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Conceptualizing Learning Agility of University Students in the COVID-19 Era

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Abstract
COVID–19 caused schools and universities to change their regular program to online learning. Online learning requires the student to be agile and engaged in the learning process. This paper investigated the impact of goal orientation, openness to experience, and psychological safety toward learning agility on university students. This research used PLS–SEM to analyze the relationships among learning agility constructs. The author conducted quantitative research by developing an online survey using questionnaires from the previously widely used and well–validated instrument. The participants of this study are 206 industrial engineering students of Telkom University, Indonesia. The instrument was fulfilled to what extent the participant agreed with the statement using a six–point Likert scale. A significant relationship was found between learning agility factors: goal orientation, openness to experience, and psychological safety toward learning agility. It was found that goal orientation has a large effect size on learning agility. Thus, it played a central role in the model. Future studies should be conducted with a larger sample with several individual attributes. It may determine whether individual attributes predict difference variation of learning agility. The differences could be examined by making group–specific comparisons.

***Keyword** : Goal Orientation, Learning Agility, SEM*

1. INTRODUCTION

COVID–19 caused severe disruption of life from health threats, travel banned, economic downturn, and job losses to educational system shifting. Almost all countries postponed educational activities. According to UNESCO (2020), the shift in the educational system impacted over 91% of the student population in the world. Schools and universities changed the regular program to online learning. Regular classes, group projects, exams, and lab work were converted to the online delivery mode (UNESCO, 2020).

Online learning is learning with internet access to various learning interactions (Rahman, 2020). The shift from face–to–face to online delivery mode caused students significant interruptions. Previous research showed that online learning is more practical depending on the student's learning style (Boggiano, et al., 2020; Sternberg, et al., 2000). The more extroverted student may do worse than the more introverted student in these settings. This situation is because they experience loneliness due to the lack of interaction with lecturers and classmates. Besides that, monotonous learning leads to

boredom, lack of motivation, burnout, and even a decline in academic achievement.

The problem arose due to online learning compulsion requiring the student to be agile and engaging in the learning process (Demuyakor, 2020). The student who has a clear goal orientation will use this unfamiliar challenge as an opportunity to learn. The openness to new experiences will lead them to adapt better to novel settings, even though it is sometimes uncomfortable and risky. The knowledge and skill needed to apply this agility in learning develop through the accumulation of experience learning quickly in a fast–changing situation. Applying the newly acquired capability in a new situation results in better learning and development.

This paper investigates the impact of goal orientation, openness to experience, contextual and environmental factors toward learning agility on industrial engineering students of Telkom University, Indonesia. This study used a previously validated De Rue et al. (2012) framework. This paper is organized within the following sections: introduction, literature review, research methods, questionnaire development, demographic report, data analysis, discussion, and conclusion.

2. LITERATURE REVIEW

2.1. Learning Agility

The first study to conceptualize learning agility is Lombardo and Eichinger (2000). They defined learning agility as individual willingness and ability to practice new skills and learn new knowledge, which resulting better adaptation in unfamiliar conditions. This definition emphasizes that agile learners can learn from experience, apply it in an unfamiliar situation, and has potential future success. Even though potential cannot be determined yet, it can be substituted by assessing individual ability and motivation to apply new skills and knowledge in a novel setting (DeMeuse et al., 2010; Lombardo & Eichinger, 2000). Moreover, Lombardo and Eichinger (2000) also conceptualized four dimensions of learning agility, there are:

1. Mental Agility: comfortable with complexity
2. People Agility: able to work with diverse people, learn from experience and actively seek feedback, self–awareness
3. Change agility: curious, comfortable with change
4. Result Agility: Deliver the result in a challenging setting, and encourage others to perform beyond normal

Meanwhile, DeMeuse et al. (2010) argued that self–awareness is a significant dimension that should be stand–alone and separated from people's agility. They defined self–awareness as "the depth to which an individual knows him or herself, recognizing skills, strengths, weaknesses, blind spots, and hidden strengths." Therefore, the characteristics of individuals aware of themselves and their environment will be conceptualized more clearly.

