants develop essential skills to face new challenges in the workplace and ensures they can compete in an increasingly competitive job market.

Thirdly, "Financial Constraints and Career Guidance Support." Many participants identified financial constraints as a major challenge in accessing the training and education they need. They hope for financial support from companies, the government, or other institutions to help cover the costs of education and training. Additionally, they expressed a need for clear career guidance, including information about career paths, recruitment opportunities, and career support to help them plan their futures more effectively. Some participants feel they need support in various forms, whether financial, moral, or career-related. For instance, a nurse feeling overwhelmed by changes in medical technology and telemedicine feels the need for financial support to pursue advanced

training. Such support is necessary to address feelings of being overwhelmed, reduce stress from changes, and ensure continued professional growth. This support is crucial not only for individual development but also for maintaining motivation and productivity in the workplace. Some participants lack access to good information sources and struggle with managing their career transitions. Not all participants receive support from employers to update their skills. They require financial assistance to sustain skills for future employment. Participants often express confusion about their career paths amid rapid industry changes. For example, participants from the information technology sector feel uncertain about their career paths in such a dynamic and evolving industry. They need clear career navigation and guidance to help them understand the right direction for professional development. Structured career guidance and clearer development pathways are essential to help them set realistic career goals and achieve future success.

Fourth, "The Need for Learning While Working". Many participants highlighted the importance of having access to education that allows them to learn while working. For example, a teacher who wishes to pursue a master's degree but is constrained by costs and time. Some participants expressed that "they don't have time; they have to make a living," while also needing to continue improving their skills. They hope for programs or scholarships that allow them to continue working while pursuing higher education. This need shows that working learners greatly value flexibility in education that enables them to continue developing their skills and knowledge without having to leave their jobs. Programs that combine on-the-job training with relevant academic study become crucial in meeting this need.

Fifth, "The need for transparent recruitment practices." Participants also expressed concerns about the lack of transparency in the recruitment and promotion processes within their companies. For instance, an employee in the manufacturing sector mentioned difficulties in obtaining clear information about career progression and promotion opportunities in their company. They believe that more transparent recruitment practices would help them better plan their careers and understand what is required to achieve their professional goals.

From the analysis above, it is shown that there are significant changes in employment due to the adoption of new technologies. Working learners require more flexibility in education to be able to learn while working and desire transparency in recruitment practices to plan and pursue their careers more effectively. The results of the analysis support (Kaiser et al., 2023)(Stevens et al., 2022)(Weise, 2021) (Lessky & Unger, 2023).

CONCLUSION

This study shows that working learners across various sectors face significant challenges due to technological advancements and the ever-changing dynamics of the industry. Through a thematic approach, the main needs identified include clear career navigation, financial and moral support, and access to relevant and appropriate education. Additionally, there is an urgent need for programs that facilitate learning while working, as well as transparency in recruitment and promotion practices.

To stay focused on their educational and career goals and overcome the obstacles they face, working learners need comprehensive support, including assistance from people, technology, and funding. Given the numerous demands they encounter, from full-time or part-time jobs to family responsibilities and the need to enhance their skills, working learners require guidance in managing their lives and career transitions. Counseling, mental health services, financial advice, and financial aid are urgent needs. Additionally, it is a necessaty to have technological support, such as platforms that can connect their profiles with industries.

The limitations of this study include the use of qualitative methods with a sample limited to 20 participants, which may not fully represent the diversity of working learners in Indonesia. Additionally, data collection through telephone interviews and online platforms restricts the depth

of information obtained. Another limitation is the selection of participants from only one private university in West Java, which means that the findings of this study may not be generalizable to the entire population of working learners in Indonesia. Future research is advised to broaden the geographic and demographic scope of participants and to consider mixed methods (qualitative and quantitative) to obtain richer and more representative data. This approach could also be supplemented with direct workplace observations to gain a more comprehensive understanding of the needs and challenges faced by working learners.

