COMPENDIUM

EDF5767 – Leading Educational Technology Change

Assessment Task 1

Word Count: 1600

Ricky Yakobus Kota
Student ID: 34249206

Context

This annotated bibliography evaluates various models and approaches to assess their suitability for K-12 schools across Indonesia, with the goal of supporting teachers in effectively implementing technological innovations. As the leader of technology-related innovations in the educational technology department at the head office of a private school network comprising over 40 K-12 schools, I am responsible for guiding these efforts.

Entry 1

Bicalho, R. N. d. M., Coll, C., Engel, A., & Lopes de Oliveira, M. C. S. (2023). Integration of ICTs in teaching practices: propositions to the SAMR model. *Educational Technology Research and Development*, *71*(2), 563-578. https://doi.org/10.1007/s11423-022-10169-x

The article examines the integration of Information and Communication Technologies (ICTs) in teaching, using the SAMR model to evaluate their impact. The key findings are most teachers used ICTs at substitution and augmentation levels, encountering two layers of barriers. However, this article focuses on overcoming the second-order barriers, which are teacher attitudes and beliefs towards technology. The article emphasizes the need for a sociocultural perspective to understand the barriers. It then gives some proposition for improving the SAMR model based on the findings. Firstly, recognizing the importance of sociocultural contexts in ICT integration. Secondly, allowing for transitions between deferent levels of the SAMR model based on contextual factors. Lastly, emphasizing the role of ICTs in creating a new learning ecology that supports student-centered practices and active methodologies. In conclusion, the article suggests a more flexible and context-sensitive approach to the SAMR model, highlighting the importance of pedagogical intentionality and the dynamic nature of teaching and learning processes.

The findings of this article are highly relevant to my context of leading educational technology innovation across a network of K-12 schools in Indonesia. The study's emphasis on the sociocultural context aligns with the diverse environments of these schools. The propositions for improving the SAMR model offer valuable insights for developing tailored ICT integration plans that consider each school's unique needs. This

is significant for ensuring that technology enhances learning outcomes rather than being used prescriptively by teachers just to fulfill the tasks to integrate ICT. One limitation of the study is its focus on a single educational institution, which may not fully capture the greater complexity present in my context across different schools in Indonesia. However, this also presents an opportunity to apply the findings in a broader context and adapt the propositions to fit various educational settings. The article's insights into second-order barriers, such as teachers' beliefs and attitudes, provide a foundation for targeted professional development programs. Kohnke et al. (2024) found that professional development with microlearning, guided by SAMR model, significantly influence teachers' digital competence, confidence, while also enabling them to focus on developing their skills based on their individual needs. Its relevance to the Indonesian school network context is evident, offering a framework for addressing the challenges and opportunities of ICT integration.

Entry 2

Leite, L. O., & Lagstedt, A. (2021). The Collective Integration of Technology (CIT) Model: Helping Teachers Incorporate Technology Meaningfully in their Everyday Work. *International journal of education and development using information and communication technology*, *17*(3), 249-268.

The article presents a model to help teachers in integrating educational technology (EdTech) effectively. The Collective Integration of Technology (CIT) model identifies the four states teachers experience: shock, negotiation, empowerment, and explorer. These four states encompass the emotional, cognitive, and social processes that teachers experience when adopting new technology. The model emphasizes the importance of support from trainers and school leaders and fostering a collaborative culture where empowered teachers assist their peers. The article compares the CIT model with existing frameworks like UTAUT and TPACK, highlighting its comprehensive approach to managing change at both organizational and individual levels. The findings indicate that the CIT model offers practical tools for trainers supporting school teachers in integrating educational technology into their professional practices. In addition, it also emphasizes the need to align EdTech integration with school policies and integrated into university programs, underscoring the importance of equipping future educators from the start of

their education. Future research will focus on empirical validation and further refinement of the model.

I am interested in how this model views the integration of technology holistically from a teacher's perspective. The four states described highlight the different needs of teachers in three aspects. Emotional, social, and cognitive aspects must be addressed for teachers throughout the process of integrating new technology into learning, which can be achieved by fostering a collaborative culture in schools. Given the large number of schools and teachers, systematic planning is necessary to prepare this collaborative culture. However, it should be noted that this model emphasizes the role of school leaders for success. The article assumes that school leaders are already prepared to carry out their duties. This model explains what school leaders need to do, but does not provide what school leaders need to succeed in their tasks. Witthöft et al. (2024) in their research state that digital transformation in schools requires a change in stakeholders' mindset; Their research shows that collaboration culture in schools is significantly influenced by the open innovation mindset (OIM) of school leaders. It involves leaders' openness, creativity, positive attitude towards knowledge sharing and risks, and failure tolerance. In conclusion, the CIT model in this article is very good at explaining how to support teachers in their tasks, but there needs to be more discussion on how to strengthen the role of school leaders in carrying out their duties to support teachers.