DeRue et al. (2012) integrated several definitions from previous literature and contributed by adding the antecedent of learning agility. Their definition focused on speed (how quickly an individual obtains the information) and flexibility (how easily individual moves across ideas). The two characteristics lead to positive performance change over time. Those definitions capture that agile learners can learn from experience quickly and flexibly open to various perspectives. Therefore, those individuals can employ the skill and knowledge to succeed in future occurrences.

De Rue et al. (2012) examined a comprehensive set of related constructs of learning agility, including individual differences related to learning agility and contextual and environmental factors. Individual differences consist of goal orientation and openness to experience. These will lead to speed and flexibility of learning from experience, the critical features of learning agility (DeRue et al., 2012). Furthermore, learning agility is influenced by contextual and environmental factors (DeRue et al., 2012). Building on the relationship stated by De Rue et al. (2012), this paper proposes a model to investigate the underlying concept of learning agility.

De Rue et al. (2012) contended that there is a correlation between learning agility and individual differences related to learning agility, such as goal orientation and openness

to experience. Unfortunately, the empirical studies' results still need to be more conclusive. However, these individual differences are the fundamental framework for understanding an individual's ability to learn from experience, which is the main character of learning agility.

2.2. Goal Orientation

Goal orientation is an individual's innate desire to pursue goals related to learning and mastery or performance and rewards (Kanfer, 1990). Individuals with clear goal orientation tend to have greater flexibility (DeRue et al., 2012). De Rue et al. (2012) argued that individuals with clear goal orientation would not focus only on one solution when solving a problem. Instead, they are eager to seek other solutions (VandeWalle et al., 2001). In short, they flexibly move from one idea to another.

Goal orientation also influences an individual's learning motivation (Colquitt & Simmering, 1998). They perceive challenging developmental experiences as a learning opportunity rather than threatening situations in which they can fail (DeRue & Wellman, 2009; Dragoni et al., 2009). They are attentive to obtaining new skills and knowledge to adapt to new situations (VandeWalle et al., 2000). Fortunately, they are usually a fast learner (Drinka et al., 2017), which easiness to learn and adapt (DeShon & Gillespie, 2005; Kozlowski, et al., 2001).

The individual who likes to learn and develop is usually keen on seeking feedback (VandeWalle et al., 2001). They like to reflect and learn from experience to improve their performance over time (DeShon & Gillespie, 2005). Those characteristics underlie learning agility (Wong et al., 2012).

2.3. Openness to Experience

Openness to experience is the character of the individual who has an intense intellectual curiosity, is broad–minded and is more receptive to change (LePine et al., 2000). Being open to experience means taking a broader array of more thorough information (Day & Lance, 2004). This individual actively seeks out new and varied experiences and ideas without limiting viewpoints to a single perspective (Day & Lance, 2004; LePine et al., 2000). They can draw on multiple or conflicting perspectives (Day & Lance, 2004; LePine et al., 2000). Their resourcefulness and flexibility lead them to become more agile in learning (DeRue et al., 2012; Day & Lance, 2004). This character follows Lombardo and Eichinger (2000), who contended that an individual with high learning agility is usually open to various experiences and ideas.

The individual with high openness to experience is also creative, well suited to dramatic adaptation, better adapted, and comfortable with change (Baer & Oldham, 2006; LePine et al., 2000). These individuals are curious and try something new to learn (LePine et al., 2000). This curiosity promotes individual learning and development (Davis & Barnett, 2010). Consequently, they become more comfortable adapting to changes (LePine et al., 2000).

2.4. Contextual and Environmental Factor

Moving beyond goal orientation and openness to experience, contextual and environmental factors, such as psychological safety, could moderate individuals engaging in agile learning. Psychological safety includes everything in the environment that impacts learning speed and flexibility between conflicting perspectives, which is the characteristics of learning agility. Edmondson (2003) defined psychological safety as the situation that makes an individual psychologically safe with people around can be trusted even when issues arise. Moreover, Kahn (1990) clarified psychological safety as the individual's ability to perform without worrying negative effect of self–image from the co–worker.

