

AGILE OR NOT? THE UPSURGE OF DIGCOMP AND SOCIAL MEDIA USAGE AMONG TEACHERS

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ABSTRACT

On the verge of leaping into the 3rd wave of transformation in the Malaysian Education Blueprint (MEB) 2013-2025, flexibility is found to be one of the key features to achieve excellence in Malaysian education system. With the scarcity of literature found in workforce agility, this research aims at examining the impact of digital competencies on the workforce agility among the academic teachers in government-aided secondary schools, underpinned by the Theory of Work Adjustment. Further, social media usage was also tested for its moderating effect. 217 teachers in the Larut Matang and Selama district in Perak responded through questionnaires distributed. From the analysis through the disjoint 2-stage approach with PLS-SEM, both digital competency and social media usage were found to be directly influencing the endogenous construct, while the hypothesized moderated relationship was not supported in this study. In conclusion, this research has explored on the concept workforce agility among teachers beyond classroom instructional practice, and has also established the basis to consider DigComp 2.1 as the national digital competency framework, besides further recommending to investigate on generation gaps and also employing PLS-MGA analysis in future studies.

Keywords: *Teachers, digital competency, social media usage, DigComp, PLS-SEM, workforce agility.*

INTRODUCTION

The competition of keeping abreast and coping with the fast-changing system and digital technologies due to globalization has certainly caused organizations to struggle, thus to remain relevant and to survive in their field, being agile is the essence. The call to embrace this uncertain, unpredictable and constantly-changing environment, an 'agile organization' is seen as the key (Muduli & Pandya, 2018). However, it is also imperative to note that organizational agility is also reliant on an agile workforce (Muduli & Pandya, 2018). Despite numerous studies and the reviewing of literature on agility have been carried out, majority of the studies focused on industries, enterprises, companies, educational institutions, as well as in public sectors but rarely on schools (Kattel & Mazzucato, 2018; Tallon et al., 2019; Wang & Ahmed, 2007). The subject on being agile among teachers, especially out-of-classroom context has very limited literature. Paul et. al (2020) also highlighted that workforce agility in educational institutions has not gained much attention from researchers.

Through Malaysian Education Blueprint (MEB) 2013-2025, the Ministry aims to achieve the vision of the third wave of transformation by enabling its departments, sectors and divisions to have greater flexibility in their operations for excellence (Ministry of Education Malaysia, 2013). Further, the ministry has emphasized on innovations to improve the education system with the use of ICT as stated in Wave 2 and Wave 3. These initiatives are certainly welcoming, as the improvement of IT infrastructure alone is not sufficient, thus the need for better IT competence. What further aspired the study is the current digital framework used to measure ICT competencies of teachers at school. The SSQS or Smart School Qualification Standards (Resource and Educational Technology Division MOE, 2019) includes the evaluation of very limited sample and also measuring the usage of ICT in

classrooms. While the data is not made available to the public, ergo the consideration for a more comprehensive framework such as DigComp 2.1 by the EU (Carretero et al., 2017).

However, the ground check proved the reality otherwise. The Teaching and Learning International Survey (TALIS) showed that Malaysian teachers spent 11.5 percent of their classroom time on administration tasks, in comparison to the international average of 8 percent (OECD, 2014). In addition, a study highlighted 41.9% of the respondents felt that the amount of time spent on clerical tasks and teaching are the same (Othman & Subramaniam, 2019). This calls for the urge to upgrade their skills and knowledge; to improve students' performance in particular, parallel to Tindowen's (2019) emphasis. Thus, this led to the question: could these burdens and time spent on doing administrative tasks be reduced, given better digital competency equipped in each employee?

To leverage what technology can best offer and putting in the intelligence from the educators, there must be a transformation to happen within the educator's way of thinking (Howard, 2018). Subsequently, T. Ravichandran (2018) asserted that an organization has the capability of becoming agile, should the workforce have excellent IT competence. As such, this study is carried out to ascertain the gap that exist between the intent and practice among teachers concerning digital competency and workforce agility. In addition, DigComp 2.1 is adapted for empirical testing, considering its value that the UN has opted for it as the initial framework to build on the Digital Literacy Global Framework (Law et al., 2018).

A recent survey conducted by Malaysia Communications and Multimedia Commission (MCMC) revealed that 56.4% of their respondents use internet at their workplace whilst 70.6% claimed to have used social media for group messaging (Statistics Department MCMC, 2019) though no figures were revealed on how much of the usage was related to work. Previous studies have shown that social media usage at workplace is also believed to promote agility through the exchanging of knowledge and collaboration (Bala et al., 2019). Greenhow and Lewin (2016) claimed that this digital culture has enabled humans to learn formally and informally, hence encouraging knowledge sharing. It also enables one to multitask and is notably seen to make employees agile; resulting the enhancement of the organization's performance (Lau, 2017; Siddiqui & Singh, 2016).

Acknowledging how digitalization may have impacted the jobs of teachers, this study suggests to examine the direct relationship of digital competency in promoting an agile workforce to face future uncertainties to transform the Malaysian education system. Also, while social media has been scarcely studied on its effect as a moderator (Benitez et al., 2018; Zhang et al., 2020), we proposed to look into the effect of social media usage in moderating the relationship between digital competency and workforce agility. Drawing on the theory of work adjustment, this paper argues that digital competency has an impact in promoting workforce agility among teachers and can be further strengthened with the use of social media.

Besides adding onto the limited literature on SMU as moderator, researching on teacher's workforce agility beyond classroom also contributes to the novelty of this study. Also, the empirical testing of DigComp 2.1 framework and the newly adapted items allows other researchers to leverage in future studies. This paper comprises of the literature review on the variables tested, theoretical background, formulation of hypotheses and the conceptualization of framework, followed by methodology, descriptive analysis of the data, assessment of the model using PLS-SEM, results, discussion, theoretical and practical implication, and is concluded with recommendations for future research and also limitations of the study.

