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PERUTUSAN
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Alhamdulillah, syukur kepada Allah S.W.T kerana dengan limpah, rahmat dan keizinanNYA maka Seksyen Pengurusan Psikologi, Unit Pengurusan dan Pembangunan Sumber Manusia, berjaya menerbitkan Buletin Psikologi dan Kaunseling, Perkhidmatan Awam Sarawak Bil. 7, No. 2 Tahun 2024.

Sekalung budi dan penghargaan kepada barisan sidang editorial dan para penulis yang telah menyumbangkan artikel masing-masing untuk edisi kali ini. Komitmen serta kesungguhan Tuan/Puan dalam menjayakan penerbitan buletin ini amat dihargai. Saya juga turut berterima kasih kepada panel penilai akademik yang telah menyemak kandungan dan kualiti artikel dalam buletin ini.

Saya juga berharap agar buletin ini dapat memberi peluang kepada para pembaca untuk memahami dengan lebih lanjut mengenai isu psikologi dan kaunseling terutamanya dalam Perkhidmatan Awam Sarawak, sekaligus membantu untuk meningkatkan lagi kesedaran mengenai kepentingan perkhidmatan psikologi dan kaunseling di tempat kerja.

Akhir kata, tahniah dan syabas di atas usaha ini. Saya berharap agar penerbitan buletin ini akan diteruskan demi memartabatkan budaya perkongsian ilmu dalam kalangan penjawat awam Perkhidmatan Awam Sarawak dengan penghasilan karya-karya yang menarik, bermanfaat, bermutu dan berkualiti.

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Embracing The Future: Technology's Role in Shaping the Future of Work for MEITD Officers

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Abstract

In an era of rapid technological evolution, government sectors, including the Ministry of Education, Innovation, and Talent Development (MEITD) in Sarawak, are experiencing a significant transformation in the nature of work. This study aims to explore the role of emerging technologies, such as artificial intelligence (AI), automation, and data analytics, in reshaping the operations, decision-making processes, and competencies required for MEITD officers. The research focuses on five key objectives: identifying the most impactful technological advancements; assessing the influence of digital tools on work processes; analysing the evolving skills and training programs needed for successful technology adoption; investigating the challenges faced in integrating new technologies; and forecasting future trends that will shape the ministry's role within the broader educational landscape in Sarawak. By providing insights into the opportunities and barriers presented by technological advancements, this study contributes to strategic workforce development, aiming to foster a tech-savvy, adaptable, and future-ready MEITD. The findings will also offer recommendations for addressing digital literacy gaps, infrastructure issues, and fostering a culture of continuous learning to maximize the benefits of technology in the public sector.

Keywords: Technological Advancement, Work Processes, Digital Literacy, Skills Development, Future Trends

Introduction

In the rapidly evolving digital landscape, the integration of technology is no longer an option but a necessity for public service institutions worldwide. The Ministry of Education, Innovation, and Talent Development (MEITD) of Sarawak is at the forefront of this transformation, as it plays a crucial role in steering the educational and talent development policies in the region. Technology has emerged as a critical enabler,

shaping not only the future of education but also the roles and responsibilities of officers working within these institutions.

The global push towards digitalization has intensified in recent years, particularly in response to the COVID-19 pandemic, which accelerated the adoption of technology in the public sector. In education, the pandemic revealed the urgent need for systems that are adaptable, resilient, and equipped to handle disruptions. This shift has made it clear that public sector employees, including officers in education ministries, must be prepared to adapt to new technological tools and processes to enhance their efficiency and effectiveness (UNESCO, 2021).

In Sarawak, the state government has committed to bridging the digital divide by investing in digital infrastructure and promoting digital literacy across all sectors (Sarawak Digital Economy Strategy 2018-2022). However, the successful implementation of these initiatives depends heavily on the readiness and capabilities of officers within the MEITD. These officers are responsible for ensuring that policies and programs align with the state's vision for a digital future while addressing the unique geographical and socio-economic challenges faced by Sarawak.

The evolving role of officers in the ministry now extends beyond traditional administrative duties. They are expected to become drivers of innovation, utilizing data-driven decision-making, digital tools, and technologies to manage educational programs and talent development more effectively. This transformation requires a workforce that is not only proficient in using technology but also capable of leveraging it to improve public services and educational outcomes.