Psychological safety leads to better learning from experience (DeMeuse et al., 2010). Learning from experience requires studying comprehensive knowledge and complex skill, making mistakes repeatedly, and then understanding and practising slowly (Schein, 1993). This environment is essential in learning (Schein, 1993). The importance is that learning cannot occur in a punitive culture where the individual is highly anxious about failure. Punitive culture is likely not to give freedom of thought and forbid individuals to be wrong (DeMeuse et al. (2010). This culture

tends to punish individuals when making mistakes. Thus, they can only make mistakes once, while individuals must practice slowly to improve. Furthermore, this could lead to a degradation individual's motivation to learn.

The individual who is afraid to make mistakes and concerned about "being right" or "being seen as being right" is likely to perceive different perspectives as an attack (Fisher et al., 2001). This defensiveness reduces an individual's ability to move flexibly across the perspective. Thus, psychological safety is needed in the learning environment (Edmondson & Woolley, 2003). Edmondson and Wooley (2003) argued that psychological safety allows the individual to take risks, explore different avenues of thought, raise questions, and seek feedback. According to Tangirala et al. (2013), individuals who experience psychological safety from their environment tend to rely on performance or achievement. Also, Baer & Frese (2003) also noted that psychological safety is a critical ingredient required for innovation.

Based on the findings of prior studies, goal orientation, openness to experience, contextual and environmental factors affect learning agility (DeRue et al., 2012). Thus, this paper aims to analyze the relationship between goal orientation and openness to experience learning agility among industrial engineering students of Telkom University, Indonesia. To clarify the issues, the hypotheses are stated as follows:

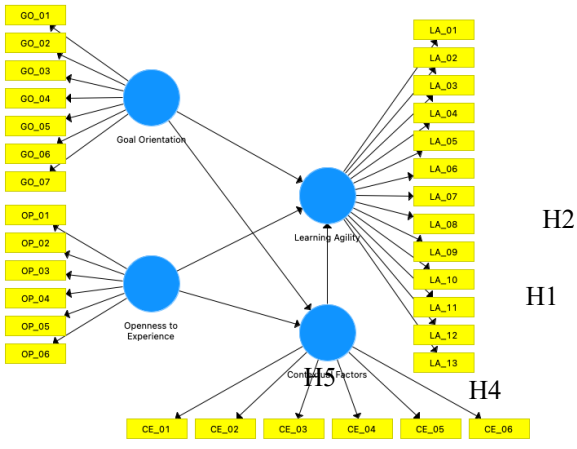

Figure 1. Research Model
Source : DeRue, Ashford, & Myers, 2012

H1 : Goal Orientation has a significant effect on Context Factors

H2 : Goal Orientation has a significant effect on Learning Agility

H3 : Openness to Experience has a significant effect on Context Factors

H4 : Openness to Experience has a significant effect on Learning Agility

H5 : Contextual Factors has a significant effect on Learning Agility

3. RESEARCH METHOD

4.1. Data Collection

This research used SmartPLS 3.0 to analyze the relationships among learning agility constructs. The author conducted quantitative research by developing an online survey using questionnaires from the previously widely used and well–validated instrument. The data collection took place between November to December 2021.

The participants of this study are 206 industrial engineering students of Telkom University, Indonesia. Broken by gender, there are 108 males (52%) and 98 females (48%). The majority of students got GPAs between 3.00 – 3.50 (61% or 126 students), then continued with GPA > 3.50 (32% or 66 students) and with GPA < 3.00 (7% or 14 students).

4.2. Questionnires

There are three sections consisted in the questionnaire. The first section was about an ethical issue. It assured participants' confidentiality and explained to the participants that their participation was voluntary. This section also comprised the purpose of the survey and instructions to fulfil it. Before the survey, the participants should agree to the informed consent. The second section was about the participants' profiles. The third section focused on the survey related to learning agility. It consisted of four subsections: goal orientation, openness to experience, learning agility, and psychological safety.

This research used measurements from the previously widely used and well–validated instrument from various studies. Every instrument item was translated from English to Indonesian except for specific general terms. The sentence in the instrument was carefully revised to ensure it was suitable for the study.