LITERATURE REVIEW

Theoretical Background – Theory of Work Adjustment (TWA)

Being a dynamic process model, this theory argues that how an employee needs to improve or upgrade himself or herself to be fit in an environment where certain needs to be met; in this case, to create an agile organization by being an agile workforce (Azizi-Fini et al., 2020). Defined by Dawis and Locquist (1998), it is theorized that employees will attempt to alter and suit themselves to the environment in reducing the gap between their abilities and their job requirements. The Theory of Work Adjustment

also suggests that in reciprocal, both the working environment and employee must benefit both ways: when the organization recognises the employee as fitting and in return the employee should be equally satisfied (Uecker, 2020). As such, with reference to the expansive list of e-services and applications (Ministry of Education Malaysia, 2020) used in the education sector in Malaysia, employees should be digitally equipped in order to use these services efficiently and proficiently. Therefore, in the perspective of TWA according to Dawis et al. (1964, cited in Winter, 2009), should the teacher possess equal or better digital skills in meeting the requirement of the organisation, the higher likelihood the employee will perform well. Hence, in this environment where it demands substantial competency to adapt into using newly innovated digital systems, agile workforce is crucial. Thus, this study argues from the perspective of TWA, as the underpinning theory, that promoting better digital competency can complement in creating an agile workforce.

Workforce Agility (WA)

One of the best ways to picture workforce agility is as how Snyder and Brewer (2019) have depicted aptly; to be likened to how an aircraft works: finding the balance, tiptoeing between resilience, proactivity, and adaptability. Agility is the ability of reacting to threats in the best way possible and also looking for opportunities with effectiveness and proper time management (Paul et al., 2020). Defined by Muduli (2013), WA refers to flexible and well-trained workforce that can easily and quickly adapt to new situations and opportunities. WA can be attributed into seven categories: (1) speed, (2) competence, (3) adaptability, (4) development, (5) collaboration, (6) informative, and (7) flexibility. It is also worth noting that “little research has been done on the WA and even less is known about what organization characteristics are conducive to the agile performance of employees” (Sherehiy & Karwowski, 2014).

Digital Competency

While there are many terms referring to the concepts of IT and digital competence, though closely related, this study focuses on the digital knowledge and application. For instance, digital fluency is defined by Wei et al., (2020) as how employees are able to reformulate and create information, together with the proper use of digital technologies and the definition of IT competence is the capability of the firm in creating digital platforms by T. Ravichandran (2018), This study defined digital competency as subtly put forward by Spante et al. (2018) being “the ability to explore and face new technological situations in a flexible way, to analyse, select and critically evaluate data and information, to exploit technological potentials to represent and solve problems and build shared and collaborative knowledge, while fostering awareness of one’s own personal responsibilities and respect of reciprocal rights/obligations”.

DigComp 2.1

Ferrari et al. (2013) identified 6 areas or aspects from the 15 selected digital frameworks as the foundation of developing DigComp 1.0. In 2016, DigComp 2.0 was improved with new requirements to meet the fast pace of (Pérez-Escoda & Fernández-Villavicencio, 2016). The improvised version came with updated descriptors for levels of competence and additional 2 dimensions, which are Dimension 3 and Dimension 4 (ECDL Foundation, 2017; Vuorikari et al., 2016). DigComp 2.1 is added with Dimension 5; including the examples of use and how each competence can be applicable in different ways and purposes (Carretero et al., 2017).

Social Media Usage as Moderator (SMU)

Social media functions as a mediator to make a two-way communication possible between individuals and organizations (Parveen et al., 2016). According to Carr & Hayes (2015), social media consists of the devices that create information, the devices that fetch information, and the people who utilise the information. Highlighted by van Bommel & Liljekvist (2020), teachers are capable of empowering themselves by managing their own knowledge through the use of social media over the internet.

However, SMU has often been studied in relation to pedagogy, student support, and learning in the education setting (Chung & Chen, 2018; Krutka et al., 2017; Krutka & Carpenter, 2016).

HYPOTHESIS DEVELOPMENT

Digital Competency and Workforce Agility

According to Murawski & Bick (2015), the research of DC on workforce have been neglected. Further, Chakravarthy et al. (2013) highlighted that DC complements agility, which leads to competition. This has been confirmed in the research by Varshney (2020) that the creation of an agile workforce and also the transformation into a digital organization rely on the digital competencies of the workforce. In a study conducted in US among the large firms, the hypothesized relationship between IT competence and organizational agility was strongly supported by the data analysed ($\beta = .418$) (Ravichandran, 2018). Thus, the relationship between DC and WA will be tested in the education field the framework of DigComp 2.1 as the reference for DC and an adapted version of Muduli's items to measure WA (Muduli, 2017).

H1 : Digital competency has a positive significant relationship with WA.

Social Media Usage as Moderator

With the widespread of social media usage (SMU) in all fields and sectors, it is expected to replace conventional communication methods, injecting more interaction and usability with new innovations and functions. Further, SMU was found to have significant impact in influencing the employee's job performance (Ali-Hassan et al., 2015; Sukru & Rashid, 2018). Social media has elevated the efficiency and effectiveness of communication at a very minimal cost with high user-friendliness, besides showing high correlation to impact positively on organizational performance (Ainin et al., 2015). A study among 250 teachers in Delhi proved that SMU has high significance in contributing to work performance (Kaur et al., 2018), ergo the development of H2 to assess SMU in the Malaysian context to check if it would yield similar results.

In addition, lack of literature examining on the role of social media usage as a moderator, especially in the field of education has certainly become an added value to this study. According to Zhang et al. (2020), social media indeed have had impact on enhancing knowledge transfer. Therefore, this study hypothesizes that with the use of social media, teachers can relatively learn and be more digitally competent as they can share information and knowledge among their colleagues or beyond the circle of their workplace, hence the hypothesis of H3.

