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# Achievement Goals, Well-Being and Lifelong Learning: A Mediational Analysis

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Guided by a framework promoted by Zimmerman (2000) and empirical evidence, this research examined the relationship between achievement goals involving mastery goal and performance goal and PERMA (positive emotion, engagement, relationship, meaning and accomplishment) that might affect lifelong learning. A total of 274 prospective mathematics teachers (93.8% female; 6.2% male, with age range from 18 to 22 years old) in Indonesia participated in this research. A relational survey model was taken to test and measure the degree of relationship among achievement goals, PERMA and life-long learning. Exploratory, confirmatory factor analysis and descriptive statistics were applied in this research. The direct path coefficient of mastery goal and performance goal to lifelong learning was significant. The findings of bootstrapping for the indirect effect test revealed that there was no indirect effect of PERMA for mastery goal and lifelong learning. In addition, a partial indirect effect of PERMA for performance goal on lifelong learning was observed.

Keywords: confirmatory factor analysis, exploratory factor analysis, mastery goal, performance goals, structural equation modelling, well-being

## INTRODUCTION

In this globalized era, the world around us is rapidly changing and human beings need to keep continually adapting to this ever changing world. The desire to learn runs from birth to old age – cradle to grave. In other words, if humanbeings do not constantly grow

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and keep their knowledge and skills up to date in today's rapidly changing world, they will soon be left behind. Students nowadays also can quickly find the most up-to-date information and resources for doing any task far more than ever before. Consequently, life-long learning tendency forms an essential part of human's life in the 21st century. Life-long learning is an eternal process of obtaining and extending knowledge, intellectual capabilities and practical skills through formal, non-formal and informal process (Hubackova & Klimova, 2014). A main point of life-long learning is to support the importance of such informal learning and to obtain acknowledgment that learning is an intentional and unavoidable human activity that merits both encouragement and study by professionals (Kirby, Knapper, Lamon & Egnatoff, 2010).

Life-long learning is viewed vital to help 21st century learners overcome the challenges they may face in the future (Fischer, 2000). In other words, the necessity to handle the rapid pace of changes in today's world has attracted many scientists' attention to work hard to find the factors in order to maintain student learning throughout their life (Yilmaz, 2018; Salleh, et al., 2019). Unfortunately, there is no standard model to represent factors which contribute to life-long learning (Arrigo et al., 2013; Dolan, 2012). Theoretically, Lüftenegger et al., (2012) summarized Zimmerman's theory (2000), indicating that motivational beliefs (learning goal orientation) and the performance and self-reflection phases (monitoring and self-assessment of learning) are two components as determinants of life-long learning. At the same time, a range of studies have also investigated the relationship between well-being and learning (Gutman & Vorhaus, 2012). For example, Gutman and Vorhaus (2012) examine how pupil's well-being (at ages 7 to 13) are related to concurrent and later academic achievement (at ages 11 to 16). The findings revealed that children with higher levels of well-being have greater academic achievement both concurrently and later. A large number of literature have discussed about the concept of life-long learning (Bryce & Withers, 2003), but few studies have considered relationship between well-being and life-long learning.

In addition, many studies addressed the concept and the significance of students' achievement goal for students' learning and academic achievement (Alrakaf, Sainsbury, Rose & Smith, 2014; Sides & Cuevas, 2020). For instance, Alrakaf et la., (2014) investigated the correlation between achievement goals and academic achievement among Australian first-year and third-year undergraduate pharmacy students. The study showed that higher achievement goals were in line with better achievement, but it did not examine what aspects within achievement goals lead to a higher score. Furthermore, there are a few studies on whether achievement goals can impact life-long learning. If instructors know which factors increase students' desire to learn continuously, they can prepare their students for a life-long learning.

To our knowledge, the impact of the sub-components of the achievement goal (mastery and performance goals) and well-being towards life-long learning of students have not yet been tested. The current research concentrated on the direct effects of the correlation between mastery goals and life-long learning; and performance goal and life-long learning. The indirect effects are the mediating effects of well-being between mastery goal and life-long learning; and the mediating effects of well-being between

performance goal and life-long learning. Existing life-long learning literature was elaborated by discussing these complex relationships for undergraduate students. Therefore, this study aimed to identify the relationship between achievement goals and well-being towards students' life-long learning tendency.