Goal orientation was used VandeWalle (1997). Openness to experience was assessed using the Big Five Inventory instrument. Learning Agility adopted Burke Learning Agility Inventory (BLAI) instrument. The measurement for psychological safety is based on Garvin et al. (2008).

The instrument was fulfilled to what extent the participant agreed with the statement using a six–point Likert scale. The scale is named as strongly disagree (1), disagree (2), slightly disagree (3), slightly agree (4), agree (5), and strongly agree (6). The author did not use neutral choices to get a more reliable result and avoid biased (Page–Bucci, 2013).

Table 1. Instruments

Construct(s)	Statement(s)
Goal Orientation	
GO_01	I am willing to select a challenging work assignment from which I can learn a lot.
GO_02	I often look for opportunities to develop new skills and knowledge.
GO_03	I enjoy challenging tasks at work where I will learn new skills.
GO_04	For me, the development of my work ability is important enough to take risks.
GO_05	I prefer to work in situations that require a high level of ability and talent.
GO_06	I try to figure out what it takes to prove my ability to others at work.
GO_07	I enjoy it when others at work are aware of how well I am doing.
Openness to Experience	
OP_01	I am curious about many different things
OP_02	I am inventive and find clever ways to do things
OP_03	I am complex, a deep thinker
OP_04	I have difficulty imagining things
OP_05	I have little interest in abstract ideas
OP_06	I usually come up with new ideas
Learning Agility	
LA_01	I ask my peers to provide me with feedback on my performance
LA_02	I seek feedback from my manager about my performance
LA_03	I update my knowledge and expertise through formal training or education
LA_04	I discuss my mistakes with others
LA_05	I ask a variety of stakeholders for their points of view
LA_06	I try different approaches to see which one generates the best result
LA_07	I take time to reflect on how to be more effective
LA_08	I critically evaluate work–related events with others to understand what happened
LA_09	I experiment with unproven ideas by testing them out
LA_10	I readily grasp new ideas or concepts
LA_11	I react well to unexpected problems
LA_12	I switch between different tasks or jobs as needed
LA_13	I consider many different options before taking action
Contextual and Environmental Factors	
CE_01	In my work unit, it is easy to speak up about what is on my mind.
CE_02	People in my unit are eager to share information about what does and does not work.
CE_03	Differences in opinion are welcome in this unit.
CE_04	In this unit, people are open to alternative ways of getting work done.
CE_05	In this unit, people value new ideas.
CE_06	Despite the workload, people in this unit find time to review how the work is going.

4.3. Data Analysis

This research used SmartPLS 3.0 to assess the relationships between learning agility constructs. Following Hair et al. (2017), the PLS–SEM test is divided into two stages: evaluation of measurement/outer model and evaluation of structural/inner model. Evaluation of measurement/outer model is determined by construct reliability, convergent, and discriminant validity. Meanwhile, the evaluation of the structural/inner model is determined by collinearity, coefficient of determination (R2), effect size (f2), coefficient of predictive relevance (Q2), effect size (q2), and significance of path coefficient.

Table 2. PLS-SEM Test

Evaluation of Measurement/Outer Model	
Construct Reliability	Cronbach's Alpha >= 0,70

Convergent Validity	CR >= 0,70 Outer loading >= 0,50 AVE >= 0,50
Discriminant Validity	Fornell Larcker HTMT <= 0,90
Evaluation of Structural/Inner Model	
Collinearity	VIF <= 5
R^2	Substantial: R^2 >= 0,67 Moderate: R^2 >= 0,30 Weak: R^2 >= 0,19
Effect Size f^2	Large: f^2 >= 0,35 Medium: f^2 >= 0,15 Small: f^2 >= 0,02
Significance of Path Model	T value >= critical value p value <= significance level
Model Fit	
SRMR	SRMR <= 0,08

Source : Hair et al., 2017

Evaluation of the measurement/outer model is started by assessing construct reliability. It is analyzed by Cronbach's alpha and Composite Reliability (CR) test. The accepted value for Cronbach's alpha and CR should be higher than 0,70 (Hair et al., 2017). Further, convergent validity evaluates the correlation between items in the same construct. It is assessed using standardized outer loadings and Average Variance Extracted (AVE). The accepted thresholds for standardized outer loadings and AVE should be higher than 0,70 (Hair et al., 2017). The following assessment is discriminant validity. Discriminant validity evaluates whether the items loaded well on their construct and poorly on other constructs or the distinction of items from a different concept. It is tested because each construct should be unique and distinct. Discriminant validity is assessed using the square root of AVE based on Fornell Larcker's criterion and Heterotrait–monotrait (HTMT), which values must be less than 0.90 (Hair et al., 2017).

