Does Teacher's Willingness to Change Enhance Professional Competence?

Reni Herawati[*] (iD)
Universitas Muhammadiyah Yogyakarta, INDONESIA

Heru Kurnianto Tjahjono (iD)
Universitas Muhammadiyah Yogyakarta, INDONESIA

Ika Nurul Qamari (iD)
Universitas Muhammadiyah Yogyakarta, INDONESIA

Sri Handari Wahyuningsih
Universitas Muhammadiyah Yogyakarta, INDONESIA

Abstract: This study investigates the contribution of teachers' willingness to their professional competence in adapting to digital learning transformation during the Coronavirus disease (COVID-19) pandemic and its relationship to instructional leadership and self-efficacy. Data were collected by distributing online questionnaires consisting of 4 constructs, namely instructional leadership, self-efficacy, teacher's willingness to change, and professional competence, and distributed to 221 Indonesian High School teachers. Structural Equation Model (SEM) was used for analysis using Analysis of Moment Structure (AMOS) version 23.0 to examine the hypotheses. The results showed that instructional leadership significantly influences teachers' willingness to change with a positive impact on their professional competence. Furthermore, there is a significant effect on teachers' willingness to change their professional competence, insignificant on self-efficacy with substantial impacts on their willingness to change. The analysis results through the Sobel test showed that the teachers' willingness to change is an excellent mediating variable for self-efficacy in influencing professional competence. Conversely, it is not an excellent mediating variable for instructional leadership towards professional competence. The importance of teachers' willingness to improve their professional competence is a new finding that significantly contributes to their professional development.

Keywords: *High school, instructional leadership, professional competence, self-efficacy, teacher's willingness to change.*

Introduction

The Coronavirus disease (COVID-19) prompted numerous organizations to adopt certain changes to remain effective (Gupta et al., 2020; Zhao, 2020). According to Haarhaus and Liening (2020), organizations survived by adapting to various changes in the new normal. Cummings and Worley (2014) stated that these changes include strategies, systems, technology, physical arrangements, and human resources. Unavoidable changes from the pandemic also occurred in the educational sector, which promoted schools to make significant adjustments (Zhao, 2020). Principals and teachers were forced to suddenly and unexpectedly adapt to digital transformation (Azorín, 2020; Kurtmollaiev, 2020; Magistretti et al., 2021).

The pandemic led to the temporary closure of schools, thereby forcing education to shift from manual to digital (Clark et al., 2021; Sokal et al., 2020). However, not all education components, including teachers, adapted quickly due to certain complications associated with numerous obstacles (Berger, 2020; DiSessa, 2001; Harris, 2020). McFarlane (2019) stated that the corona virus had shaped the digital transformation in the academic sector, making it a significant issue expected to be continuously used even after the pandemic (König et al., 2020).

Teachers' competence in adopting technology and new learning methods during this crisis is essential (Clark et al., 2021). This is because the sudden adaptation to distance learning using various digital technology demands teachers improve their professional competence to enhance students' knowledge (Fauth et al., 2019; Tang et al., 2020). Empirical studies proved that teachers' competence determines the quality of learning, thereby affecting students' achievement (Kunter et al., 2013).

The shift from physical to online learning was the only solution to ensure the continuity of education during the pandemic (Churi et al., 2021; Liguori et al., 2021). According to Wang et al. (2021), Yang et al. (2020), and Zhang et al.

---
[*] **Corresponding author:**
Reni Herawati, Universitas Muhammadiyah Yogyakarta, Kasihan, Bantul, Yogyakarta, Indonesia. ✉ reni.h.pasca18@mail.umy.ac.id

(2020), the willingness and quick adaptation to changes led to sustainable and quality learning. Teachers' willingness to change is a vital construct that emerged during the educational transformation caused by COVID-19. Therefore, this study examined the educator's views concerning the emergent predictors of teachers' willingness to change the mode of learning due to the pandemic. It also recommended future investigation on the leadership model that supports this construct and implements better policies to sustain quality learning (Herawati et al., 2021).

During the pandemic, teachers urgently needed to adapt to digital transformation (Kurtmollaiev, 2020; Magistretti et al., 2021). The limited literature on their willingness to change or adapt to online learning provides a study gap that needs to be investigated. Additionally, this study was triggered by differences in findings regarding the effect of self-efficacy on professional competence. Depaepe and König (2018), and Lauermann and König (2016), stated that this gap is a vital element, while Bouley et al. (2015) proved its feeble effect on teachers' professional competence.

It is crucial to thoroughly investigate this gap by analyzing its role as a mediating variable between instructional leadership and self-efficacy. The findings related to the willingness to change in order to enhance teaching proficiency are essential and provide new perspectives for professional development. The novelty of this study is teachers' willingness to change and adapt to digital technology to teach during the pandemic.

It provides empirical evidence on the importance of this construct in enhancing readiness for digital learning. The information obtained is recommended for related parties in managing teachers as essential human resources in the educational sector. There is a need to develop more models, specifically those related to teachers' professional competence. Therefore, this study addresses questions such as: How teachers successfully improve their professional competence? and What are the relevant factors that aid in enhancing this construct? These questions are addressed through the concept of teachers' willingness to change.

Literature Review

The grand theory of this study is the dynamic capability, which believes in an organization's ability to integrate, build, and rearrange its internal and external competencies to deal with the rapidly changing environment (Teece, 2018; Teece & Pisano, 2003). The leading theoretical perspective in the strategic management literature is developing the resource-based view (RBV) theory (Barney, 2001; Grant, 1991; Lin & Wu, 2014; Wernerfelt, 1984; Zollo & Winter, 2002). The sample consists of school principals, teachers, and intangible resources in the form of leadership and competence that aid in the realization of educational success, which is vital for change (Hayter & Cahoy, 2018; Sicotte et al., 2014; Snoek et al., 2019; Teece, 2018).

Several studies reported the demand for digital learning since the disruption era. According to Keramati et al. (2011), the success of learning using this method is dependent on teachers' readiness. Every change in the education sector places them as the leading actors, including digital learning. Çinar et al. (2021) stated that the change from manual to digital learning is impossible without the teacher's will. Meanwhile, Trotsko et al. (2019) reported that the effectiveness of digital applications depends on subjective and objective factors, namely the level of teacher readiness and availability of supporting facilities, respectively. Teachers are a vital element of this educational transformation, therefore, their positive attitude toward change, willingness, and initiative to develop competence is essential. Interestingly, their self-initiative in dealing with changes that trigger professionalism in the fields of knowledge and skills in pedagogy and technology is part of the innovative process.