H2 : Social media usage has a positive significant relationship with WA.

H3 : Social media usage strengthens the relationship between digital competency and workforce agility.

Deriving from the hypotheses above, a conceptual framework (Figure 1) is formed.

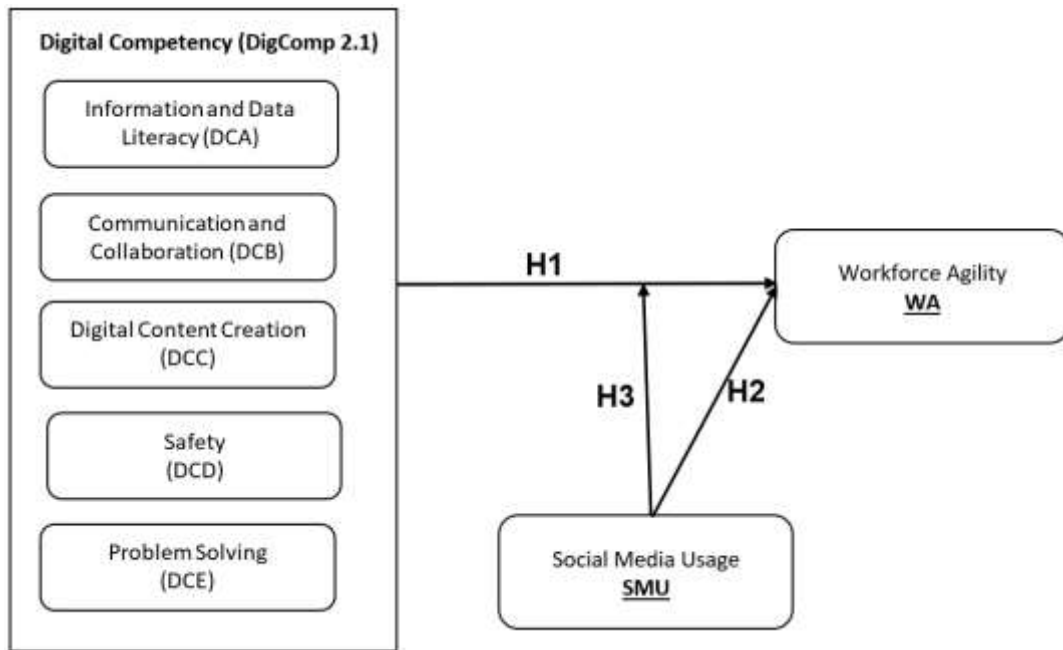


Figure 1: Conceptual Framework

RESEARCH METHOD

Sample and Procedure

The design of this study is cross-sectional and the instruments had been adapted to suit the context of this research. The selection of the sampling frame based on secondary schools is due to the even ratio of locality. According to Kementerian Pendidikan Malaysia (2020), there are 1,296 rural secondary schools and 1,137 secondary schools in Malaysia, which brings to a close ratio of 1:1. The proposed ideal ratio of teachers is also found in the Larut, Matang, and Selama (LMS) district in Perak where the ratio of pupils to teacher is 9:1 is almost similar to the national standards of 11:1. Further, the national ratio of male to female teachers is 1:2 whereas the ratio in LMS is 1:2.4, hence making it an ideal representative of the population. The targeted population is 2,014 teachers are based in the 29 government-aided secondary schools in LMS. In this study, the inclusion criteria in the purposive sampling were any in-service teachers not holding any administrative posts and users of ICT and social media in and beyond their school for work purposes. Therefore, based on the calculation by G*Power, the recommended minimum number of samples is 77 with the setting of margin error of five percent, power of a test at 80%, and effect size of 0.15, that have been commonly used in social science studies (Nicolescu & Nicolescu, 2019).

Measures

In this study, the instrument used is divided into two segments; demographic section and questionnaires of this research. For the demographic section, particulars such as gender, age, educational background, and working experience are to be filled, together with the types of ICT and social media platforms used. As for the second segment, the adapted questionnaires (Appendix 1) had been structured into three sections, namely; workforce agility (Muduli, 2017), digital competency (Carretero et al., 2017), and the use of social media (Liu et al., 2015). The digital competency constructs used an 8-point Likert scale while the rest used a 5-point scale.

Table 1: Questionnaire Development Table

Section	Variable	Number of Items
A	Respondent's Demographic Details	6
B	Digital Competency	21
C	Social Media Usage	6
D	Workforce Agility	7
Total Items		34

Having used the adapted version of DigComp 2.1 as part of the empirical testing, a pilot test was conducted for its reliability using the Cronbach's Alpha, which is known for measuring internal consistency, as shown in Table 2 (Tavakol & Dennick, 2011).

Table 2: Reliability Test of Piloted Samples

Variables	Cronbach's Alpha	Number of Items
Information and Data Literacy (DCA)	0.939	3
Communication and Collaboration (DCB)	0.964	6
Digital Content Creation (DCC)	0.920	4
Safety (DCD)	0.915	4
Problem Solving (DCE)	0.956	4
Social Media Usage (SMU)	0.956	6
Workforce Agility (WA)	0.910	7
Total Items		34

Demographic Information

In the actual survey, only 217 returned, indicating 10.77% of the total population, hence passing the minimal requirement of sample required. The female population dominated the majority of the respondents, amounting to 74.2% of the total respondents. As for the age group, 77 respondents of age 41 to 50 (35.5%), is second only to respondents of 31-40 years old (40.6%). 176 of the respondents are bachelor degrees holders (81.1%) while only 2 respondents have diploma certificates (0.9%) and 4 other respondents own a doctoral degree (1.8%). The remaining 35 respondents have Master's degree (16.1%). Table 6 summarizes the years of working experience of the 217 respondents.