This study subsequently evaluated the structural/inner model. It aims to confirm the constructs' relationships and test the hypotheses. It is conducted by bootstrapping 5000 samples in SmartPLS 3.0. The first assessment in evaluating the structural/inner model is collinearity. Collinearity issues assessment uses the Variance Inflation Factor (VIF). VIF values should be under 5.0 (Hair et al., 2017). Thus, it considers no multicollinearity threats. Multicollinearity is a situation where at least two indicators are highly correlated (Hair et al., 2017). This threat can lead to numerous methodological and interpretational problems. Then, R2 assesses the power of the predictive model or the total effect of exogenous variables on the endogenous variable. R2 values of 0.67, 0.30, and 0.19 denote substantial, moderate, and weak, respectively (Chin, 1998). Also, f2 values indicate the path model's substantive effect sizes of 0.02, 0.15, and 0.35 as small, medium, and large (Cohen, 1988).

Moreover, the significance of the path model is also used to test the hypothesis. The test is considered statistically significant once T–statistic is larger than the critical value and the p–value is less than the significance level (Hair et al., 2017). Typically used significance levels for the two–tailed tests are 10% (critical value = 1.65), 5% (critical value = 1.96), and 1% (critical value = 2.57). Further, commonly used significance levels for the one–tailed test are 10% (critical value = 1.28), 5% (critical value = 1.65), and 1% (critical value = 2.33). PLS–SEM does not use Goodness of Fit (GoF) regarding model fit. The reason is that GoF only represents model fit in CB–SEM but not in PLS–SEM (Henseler & Sarstedt, 2013). Instead, PLS–SEM uses SRMR to indicate model fit, in which thresholds must be less than 0.08 (Hair et al., 2017).

4. RESULTS

4.1.. Findings

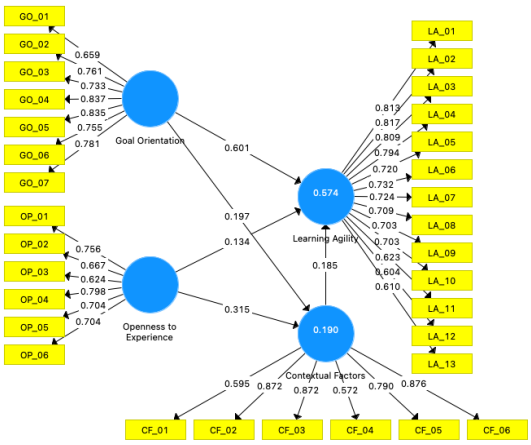

Figure 2. Outer Loadings

Table 3. Construct Reliability and Convergent Validity

Item	Convergent Validity		Construct Reliability	
	Outer Loading >= 0,70	Average Variance Extracted >= 0,70	Cronbach's Alpha >= 0,70	Composite Reliability >= 0,70
GO_01	0.659			
GO_02	0.761			
GO_03	0.733			
GO_04	0.837	0.590	0.910	0.909
GO_05	0.835			
GO_06	0.755			
GO_07	0.781			
OP_01	0.756			
OP_02	0.667			
OP_03	0.624	**0.506**	**0.861**	**0.859**
OP_04	0.798			
OP_05	0.704			
OP_06	0.704			
CE_01	0.595			
CE_02	0.872			
CE_03	0.872	**0.599**	0.889	0.897
CE_04	**0.572**			
CE_05	0.790			
CE_06	**0.876**			
LA_01	0.813			
LA_02	0.817			
LA_03	0.809			
LA_04	0.794			
LA_05	0.720			
LA_06	0.732			
LA_07	0.724	0.524	**0.934**	**0.934**
LA_08	0.709			
LA_09	0.703			
LA_10	0.703			
LA_11	0.623			
LA_12	0.604			
LA_13	0.610			