The study on teachers' readiness showed the importance of their willingness to make changes and develop their competence. Zeid et al. (2017) stated that teachers are willing to adapt to a new curriculum or teach a different subject but less likely to relocate or change their daily routine. Data analysis unveils a significant influence on their willingness towards professional competence, specifically in implementing the diverse learning models.

Herawati et al. (2021) stated three dimensions of teachers' willingness to change. The first is their readiness to access various learning resources to acquire more knowledge. The second is their willingness to try, which is interpreted by two indicators, namely the ability to facilitate asynchronous and synchronous learning, including the development of good interactive sessions. The implementation of distance learning is new to teachers because it is a sudden policy and is perceived as an obstacle by those that do not intend to strive. Asynchronous and synchronous learning variations need to be supported by technology (Herawati et al., 2021). The third is an indicator attributing the need for teachers to embrace awareness through their willingness to change, characterized by receiving information or feedback that supports this transformation openly (Herawati et al., 2021).

The preliminary study that emphasized teachers' willingness to improve their professionalism showed similar results with the varying focus of attention. It highlighted the importance of enhancing online learning (Çinar et al., 2021; Keramati et al., 2011; Trotsko et al., 2019;). Meanwhile, Zeid et al. (2017) focused more on teachers' willingness to change the implemented teaching methods. Herawati et al. (2021) specialized in exploring the dimensions concerning digital learning adaptation.

The Instructional Management Model combines three dimensions related to the school principal's role as a leader, namely (1) determining the school's mission, (2) managing learning and instructional programs, and (3) promoting a

positive learning culture (Al-Mahdy et al., 2018; Hallinger, 2018; Hallinger & Heck, 2010; Hallinger & Murphy, 1985). These dimensions were further elaborated into ten instructional leadership functions by Hallinger (2018) and Talebizadeh et al. (2021). The principal's role is to develop a productive and satisfying work environment for teachers and create conducive learning conditions for students (Hallinger et al., 2018). The instructional leadership variable is based on the model that focuses on improving teaching and learning quality (Blase & Blase, 2000). It comprises two dimensions, namely (1) supporting teachers to reflect on specific issues and (2) increasing professionalism.

The Indonesian Ministry of Education (2010) defined professional competence as a teacher's performance assessment carried out by measuring two competencies, namely (1) Mastery of material conceptual structures and scientific mindsets that support the subjects being taught and (2) Professional development through reflective actions (Mardapi & Herawan, 2018).

According to the self-efficacy theory, there is a strong relationship between students' and teachers' achievement (Goddard, Hoy, et al., 2004; Goddard, LoGerfo, et al., 2004; Sokal et al., 2020). Meanwhile, preliminary studies reported that numerous investigations need to be conducted on teachers' efficacy (Gibson & Dembo, 1984; Tschannen-Moran & Barr, 2004; Tschannen-Moran & Hoy, 2007; Woolfolk & Hoy, 1990). Several studies continuously questioned the validity and reliability of the tools used to measure self-efficacy. Over the past five decades, numerous attempts have been conducted on the theories of social learning (Rotter, 1982), behavioral change (Bandura, 1978; Bandura & Watts, 1996; Bandura et al., 1977), student achievement responsibilities (Guskey, 2002), and teachers' efficacy scales (Gibson & Dembo, 1984). The methods used to measure teachers' efficacy are significant to the currently developed approaches.

Numerous similar findings regarding the relationship between self-efficacy and professional competence reported the existence of a significant (Daumiller et al., 2016; Klassen & Tze, 2014; Zee & Koomen, 2016). However, several studies proved that it does not boost the teachers' professional competence be (Fives & Looney, 2009; Morris & Usher, 2011; Postareff et al., 2007). Teachers who possess high levels of self-efficacy cannot constantly improve their professional competence due to their unwillingness to change (Korthagen, 2004; Wheatley, 2002). This difference creates an exciting gap related to the changing conditions due to the COVID-19 pandemic. Therefore, it is vital to carry out study by adopting the dynamic capability theory to build a model willing to change teachers' mediating roles to improve professional competence.

Methodology

Study Goal

This study aims to build a conceptual model to determine teachers' willingness to change that mediates self-efficacy towards professional competence. An empirical testing model was presented with instructional leadership construct to determine the effect of their professional competence. The model is expected to empirically contribute to the teachers' willingness to change to enhance their professional competence. The following seven hypotheses were proposed:

H1: Instructional leadership (IL) affects professional competence (PC)

H2: Instructional leadership (IL) affects teachers' willingness to change (TWC)

H3: Teachers' willingness to change (TWC) affects professional competence (PC)

H4: Self-efficacy (SE) affects professional competence (PC)

H5: Self-efficacy (SE) affects teachers' willingness to change (TWC)

H6: Teachers' willingness to change (TWC) has a mediating effect on self-efficacy (SE) on professional competence (PC)

H7: Teachers' willingness to change (TWC) has a mediating effect on instructional leadership (IL) and professional competence (PC)

Study Design

A quantitative survey was used to measure the objective facts, divided into four: teachers' willingness to change and professional competence (endogenous), instructional leadership, and self-efficacy (exogenous). Based on data obtained through surveys, the condition of each variable was described, and its effect on one another was also determined (Tharenou et al., 2007).

Sample and Data Collection

A proportional stratified sampling design was used to collect data from teachers in 35 Senior High Schools in Yogyakarta Special Region, Indonesia. Of the 224 selected respondents comprising 68% women and 32% men, only 221 valid responses were obtained. They consisted of civil servants in ranks of IV.c, IV.b, IV.a, III.d, III.c, III.b, III.a and non-civil servants in sequential percentages of 1%, 7%, 28%, 22%, 14%, 13%, 12%, and 3%, respectively. They came from 5 different regencies, namely Yogyakarta, Bantul, Sleman, Kulon Progo, and Gunung Kidul in percentages of 38%, 35%, 17%, 5%, and 5%, respectively.