Table 3: Gender profiling based on the samples collected

	Frequency	Percent
Female (Perempuan)	161	74.2
Male (Lelaki)	56	25.8
Total	217	100.0

Table 4: Age profiling based on the samples collected

	Frequency	Percent
21 - 30	12	5.5
31 - 40	88	40.6
41 - 50	77	35.5
51 - 60	40	18.4
Total	217	100.0

Table 5: Academic qualifications based on the samples collected

	Frequency	Percent
Diploma	2	0.9
First Degree	176	81.1
Master's Degree	35	16.1
PhD	4	1.8
Total	217	100.0

Table 6: Year(s) of working experience based on the samples collected

	Frequency	Percent
1 - 10	60	27.6
11 - 20	76	35.0
21 - 30	64	29.5
31 - 40	17	7.8
Total	217	100.0

Descriptive Analysis

Table 7 reveals the data which was analysed descriptively. The mean value for digital competency ranged from 4.811 to 5.639, which connotes more than average. Relatively, majority of the respondents highly agreed that employee empowerment, knowledge sharing, social media usage, and workforce agility are important.

Table 7: Mean and Standard Deviation of Variables

Variables	Mean	Mode	Std. Deviation
Digital Competency			
Information and Data Literacy	5.639	6.000	1.362
Communication and Collaboration	5.624	6.000	1.371
Digital Content Creation	4.858	5.000	1.575
Safety	5.409	6.000	1.449
Problem Solving	4.811	6.000	1.601
Social Media Usage	4.250	5.000	0.690
Workforce Agility	3.842	4.000	0.683

Measurement Model

A full collinearity test was carried out to ensure no issue of Common Method Variance (CMV) or Common Method Bias, when data is collected from a single source (Kock, 2017). As assessed, the model in the study does not possess any CMV issues, as it does not exceed the threshold value of 3.3 based on the variance inflation factors (VIF) (Kock & Lynn, 2012). Therefore, with reference to Table 8, there is no collinearity issue.

Table 8: Full Collinearity Test

	DC	SMU	WA
VIF	1.623	1.518	2.130

As this model is a Type-I (Lohmöller, 1989), it was analysed using the two-stage approach as suggested by Anderson and Gerbing (1988). Convergent validity is examined through the average variance extracted (AVE) of each construct. According to Hair et al. (2017), the outer loadings should be more than 0.708 while the AVE should exceed 0.50 because the squared amount of the outer loadings should be at least 50 percent of the variable's variance. Thus, based on the analysis as shown in Table 9 and Table 10, all items in both first-order and second-order passed the criteria as generated using SmartPLS 3.2.8 version (Ringle et al., 2015).

Table 9: Measurement Model for the First-Order Constructs

First-Order Constructs	Item	Loadings	AVE	CR
Information and Data Literacy	DCA1	0.925	0.848	0.944
	DCA2	0.924		
	DCA3	0.914		
Communication and Collaboration	DCB1	0.902	0.803	0.961
	DCB2	0.921		
	DCB3	0.896		
	DCB4	0.871		
	DCB5	0.895		
	DCB6	0.889		
Digital Content Creation	DCC1	0.922	0.748	0.922
	DCC2	0.925		
	DCC3	0.868		
	DCC4	0.729		
Safety	DCD1	0.879	0.813	0.946
	DCD2	0.911		
	DCD3	0.909		
	DCD4	0.907		
Problem Solving	DCE1	0.910	0.875	0.965
	DCE2	0.951		
	DCE3	0.945		
	DCE4	0.934		
Social Media Usage	SM1	0.860	0.774	0.953
	SM2	0.861		
	SM3	0.952		
	SM4	0.960		
	SM5	0.893		
	SM6	0.872		
Workforce Agility	WA1	0.745	0.658	0.931
	WA2	0.827		
	WA3	0.798		
	WA4	0.891		
	WA5	0.813		
	WA6	0.826		
	WA7	0.683		

Table 10: Measurement Model for Second-Order Constructs

Second-Order Constructs	Item	Loadings	AVE	CR
DigComp 2.1 (Digital Competency)	Information and Data Literacy	0.904	0.854	0.967
	Communication and Collaboration	0.947		
	Digital Content Creation	0.926		
	Safety	0.921		
	Problem Solving	0.921		

The next step was testing the discriminant validity through the assessment of heterotrait-monotrait ratio of correlations (HTMT). Discriminant validity is defined as how does each indicator differentiate itself against other constructs by checking correlations if they are overlapping. One of the methods to assess is through the heterotrait-monotrait (HTMT) ratio of the correlations as suggested by Henseler (Henseler et al., 2015). The value generated should not exceed 0.85. As shown in Table 11, these constructs do not overlap each other.

Table 11: HTMT Results

	1	2	3
1. Digital Competency			
2. Social Media Usage	0.382		
5. Workforce Agility	0.641	0.625	

Assessment of Model

Once the constructs and instruments have been confirmed of their reliability and validity, the assessment of structural model will explore on the hypothesized relationships. Hair et al. (2019) suggested the reporting should look into the assessment through several steps which includes collinearity assessment, path coefficients of the model, coefficient of determination (R^2 value), the effect size (f^2 value), the predictive relevance (Q^2 value), and also the PLSPredict. Upon assessing multivariate normality, Mardia's multivariate skewness ($\beta = 2.615$, $p < 0.01$) and Mardia's multivariate kurtosis ($\beta = 38.458$, $p < 0.01$) showed that the data is normal (Hair Jr. et al., 2017).

Under the process of complete bootstrapping the structural model of 5,000 subsamples with 95% confidence interval (Figure 3), the model was reported, as Table 12 shows, with the path coefficients, the standard errors, t-values and p-values (Ramayah, T. et al., 2018). As the model would have to undergo the PLSPredict process, hence items in the endogenous construct must be in the model. Following the combination of the original items for the lower order construct (LOC) and the latent variable score derived from the hierarchical component model (HCM) after the 2-stage approach, a disjoint 2-stage approach is implemented, as recommended by Sarstedt et al. (2019).