First, the author evaluated the measurement/outer model. As noted before, convergent validity is evaluated by outer loading and AVE (Hair et al., 2017). As in Table 3, all outer loadings are above 0.50. Previously, outer loadings that were less than 0.50 were removed. High outer loading indicates that all items load significantly within their construct. Further, all AVE values are above the accepted threshold of 0.50. It means 50% or more of the construct explains the variance of the items.

Construct reliability test is conducted to examine the measurement/outer model. It is evaluated using Cronbach's alpha and CR (Hair et al., 2017). As suggested, Cronbach's alpha values fluctuate from 0.861 to 0.934, exceeding the minimum critical value of 0.70. CR values are between 0.859 and 0.934, which exceed 0.70. These values indicate excellent internal consistency and a satisfactory level of reliability.

Table 4. Fornell Larcker

	Contextual Factors	Goal Orientation	Learning Agility	Openness to Experience
Contextual Factors	0.774			
Goal Orientation	0.330	0.768		
Learning Agility	0.437	0.718	0.724	
Openness to Experience	0.398	0.424	0.462	0.711

Table 5. HTMT

	Contextual Factors	Goal Orientation	Learning Agility	Openness to Experience
Contextual Factors				
Goal Orientation	**0.330**			
Learning Agility	0.446	**0.718**		
Openness to Experience	0.399	0.421	0.455	

The discriminant validity test is the third evaluation of the measurement/outer model. It is used Fornell Larcker's criterion and HTMT (Hair et al., 2017). The diagonal values in Fornell Larcker's criterion represent the square root of each construct's AVE, while the non–diagonal values indicate the correlations between the latent variables. As in Table 4, it can be seen that all diagonal values are larger than the non–diagonal values. Then, HTMT values ranged from 0.330 to 0.718, less than the accepted threshold of 0,90. Thus, all evaluation of the measurement/outer model is acceptable. The acceptance means the research model is reliability and validity accepted.

Table 6. VIF

	Contextual Factors	Goal Orientation	Learning Agility	Openness to Experience
Contextual Factors			1.235	
Goal Orientation	**1.219**		1.267	
Learning Agility				
Openness to Experience	**1.219**		**1.341**	

The first step to evaluate the structural/inner model is to examine the collinearity. Due to its reflective model nature, it uses VIF values (Hair et al., 2017). Table 6 shows that all values range from 1.219 to 1.341, below the accepted threshold of 5.0. The values give a good indication of no multicollinearity threats in this model.

Table 7. R Square

	R Square	
Contextual Factors	0.190	Weak
Learning Agility	0.574	Moderate

Table 7 shows that the R Square value of Contextual Factors is 0.190, which denotes weak. Further, the R Square of learning agility explains 57.4 % of the variance for learning agility, which is moderate.

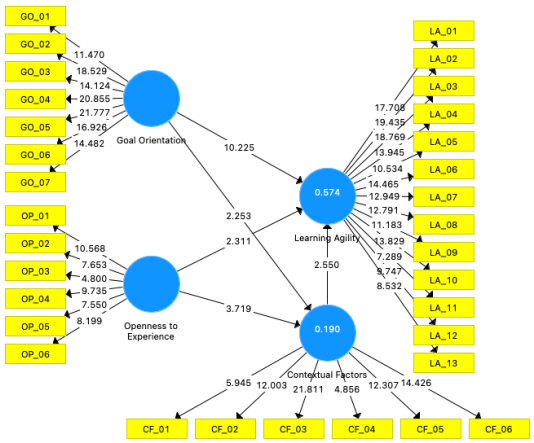

Figure 3. Path Coefficient

Table 8. Effect Size and Significancy

	F Square	Path Coefficient	T Statistics	P Values
H1 : Goal Orientation –> Context Factors	0.039 (Small)	0.197	**2.253**	**0.024**
H2 : Goal Orientation –> Learning Agility	0.669 (Large)	0.601	**10.225**	**0.000**
H3 : Openness to Experience –> Context Factors	0.100 (Small)	0.315	3.719	**0.000**
H4 : Openness to Experience –> Learning Agility	0.031 (Small)	0.134	2.311	0.021
H5 : Contextual Factors –> Learning Agility	0.065 (Small)	0.185	2.550	0.011