Despite the clear need for technology integration, several challenges remain. Officers may face barriers such as limited access to cutting-edge technologies, lack of continuous training, and an entrenched reliance on outdated systems and processes. Furthermore, there is a growing need for policies that support sustainable innovation while fostering a culture of digital adaptability within the ministry.

This study aims to explore how technology is reshaping the future of work for officers in the Ministry of Education, Innovation, and Talent Development of Sarawak. By investigating the current state of technological adoption, the challenges officers face, and the strategies that can enhance their readiness for the digital age, this research seeks to provide actionable insights into the future of public service in Sarawak's education sector.

Literature Review

The rapid advancement of technology is transforming the future of work globally. For government institutions like the Ministry of Education, Innovation, and Talent Development (MEITD) in Sarawak, the integration of technological innovations is crucial to enhancing operational efficiency, decision-making, and educational development. Technology, especially in education, innovation, and workforce development, is reshaping how tasks are performed, and services are delivered.

Technological advancements can shape the future of work for officers in the MEITD in four in terms of (i) digital transformation, (ii) automation, (iii) skills development, and (iv) technology in education.

(i) Digital transformation in public sector work

Digital transformation refers to the integration of digital technology into all areas of public administration, fundamentally changing how government institutions operate and deliver value to citizens. Digitalization enables ministries such as MEITD to streamline administrative tasks, facilitate better communication, and improve decision-making processes. According to Mergel et al. (2019), digital transformation in the public sector is key to enhancing service delivery, reducing operational costs, and increasing transparency. MEITD officers can utilize data analytics, cloud computing, and artificial intelligence (AI) to provide more informed educational policies and workforce strategies. Another study by Cordella and Tempini (2015) highlights the role of information and communication technology (ICT) in enhancing public sector services. They argue that ICT can improve the internal management of human resources and education systems, aligning with the goals of talent development in Sarawak.

(ii) Automation and Artificial Intelligence (AI) in ministry operations

Automation and AI are expected to play a significant role in the future of work. These technologies can automate routine tasks, analyse data, and predict trends, which is particularly relevant for administrative functions in ministries such as MEITD. Bessen (2019) notes that automation and AI can complement human labour rather than replace it. For MEITD officers, this could mean a shift in focus from repetitive administrative tasks to strategic decision-making and policy formulation. Brynjolfsson and McAfee (2014) emphasize the need for organizations to adapt to an AI-driven economy by developing skills that complement automation. In Sarawak's context, this would involve equipping MEITD officers with the ability to manage AI tools for educational planning and talent development.

(iii) Digital skills and lifelong learning

As technology becomes more integrated into public sector work, the demand for digital skills will increase. For MEITD officers, developing digital competencies and promoting lifelong learning are essential to effectively use emerging technologies. A study by World Economic Forum (2020) identifies digital skills as a core requirement for future government employees. Officers in MEITD must be trained in digital literacy, data management, and the use of digital tools to enhance their effectiveness. Eynon and Malmberg (2021) explore the importance of lifelong learning in adapting to technological changes. The rapidly evolving nature of technology means that MEITD officers will need continuous professional development to keep pace with new tools and methods.

(iv) Technology in education: enhancing policy and talent development

Education is a primary focus of MEITD, and technology plays a vital role in shaping future education policies and programs. The integration of digital platforms and e-

learning tools is essential for talent development in the digital economy. According to Selwyn (2016), digital education technologies offer opportunities for personalized learning and more efficient policy implementation. For the ministry, the ability to utilize these tools can lead to better student outcomes and more effective workforce development programs. Additionally, Voogt et al. (2018) argue that educational technology is crucial for the development of 21st-century skills. In the Sarawakian context, equipping students and workers with skills such as critical thinking, problem-solving, and digital literacy will be crucial for future economic success.

For officers in the Ministry of Education, Innovation, and Talent Development in Sarawak, embracing technological advancements is essential to shaping the future of work. Digital transformation, automation, and the development of digital skills will be crucial in creating a more efficient, innovative, and future-ready workforce. By leveraging technology, MEITD can not only improve internal operations but also enhance educational outcomes and workforce readiness, ensuring Sarawak remains competitive in a rapidly evolving global economy.