The following step is checking on the coefficient of determination of the model. The coefficient of determination is presented in a figure in R^2 as shown in the endogenous construct. There are several ways in considering an R^2 value, however this study took into account the three levels recommended; 0.75 with substantial predictive accuracy, 0.50 being moderate, and 0.25 is considered to have weak predictive power (Hair et al., 2017). In this study, the R^2 value is 0.591 and the adjusted R^2 value is 0.577, which are more than moderate. According to Matthew et al. (2018), the f^2 values are assessed in order to examine the impact on the coefficient of determination when the interaction effect is removed from the research model. The f^2 values or also known as the Cohen's Indicator can be categorized into three; 0.02 being small, 0.15 median, and above 0.35 is considered as large (Sheko & Spaho, 2018). Hair et al. (2017) also highlighted those values of lower than 0.02 are considered as being no effect.

According to Baron and Kenny (1986), a moderator affects the strength of the relationship, whether to weaken or strengthen the interaction between the exogenous and endogenous variables. Based on Table 12, social media usage does not seem to have impact in strengthening the relationship using the two-stage approach. Thus, this moderated relationship is insignificant as the f^2 value of this hypothesis is 0.003, which is no effect. Acknowledging the fact that moderation did not work, the model was again reattempted for another examination by removing the outliers. Outliers could be the errors found during data collection, such as data entry errors or sampling errors (Richter et al., 2020). Outliers can be defined as data that "has huge differences between the observed values and the predicted values" (Yang et al., 2020). Using the case-wise diagnostics, the significant outliers were detected and removed through SPSS. Despite having the outliers excluded from the data, the re-run analysis showed that the moderation effect is still insignificant.

The final step in the model assessment is the process called PLSPredict (Shmueli et al., 2019). Shmueli et al. (2016) argued that the Q^2 procedure is not sufficient in predicting as it does not exploit the holdout samples. As such, the introduced procedure focuses on a procedure that is based on out-of-sample or holdout samples that takes into account the predictions at case levels for a construct and an item (Hair Jr, 2020). Therefore, using the SmartPLS software, the PLSPredict assessment is calculated with the setting of ten folds with ten times of repetition. The value of PLS root-mean-squared-error (RMSE) should be lower than LM (linear regression model) RMSE to indicate high predictive power.

Table 13: Predictive Relevance Q^2

Construct	Q^2 Value
Workforce Agility	0.332

Table 14: PLS-Predict

Item	PLS RMSE	LM RMSE	PLS-LM	Q^2_{predict}
WA1	0.718	0.734	-0.006	0.214
WA2	0.694	0.712	-0.018	0.229
WA3	0.705	0.737	-0.032	0.208
WA4	0.664	0.683	-0.019	0.285
WA5	0.681	0.684	-0.003	0.456
WA6	0.610	0.613	-0.003	0.483
WA7	0.781	0.815	-0.034	0.114

DISCUSSION

Reiterating the objectives in this study, the vision and mission in the rigorously planned MEB to transform Malaysia's education system in year 2025 could be achieved, by aligning the workforce to be agile. In a paper presented in a conference by Mokshein (2019) on the cross-checking of MEB against the UN SDG 4, the researcher had concluded that the MEB has always been aiming to achieve the indicators and targets as per stated in SDG 4, though data on the progress and current state may not be accessible at present. Despite its nature being an exploratory study, this paper could offer new insights on achieving these goals.

Recapitulation of Finding – Digital Competency and Workforce Agility

Upon empirical testing, the results showed that digital competency ($\beta = .464$) could be an important skill to master in order to achieve workforce agility. One probable reason to find that DC has such influence on WA is could be explained due to the age of the respondents. Based on the background profiling of the respondents, majority of the respondents are above 41 years old, hence belonging to the cohort of Gen-X and Gen-Y (Ismail et al., 2016). Therefore, it could be inferred that they are the later adopters of digital skills and technology, which is also known as the digital immigrants. However, with the incoming generations of digital natives, DC may not be imperatively influencing WA in the future as they are becoming more digital literate and competent, though this requires initiatives to reform the curriculum in schools to teach DC in classroom in the soonest time. While the UN is working towards DLGF with DigComp 2.1 as the foundation, SSQS is suggested to be reviewed again, should it be aligned to the objectives planned by UN. Therefore, adapting and adopting an internationally-recognized digital competence framework should be the way forward and be taught from start in primary school.

Teachers found that social media usage is also another vital key in promoting workforce agility, as shown in the assessment of structural model ($\beta = .413$). Having an almost similar beta coefficient value in the direct relationship, this suggest SMU is equally significant as digital competency in influencing workforce agility. This may suggest teachers could have been using social media applications such as Telegram and WhatsApp in their daily work affairs. Further, the search of literature on social media in relation to teachers often landed to the use in classrooms and learning purposes. Having identified its large significance to influence workforce agility, conceivably social media should be studied on how it can further promote WA using the rich features of the applications instead of the mere sending of messages.