**Research Questions**

1. Is there a significant relationship between mastery goal and life-long learning?
2. Is there a significant relationship between performance goal and life-long learning?
3. Is there any mediating effect of well-being (PERMA-positive emotion, engagement, positive relations, meaning and accomplishment) between mastery goal and life-long learning?
4. Is there any mediating effect of well-being (PERMA) between performance goal and life-long learning?

## Theoretical Framework

### Lifelong Learning (LLL)

Lifelong learning plays an essential role for not only school education but also the continuous acquisition of basic competencies through all the stages of life (Bryce & Withers, 2003; Crick, Broadfoot & Claxton, 2004). It is essential to prepare students for life-long learning in a world which will continue to change (Day, 1999; Głąbicka, 2015). Life-long learning therefore has emerged as one of the essential issues for inventing the information society of the future (Fischer, 2001). In the last few years, a number of researchers work hard to identify ways in which people sustain the process of learning throughout their life (Bhatia, 2015). Life-long learning can be defined as any type of learning, including formal or informal across the life span. Life-long learning is seen as a strategy which links thinking, learning, planning and practice via self-generated, supported reflective work at a number of levels (Day, 1999). In the current research, life-long learning refers to growth orientation, critical curiosity, meaning-making, dependence and fragility, creativity, relationships/interdependence and strategic awareness (Crick et al., 2004). There are a number of research studies on the necessity of life-long learning in the literature (Bhatia, 2015) but there seems to be a lack of research regarding the factors which affect students' life-long learning tendencies. In a research conducted on the relationship between students' information literacy self-efficacy and life-long learning tendency, Oguz and Ataseven (2016) explored that they are positively related. In other words, the findings revealed that students' life-long learning tendency increased as their information literacy self-efficacy increased. Research findings of Yilmaz and Kaygin's (2018) study carried out on 570 Turkish prospective teachers at two universities, the revealed that there was a low, positive correlation between life-long learning tendency and achievement motivation. According to their study, teachers should explain the significance of life-long learning for especially highly motivated students. However, further analysis is required to consider the factors which may influence students' motivation in order to engage them in life-long learning.

Based on the model developed by Zimmerman (2000), Lüftenegger et al., (2012) summarized that the will to learn and skill to learn, as known as psychological constructs as determinants of life-long learning, are the concrete constructs which determine students' life-long learning tendency. They indicated learning goal orientation as parameters for the will to learn, which connected to motivational beliefs. Moreover, monitoring and self-assessment are selected as indicators of the performance and self-reflection for skill to learn. In a large number of studies (Alrakaf et al., 2014; Kol, Mainhard, Brekelmans, Beukelen & Jaarsma, 2016), the principal role of an achievement goal orientation to enhance the entire motivational condition of college-aged students has been confirmed. The literature review indicates an unclear effect of sub-dimensions of achievement goal orientation (mastery goal orientation and performance goal orientation) toward life-long learning. Nevertheless, to effectively improve life-long learning tendency, concentrating on the achievement goal orientation is likely to be inadequate (Teunissen & Bok, 2013). Linnenbrink and Pintrich (2002) recommended that the relationship between achievement goals and emotional dimensions is reciprocally connected to each other. Moreover, active life-long learning is affected by the individual's interpersonal relationship (Berkhout et al., 2017), behavioral engagement (Gonida, Kiosseoglou, & Voulala, 2007). Therefore, guided by a framework promoted by Zimmerman (2000) and empirical evidence, this research aims to examine a model including achievement goal orientation and PERMA component (positive emotion, engagement, positive relationship, meaning, accomplishment) through Structural Equation Modeling (SEM).

**Achievement Goal**

Achievement goals are important in influencing students' inherent motivation to perform a task (Rabideau, 2005). An achievement goal is "a degree of perseverance, expressions of positive and negative feelings in response to successes and failures (Pedditzi, 2014)". It means that students respond differently to their successes and failures; some may become discouraged and others may keep accomplishing their goals. Two kinds of achievement goals have got much attention within the research literature: mastery goals and performance goals (Ames, 1992). A mastery goal is defined as a focus on developing new skills and valuing learning itself (Ames & Archer, 1988). In other words, students who have mastery goals show motivation to keep the challenge or interest in learning and completing the task (Sabti, Rashid, & Hummadi, 2019). It involves students' real learning, understanding, personal improvement and effort, rather than just memorization (Anderman & Patrick, 2012). In contrast, students who have performance goals intend to compare their academic competence to others (Karlen, Suter, Hirt & Merki, 2019; Elliot, McGregor & Gable, 1999; Hughes, Wu & West, 2010). Individuals with performance goals "are concerned with gaining favorable judgments of their competence" (Dweck & Leggett, 1988). In study conducted by Hidayat, Zamri, Zulnaidi, and Yuanita (2020), sub-construct of performance goals (other-approach and other-avoidance goals) is not a significant indirect effect between metacognition and mathematical modelling competency. Conversely, Hidayat, Syed Zamri & Zulnaidi (2018) found that sub-construct of mastery goals (task-approach goal, task-avoidance goal and self-approach goal) are a significant indirect effect between