Table 1. Demographic Information of Sample

No	Respondent Characteristic		Total	Percentage (%)
1	Gender	Male	65	32
		Female	**136**	**68**
2	City/Regency	Yogyakarta	77	38
		Bantul	70	35
		Kulon Progo	10	5
		Sleman	35	17
		Gunung Kidul	9	5
3	Rank/Class	III.a	24	12
		III.b	27	13
		III.c	29	14
		III.d	45	22
		IV.a	56	28
		IV.b	14	7
		IV.c	1	1
		Non-Government Employee	6	3

The online questionnaires consisted of 4 constructs, namely instructional leadership (IL), self-efficacy (SE), professional competence (PC), and teacher's willingness to change (TWC). Furthermore, it comprised 28 parameters, measured using a Likert scale of 1 to 7, which varied from "strongly disagree" to "strongly agree." Instructional leadership, self-efficacy, and professional competence parameters were adapted from Blase and Blase (2000), Tschannen-Moran and Hoy (2001), and the Indonesian Ministry of Education (2010). Teachers' willingness to change was obtained through focus group discussion (Herawati et al., 2021). The google form questionnaire was distributed and communicated with the help of each school supervisor to ensure respondents thoroughly completed it.

Analyzing of Data

The uni-dimensionality of the variables was examined using the confirmatory-factor analysis (CFA) technique. Firstly, it was used to test instructional leadership, teachers' willingness to change, professional competence, and self-efficacy. Secondly, CFA was used to test both exogenous and endogenous variables (Hair et al., 2020).

The following evaluation is a structural analysis involving the combination of a CFA model diagram per variable that has been determined to fit. The initial combination of the complete image was analyzed similarly, and the CFA of each variable was evaluated by determining the loading factor value and checking whether the Goodness of Fit (GoF) test was in accordance with the stipulated requirements. The data were analyzed using Structural Equation Model (SEM), while Analysis of Moment Structure (AMOS) version 23.0 was used to examine the hypotheses.

CFA was performed using AMOS 23.0 to assess the validity of each variable, such as instructional leadership, teacher's willingness to change, professional competence, and self-efficacy. The CFA test was carried out by comparing the GoF coefficient results obtained from the study with the standard cut-off values. Cronbach's Alpha was also used to test the construct reliability with the data analyzed using SEM, while AMOS version 23.0 was used to examine the hypotheses.

Findings/Results

Structural Measurement

The structural model analysis, involving the combination of a CFA diagram per variable, resulted in a fit model, as shown in Figure 1. The goodness of fit test results of Chi-Square, probability, df, CMIN/DF, GFI, AGFI, NFI, CFI, IFI, and RMSEA are 624,094, 0.0, 337, 1,852, 0.818, 0.781, 0.809, 0.901, 0.902 and 0.065, respectively. The fit confirmation test on the full model indicated that not all GoF results met the requirements. However, the measurement of the complete Combined Research Model diagram is declared feasible. Hair et al. (2020) stated that relatively 4 to 5 GoF criteria are considered adequate, assuming they represent absolute, incremental, and parsimony fit indices. The resulting SEM model analyzed and tested the proposed hypotheses.
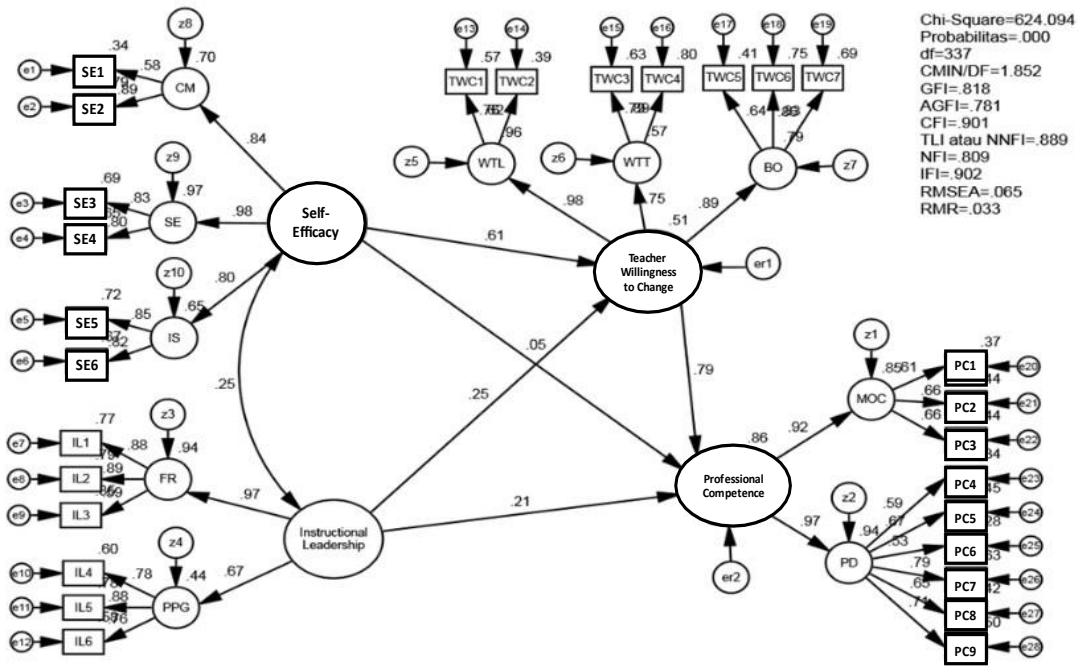
Figure 1. Full Model of the Effect of Instructional Leadership and Self Efficacy towards Teacher's Willingness to Change and its Implication on Professional Competence

Validity and Reliability Testing

After determining an acceptable fit model and comprehensive data, the subsequent step centered on evaluating or analyzing the measurement construct carried out based on a significant value of 0.5. This is consistent with Ghozali and Fuad (2012) and Hair et al. (2020), stating that the standard value indicates an ideal level of convergent validity.