This study provides important implications for various stakeholders involved in developing a learning ecosystem that supports lifelong learning. By identifying the key challenges and needs of working learners, the research results offer a strong foundation for educational institutions, companies, and policymakers to design more effective and relevant solutions. For example, educational institutions could develop programs that are more integrated with industry needs and offer the flexibility required for learning while working. Companies could create employee development initiatives that support work-learning balance and provide better mentoring and support. Policymakers could craft regulations and programs that promote wider access to education and training, and ensure transparency in hiring and promotion practices. In this way, the study contributes to creating a more holistic and supportive ecosystem that enables working learners to continue developing and adapting in an increasingly dynamic and technology-driven workplace.

AUTHORS' CONTRIBUTIONS

SS conceive the idea, design the project, wrote-initial drafting, methodology, formal analysis, interview the participants, and wrote the manuscript. **YA** conceive the idea, design the project, wrote-initial drafting, methodology, formal analysis, interview the participants, and wrote the manuscript. **YG** wrote-initial drafting, interview the participants, and editing the manuscript. All authors give contributions, read and approved the final manuscript.

ACKNOWLEDGMENTS

REFERENCES

Ali, S. (2019). *Revolusi Industri 4.0 dan Dampaknya Terhadap Pendidikan Akuntansi di Indonesia*. BPFE Yogyakarta.

Kaiser, L., McKenna, K., Lopes, T., & Zarestky, J. (2023). Strategies for supporting adult working learners in the online learning environment. *New Directions for Adult and Continuing Education*, *2023*(179), 53–65. https://doi.org/10.1002/ace.20502

Kelly, K. (2016). *The Inevitable: Understanding the 12 Technological Forces That Will Shape Our Future.* (K. Kelly, Ed.). Viking.

Laal, M., & Salamati, P. (2012). Lifelong learning; Why do we need it? *Procedia - Social and Behavioral Sciences*, *31*, 399–403. https://doi.org/10.1016/j.sbspro.2011.12.073

Lessky, F., & Unger, M. (2023). Working long hours while studying: a higher risk for First-in-Family students and students of particular fields of study? *European Journal of Higher Education*, *13*(3), 347–366. https://doi.org/10.1080/21568235.2022.2047084

Manyika, J., Chui, M., Miremadi, M., Bughin, J., George, K., Willmott, P., & Dewhurst, M. (2017). *A future that works: automation, employment, and productivity*. McKinsey Global Institute, McKinsey & Company.

Stevens, M. L., Alston, G. D., Cini, M., Gallagher, S., Horwitz, I., Kazin, C., McCann, P. C., Pardos, Z., Roumell, E. A., Sheffer, H., Zanville, H., & Settersten, R. (2022). *An Applied Science to Support Working Learners*.

Santoro, G., Vrontis, D., Thrassou, A., & Dezi, L. (2018). The Internet of Things: Building a knowledge management system for open innovation and knowledge management capacity. *Technological Forecasting and Social Change*, *136*, 347–354. https://doi.org/10.1016/j.techfore.2017.02.034

Schwab K. (2016). *The Fourth Industrial Revolution* . World Economic Forum.

Thwe, W. P., & Kálmán, A. (2024). Lifelong Learning in the Educational Setting: A Systematic Literature Review. *Asia-Pacific Education Researcher*, *33*(2), 407–417. https://doi.org/10.1007/s40299-023-00738-w

Weise, M. R. (2021). *Long life learning, preparing for jobs that don't even exist yet.* . John Wiley & Sons, Inc.

Weise, M. R., & Christensen, C. M. (2015). *Hire Education: Mastery, Modularization, and the Workforce Revolution.* . Clayton Christensen Institute for Disruptive Innovation.

Weise, M. R., Hanson, A. R., Sentz, R., & Saleh, Y. (2018). *Robot-ready: human + skills for the future of work*. Strada Institute for the Future of work and Emsi.