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Identifying the Dimensions of Teachers' Digital Learning Agility in the Age of Exponential Technology Use

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Abstract: The volatile, uncertain, complex, and ambiguous (VUCA) world and IR4.0 developments forces drastic changes to sustain and provide quality education. When schools were shut down abruptly due to COVID-19, teachers were forced into emergency remote teaching, mostly by utilizing technologies but with little to no specific structure. In Malaysia, studies found that teachers struggled with technology ability especially in mastering technology applications. Due to limited experience in preparing electronic materials and using online platforms, teachers took the time to deliberate on the ways to teach online, causing delays in learning. Delays can be mitigated if teachers are agile. Agile teachers are capable to deal with new experience flexibly and rapidly by trying new behaviors and making quick adjustments so that new learning can be realized even when they do not know exactly what to do when they face unexpected challenges. This quality in teachers is important to curb learning loss especially when education was threatened by COVID-19. Reciprocally, technology plays an important role to promote Learning Agility among teachers, ensure sustainability and quality of learning, and forge learners' engagement. With the exponential use of technologies, teachers need to be an agile classroom leader. This study aims at identifying the dimensions that shape teachers' Digital Learning Agility. We hoped that this proposed research can shed insights on digital learning agility and can improve teachers' performance especially in the age of exponential technology use.

Keywords: digital learning agility, technology competence, emergency remote teaching, teachers' performance

1. Introduction

Volatile, uncertain, complex and ambiguous (VUCA) is the defining characteristics of today's world. The COVID-19 pandemic had forced schools worldwide to shut down and emergency remote teaching ensued (UNESCO, 2022). While the pandemic had hampered several initiatives in education, in retrospect, it had accelerated technology adoption. However, the adoption fell short as most teachers were unprepared and insufficiently equipped with the necessary technological knowledge. Technology ability is a growing challenge among teachers in Malaysia when education was threatened by COVID-19. This is due to their limited experience in preparing electronic materials and using online platforms prior to the pandemic (Chin, Jiew & Al Jupri, 2022). Chin et al. added, their inability to response quickly to the drastic changes in online learning has caused learning delays, and to some extend, learning loss.

Despite the shortcomings of remote and online learning amid the pandemic, there were evidences of success. Scholars have suggested that teachers' agility could be on of the main factors that contributed to the success, despite their scarce technological knowledge. What makes them different? Agile teachers are willing to face a new experience with flexibility and speed because they

know that students' learning are hinged by the teachers' competence. For instance, teachers are willing to try new practices and make quick adjustments so that learning can be realized even when they do not know exactly what to do when they face unexpected challenges.

2. Literature Review

2.1 Learning Agility: Of Flexibility and Speed

As the frontrunners of education, the teacher's role is paramount in ensuring the sustainability and quality of education. Moreover, with the emergence of the Digital Education Policy by the Malaysia Ministry of Education (Astro Awani, 2021), their roles as a strategic classroom leader became more apparent in ensuring the feasibility of the policy. With the challenges presented by VUCA and the rapid developments of IR4.0, teaching and learning is facing an unexpected transformation not only through methods and techniques, but steep growth of teachers' mindsets, instructional practices and knowledge orientation. Galés and Gallon (2019) asserted that the growing needs for a dynamic and flexible learning for every child necessitates a much more complex and enriched principles for teaching and learning, which consequently requires upskilling and reskilling among teachers. These resonate the aim of Malaysia Teachers' Standard 2.0 whereby teachers should be able to self-initiate their own professional development (Ministry of Education, 2019) to move forward.

Agility is well positioned to respond to uncertainty (Krotov, Junglas & Steel, 2015), thus this trait is much needed in the COVID-19 and other VUCA circumstances in Malaysia. Galés and Gallon (2019) vouched that an agile approach to teaching and learning in modern environment should be able to offer a flexible but structured situation that is ambidextrous to meet the growing needs of both teachers and students. Rutkiene and Ponomarenko (2019) emphasize the importance of teachers acquiring the ability to use modern digital technologies and equipment for information searching and lesson preparation. It is also imperative to note that an agile teacher not only should embody the skills but should be able to respond quickly especially when they are presented with new, complex, ambiguous and/or unfamiliar situations such as COVID-19.

Learning agility has long been discussed in organizational agility to ensure successful and effective performance, but not in the educational settings. Thus, this study aims to adopt and adapt this idea into the educational settings. Past scholars unanimously agreed that learning agility focuses on flexibility and speed (Burke, 2018; Mitchinson & Morris, 2014, & DeRue, 2012) that is characterized by learning enablers (which support individuals' learning agility) and derailers (which impede individuals' learning agility). According to Hoff and Burke (2017), an individual's ability to handle pressure and respond accordingly is an important factor in learning agility process. They added that people with higher learning agility scores perform better and would be more adaptable and willing to confront new, different, and unfamiliar demands.