Table 2. Indicator Validity Test Results in Full Model

No.	Latent Variable (2stCFA)	Latent Variable (1stCFA)	Manifest Variable	Std. Loading Factor	Validity
1.	Teacher's Professional Competence (The Indonesian Ministry of Education, 2010)	Mastery of Concept	PC1	0.601	Valid
			PC2	0.665	Valid
			PC3	0.665	Valid
		Professional Development	PC4	0.586	Valid
			PC5	0.673	Valid
			PC6	0.528	Valid
			PC7	0.795	Valid
			PC8	0.649	Valid
			PC9	0.710	Valid
2.	Instructional Leadership (Blase & Blase, 2000)	Fostering Reflection	IL1	0.876	Valid
			IL2	0.891	Valid
			IL3	0.590	Valid
		Promoting Professional Growth	IL4	0.776	Valid
			IL5	0.884	Valid
			IL6	0.759	Valid
3	Teacher's Willingness to Change (Herawati et al., 2021)	Willing to Learn	TWC1	0.758	Valid
			TWC2	0.620	Valid
		Willing to Try	TWC3	0.791	Valid
			TWC4	0.893	Valid
		Be Open	TWC5	0.639	Valid
			TWC6	0.864	Valid
			TWC7	0.834	Valid

Table 2. Continued

No.	Latent Variable (2stCFA)	Latent Variable (1stCFA)	Manifest Variable	Std. Loading Factor	Validity
4.	Teacher's Self-Efficacy (Tschannen-Moran & Hoy, 2001)	Class Management	SE1	0.579	Valid
			SE2	0.889	Valid
		Student Engagement	SE3	0.832	Valid
			SE4	0.803	Valid
		Instructional Strategy	SE5	0.846	Valid
			SE6	0.819	Valid

Table 2 shows that the Construct Reliability and Variance Extract (VE) calculations met the recommended value (CR 0.7). The majority of the VE also fulfill the recommended value (VE 0.5), therefore, it was concluded that all constructs and dimensions in the Full Model have good reliability.

Table 3. Construct Reliability (CR) Test Results and Variance Extract (VE)

Latent Variable (*2stCFA*)	Manifest Variables	Std. Loading Factor ($\lambda \geq 0{,}5$)	λ^2	Error $=1-\lambda^2$	$CR=\dfrac{(\Sigma\lambda)^2}{((\Sigma\lambda)^2+\Sigma Error)}$; $CR \geq 0{,}7$	$VE=\dfrac{(\Sigma\lambda^2)}{((\Sigma\lambda^2)+\Sigma Error)}$; $VE \geq 0{,}5$	Validitay
Teacher's Professional Competence	TPC1	0.601	0.361	0.639			Valid
	TPC2	0.665	0.442	0.558			Valid
	TPC3	0.665	0.442	0.558			Valid
	TPC4	0.586	0.343	0.657			Valid
	TPC5	0.673	0.453	0.547			Valid
	TPC6	0.528	0.279	0.721			Valid
	TPC7	0.795	0.632	0.368			Valid
	TPC8	0.649	0.421	0.579			Valid
	TPC9	0.710	0.504	0.496			Valid
	Σ	5.872	3.878	5.122	0.871	0.431	Reliable
Instructional Leadership	IL1	0.876	0.767	0.233			Baik
	IL2	0.891	0.794	0.206			Valid
	IL3	0.590	0.348	0.652			Valid
	IL4	0.776	0.602	0.398			Valid
	IL5	0.884	0.781	0.219			Valid
	IL6	0.759	0.576	0.424			Valid
	Σ	4.776	3.869	2.131	0.915	0.645	Reliable
Teachers' Willingness to Change	TWC1	0.758	0.575	0.425			Valid
	TWC2	0.620	0.384	0.616			Valid
	TWC3	0.791	0.626	0.374			Valid
	TWC4	0.893	0.797	0.203			Valid
	TWC5	0.639	0.408	0.592			Valid
	TWC6	0.864	0.746	0.254			Valid
	TWC7	0.834	0.696	0.304			Valid
	Σ	5.399	4.232	2.768	0.913	0.605	Reliable
Teachers' Self-Efficacy	TSE1	0.579	0.335	0.665			Valid
	TSE2	0.889	0.790	0.210			Valid
	TSE3	0.832	0.692	0.308			Valid
	TSE4	0.803	0.645	0.355			Valid
	TSE5	0.846	0.716	0.284			Valid
	TSE6	0.819	0.671	0.329			Valid
	Σ	4.768	3.849	2.151	0.914	0.642	Reliable

Hypotheses testing

This study was statistically carried out based on seven hypotheses used to obtain a *Critical Ratio* (CR) value of ≥ 1.96 at a significance level of 0.05 (5%). H_1 is accepted, assuming the CR value is ≥ 1.96, and H_0 is rejected. This analysis was also carried out by testing the probability significance (Sig. p). Furthermore, when the result of Sig. P is ≤ 0.05, H_1 is accepted, and H_0 is rejected. The value of Sig. p is ***. Therefore, the hypothesis is significant at 0.01 (1%), assuming the mediation role evaluated using the Sobel test formula is greater than the 5% (0.05) level. The test criteria are when the Sobel test statistic has a significance level p of < 0.05, hence, the variable is assumed to play the role of a mediator (Ghozali & Fuad, 2012).

The Sobel test calculation of Hypothesis 6 showed that the P-value (significance) is 0.041 < 0.05, indicating H_0 is rejected, and H_1 is accepted. Teachers' willingness to change serves as a mediating role between self-efficacy and professional competence. The Sobel test calculation of Hypothesis 7 was used to prove the P-value (significance) of 0.066 < 0.05; therefore, H_0 is accepted, and H_1 is rejected. It can be concluded that teachers' willingness to change does not act as a mediator between effective instructional leadership and professional competence.

Hypothesis 1 testing led to a CR. of 2.851 > 1.96 and a P-value of 0.004 < 0.05, showing H_0 was rejected and H_1 was accepted. This indicates that instructional leadership influences professional competence. *Hypothesis 2* testing resulted in a CR. of 3.366 > 1.96 and a P-value of *** (significant), resulting H_0 was rejected, and H_1 was accepted. It was concluded that instructional leadership influences the teacher's willingness to change. *Hypothesis 3* testing showed a CR value of 3.710 > 1.96 and a P-value of *** (significant). It was stated that teachers' willingness to change influenced professional competence, therefore, H_0 was rejected and H_1 was accepted. *Hypothesis 4* testing showed CR. of 0.564 < 1.96 and a p-value of 0.573 > 0.05, indicating H_1 was rejected, and H_0 was accepted. It was concluded that self-efficacy had an insignificant influence on professional competence. *Hypothesis 5* testing showed a CR of 6.057 > 1.96 and a p-value of *** (very significant), implying H_0 was rejected and H_1 was accepted. Furthermore, self-efficacy affected teachers' willingness to change.