Table 12: Assessment of the Structural Model

Hypothesis	Relationships	Std. Beta	Std. Errors	t-value	p-value	BCI LL	BCI UL	f2	VIF	Decision
H1	DC → WA	0.464	0.051	9.037	p<0.001	0.249	0.410	0.394	1.154	Supported
H2	SMU → WA	0.413	0.048	7.334	p<0.001	0.197	0.252	0.284	1.271	Supported
H3	DC*SMU → WA	-0.006	0.056	0.126	0.450	-0.074	0.078	0.000	1.124	Not Supported

Note: DC = Digital Competency, SMU = Social Media Usage, WA = Workforce Agility

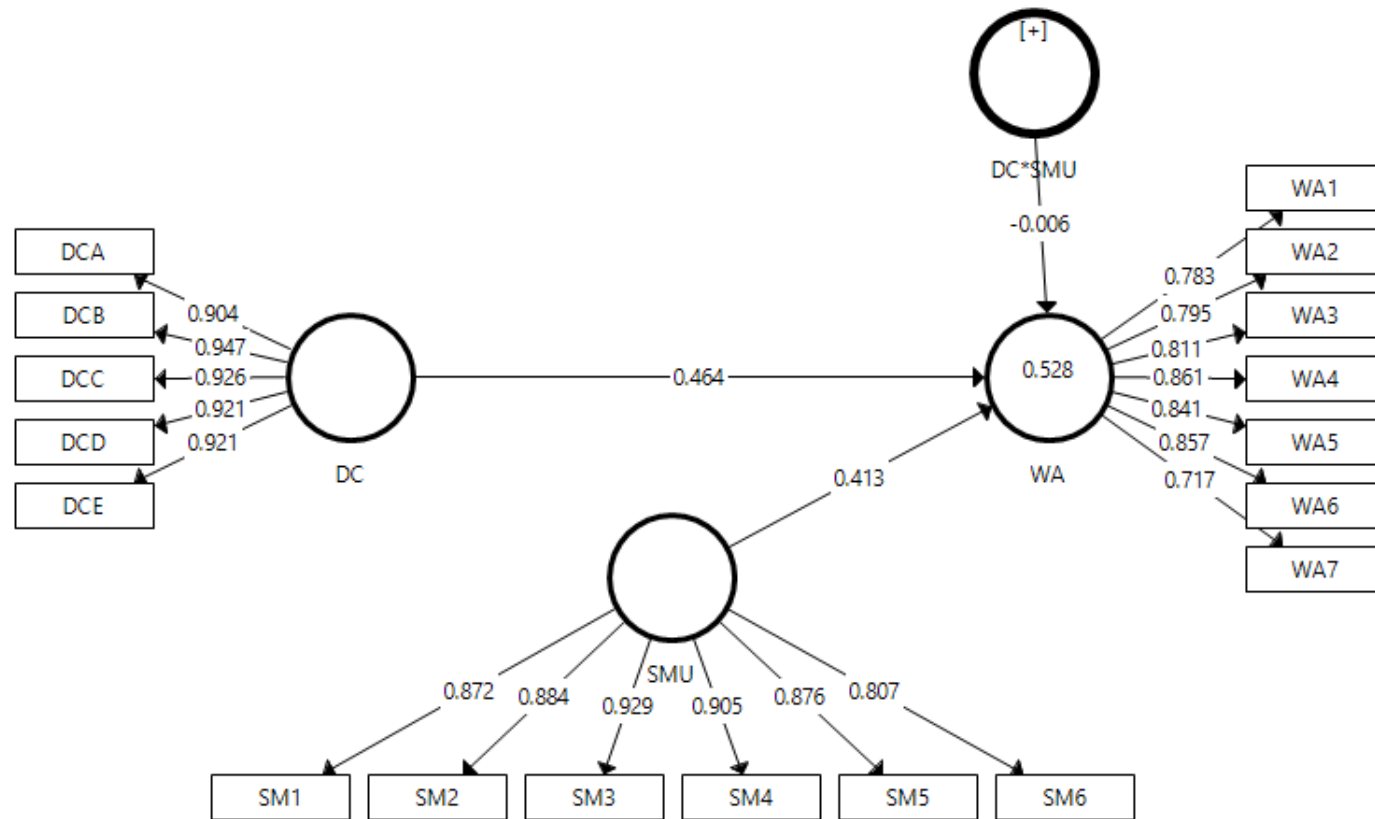


Figure 3: Bootstrapped Model

Recapitulation of Finding – Social Media Usage as Moderator

However, the moderated relationship of DC and SMU yielded a beta value of -0.006 and statistically insignificant (p -value = 0.450), ergo rejecting the hypothesis. As discussed earlier with pertinence to generation gap, it could be the culture shock of using social media at work where Internet was once believed to be unreliable source of information. Perhaps, it could also be explained that this generation would prefer to work to be done in the conventional manner. This is supported by the research carried out by Mohd Faiz et al. (2020) that described on the characteristics of Baby Boomers (born in 1964 to 1982), Gen X teachers who were born between 1964 and 1982, and the Gen Y (1982 – 1994) teachers. Social media applications used at workplace can be a vital tool in binding these teachers together, besides narrowing the generation gap. From another perspective, social media cannot aid in improving one's digital skills.

IMPLICATION

Theoretical Implication

Revisiting the definition of TWA by Dawis and Lofquist (1984) above, the theory “posits that correspondence results in more positive outcomes” (Woods et al., 2020), suggesting employees will have to accommodate to several adjustments to themselves and their surroundings. Thus, from the findings of this study, digital competency and social media usage are imperative in fitting into new environment where digitalization and transformation are taking place. Further, in the focus of promoting operational flexibility, WA should be the way forward. By prioritising the aspects of WA, flexibility in the organization can be achieved as an agile organization requires an agile workforce (Muduli & Pandya, 2018). Thus, teachers would have to continuously upgrade themselves to be agile, in order to keep abreast with forthcoming changes and not to be left behind. In this perspective where education blueprints such as MEB is a centralized and top-down national agenda, employees would have to find themselves adjusted as failing to do so will hamper the progress of MEB. In this scenario, it can be argued that where adjustments cannot be made to their workplace, it is timely for employees to develop themselves in the adjustment to the environment. In short, understanding the goals and mission of promoting flexibility in the MEB's 3rd wave of transformation, therefore it is explainable from the view of TWA that WA can be achieved by teachers through the mastery of better digital competency and the use of social media in schools.