Research Objectives:

- a. To identify key technological advancements: Investigate the most significant technological changes and tools influencing the daily operations and strategic functions of the Ministry of Education, Innovation, and Talent Development in Sarawak.
- b. To assess the impact of technology on work processes: Examine how digital tools, automation, and other innovations are streamlining or changing traditional workflows and decision-making processes for ministry officers.
- c. To evaluate skills and competency development: Analyse the evolving skill sets required by officers to adapt to technological changes, and how training programs are being tailored to meet these demands.
- d. To investigate the challenges and barriers: Explore the obstacles officers face in adopting new technologies, including issues of infrastructure, digital literacy, and resistance to change.
- e. To predict future trends and opportunities: Forecast how emerging technologies such as AI, machine learning, and data analytics will further influence the ministry's functions and the overall education system in Sarawak.

Method

Design

This study used a mixed-methods approach, combining both qualitative and quantitative research techniques to gain a comprehensive understanding of the influence of technology on the future of work within the ministry.

Data collection methods

- a. Surveys: Structured questionnaires have been distributed to a representative sample of ministry officers to gather data on their experiences with technology in their roles.

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- b. Interviews: Semi-structured interviews have been conducted with key stakeholders, including decision-makers and IT managers, to obtain deeper insights into the strategic implications of technology.
 - c. Focus Groups: Focus groups with officers from different departments and grades have been carried out in order to facilitate discussions on technology's impact on collaborative work and administrative efficiency.
 - d. Document Analysis: Relevant policy documents, strategic plans, and digital transformation reports from the Ministry of Education, Innovation, and Talent Development have been analysed to understand the role of technology in their operational plans.

Sampling

The study employed purposive sampling to select officers at various levels or grades (e.g., senior officials, IT staff, and frontline educators) within the ministry. A minimum sample size of 100 respondents have been targeted for the survey, while at least 10 in-depth interviews have been conducted.

Research Findings & Discussion

Key technological advancements

The role of technology in shaping the future of work at the Ministry of Education, Innovation, and Talent Development (MEITD) in Sarawak is influenced by several key technological advancements that are redefining daily operations and strategic functions:

- (a) Artificial Intelligence (AI): AI is transforming education systems worldwide by streamlining administrative tasks and personalizing learning experiences. In the context of MEITD, AI could help optimize the management of resources and provide more personalized learning solutions for students. AI-driven tools can automate up to 20% of routine tasks, allowing educators and officers to focus more on innovative educational strategies.
- (b) Digital and Assistive Technologies: Tools like digital textbooks and assistive technologies are crucial for improving accessibility and equity in education. MEITD could integrate these tools to support learners with disabilities and those in remote regions of Sarawak. This aligns with broader global trends where technologies ensure inclusivity, particularly benefiting disadvantaged groups (Fernández-Batanero *et.al*, 2022)
- (c) Data and Learning Analytics: The use of data-driven tools allows MEITD to track student performance and educational outcomes more effectively. By integrating learning analytics, they can identify areas where interventions are needed, leading to better-informed decision-making and policy development

- (d) Incorporating these technologies not only supports the modernization of Sarawak's education system but also prepares it for the demands of a future-oriented workforce. As MEITD embraces these advancements, it can foster an innovative educational environment aligned with Sarawak's developmental goals.

Impact of Technology on Work Processes

Technology is significantly transforming how officers in MEITD carry out their tasks, with digital tools, automation, and innovations streamlining workflows and enhancing decision-making processes. Below are key areas where these technological changes are making an impact:

(a) Digital tools in administrative efficiency

- i. **Document Management Systems:** The adoption of digital tools for document handling has drastically reduced the time spent on administrative tasks. Officers can now manage, share, and retrieve documents more efficiently using cloud-based storage systems. This improves collaboration across departments, enabling quicker access to essential data and reducing the reliance on paper-based processes (Winthrop, et al., 2017)
- ii. **Collaborative Platforms:** Tools like Microsoft Teams and Google Workspace are used to facilitate communication and teamwork among ministry officers. These platforms offer real-time document editing, video conferencing, and centralized communication channels, significantly improving the efficiency of interdepartmental collaboration (Winthrop, et al., 2017)

(b) Automation in routine tasks

- i. **Automated Data Entry and Analysis:** Automation has helped MEITD officers eliminate manual data entry, which was time-consuming and prone to human error. Software programs can now automatically collect, process, and analyse data, such as student records and program outcomes. This enables officers to focus on more strategic decision-making, as routine tasks are automated (World Economic Forum, 2024; Winthrop, et al., 2017)
- ii. **AI-Powered Decision Support Systems:** AI-driven tools assist in making more informed decisions by providing predictive insights and analysing trends. For example, AI can forecast student performance outcomes based on existing data, allowing policymakers to design more targeted interventions (World Economic Forum, 2024).