The Sobel test of *Hypothesis 6* showed that the P-value significance is 0.041 < 0.05; hence, H_0 was rejected, and H_1 was accepted. Consequently, teachers' willingness to change plays an excellent mediating role between self-efficacy and professional competence. The test of *Hypothesis 7* showed that the P-value (significance) is 0.066 > 0.05, resulting in H_1 was rejected and H_0 was accepted. It was concluded that teachers' willingness to change does not mediate between instructional leadership and professional competence.

Direct and Indirect Effects

The standard regression coefficient of direct influence shows that teachers' willingness to change their dominant professional competence is 1.488 compared to other variables. The instructional leadership variable and self-efficacy simultaneously follow this at 0.572 and 0.129. The self-efficacy variable has a more dominant effect of 1.304 than the indirect influence of the Instructional Leadership of 0.538 on professional competence.

Discussion

The result obtained is interesting because it differs from previous findings on the relationship between self-efficacy and professional competence. Previous studies failed to involve the teacher's willingness to change (Daumiller et al., 2016; Klassen & Tze, 2014; Zee & Koomen, 2016). The model execution that involved this variable strongly proved that self-efficacy does not directly influence teachers' professional competence. However, it tends to boost this variable, supposing teachers are willing to change, which is a good mediator between self-efficacy and professional competence. The rationale underlying this finding is that changing learning from manual to online does not only require self-efficacy, but rather, a willingness to adopt change and efforts to increase competence in self-initiation.

This result is different from previous studies indicating a significant effect of self-efficacy on professional competence (Geerlings et al., 2018; Tschannen-Moran & Hoy, 2001). Federici and Skaalvik (2011) stated that when teachers possess high self-efficacy, they adopt various learning strategies; hence, their professional competence increases. According to Aslan and Bakir (2017), self-efficacy plays a decisive role and affects the professional competence of prospective teachers. Durley and Ge (2018) proposed a theory regarding teachers' self-efficacy in technology. Furthermore, Zee and Koomen (2016) stated that their self-efficacy is related to the quality of learning and academic adjustment. The findings of these previous studies were carried out before COVID-19 and did not involve the variable of teachers' willingness to change.

Another interesting finding in this study is that teachers' willingness to change is not an excellent mediating variable between instructional leadership and professional competence. Principals can play a direct role in improving teachers' professional competence, assuming they pay full attention to enhancing the learning quality through supervision, providing feedback, discussing, and appreciation. This finding is in line with Blase and Blase (2000) and Thien et al. (2021), which emphasized that the role of the principal is vital in promoting teachers to improve their professionalism.

With instructional leadership, school principals can make efforts to increase teacher competence. The principal can also promote them by providing humanist services, therefore, teachers are willing to self-reflect and initiate. Subsequently, reflection is bound to promote them to make changes and use their initiatives to improve their competencies. This result is in line with the opinion that the principal's leadership plays a crucial role in the sustainability of schools, specifically during this critical period (Talebizadeh et al., 2021). Leithwood et al. (2020) stated that the principles of good leadership constantly have a clear vision in developing others, managing people, and building capacity.

An important finding in this study is that teachers' willingness to change strongly influences professional competence. Therefore, the key to successfully improving professional competence depends on their willingness to change. Teachers can improve professional competence successfully based on their initiatives. They are assigned to provide learning

services according to the changing times and students' needs. They need to adapt to leaps and bounds of extraordinary changes in the educational sector with full awareness, openness, and persistence in learning, thereby ensuring their competencies are balanced with students' needs and the demands of time. This finding was supported by Zeid et al. (2017) that the effect of willingness to change in implementing teaching methods is closely related to professional competence. Teachers tend to adapt to the various changes quickly and always learn to improve their competence easily.

Conclusion

This study contributes to developing the teachers' willingness to change, specifically to increase professional competence, thereby supporting their ability to adapt to students' needs and the changing times. Based on the results obtained, it directs attention to teachers' willingness to change, self-efficacy, instructional leadership, and professional competence. This study explained the gap between self-efficacy and professional competence through the teacher's willingness to change.

In conclusion, this study proved that self-efficacy indirectly affects teachers' professional competence, although it plays a decisive role in their willingness to change. This implies that teachers need self-efficacy because it triggers their willingness to change. It was also discovered that teachers' willingness to change is not a good mediator for increasing professional competence in instructional leadership. Conversely, those who have the goodwill to change tend to improve their competencies without the principals' encouragement. This was conducted to enhance teachers' competencies, assuming they possess good instructional leadership.

Teachers' willingness to adopt digital transformation during the pandemic is a priority, and self-efficacy ensures that they embrace this change. Professional competence is enhanced when they are entirely willing to change. Based on this study, the improvement of professional competence is realized by stimulating their willingness to change, which is fragile. Bouley et al. (2015) stated that teachers need to have good self-efficacy because it affects the willingness to change and ultimately increases professional competence.

This study showed that the willingness to change does not wholly mediate between instructional leadership and professional competence. Therefore, instructional leadership has a direct influence without first going through teachers' willingness to change before improving their professional competence. This result is in line with Leithwood et al. (2020) and Navaridas-Nalda et al. (2020), stating that leadership plays a vital role in the sustainability of schools, specifically at this critical time.

The findings on the importance of teachers' willingness to change to increase professional competence contributed to self-efficacy, which led to the need to carry out further study to determine the variables that tend to improve this attribute. The powerful influence of willingness to change on professional competence also provides study opportunities concerning digital transformation and implementing a new curriculum during the pandemic.

Finally, the most important construct in this study relates to teachers' willingness to change. This concept indicates a desire for self-initiation to accept the change, welcome it as a challenge, and aim to learn to improve their competencies. Therefore, teachers can provide learning services according to the demands of the changing times and students' needs.

Recommendations

The three most important recommendations are addressed to teachers, school principals, and future studies. Firstly, teachers need to increase their willingness to change to improve their self-initiation and professional competence. Secondly, school principals need to strengthen their roles in collaborative supervision, providing directives, feedback, rewards, and promoting change, specifically for teachers with low willingness to change. Thirdly, further studies are urgently needed to investigate the factors that hinder their willingness to change based on a broader scope. It also needs to involve teachers from various school levels to obtain the data for designing professional development programs.