According to the seminal work by Lombardo and Eichinger (2000), learning agility is defined as a person's ability and willingness to learn from their past and current experience, and adapt to new unfamiliar situation as a means to effectively perform at their workplace. Brown and Bessant (2003) define learning agility as an individual's capacity to identify and respond dexterously to opportunities that came from the unexpected changes in the situation that he/she is in. In short, it means that individuals who are quick to realize the opportunities that came with a novel situation and can strategize new plans has an upper hand in their performance as compared to their colleagues who are also affected by the similar situation but are not agile. Scholars also added that an agile individual can learn with speed and through a steep learning curve within a short period of time but can still deliver their tasks effectively and/or willing to take risks even if their decisions were not accurate due to the unfamiliarity of the situation they met (Burke, 2018; Mitchinson & Morris, 2014, Weber & Tarba, 2014; DeRue, 2012). Being able to handle pressure and respond accordingly is an important factor in learning agility process. Mitchinson and Morris (2014) visualized the Learning Agility Assessment Inventory as a framework that consist of four learning enablers and one learning derailer. Learning enablers are the mind-sets that will support learning agility. They are Innovating, Performing, Reflecting and Risking. However, learning derailer can hamper one's Learning Agility. Derailed mind-sets of derailed individuals are defensive and resilient to change. As such, they are not willing/unable to change and prefer to cling on to their past experiences that worked successfully in the past situations

but could not work under the new circumstances. In addition to this, they refuse to grab opportunities even when they are presented with them (Harvey & DeMeuse, 2021) (Figure 1).

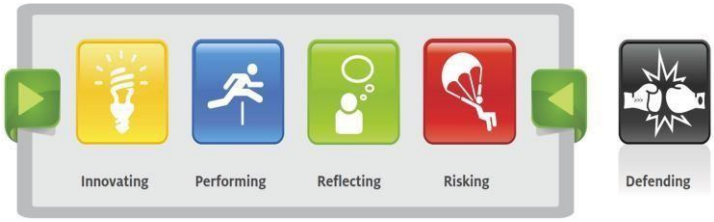

Figure 1. Learning Agility Enablers and Derailer (Mitchinson & Morris, 2014, p.3)

Lombardo and Eichinger (2000) came up with four interrelated facets of Learning Agility. They proposed that Learning Agility consists of People Agility (good interpersonal, learn from the past, treat others constructively, calm and resilient under pressure of new changes), Change Agility (curious, passionate, experimenting, upskilling/re-skilling), Results Agility (works best under pressure, inspire others to outperform, aspire others just by their presence), and Mental Agility (look at problems in retrospect, welcomes complex and ambiguous situations, iterating their minds to others). DeMeuse (2017) illustrates Lombardo and Eichinger's Learning Agility definition as shown in Figure 2.

Figure 2. The four interrelated facets of learning agility (DeMeuse, 2017, p. 270)

Mitchinson and Morris's (2014) Learning Agility Assessment Inventory and Burke's Learning Agility Assessment Inventory (2018) are two main framework available in the literature of learning agility. According to Mitchinson and Morris, learning agility is characterized by learning enablers that support learning agility and learning derailers that impede learning agility. They outlined four learning enablers, namely innovating, performing, reflecting, and risking. Meanwhile, defending is the only learning derailer. Burke (2018), on the other hand, outlined nine dimensions of learning agility focusing on behavior, namely flexibility, speed, experimenting, performance risk taking, interpersonal risk taking, collaborating, information gathering, feedback seeking, and reflecting. Some of these variables overlap with those proposed by Mitchinson and Morris (2014).

Ghosh, Muduli and Pingle (2020) postulated that learning agility is significantly related to outcome, namely performance. Therefore, this study aims to understand and identify the relationship between learning agility and teachers' perceived performance in their teaching and learning. Further to this, this study aims to determine the proportion of variance in teachers' perceived performance that can be explained by the learning enablers and derailers, and the relative significance of each in explaining teachers' perceived performance.

2.2 Teachers' Learning Agility

We can benefit from Warkentien's (2016) work, in which he viewed teachers as strategic classroom leaders. This resonates with the study by Howard (2017), who, on the other hand, studied learning agility among pre-service teachers. He vouched that as the main implementers of changes in the classroom, teachers need to possess the capacity to: (i) identify their students who encompass leadership skills in the classroom, (ii) facilitate the learning process, and (iii) lead and teach their students to see the opportunities brought in by new and unfamiliar situations. Howard added that learning agility is a good indicator of high potential, high performance, and long-term success.

In a much recent study by Nissim and Simon (2020), they found that a group of highly agile teachers who acted instantly during COVID-19 pandemic had facilitate the transfer of learning from face to face to online distance learning within 48 hours. Even though their initiative was imperfect, they managed to sustain learning rather than halting their students' learning momentum altogether and causes learning loss. In short, their ability to mitigate risks reflects their agility as teachers. Building on the literature on learning agility and teachers' agility, this forthcoming section discusses digital knowledge and competence and digital agility.