metacognition and mathematical modelling competency. The present study discus which types of goals may more likely engage students in life-long learning and whether well-being can be effective in relationship between mastery goals, performance goals and life-long learning.

**Relationship between Achievement Goal and Life-long Learning**

Engaging students in the learning process and motivating them to achieve their goals have become great interest among educators. Accordingly, the relationship between student achievement goals and learning has been widely written in research literatures. According to Vrugt and Oort (2008), achievement goals reflect the reasons or purposes the students strive to achieve while engaging in a learning task. In prior studies, researchers indicated that two kinds of achievement goals (mastery goals and performance goals) are concerned with different patterns of learning. In a review of the achievement goal literature, Phan (2014) examined the correlation and consequences of mastery goals. In the study, 288 (148 boys and 140 girls) secondary school students from Australia participated. The findings revealed a number of educational implications of mastery goals towards students learning process such as consideration of mastery goals to enhance students' learning and academic engagement. In a recent research, Wacera Ng'ang'a, Mwaura, and Dinga (2018) explored the relationship between students' achievement goal orientation and academic achievement in Kiambu County. The research findings revealed a significant and positive correlation between these two aspects. According to Hall, Hanna, Hanna, and Hall (2015), study on achievement goals is important in understanding how to improve students' motivation to learn and how to prepare them better to be life-long learners and develop their self-directed learning skills. However, the relationship between achievement goals and life-long learning at Higher Education has remained largely unexplored.

Recently, a large number of researchers have proven that mastery goals also result in positive learning outcomes (Chen, 2015; Dompnier et al., 2015; Pahljina-Reinić & Kolić-Vehovec, 2017). Mastery-approach related positively to deep learning (Elliot & McGregor, 2001; Erhel & Jamet, 2015; King, Jr & Watkins, 2014) and interest in the activity (Senko & Harackiewicz, 2005). On the contrary, research on performance goals have been inconsistent. Performance goals have been negatively related to some results such as self-handicapping, the avoidance of the novelty and challenge, the avoidance of help seeking, the use of cheating, and aversion to collaborate with counterparts ( Midgley, Kaplan & Middleton, 2001). In term of emotion, emotions have been influenced by achievement goals (Huang, 2011) but different types of achievement goals produce diverse effect. For instance, mastery goals have been consistently discovered to link positive emotions such as happiness (Goetz at al., 2016; Huang, 2011; Putwain, Larkin & Sander, 2013; Ranellucci, Hall & Goetz, 2015) and performance-avoidance goals are thought to facilitate negative emotions such as anxiety (Goetz et al., 2016; Putwain et al., 2013; Ranellucci, Hall & Goetz, 2015).

**PERMA- A Well-Being Theory**

The term 'wellbeing' has yet to be defined (Osman & Ismail, 2019) but it is related with satisfaction with life (Acun, 2020). A positive psychologist, Martin Seligman

(2011), proposed five essential elements that help people to build well-being: positive emotion, engagement, relationships, meaning, achievement (PERMA). Seligman (2011) defined positive psychology as being concerned with the topic of "well-being" and the goal of being to increase "flourishing," which is an expression of well-being. Interestingly, the role of well-being has been also found as a mediator for positive outcomes but it might be influenced by life events or challenges. For example, Rehman, Shahnawaz and Abdurahiman (2019) indicated that indirect effect of self-efficacy on performance via well-being was significant, positive and partial. Again, well-being is related to productivity (Hamzah & Ismail, 2018). At the same time, Kaczmarek, Bączkowski, Enko, Baran and Theuns (2014) examined whether subjective well-being was a mediator for curiosity and depression in Poland. They discovered that well-being mediated the correlation between curiosity and depression.