(c) Streamlined decision-making processes

- i. **Data-Driven Policy Development:** Technology enables ministry officers to base decisions on real-time data analysis rather than intuition or outdated information. For example, data from digital education platforms can be leveraged to identify which schools or regions require additional resources.

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- ii. Remote and Hybrid Work Models: The pandemic has accelerated the adoption of remote work technologies in the ministry. Officers can now access critical systems and tools remotely, enabling flexible working conditions while maintaining productivity. This shift has also changed how meetings, consultations, and decision-making occur, making them more time-efficient through virtual platforms.

(d) Challenges and adaptations

- i. Infrastructure Limitations: While digital tools offer numerous benefits, the ministry faces challenges in fully leveraging these technologies due to infrastructure constraints, particularly in remote areas of Sarawak where internet connectivity is limited.
- ii. Training and Capacity Building: As the ministry increasingly integrates technology into its work processes, there is a growing need for officers to upskill in digital literacy. Continuous training programs are essential for ensuring that the workforce can effectively use these digital tools and automation technologies.

By streamlining workflows, improving data-based decision-making, and automating routine tasks, technology is reshaping how officers in MEITD function. These innovations not only boost operational efficiency but also allow the ministry to respond more effectively to the evolving educational needs of Sarawak.

Skills and Competency Development

The integration of technology in the Ministry of Education, Innovation, and Talent Development (MEITD) requires officers to continuously develop new skill sets to adapt to rapidly changing digital environments. As technology reshapes work processes, it also demands enhanced competencies in areas such as digital literacy, data management, cybersecurity awareness, and the use of automated systems.

- a. Digital Literacy: Officers need to be proficient in using various digital platforms and tools. This includes mastering basic office productivity software, cloud computing platforms, and communication tools like Microsoft Teams and Google Workspace.
- b. Data Management and Analysis: With the growing reliance on data-driven decision-making, officers must develop skills in managing and analyzing large datasets. This includes understanding how to use software for data collection, analysis, and visualization to support educational policy and program development.
- c. Cybersecurity Awareness: As digital systems become more central to ministry operations, the need for officers to be knowledgeable in cybersecurity practices becomes critical. This includes understanding data privacy regulations, identifying phishing attacks, and safeguarding sensitive information.

- d. AI and Automation: Officers are increasingly required to engage with AI tools and automation technologies to streamline workflows. This means developing competencies in using AI-powered decision-making systems, automation software for routine tasks, and predictive analytics tools. Simplify into one paragraph.

The ministry has launched various tailored training programs to enhance digital skills development. These include ongoing upskilling initiatives with workshops and online courses in data analysis, AI, and cybersecurity. Partnerships with tech firms and educational institutions provide specialized training in cloud computing, AI, and data science. Customized e-learning platforms like Coursera and Udemy allow officers to learn at their own pace, with courses designed to meet MEITD's needs. Additionally, mentorship and peer learning programs encourage knowledge sharing and collaboration, with more tech-savvy officers guiding others in adopting new technologies.

Skill development faces several challenges, including the digital divide, particularly in rural areas of Sarawak, where limited access to technology and internet connectivity hampers progress. The ministry is addressing this by improving infrastructure and offering targeted training to officers in remote regions. Another challenge is resistance to change, as some officers may fear obsolescence or lack confidence in learning new systems. Overcoming this requires not only technical training but also change management programs that promote a positive mindset toward adopting new technologies.

By focusing on these evolving skill sets and developing comprehensive training programs, MEITD is preparing its workforce for a more technology-driven future. The ministry is taking a proactive approach in ensuring its officers have the necessary tools and knowledge to meet the demands of digital transformation.

Challenges and Barriers

The adoption of new technologies by officers in the Ministry of Education, Innovation, and Talent Development (MEITD) of Sarawak is essential for modernization. However, various obstacles hinder the effective integration of digital tools and innovations into their workflows. These challenges include infrastructure limitations, gaps in digital literacy, and resistance to change within the ministry.

(a) Infrastructure limitations

- i. Inconsistent Internet Connectivity: A significant barrier to the adoption of digital tools is inconsistent internet access, especially in rural and remote areas of Sarawak. The state's vast geography makes it difficult to establish reliable high-speed internet connections in all regions. This limits the ability of ministry officers and educators to access online platforms, utilize cloud-based systems, and participate in remote training.