2.3 Digital Competencies and Digital Learning Agility

The basic means of digital learning agility lies in the notion that a person must have knowledge and competence in using technologies, and being able to response with speed and flexibility. This can be understood from the perspectives of teachers' digital competencies. According to Csordás (2020), people that possesses higher levels of digital competence are more productive. He postulated that workers with higher skills are able to create more benefits or able to deliver the same benefits in a shorter amount of time as compared to their counterparts who are not as skillful. This shows that it is evident a person's response time to a given situation is closely related to their competence in utilizing digital technologies, thus teachers' digital learning agility can be understood from their speed and flexibility in responding to uncertain circumstances that brings more benefit as compared to those who do not possess speed and flexibility. This is because those who are extremely familiar with technology often use a wide array of strategies with confidence, especially when their strategies involve the use of technologies (Csordás, 2020; Seal, Draffan and Wald (2010).

This includes their ability to change, customize, or personalize their technology use to serve different needs. Heavy users of technology often participate in online discussions, instant messaging, know how to use social networking platforms and frequently upload resources such as pictures or videos onto the Internet. They also know how to use search engines, access online learning materials related to their work, use word processors and spreadsheets, and optimize emails as a means of communication. According to Srivastana and Dey (2018) and Ghomi and Redecker (2019), teachers need to familiarize themselves with technological approaches and applications to achieve digital competencies. This can be done by keeping their digital technologies knowledge abreast and constantly engage in practices to personalize and create an interactive learning atmosphere for their students (Willis, Lynch & Fradale, 2019).

2.4 Teachers' performance

The majority of literature on Learning Agility focuses on workplace or organizational performance. To date, very limited studies on learning agility are found in the educational context, especially from the perspectives of Teachers' Performance. According to Fitria (2018), teachers' performance is "the result achieved by the teacher in carrying out the tasks assigned to him based on skills, experience and sincerity and the use of time." She added, teachers who demonstrate good performance will most likely improve the quality of their teaching and learning practices. According to Organization for Economic Cooperation and Development (OECD) (2020), the success of students hinge critically on their teachers' ability to help them navigate the online learning circumstances. Farooqi, Ahmed and Ashiq (2019) relate teachers' performance with their self-motivation. As such, teachers who are self-motivated and has positive outlook on themselves usually deliver vigorous teaching. This include efficient content delivery, as well as emphatically develop their students' characters.

3. Context, Purpose of the Study, and Methodology

This study will be conducted nationwide among Public Primary and Secondary School teachers in Malaysia. Borrowing Hoff and Burke's (2017) views in the Malaysian education context for this study, we hypothesize that teachers with high digital learning agility can cope and learn within a steep learning curve and respond effectively by taking ambidextrous opportunities and risks. This character will have a follow-on impact on their perceived teaching and learning performance and their students' learning.

This study is driven by these questions: (i) What are the dimensions that constitute Malaysian teachers' Digital Learning Agility? (ii) How do learning enabler(s) and derailer(s) contribute to teachers' teaching performance? (iii) To determine the relationship between teachers' digital learning agility and digital technology competency and teachers' perceived performance.

This study will employ an exploratory sequential mixed-method design that converges qualitative and quantitative techniques to produce rich and quality research findings (Creswell & Poth, 2017; Tashakkori & Teddlie, 2010). This approach is best in providing broad and in-depth understanding on Digital Learning Agility among school teachers in Malaysia. The data collection will begin with interviews with teachers and policy makers, to explore the possible dimensions of digital learning agility. At least three teachers and one policy maker will be interviewed from 13 states and three federal territories in Malaysia. Findings from the qualitative study will be thematized and used as constructs for the quantitative survey. A pilot study will be conducted prior to a nationwide survey which will be employed on primary and secondary school teachers from similar locations for qualitative study. Participants will be selected using the stratified cluster sampling technique on cluster basis (Creswell, 2015) to ensure optimum representation at each stratum.

4. Conclusion

In this study, we presented an overview of teachers' digital learning agility and related literature that pointed to the possibilities of its contributions towards teachers' performance. We also aim to identify the dimensions that shape teachers' digital learning agility and the learning enablers as well as derailers that could contribute to that. Based on the review of the related literature, we also theorized that there exist relationship between teachers' digital learning agility and digital technology competency and teachers' perceived performance. We hope that teachers and policymakers can benefit from this study by being able to reflect on their mindsets and motivation. By doing so, they will be able to make informed decisions and plan on their self-initiated professional and enhance their digital agility to face the VUCA of IR4.0. This framework serves as a guideline for policy makers, professional development providers, and administrators in the education settings to chart their plans for teachers' professional development that aligns with the exponential developments of IR4.0.

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