Practical Implication

Based on the assessment of the structural model, it is apparent that digital competency is highly significant in influencing workforce agility, therefore it is aptly to urge the Ministry and relevant agencies to focus on deploying more programmes and trainings to upskill teachers' digital competency. Having failed to address this issue may result the mismatching of skills and also creating wider skill gap, hence leading to the wastage of public funds. However, using the right and suitable competency framework that is current and widely accepted. Moreover, school curriculum developers may begin looking at DigComp 2.1 so that relevant skills and knowledge can be imparted through formal learning in schools, grooming a generation with highly competent digital skills. Malaysia may need to consider a national digital competency framework based on DigComp 2.1; similarly to DigComp 2.2 AT as adapted by Austria (Federal Ministry for Digital and Economic Affairs, 2018, p. 36). Therefore, we propose the use of DigComp 2.1 in future researches.

From a recent research conducted in Indonesia, the researchers concluded that teachers should be wise in using social media (Sarwa et al., 2020). This is in parallel with the findings and recommendations by Fox & Bird (2017) in which teachers find it difficult to separate the use of social media between their personal and professional lives. The untapped potential of social media platforms is another gap that should be filled so that they can be leveraged to the fullest. Therefore, to obtain prerequisite information, the use of social media by teachers in school should be studied its patterns as well as reasons of usage, prior to further expand and utilise their usage. Thus, it is imperative that teachers should familiarise with professional learning and sharing through technology, hence creating

a VPLC – virtual professional learning community (Alberth et al., 2018). While the moderating relationship is not accepted, this could imply that users should understand social media use cannot be separated from digital competency. Having better digital competency skills undoubtedly will increase the experience of using social media, hence the capability of fully leveraging the rich features.

LIMITATIONS AND RECOMMENDATIONS FOR FUTURE STUDY

There are several methodological limitations found in this research. First, the study is limited to one particular district, which is the Larut Matang and Selama in Perak, hence the results cannot generalize or represent the state or the nation. Plus, it is only targeted at secondary school teachers as of this study. The other limitation faced in this study is the lack of open data to make comparison between the previously conducted digital competency tests and the descriptive statistics based on DigComp 2.1. Extension of this study can be beneficial to understand workforce agility from different perspectives in education. Knowing that roles of teachers have changed over the decades, therefore the significance of other variables may find its importance in influencing workforce agility. Notwithstanding these limitations, this study has nevertheless expressed several novelties. First, it has underpinned TWA in view of promoting WA. As claimed by Muduli & Pandya (2018), WA has not been underpinned by a definite theory, thus this study has provided an insight with regards to the application of other theory. Next, it has also proposed DigComp 2.1 as a new foundation for consideration in formulating a national digital competency framework. Further, the study of workforce agility among teachers is rather unique in this field of study, where it has been commonly studied in the manufacturing and industrial sectors.

One recommendation for future studies is to restructure the demographic profiling. Background of the samples can be categorized as the types of generations, such as Baby Boomers, Gen X, and Gen Y. Also, paygrade or seniority in grades can also be part of the demography so that comparison can be done among groups; both empirically and descriptively. The data however, can be very sensitive to collect and also unethical. The findings of this study showed that the differences among generations do play a role in determining the significance of the exogenous variables to workforce agility as explained earlier. Therefore, it would also be interesting if future studies carried out can employ PLS-MGA as the analysis method. It can be used to analyse the path coefficients of different groups for comparison purposes (Henseler, 2012). However, one of the critical criteria to meet upon using this technique of analysis is to have large sample sizes for the groups plus subgroups should be of similar sizes (Cheah et al., 2020). Other interesting avenues would be looking into different groups of population. This study can be carried out among government-aided primary school teachers for a comparison. In addition, the comparison between public-funded and private-funded schools should be explored for new interesting findings. On a larger scale, the similar model of research framework can be tested in all governmental departments and offices. Plus, the descriptively-analysed data collected on DigComp 2.1 will be a basis for consideration as the national standard for measuring digital competency.

Workforce agility has received diminutive attention on propelling teachers to be a more efficient and flexible workforce, hence the need of this study, in tandem with the goal of MEB's third transformational wave: move towards excellence with increased operational flexibility. Also, this may have been the first pioneering study to empirically test digital competency using the DigComp 2.1 framework. Plus, adding into the interesting finding, social media usage too has significantly high direct relationship with workforce agility. In conclusion, the existing knowledge on workforce agility is believed to have expanded due to the new insights gained from this study, while contributing to the current literature on the main subject. Therefore, higher authorities and administrators, such as the Ministry of Education and school leaders, should leverage from the insights of this study in improving the entire workforce to be agile, flexible and adaptive; gearing them towards achieving the goals of MEB by 2025.

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Appendix 1: Measurement Items

Workforce Agility

Original Item	Adaptation
1 I am comfortable with change, new ideas, and new technologies in my organization.	I am comfortable with new changes, new ideas, and new technologies in my school.
2 I am flexible to quickly change from task to task, job to job, and place to place.	I am flexible to quickly change from task to task, job to job, and place to place.
3 I map my skills, benchmark for skill assessment, and develop skills	I map my skills, benchmark for skill assessment, and develop skills.
4 I am comfortable with cross-functional project teams, collaborative ventures with other companies, or with a virtual organization.	I am comfortable working and collaborating on projects with people from other schools virtually or face-to-face.
5 I am tech-savvy and have knowledge in advanced manufacturing technologies, IT skills, use of mobile technologies, etc.	I am tech-savvy and have knowledge in advanced technologies, IT skills, use of mobile technologies, etc.
6 I quickly develop skills, adjust to new environments, and collect information.	I quickly develop skills, adjust to new environments, and collect information.
7 I take personal interest in collecting information about my organization and other related organizations.	I take personal interest in collecting information about my school and other related schools.