Positive emotions are certain feelings that people experience in their lives such as happiness, enjoyment, interest, like, and hope (Fredrickson, 2001; Cohn & Fredrickson, 2009). These emotions are connected to positive view of our past, present, and future life. Numerous research studies proved that positive emotion can influence a wide range of desirable life outcomes (Cohn, Fredrickson, Brown, Mikels & Conway, 2009; Lyubomirsky, King & Diener, 2005). Moreover, positive emotions can lead to the growth and change in individuals' life and their skills for living well (Cohn, Fredrickson, Brown, Mikels & Conway, 2009). In other words, experiencing positive emotions is regarded as a main indicator of well-being condition (Lee, Krause, & Davidson, 2017). Recently, the influence of emotions in students' learning and achievement has received increasing attention (Pekrun, 1992; Tyng, Amin, Saad & Malik, 2017; Dirkx, 2008). However, much of the focus of the previous studies has been on the role of negative emotions (such as anxiety, sadness, and boredom) in the quality of students' learning (Rowe & Fitness, 2018; Chin, Williams, Taylor & Harvey, 2017), rather than positive emotions. While Pekrun, Goetz, Titz and Perry (2002) investigated how positive emotions play a vital role in students' learning and academic achievement, little is known about whether there is a significant relation between positive emotions and life-long learning.

The second component in the PERMA Model is engagement. When students are engaged in doing academic activities, they will spend more time exploring in those engaging activities (Ruch, Harzer, Proyer, Park & Peterson, 2010) and they are more successful in learning (Duchesne, Larose & Feng, 2019; Goss & Sonnemenn, 2017). A large number of studies have conducted research on students' engagement and seeking how to actively engage students in learning (Park, 2003; Fitzsimons, 2014). In recent years, one of the biggest challenges for educators is to engage today's students in the world which is different than students in the past (Parsons & Taylor, 2011). As the 21st century students have grown up in a digital world, they have a strong preference to spend so much of their time engaged with technology. As a result of technology development, the new generation has different needs, interests, preferences and goals than previous generations and educators are required to understand what today's students want and need, and to apply new strategies to engage students in learning. Many studies suggested that achievement goals play a key role in engaging school students in

academic work (Duchesne, Larose & Feng, 2019). For example, Veiga et al., (2014) investigated studies addressing the relation between achievement goals and students' engagement in school. The findings revealed that the activation of appropriate achievement goals promote school students' engagement in school. However, few attempts have been made to find the correlation between achievement goals and students' engagement in higher education and the role of engagement in life-long learning.

The third factor of PERMA is relationships. Relationships refer to students' interactions with others such as peers, friends and family. Relationships serve some of our basic human needs such as our need to belong, to feel loved and understood, and to be supported socially (Seligman, 2011). Building positive social relationships plays an important role in students' success in education (Makara, Fishman, Karabenick & Teasley, 2015). A variety of studies have deduced that establishing and maintaining positive and supportive relationships with peers and teachers help students to feel loved, accepted and supported in school (Lee, Krause & Davidson, 2017; Stefa, 2018). Although the role of the teacher-student relationship in education has been addressed in many studies (Crosnoe, Johnson & Elder, 2004; Hamre & Pianta, 2001; Wu, Hughes & Kwok, 2010; Košir & Tement, 2014), the extent to which their support and positive relationships may influence achievement goals, and affect students' tendency to keep learning continually has not been explored sufficiently.

The fourth element of PERMA is a sense of meaning. Based on the PERMA model, achieving objectives in life is necessary for well-being. The pathway of meaning has been defined in terms of believing that one's life is worthwhile and feeling associated with something higher than oneself (Seligman, 2011) or one's purposeful existence in the world (Damon, Menon & Bronk, 2003; Lee, Krause & Davidson, 2017), which derived from strengths and engagement (Steger 2012). To have a purposeful and meaningful life, people need to feel that what they do in their life is valuable and worthwhile. In the academic setting, many studies have provided evidence that goals give students a purpose to engage in learning and affect learning and achievement (Mattern, 2005) but the important question is what goals build direction and a purpose to find life's meaning and influence students' tendency towards life-long learning. This study tries to explore what goals are likely to contribute to the life-long-learning when it is mediated by creating purpose and meaning in students' life.