Entry 3

Witthöft, J., Aydin, B., & Pietsch, M. (2024). Leading digital innovation in schools: the role of the open innovation mindset. *Journal of research on technology in education*, 1-20. https://doi.org/10.1080/15391523.2024.2398528

The article examines the critical role of school leaders in fostering digital innovation through an open innovation mindset (OIM). The study highlights the importance of transformational leadership (TL) and effective knowledge management (KM) practices in driving digital transformation in schools. By analyzing a sample of German school leaders, the authors demonstrate that an OIM, characterized by openness, creativity, a positive attitude towards knowledge sharing, and risk tolerance, significantly influences TL practices. These leadership practices, in turn, enhance KM, which is crucial for

implementing digital innovations. The findings suggest that school leaders with an OIM can create a collaborative culture that supports digital innovation. The study underscores the need for professional development programs to cultivate these dynamic capabilities in school leaders, thereby facilitating sustainable digital transformation in educational settings.

One key point that is highlighted in the article is the importance of open innovation mindset (OIM) in fostering a collaborative culture that supports digital innovation. In the context of leading educational technology change in schools with diverse contexts, school leaders with an OIM can create an environment where teachers feel valued and empowered to share their unique perspectives and innovative ideas, fostering a sense of community and collective effort towards digital transformation. However, implementing an OIM in such a diverse schools can be challenging as each school is different; Different school culture may affect how teachers perceive and engage with digital innovation. For instance, some cultures may have a higher tolerance for risk and failure, while others may be more risk averse. Additionally, varying levels of digital literacy and access to resources can create disparities in how effectively teachers can participate in and contribute to digital innovation initiatives. To address these challenges, school leaders must adopt a culturally responsive approach. Bicalho et al. (2023) argue that the most important aspect in an ICT integration is not the use of ICT, but understanding sociocultural context of teachers and students needs is more important. Although they reference it in the context of ICT integration using the SAMR model, it is also applicable to the implementation of an open innovation mindset (OIM). This also aligns with Leite and Lagstedt (2021) that says it is important to address emotional, social, and cognitive aspects of teachers within four CIT's states. By implementing OIM while considering different cultural context, school leaders can ensure that the benefits of OIM are realized across the entire school community, leading to a more effective digital innovation.

Entry 4

Kohnke, L., Foung, D., Zou, D., & Jiang, M. (2024). Creating the conditions for professional digital competence through microlearning. *Educational Technology & Society*, *27*(1), 183-197. https://doi.org/10.30191/ETS.202401_27(1).SP05

The article explores the use of microlearning as an innovative approach to teacher professional development (TPD) in Hong Kong. It addresses the limitations of traditional TPD methods and emphasizes the need for teachers to develop digital competence, especially in the wake of the COVID-19 pandemic. The study employs a qualitative case study approach, involving 32 pre-service English language teachers, and uses data from questionnaires, interviews, and observations. Key findings include the initial lack of confidence among teachers in using digital tools, the effectiveness of the SAMR framework in improving digital content creation, and the challenges of classroom management with digital tools. The study concludes that microlearning significantly enhances digital competence, TPACK awareness, and SAMR integration, recommending a focus on digital pedagogy and personalized, hands-on training for future TPD initiatives.

The article highlights the effectiveness of microlearning in enhancing digital competence among pre-service teachers, which is highly relevant for implementing technological innovations in Indonesian schools. Microlearning's flexibility and accessibility make it scalable across a large network of schools, allowing teachers to access training at their convenience. This is particularly beneficial in a culturally diverse country like Indonesia. However, teacher professional development (TPD) through microlearning in this article emphasize more on cognitive aspect of teacher. As Bicalho et al. (2023) in their research identify there are second-order barriers to ICT integration such as teachers' beliefs and attitudes, which hinder effective ICT integration. Therefore, TPD should balance focus on other aspects rather than just put too much attention on cognitive aspect of teachers. Additionally, personalizing the TPD content into bite-sized learning objective can potentially reduce the delivery of school particular contexts. Therefore, TPD should also deliver the sociocultural context for teachers to understand before they delve deeper into the content of their subject. Furthermore, Bicalho et al. (2023) found that enabling teachers to transition between different levels of the SAMR model can enhance their digital pedagogy by providing the flexibility to deviate from the prescribed order of levels.

Generative AI acknowledgement

I declare that Microsoft Copilot (https://m365.cloud.microsoft/chat) was utilized to enhance the academic tone, and Studiosity (https://www.studiosity.com), provided by Monash University, was used for correcting grammar, spelling, and punctuation errors in this compendium.