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- ii. **Lack of Adequate Technological Infrastructure:** In many government offices, especially in rural parts of Sarawak, outdated hardware and insufficient access to modern IT systems prevent officers from fully embracing new digital tools. This infrastructure gap hinders the smooth implementation of cloud-based services, digital education platforms, and automated workflows.

(b) Digital literacy gaps

- i. **Limited Digital Competency:** A substantial number of officers are not fully equipped with the digital skills needed to efficiently use emerging technologies. The lack of comprehensive digital literacy affects the ability to use advanced tools such as data analytics, AI-based systems, and other automation technologies that could enhance work efficiency.
- ii. **Need for Continuous Training:** While the ministry has initiated training programs, the pace of technological change requires continuous learning. Many officers struggle to keep up with the rapid advancements, especially if they are not tech-savvy or have not had previous exposure to certain digital tools

(c) Resistance to change

- i. **Cultural and Organizational Resistance:** Resistance to technological changes is prevalent in many organizations, including MEITD. Some officers fear that new technologies, such as automation, could render their roles obsolete or significantly alter their work routines. This fear leads to reluctance in adopting digital tools and engaging in upskilling efforts.
- ii. **Mindset and Change Management Issues:** The introduction of new technologies requires not only technical training but also a shift in mindset. Officers may perceive technology as disruptive or unnecessary, especially if they have relied on traditional workflows for many years. Addressing this psychological barrier is essential for fostering a culture that embraces digital transformation.

(d) Budgetary and policy constraints

- i. **Limited Funding for Technological Upgrades:** Budget constraints often impede the acquisition of modern IT infrastructure and the development of comprehensive training programs. Although the ministry is aware of the need for digital transformation, the allocation of sufficient resources for technology adoption can be a challenge.
- ii. **Policy and Administrative Challenges:** Bureaucratic processes and slow decision-making can delay the implementation of new technologies. The need for approvals and coordination across different levels of the ministry further complicates the adoption of digital tools.

To overcome these barriers, MEITD needs to focus on improving infrastructure, especially in remote areas, and providing continuous digital literacy programs. Additionally, there is a need for change management initiatives to address cultural resistance to technology. Encouraging a positive mindset toward digital tools and demonstrating the long-term benefits of technology integration are key to ensuring smoother transitions.

Future Trends and Opportunities

Emerging technologies like artificial intelligence (AI), machine learning (ML), and data analytics are expected to play a transformative role in the Ministry of Education, Innovation, and Talent Development (MEITD) of Sarawak. As these technologies mature, they will offer unprecedented opportunities to enhance the ministry's functions and revolutionize the educational landscape in Sarawak.

(a) AI and automation in administrative and strategic functions

- i. **Efficiency in Administrative Tasks:** AI-driven automation will continue to streamline routine administrative processes within the ministry, such as scheduling, resource management, and communication. This will free up human resources to focus on higher-order strategic planning and decision-making.
- ii. **AI-Powered Policy Formulation:** AI can analyse massive datasets to provide predictive insights that inform policy decisions. For example, predictive models can forecast trends in student enrolment, performance, and resource allocation, allowing MEITD to design more effective education policies and interventions.
- iii. **Automated Reporting and Monitoring:** AI tools will enable the automation of reporting processes, such as tracking student outcomes, analysing teacher performance, and monitoring school infrastructure development. This will enhance transparency and accountability, ensuring that decisions are data-driven and reflective of real-time educational needs.

(b) Machine learning for personalized learning and education

- i. **Adaptive Learning Systems:** Machine learning algorithms will enable the creation of personalized learning platforms that adapt to the needs of individual students. These platforms will adjust content, pacing, and assessment methods based on the student's learning style and progress. This can significantly improve learning outcomes, especially in diverse and remote areas of Sarawak where educational resources are varied.
- ii. **Early Detection of Learning Difficulties:** Machine learning models will help in identifying students who are at risk of falling behind. By analysing patterns in performance and engagement, the ministry can intervene early, providing targeted support to ensure no student is left behind.