The last element of well-being (accomplishment) refers to achievement, mastery, or competence. Seligman (2011) defines the pathway of accomplishment as making progress toward aims, feeling capable to perform daily life, and having a sense of attainment, which finally maintain well-being and encourage mental health. Therefore, working towards achieving goals gives students a sense of accomplishment. The smallest changes in students' life such as improvement on behavior or high grades are considered as an accomplishment (Huab, Anne & Fabella, 2019). A research study (Moeller, Theiler & Wu, 2012) was conducted at the high school level to examine the relationship between the goal-setting and students' language achievement. The findings revealed that there was a strong positive correlation between goal setting and language

achievement in Spanish. However, the relationship of accomplishment and life-long learning has remained largely unexplored. Therefore, the present research tries to examine whether students who have a sense of accomplishment have more desire to go on their learning throughout life.

## METHOD

### Research Design

The current research aimed to explore the relationships between achievement goals constructs and PERMA affecting life-long learning using Structural Equation Modelling (SEM) (Byrne, 2012). For this rationale, both cross-sectional and relational survey model (Ghazali, Hassan, Rabi & Zaini, 2018) were carried out to test and measure the degree of relationship among achievement goals, PERMA and life-long learning (Codd, 1970). The relational survey model consists of procedures in quantitative study that allow the chance to manage a study to certain sample. The latter aims to explain the attitudes, opinions, and the nature of the population. An a priori model based on the theoretical considerations and previous work on the impacts of goals of achievement and PERMA on life-long learning (Figure 1) was postulated. There are three main variables, namely, achievement goals, PERMA and life-long learning. The relationship between these variables is shown using straight arrows.

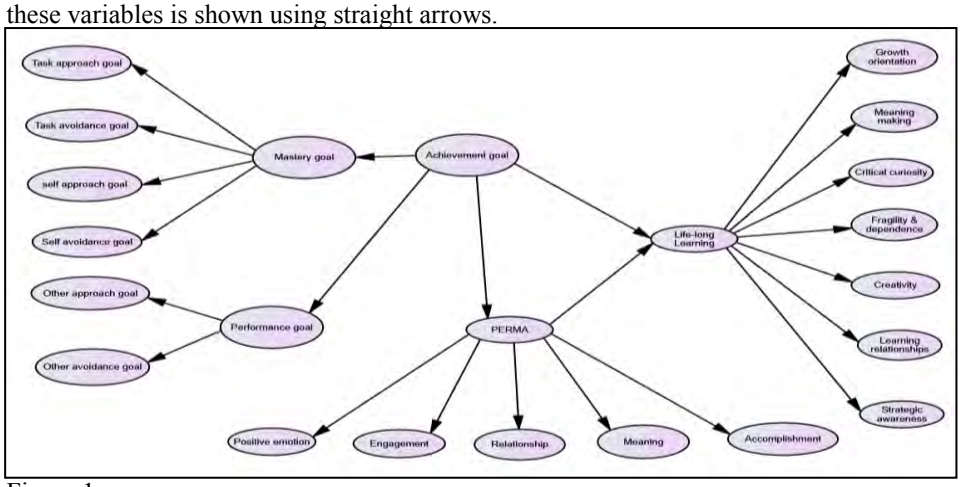


Figure 1
A priori model

### Participants

Before collecting data, letter of consent was submitted to the Department of Investment and Integrated One Stop Services and to the agency, which in turn sent this letter of consent along with their own letter of approval to three testing sites. The work has been approved by Indonesian Department of Investment and Integrated One Stop Services. All respondents participating in the current research received informed consent. A total of 274 prospective mathematics teachers (93.8% female; 6.2% male, with ages that

range from 18 to 22 years old) in Indonesia participated in the current research. Considering that this study prefers clusters rather than people (Fraenkel & Wallen, 2009), a cluster random sampling was used. The selection of cluster random sampling method is appropriate because given the study conducted has a population that covers several areas. Participants completed the 21 questions in an effective life-long inventory, 15 questions in PERMA-Profiler and 18 questions in the 3 x 2 goal of achievement during lecture hours.