Limitations

This study is limited to teachers from Senior High Schools in Indonesia; therefore, subsequent investigations need to involve those from all levels and employees in education organizations. Another limitation is that the respondents do not represent all subject teachers.

Authorship Contribution Statement

Herawati: Designing the model and the computational framework, analyzing the data, and interpretation. Tjahjono: Being in charge of the overall direction and planning of the study. Qamari: Verifying the analytical methods and critical revision manuscript. Wahyuningsih: Writing the manuscript.

References

Al-Mahdy, Y. F. H., Emam, M. M., & Hallinger, P. (2018). Assessing the contribution of principal instructional leadership and collective teacher efficacy to teacher commitment in Oman. *Teaching and Teacher Education*, *69,* 191-201. https://doi.org/10.1016/j.tate.2017.10.007

Aslan, M., & Bakir, A. A. (2017). Evaluation of prospective teachers in terms of academic self-efficacy and professional competence. *European Journal of Educational Research, 6*(4), 553-563. https://doi.org/10.12973/eu-jer.6.4.553

Azorín, C. (2020). Beyond COVID-19 supernova. Is another education coming? *Journal of Professional Capital and Community*, *5*(3/4), 381-390. https://doi.org/10.1108/JPCC-05-2020-0019

Bandura, A. (1978). Self-efficacy: Toward a unifying theory of behavioral chan*ge. Advances in Behaviour Research and Therapy*, *1*(4), 139-161. https://doi.org/10.1016/0146-6402(78)90002-4

Bandura, A., Adams, N. E., & Beyer, J. (1977). Cognitive processes mediating behavioral change. *Journal of Personality and Social Psychology*, *35*(3), 125–139. https://doi.org/10.1037/0022-3514.35.3.125

Bandura, A., & Watts, R. E. (1996). *Self-efficacy in changing societies.* Springer. https://doi.org/10.1891/0889-8391.10.4.313

Barney, J. B. (2001). Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of Management*, *27*(6*),* 643-650. https://doi.org/10.1177%2F014920630102700602

Berger, J. (2020). *The Catalyst: How to change anyone's mind*. Simon and Schuster.

Blase, J., & Blase, J. (2000). Effective instructional leadership: Teachers' perspectives on how principals promote teaching and learning in schools. *Journal of Educational Administration, 38*(2). 130-141. https://doi.org/10.1108/09578230010320082

Bouley, F., Wuttke, E., Schnick-Vollmer, K., Schmitz, B., Berger, S., Fritsch, S., & Seifried, J. (2015). Professional competence of prospective teachers in business and economics education: Evaluation of a competence model using structural equation modeling. *Peabody Journal of Education*, *90*(4), 491-502. https://doi.org/10.1080/0161956X.2015.1068076

Churi, P., Mistry, K., Asad, M. M., Dhiman, G., Soni, M., & Kose, U. (2021). Online learning in COVID-19 pandemic: An empirical study of Indian and Turkish higher education institutions. *World Journal of Engineering*, *19*(1), 58-71. https://doi.org/10.1108/WJE-12-2020-0631

Çinar, M., Ekici, M., & Demir, O. (2021). A snapshot of the readiness for e-learning among in-service teacher prior to the pandemic-related transition to e-learning in Turkey. *Teaching and Teacher Education*, *107,* 1034478. https://doi.org/10.1016/j.tate.2021.103478

Clark, A. E., Nong, H., Zhu, H., & Zhu, R. (2021). Compensating for academic loss: Online learning and student performance during the COVID-19 pandemic. *China Economic Review*, *68*, 101629. https://doi.org/10.1016/j.chieco.2021.101629

Cummings, T. G., & Worley, C. G. (2014). *Organization development and change*: Cengage Learning.

Daumiller, M., Grassinger, R., Dickh¨auser, O., & Dresel, M. (2016). Structure and relationships of university instructors' achievement goals. *Frontiers in Psychology*, *7*, 1-14. https://doi.org/10.3389/fpsyg.2016.00375

Depaepe, F., & König, J. (2018). General pedagogical knowledge, self-efficacy and instructional practice: Disentangling their relationship in pre-service teacher education. *Teaching and Teacher Education*, *69,* 177-190. https://doi.org/10.1016/j.tate.2017.10.003

DiSessa, A. A. (2001). *Changing minds: Computers, learning, and literacy*. MIT Press. https://doi.org/10.7551/mitpress/1786.001.0001

Durley, H. C., & Ge, X. (2018). The interplays between teachers' self-efficacy and problem-solving competence in technology-mediated, open-ended professional development. In C. Hodges (Ed.) *Self-efficacy in instructional technology contexts* (pp. 141-162). Springer. https://doi.org/10.1007/978-3-319-99858-9_9

Fauth, B., Decristan, J., Decker, A.-T., Büttner, G., Hardy, I., Klieme, E., & Kunter, M. (2019). The effects of teacher competence on student outcomes in elementary science education: The mediating role of teaching quality. *Teaching and Teacher Education*, *86*, 102882. https://doi.org/10.1016/j.tate.2019.102882

Federici, R. A., & Skaalvik, E. M. (2011). Principal self-efficacy and work engagement: Assessing a Norwegian principal self-efficacy scale. *Social Psychology of Education*, *14*(4), 575-600. https://doi.org/10.1007/s11218-011-9160-4

Fives, H., & Looney, L. (2009). College instructors' sense of teaching and collective efficacy. *International Journal of Teaching and Learning in Higher Education*, *20(*2), 182–191.

Geerlings, J., Thijs, J., & Verkuyten, M. (2018). Teaching in ethnically diverse classrooms: Examining individual differences in teacher self-efficacy. *Journal of School Psychology, 67*, 134-147. https://doi.org/10.1016/j.jsp.2017.12.001

Ghozali, I., & Fuad, M. (2012). *Structural equation modeling* (3rd ed.). Universitas Diponegoro.