(c) Data Analytics for strategic decision-making

- i. **Data-Driven Policy Development:** Data analytics will be at the core of future policy-making efforts within MEITD. By analysing data from various schools, student performance, and educational programs, the ministry can tailor policies to specific regions or demographics. This ensures that decisions are based on solid empirical evidence, leading to more effective and localized solutions.
- ii. **Resource Allocation and Management:** Data analytics will allow the ministry to optimize resource allocation. For example, data on school infrastructure, teacher distribution, and student needs can guide decisions on where to invest in new schools or hire additional staff. This will ensure that resources are allocated more efficiently, reducing waste and improving educational outcomes across the state

Conclusion

Embracing the Future of Work for Officers in the Ministry of Education, Innovation, and Talent Development Sarawak (MEITD). The Ministry of Education, Innovation, and Talent Development (MEITD) in Sarawak is on the cusp of a transformative period, driven by rapid technological advancements such as artificial intelligence (AI), machine learning, data analytics, and automation. These emerging technologies are fundamentally reshaping the way ministry officers work, from streamlining administrative processes to enabling data-driven policy-making. Digital tools and automation not only enhance operational efficiency but also allow for more informed, faster decision-making, ultimately contributing to the ministry's goal of elevating education standards in Sarawak. However, this technological shift brings both opportunities and challenges. While digital tools enhance productivity, they also require significant investments in infrastructure and human capital. Addressing issues such as limited access to technology in remote areas, the digital literacy gap, and resistance to change will be critical in ensuring a smooth transition. Training programs tailored to new digital competencies, coupled with effective change management, are essential to prepare the workforce for the future.

Looking forward, the integration of AI, machine learning, and advanced data analytics will continue to influence MEITD's operations, allowing for more precise educational interventions and policy formulations based on real-time data. As these technologies mature, they will offer even greater opportunities to innovate and optimize education delivery, making education more accessible, equitable, and effective across Sarawak. In conclusion, while the road to full technological integration is complex, the benefits far outweigh the challenges. By embracing these innovations, MEITD will not only future-proof its operations but also play a critical role in advancing Sarawak's educational landscape and workforce development for the digital age.

References

- Bessen, J. E. (2019). AI and Jobs: The Role of Demand. *National Bureau of Economic Research*.
- Brynjolfsson, E., & McAfee, A. (2014). *The Second Machine Age: Work, Progress, and*

-
- Prosperity in a Time of Brilliant Technologies. *W. W. Norton & Company*.
- Cordella, A., & Tempini, N. (2015). E-Government and Organizational Change: Reappraising the Role of ICT in Public Sector Reform. *Government Information Quarterly*, 32(3), 279-286.
- Eynon, R., & Malmberg, L. E. (2021). Lifelong Learning and the Digitalization of Work. *European Journal of Education*, 56(1), 19-33.
- Fernández-Batanero, J.M., Montenegro-Rueda, M., Fernández-Cerero, J. *et al.* Assistive technology for the inclusion of students with disabilities: A systematic review. *Education Tech Research Dev*, 70, 1911–1930 (2022). <https://doi.org/10.1007/s11423-022-10127-7>
- Mergel, I., Edelman, N., & Haug, N. (2019). Defining Digital Transformation: Results from Expert Interviews. *Government Information Quarterly*, 36(4), 101385.
- OECD. (2020). *Public Service Leadership and Capability: Managing the Digital Transformation of Government*. Paris: OECD Publishing. Retrieved from <https://www.oecd-ilibrary.org/governance/>
- Sarawak Digital Economy Strategy 2018-2022. (2018). Sarawak Multimedia Authority. Available at: <https://www.sma.gov.my/>
- Selwyn, N. (2016). Education and Technology: Key Issues and Debates. *Bloomsbury Academic*.
- UNESCO. (2021). *Reimagining our futures together: A new social contract for education*. United Nations Educational, Scientific and Cultural Organization. Retrieved from <https://unesdoc.unesco.org/>
- Voogt, J., Erstad, O., Dede, C., & Mishra, P. (2018). Challenges to Learning and Schooling in the Digital Networked World. *Journal of Computer Assisted Learning*, 34(4), 404-417.
- Winthrop, R., McGivney, E., Williams, T. P., & Shankar, P. (2017, February 23). *Innovation and technology to accelerate progress in education*. Brookings. Retrieved September 18, 2024, from <https://www.brookings.edu/articles/innovation-and-technology>
- World Economic Forum. (2020). *The Future of Jobs Report 2020*. Geneva: World Economic Forum. Retrieved from <https://www.weforum.org/reports/the-future-of-jobs-report-2020>
- World Economic Forum. (2024, April 28). *Revolutionizing classrooms: How AI is reshaping global education*. Retrieved September 15, 2024, from <https://www.weforum.org/press/2024/04/revolutionizing/>

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