The only path coefficient with a large effect size is goal orientation to learning agility (f2 = 0.669). While the rest effect sizes are considered small (goal orientation to contextual factors, f2 = 0.039; openness to experience to contextual factors, f2 = 0.100; openness to experience to learning agility, f2 = 0.031; and contextual factors to learning agility, f2 = 0.065).

Furthermore, the significance of the path model is evaluated through the bootstrap resampling method (Hair et al., 2017). It will subsequently examine the structural model to confirm the relationships among constructs and test the hypothesis. This study uses a 5% significance level with a 1.96 critical value. According to the criteria, the result shows that the hypothesis is accepted. T statistics range from 2.253 to 10.225, which is higher than 1.96. Also, p values range from 0,000 to 0,024, below the accepted threshold of 0.05.

Finally, as mentioned before, this study examines its model fit using SRMR. The SRMR value of this model is 0.075, which has a good model fit.

Results should be clear and concise. The results should summarize (scientific) findings rather than providing data in great detail. Please highlight differences between your results or findings and the previous publications by other researchers.

4.2. Discussion

This study analyses a broader concept of learning agility constructs. The analysis uses a framework developed by DeRue, Ashford, et al. (2012). This study examines the relationship between learning agility and its antecedents: goal orientation, openness to experience, and contextual factors. Thus, this research provides some clarity to the literature on learning agility.

4.2.1. Goal Orientation

Generally, the relationship between goal orientation and learning agility is consistent with previous literature. This study contends that goal orientation is correlated with feedback–seeking (VandeWalle, Cron, & Slocum, The role of goal orientation following performance feedback, 2001), flexibility, and risk taker (DeRue, Ashford, & Myers, 2012), which are the characteristics of learning agility.

Since goal orientation has been found to have a significant and large effect size on learning agility, this study provides valuable insights into the understanding that goal orientation is the prime contributor to learning agility. This finding is not surprising, given that students with a clear goal orientation are keen to reflect and learn from experience to improve their performance over time. The student usually focuses on more than one solution when solving the problem. Instead, they are eager to seek other solutions. They perceive challenging developmental experiences as a learning opportunity rather than threatening situations in which they can fail. Their tendency to obtain new skill and knowledge lead them to adapt better to a novel situation.

This student is expected to have high learning agility. When students need a clear goal orientation on what they want to do and get from their studies, they will avoid seeking feedback and challenge. Consequently, they will need to be more agile in their learning. Thus, for any student to succeed, they should have a clear goal orientation. Failure to have goal orientation will lead to being less agile in the learning process.

4.2.2. Openness to Experience

This study finds that openness to experience has a significant positive relationship with learning agility. This finding is not surprising given that student who is open to new experience is curious and more adaptive (LePine, Colquitt, & Erez, 2000). Their curiosity takes them to seek out new and varied experiences and ideas. These students like to learn new things with a broader array of more thorough information. Their resourcefulness leads them to become more comfortable with change. Therefore, they will adapt better to the new situation.

However, the opposite finding was found that openness to experience and learning agility had a weak effect size. The result is surprising considering that openness to experience represents the likelihood of accepting and incorporating feedback which is the character of learning agility (Smither, London, & Reilly, 2005). Taken together, open to experience individual displays a preference for learning agility but does not necessarily possess the ability to demonstrate learning agility.

4.2.3. Contextual and Environmental Factor

The present study result indicates that contextual and environmental factors such as psychological safety have a significant positive relationship with learning agility. The outcome is consistent with the previous literature, which argued that psychological safety support learns from experience, a characteristic of learning agility (DeMeuse, Guangrong, & Hallenbeck, 2010).