Gibson, S., & Dembo, M. H. (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology*, *76*(4), 569–582. https://bit.ly/3lj8Skh

Goddard, R. D., Hoy, W. K., & Hoy, A. W. (2004). Collective efficacy beliefs: Theoretical developments, empirical evidence, and future directions. *Educational Researcher*, *33*(3), 3-13. https://doi.org/10.3102%2F0013189X033003003

Goddard, R. D., LoGerfo, L., & Hoy, W. K. (2004). High school accountability: The role of perceived collective efficacy. *Educational Policy*, *18*(3), 403-425. https://doi.org/10.1177%2F0895904804265066

Grant, R. M. (1991). The resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review, 33*(3), 114-135. https://doi.org/10.2307%2F41166664

Gupta, S., Modgil, S., Gunasekaran, A., & Bag, S. (2020). Dynamic capabilities and institutional theories for Industry 4.0 and digital supply chain. *Supply Chain Forum: An International Journal*, *21*(3), 139-157. https://doi.org/10.1080/16258312.2020.1757369

Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching*, *8*(3), 381-391. https://doi.org/10.1080/135406002100000512

Haarhaus, T., & Liening, A. (2020). Building dynamic capabilities to cope with environmental uncertainty: The role of strategic foresight. *Technological Forecasting and Social Change*, *155*, 120033. https://doi.org/10.1016/j.techfore.2020.120033

Hair, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, *109*, 101-110. https://doi.org/10.1016/j.jbusres.2019.11.069

Hallinger, P. (2018). Principal instructional leadership: From prescription to theory to practice. In G. E. Hall, L. F. Quinn & D. M. Gollnick (Eds). *The Wiley handbook of teaching and learning* (pp. 505-528). Wiley-Blackwell. https://doi.org/10.1002/9781118955901.ch21

Hallinger, P., Adams, D., Harris, A., & Jones, M. S. (2018). Review of conceptual models and methodologies in research on principal instructional leadership in Malaysia: A case of knowledge construction in a developing society. *Journal of Educational Administration, 56*(1), 104-126. https://doi.org/10.1108/JEA-03-2017-0025

Hallinger, P., & Heck, R. H. (2010). Leadership for learning: Does collaborative leadership make a difference in school improvement*? Educational Management Administration and Leadership*, *38*(6), 654-678*.* https://doi.org/10.1177%2F1741143210379060

Hallinger, P., & Murphy, J. (1985). Assessing the instructional management behavior of principals. *The Elementary School Journal, 86*(2), 217-247. https://doi.org/10.1086/461445

Harris, A. (2020). COVID-19–school leadership in crisis? *Journal of Professional Capital and Community, 5*(3), 321-326. https://doi.org/10.1108/JPCC-06-2020-0045

Hayter, C. S., & Cahoy, D. R. (2018). Toward a strategic view of higher education social responsibilities: A dynamic capabilities approach. *Strategic Organization*, *16*(1), 12-34. https://doi.org/10.1177%2F1476127016680564

Herawati, R., Tjahjono, H. K., Qamari, I. N., & Wahyuningsih, S. H. (2021). *Teachers' willingness to change in adapting to online learning during covid-19 pandemic.* [Unpublished Research Report]. Universitas Muhammadiyah Yogyakarta. https://bit.ly/3k8jbXZ

Indonesian Ministry of Education. (2010). *Operating procedure of teacher performance assessment.* Director-General of Quality Improvement of Educators and Education Personnel Publishing Service.

Keramati, A., Afshari-Mofrad, M., & Kamrani, A. (2011). The role of readiness factors in E-learning outcomes: An empirical study. *Computers and Education*, *57*(3), 1919e1929. https://doi.org/10.1016/j.compedu.2011.04.005

Klassen, R. M., & Tze, V. M. C. (2014). Teachers' self-efficacy, personality, and teaching effectiveness: A meta-analysis. *Educational Research Review*, *12*, 59-76.

König, J., Jäger-Biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: Teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education, 43*(4), 608-622. https://doi.org/10.1080/02619768.2020.1809650

Korthagen, F. A. J. (2004). In search of the essence of a good teacher: Towards a more holistic approach in teacher education. *Teaching and Teacher Education*, *20*(1), 77-97. https://doi.org/10.1016/j.tate.2003.10.002

Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology*, *105*(3), 805–820. https://doi.org/10.1037/a0032583

Kurtmollaiev, S. (2020). Dynamic capabilities and where to find them. *Journal of Management Inquiry*, *29*(1), 3-16. https://doi.org/10.1177%2F1056492617730126

Lauermann, F., & König, J. (2016). Teachers' professional competence and wellbeing: Understanding the links between general pedagogical knowledge, self-efficacy and burnout. *Learning and Instruction*, *45*, 9-19. https://doi.org/10.1016/j.learninstruc.2016.06.006

Leithwood, K., Harris, A., & Hopkins, D. (2020). Seven strong claims about successful school leadership revisited. *School Leadership and Management*, *40*(1), 5-22. https://doi.org/10.1080/13632434.2019.1596077

Liguori, E. W., Winkler, C., Zane, L. J., Muldoon, J., & Winkel, D. (2021). COVID-19 and necessity-based online entrepreneurship education at US community colleges. *Journal of Small Business and Enterprise Development*. *28*(6), 821-830. https://doi.org/10.1108/JSBED-09-2020-0340

Lin, Y., & Wu, L.-Y. (2014). Exploring the role of dynamic capabilities in firm performance under the resource-based view framework. *Journal of Business Research*, *67*(3), 407-413. https://doi.org/10.1016/j.jbusres.2012.12.019

Magistretti, S., Pham, C. T. A., & Dell'Era, C. (2021). Enlightening the dynamic capabilities of design thinking in fostering digital transformation. *Industrial Marketing Management*, *97*, 59-70. https://doi.org/10.1016/j.indmarman.2021.06.014

Mardapi, D., & Herawan, T. (2018). Assessing teacher competence and its follow-up to support professional development sustainability. *Journal of Teacher Education for Sustainability*, *20*(1), 106-123. https://doi.org/10.2478/jtes-2018-0007

McFarlane, A. E. (2019). Devices and desires: Competing visions of a good education in the digital age. *British Journal of Educational Technology*, *50*(3), 1125-1136. https://doi.org/10.1111/bjet.12764

Morris, D. B., & Usher, E. L. (2011). Developing teaching self-efficacy in research institutions: A study of award-winning professors. *Contemporary Educational Psychology*, *36*(3), 232-245. https://doi.org/10.1016/j.cedpsych.2010.10.005

Navaridas-Nalda, F., Clavel-San Emeterio, M., Fernández-Ortiz, R., & Arias-Oliva, M. (2020). The strategic influence of school principal leadership in the digital transformation of schools. *Computers in Human Behavior*, *112*, 106481. https://doi.org/10.1016/j.chb.2020.106481