DigComp 2.1

A. Information and Data Literacy

Original Item	Adaptation
<i>Browsing, Searching and Filtering Data, Information and Digital Content</i> 1 To articulate information needs, to search for data, information and content in digital environments, to access and navigate between them. To create and update personal search strategies.	I am capable of browsing, searching and filtering data, information and digital content using my own search strategies.
<i>Evaluating Data, Information and Digital Content</i> 2 To analyse, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. To analyse, interpret and critically evaluate the data, information and digital content.	I am capable of evaluating, comparing, and analysing credibility and reliability of data, information and digital content.
<i>Managing Data, Information and Digital Content</i> 3 To organise, store and retrieve data, information, and content in digital environments. To organise and process them in a structured environment.	I am capable of managing, organising, storing, and retrieving data, information, and digital content.

B. Communication and Collaboration

Original Item	Adaptation
<i>Interacting Through Digital Technologies</i> 1 To interact through a variety of digital technologies and to understand appropriate digital communication means for a given context.	I am capable of interacting through a variety of digital technologies (e.g., smartphone).
<i>Sharing Through Digital Technologies</i> 2 To share data, information and digital content with others through appropriate digital technologies. To act as an intermediary, to know about referencing and attribution practices.	I am capable of sharing data, information, and digital content with others through appropriate digital technologies.
<i>Engaging in Citizenship Through Digital Technologies</i> 3 To participate in society through the use of public and private digital services. To seek opportunities for self-empowerment and for participatory citizenship through appropriate digital technologies.	I am capable of engaging with the society through public and private digital services.
<i>Collaborating Through Digital Technologies</i> 4 To use digital tools and technologies for collaborative processes, and for co-construction and co-creation of data, resources and knowledge.	I am capable of using digital tools and technologies (e.g., Adobe Photoshop, LED Projector) to collaborate in co-creating and co-constructing data, resources, and knowledge.
<i>Netiquette</i> 5 To be aware of behavioural norms and know-how while using digital technologies and interacting in digital environments. To adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environments.	I am aware and easily adaptable to the culture and behaviours of target audience in the digital world.

C. Digital Content Creation

	Original Item		Adaptation
	<i>Developing Digital Content</i>		I am capable of creating and editing digital content in different formats (e.g., picture, movie) to express myself through digital means (e.g., social media).
1	To create and edit digital content in different formats, to express oneself through digital means.		
	<i>Integrating and Re-Elaborating Digital Content</i>		I am capable of modifying, refining, improving, and integrating digital information and content to create new, original and relevant content and knowledge.
2	To modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge.		
	<i>Copyright and Licences</i>		I understand how copyright and licenses apply to data, digital information and content.
3	To understand how copyright and licenses apply to data, digital information and content.		
	<i>Programming</i>		I am capable of planning and developing a program for a computing system to solve a given problem or perform specific task.
4	To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task		
D. Safety			
	Original Item		Adaptation
	<i>Protecting Devices</i>		I am capable of protecting devices and digital content, and also understand the risks and threats in digital environments (e.g., on the Internet).
1	To protect devices and digital content, and to understand risks and threats in digital environments. To know about safety and security measures and to have a due regard to reliability and privacy.		
	<i>Protecting Personal Data and Privacy</i>		I am capable of protecting personal data (e.g., username and password) and privacy of mine and others from damages in digital environments (e.g., on the Internet).
2	To protect personal data and privacy in digital environments. To understand how to use and share personally identifiable information while being able to protect oneself and others from damages. To understand that digital services use a "Privacy policy" to inform how personal data is used.		
	<i>Protecting Health and Well-Being</i>		I am capable of taking care of physical and psychological health and well-being of mine and others while using digital technologies.
3	To be able to avoid health-risks and threats to physical and psychological well-being while using digital technologies. To be able to protect oneself and others from possible dangers in digital environments (e.g., cyber bullying). To be aware of digital technologies for social well-being and social inclusion.		
	<i>Protecting the Environment</i>		I am capable of understanding the environmental impact of digital technologies and their use (e.g., green energy products).
4	To be aware of the environmental impact of digital technologies and their use.		
E. Problem Solving			
	Original Item		Adaptation
	<i>Solving Technical Problems</i>		I am capable of identifying, troubleshooting and solving technical problems related to digital technologies.
1	To identify technical problems when operating devices and using digital environments, and to solve them (from trouble-shooting to solving more complex problems).		
	<i>Identifying Needs and Technological Responses</i>		I am capable of adjusting and customising digital environments to personal needs (e.g., using microphone).
2	To assess needs and to identify, evaluate, select and use digital tools and possible technological responses and to solve them. To adjust and customise digital environments to personal needs (e.g., accessibility).		
	<i>Creatively Using Digital Technologies</i>		I am capable of using digital tools and technologies creatively to create knowledge and innovate processes and products.
3	To use digital tools and technologies to create knowledge and to innovate processes and products. To engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments.		
	<i>Identifying Digital Competence Gaps</i>		I am capable of identifying and understanding digital competence gaps of mine and others to improve and to update.
4	To understand where one's own digital competence needs to be improved or updated. To be able to support others with their digital competence development. To seek opportunities for self-development and to keep up-to-date with the digital evolution.		

Social Media Usage

	Original Item	Adaptation
1	I often use social media to contact other people for my work.	I often use social media to contact other people for my work.
2	I often use social media to communicate with colleagues or customers in my daily work.	I often use social media to communicate with colleagues or relevant parties in my daily work.
3	I often use social media to ask questions.	I often use social media to ask my colleagues or relevant parties questions.
4	I often use social media to answer questions.	I often use social media to answer my colleagues' questions.
5	I often use social media to share files.	I often use social media to share files with my colleagues.
6	I often use social media to do work-related socialization.	I often use social media to talk about other things (e.g. personal matters) with my colleagues.