Students who perceive their classmates as reliable will try, learn, and repeatedly experiment without hesitation to make mistakes (Schein, 1993; Edmondson &

Woolley, 2003). Thus, they can learn comprehensive knowledge and complex skill from previous experience. Besides, psychological safety allows the student to take risks, explore different perspectives, and seek feedback (Edmondson & Woolley, 2003). This flexibility and openness to various ideas make students more agile in their learning.

However, the finding shows that the effect size of psychological safety on learning agility is weak. According to the result, psychological safety has more of a preference toward learning agility but does not demonstrate learning agility. Learning agility level of the student may depend upon the psychological safety present in a given environment. Thus, more awareness should be placed on the value of psychological safety. Therefore, organizations are encouraged to examine psychological safety factors to support this individual closely. A close look at psychological safety will positively impact subordinate learning agility.

5. CONCLUSIONS AND LIMITATIONS

5.1. Limitations

This study extended the initial assumptions of learning agility as a construct by examining it within a broader nomological network of related antecedents. A significant relationship was found between learning agility factors: goal orientation, openness to experience, and psychological safety toward learning agility.

It was found that goal orientation and learning agility played a central role in the model. Goal orientation was found to have a large effect size on learning agility. It was contended that goal orientation was associated with feedback–seeking, flexibility, and risk taker, which are the characteristics of learning agility. Therefore, students' success in learning will depend on clear goal orientation. Failure to have a clear goal orientation makes the student less agile in learning. However, openness to experience and psychological safety were found to have a weak effect size. Both openness to experience and psychological safety was believed to have more of a preference towards learning agility but do not demonstrate learning agility behaviour. To conclude, this research is a step ahead in comprehending the framework of student learning agility.

The author hopes these findings will serve as a platform to increase student learning agility. Thus, academic practitioners can explore learning agility more thoroughly and establish refinements to learning agility theory. The findings are critical for universities to foster students to be willing and able to adapt to unfamiliar situations. Students' adaptability can be developed by applying lessons or assignments that foster comfort with uncertainty. The lesson or assignment must encourage the student to be able to solve circumstance that is ambiguous or uncertain. The stretch lesson or assignments from the university is intended to foster learning agility characteristics, such as curiosity, openness to new ideas, flexibility, and adaptability. Likewise, a curriculum designed to foster learning agility should be developed.

5.2. Limitations

However, the present outcome is subject to several limitations. One limitation is that the data collection is based on a single source. Data collection used self–report measures to assess learning agility constructs. It would be advisable to collect data from multiple sources. It could be done to reduce potential bias. One approach would be to collect learning agility data using a 360–degree data collection method that would ask group teammates and lecturers to provide feedback about the participants. This data collection would allow some corroboration of peers' and lecturers' impressions of the participants. Additional analyses could be conducted to determine whether the relationship of the rater to the participant influences the ratings.

Another limitation is the nature of the cross–sectional study. Due to the applied time constraints, the causal interpretation of the result is limited. The impact of learning agility on performance has yet to be explored. Thus, there also may be a direct relationship between learning agility on performance. This one area allows researchers to extend the findings with different research designs. A longitudinal research design would be beneficial. A longitudinal research design can capture learning agility and performance changes over time.

5.3. Further Research

Despite these limitations, this study provides initial evidence of learning agility's theoretical and practical implications. Based on these initial findings, there are various approaches that future studies could take to address the limitations of this study.

First, to remedy some of the shortcomings of this research, future studies should be conducted with a larger sample. The outcome of the present study could be replicated with a larger, more diverse, and more representative sample. For example, it could include a student from different universities to improve research generalizability. Further dissecting a more heterogeneous sample that better represents the general population may uncover more definitive results and yield relationships that are not apparent in the present sample and are obscured by the large portion of the sample. There may be nuances in the relationships between learning agility constructs that should have been captured in this study.

Along the same lines, a larger sample may allow researchers to yield exciting and valuable results by including several individual attributes. Adding a larger sample may determine whether individual attributes predict learning agility. The differences could be examined by making group–specific comparisons in partial least squares. A qualitative study could develop if specific individual attributes are consistently associated with learning agility. Further, this information may help to develop programs that foster behaviours related to learning agility.

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