Postareff, L., Lindblom-Ylanne, S., & Nevgi, A. (2007). The effect of pedagogical training on teaching in higher education. *Teaching and Teacher Education*, *23*(5), 557-571. https://doi.org/10.1016/j.tate.2006.11.013

Rotter, J. B. (1982). Social learning theory. In N.T Feather (Ed.), *Expectations and actions: Expectancy-value models in psycholog*y (pp. 241-260). Routledge. https://doi.org/10.4324/9781003150879-12

Sicotte, H., Drouin, N., & Delerue, H. (2014). Innovation portfolio management as a subset of dynamic capabilities: Measurement and impact on innovative performance. *Project Management Journal*, *45*(6), 58-72. https://doi.org/10.1002%2Fpmj.21456

Snoek, M., Dengerink, J., & de Wit, B. (2019). Reframing the teacher profession as a dynamic multifaceted profession: A wider perspective on teacher quality and teacher competence frameworks. *European Journal of Education*, *54*(3), 413-425. https://doi.org/10.1111/ejed.12350

Sokal, L., Trudel, L. E., & Babb, J. (2020). Canadian teachers' attitudes toward change, efficacy, and burnout during the COVID-19 pandemic. *International Journal of Educational Research Open, 1*, 100016. https://doi.org/10.1016/j.ijedro.2020.100016

Talebizadeh, S. M., Hosseingholizadeh, R., & Bellibaş, M. Ş. (2021). Analyzing the relationship between principals' learning-centered leadership and teacher professional learning: The mediation role of trust and knowledge sharing behavior. *Studies in Educational Evaluation, 68*, 100970. https://doi.org/10.1016/j.stueduc.2020.100970

Tang, S. Y., Wong, A. K., Li, D. D., & Cheng, M. M. (2020). Millennial generation preservice teachers' intrinsic motivation to become a teacher, professional learning and professional competence. *Teaching and Teacher Education*, *96*, 103180. https://doi.org/10.1016/j.tate.2020.103180

Teece, D., & Pisano, G. (2003). *The dynamic capabilities of firms*. In C.W. Holsapple (Ed.) *Handbook on knowledge management. International handbooks on information systems* (Vol. 2, pp. 195-213). Springer. https://doi.org/10.1007/978-3-540-24748-7_10

Teece, D. J. (2018). Business models and dynamic capabilities. *Long Range Planning, 51*(1), 40-49. https://doi.org/10.1016/j.lrp.2017.06.007

Tharenou, P., Donohue, R., & Cooper, B. (2007). *Management research methods*. Cambridge University Press. https://doi.org/10.1017/CBO9780511810527

Thien, L. M., Liu, S., Yee, L. Q., & Adams, D. (2021). Investigating a multiple mediated-effects model of instructional leadership and teacher professional learning in the Malaysian School Context: A partial least squares analysis. *Educational Management Administration and Leadership*. Advance online publication. https://doi.org/10.1177/1741143211009892

Trotsko, A. V., Rybalko, L. S., Kirilenko, O. G., & Trush, H. O. (2019). Teachers' professional self-improvement in the conditions of distance learning implementation in higher education institutions. *Information Technologies and Learning Tools*, *72*(4), 258272. https://doi.org/10.33407/itlt.v72i4.3088

Tschannen-Moran, M., & Barr, M. (2004). Fostering student learning: The relationship of collective teacher efficacy and student achievement. *Leadership and Policy in Schools*, *3*(3), 189-209. https://doi.org/10.1080/15700760490503706

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, *17*(7), 783-805. https://doi.org/10.1016/S0742-051X(01)00036-1

Tschannen-Moran, M., & Hoy, A. W. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and Teacher Education, 23*(6), 944-956. https://doi.org/10.1016/j.tate.2006.05.003

Wang, F., Tang, H., Shen, W., Wang, Y., & Lo, L. N. (2021). Factors influencing teachers' willingness to move in the Chinese school system. *Asia Pacific Journal of Education*, Advance online publication. https://doi.org/10.1080/02188791.2021.1923457

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, *5*(2), 171-180. https://doi.org/10.1002/smj.4250050207

Wheatley, K. F. (2002). The potential benefits of teacher efficacy doubts for educational reform. *Teaching and Teacher Education*, *18*(1), 5-22. https://doi.org/10.1016/S0742-051X(01)00047-6

Woolfolk, A. E., & Hoy, W. K. (1990). Prospective teachers' sense of efficacy and beliefs about control. *Journal of Educational Psychology*, *82*(1), 81-91. https://doi.org/10.1037/0022-0663.82.1.81

Yang, H., Wang, M., Ju, Y., Wen, X., Wu, M., & Han, Q. (2020). Research on influencing factors of continuous learning willingness for online courses from the perspective of interaction. In *2020 International Conference on Information Science and Education (ICISE-IE)* (pp. 342-346). IEEE. https://doi.org/10.1109/ICISE51755.2020.00082

Zee, M., & Koomen, H. M. (2016). Teacher self-efficacy and its effects on classroom processes, student academic adjustment, and teacher wellbeing: A synthesis of 40 years of research. *Review of Educational Research*, *86*(4), 981-1015. https://doi.org/10.3102%2F0034654315626801

Zeid, H. A., Assadi, N., & Murad, T. (2017). The effect of junior high school teachers' motivation and willingness to change on the diversity of their teaching methods. *Theory and Practice in Language Studies*, *7*(12), 1160-1170. https://doi.org/10.17507/tpls.0712.02

Zhang, Y., Chen, T., & Wang, C. (2020). Factors influencing students' willingness to choose blended learning in higher education. In S. Cheung, R. Li, K. Phusavat, N. Paoprasert & L. Kwok (Eds), *Blended learning. Education in a smart learning environment. ICBL 2020 Lecture Notes in Computer Science* (Vol. 12218, pp. 289-302). Springer. https://doi.org/10.1007/978-3-030-51968-1_24

Zhao, Y. (2020). COVID-19 as a catalyst for educational change. *Prospects*, *49*(1), 29-33. https://doi.org/10.1007/s11125-020-09477-y

Zollo, M., & Winter, S. G. (2002). Deliberate learning and the evolution of dynamic capabilities. *Organization Science*, *13*(3), 339-351. https://doi.org/10.1287/orsc.13.3.339.2780