**Data Collection Tools**

*Effective Life-Long Inventory*

Life-long Learning scale was adopted from Crick et al., (2004) and involves seven sub-constructs classified into growth orientation, critical curiosity, meaning-making, dependence and fragility, creativity, relationships/interdependence and strategic awareness. The five classification of Likert-type scale ranging from 1 ("strongly disagree") to 5 ("strongly agree") was employed to measure Life-long Learning. The reliabilities (Cronbach's alpha) were above the $\alpha > 0.60$ minimum desirable criteria (growth orientation, $\alpha = 0.731$; critical curiosity, $\alpha = 0.721$; meaning-making, $\alpha = 0.771$; dependence and fragility, $\alpha = 0.732$; creativity, $\alpha = 0.772$; relationships/interdependence, $\alpha = 0.838$; and strategic awareness, $\alpha = 0.751$). In terms of internal consistency, CR scores for the sub-dimension life-long learning that ranged from 0.734–0.844, surpassing the general cut-off score of 0.6. Similarly, AVE scores surpassed the general cut-off score of 0.5 (0.500–0.645), presenting high discriminant validity. In addition, reliability index coefficient was to be found to be 0.797 for the whole sub-construct.

*The PERMA Profiler*

The instrument used was adopted from Butler and Kern (2016) consisting of five domains categorized into positive emotion, engagement, relationship, meaning and accomplishment. Each sub-domain has three questions per PERMA domain. A ten-point scale ranging from 1 ('never') to 10 ('completely') was used in the PERMA-Profiler. In the present research, the reliability scores of scales surpassed the ideal standard of 0.60 (positive emotion, $\alpha = 0.851$), (engagement, $\alpha = 0.842$), (relationship, $\alpha = 0.815$), (meaning, $\alpha = 0.910$) and (accomplishment, $\alpha = 0.929$). All CR values of the PERMA-Profiler components ranged from 0.846 to 0.930 and surpassed the ideal 0.6 standard. This finding revealed high internal consistency. The AVE of the five unobserved variables ranged from 0.627 to 0.817 and surpassed the 0.5 common cut-off score, which demonstrated that this research presents acceptable discriminant validity. In addition, reliability index coefficient was to be found to be 0.909 for the whole sub-construct.

*3 × 2 Achievement Goal Questionnaire*

The 3 × 2 achievement goal scale consists of 18 questions rated on 7-point Likert scale that ranges from 1 (strongly disagree) to 7 (strongly agree) (Elliot et al., 2011) and involve six sub-constructs categorized into task-approach goal, task-avoidance goal,

self-approach goal and self-avoidance goal other-approach goal and other-avoidance goal. The reliabilities (Cronbach's alpha) were above the $\alpha > 0.60$ minimum desirable criteria (task-avoidance goal, $\alpha = 0.857$; task-approach goal, $\alpha = 0.801$; self-avoidance goal, $\alpha = 0.743$; self-approach goal, $\alpha = 0.750$; other-avoidance goal, $\alpha = 0.897$ and other-approach goal, $\alpha = 0.865$). In terms of internal consistency, CR scores for the sub-dimension achievement goals that ranged from 0.750–0.900, surpassing the general cut-off score of 0.6. Similarly, AVE scores surpassed the general cut-off score of 0.5 (0.501–0.749), presenting high discriminant validity. In addition, reliability index coefficient was to be found to be 0.909 for the whole sub-construct.

**Data Analysis**

Exploratory factor analysis (EFA) was examined to find out the factor structure of the life-long learning, achievement goals and PERMA. As for Hair et al., (2010), EFA is a statistical method to determine the factors and loadings, which require the process of reducing unrelated items (Hadi, Hamzah & Othman, 2020) via the means of extraction (Anaraki, Amirian & Zolfagharkhani, 2016). To test the factor structure of the life-long learning, achievement goals and PERMA, we did EFA using SPSS version 23.0. The current research employed the Kaiser–Meyer–Olkin (KMO) score, Bartlett's value, factor loading, eigenvalue, scree plot and varimax rotation. KMO measure of sampling adequacy (Kaiser, 1970) and Bartlett's test of sphericity (Bartlett, 1950) are used to confirm the properness of the factor model, with scores more than 0.50 considered adequate for factor analysis (Chua, 2014). In addition, to investigate the unidimensionality from the EFA, we did the scree plot, eigenvalues, and degree of item loadings. According to Chua (2014), the scree plot and eigenvalues showed the percentage of variance contribution extracted by each factor. Therefore, to examine the assumptions of unidimensionality, EFA of the 21-item set (life-long learning), the 18-item set (achievement goals) and the 15-item set (PERMA) were analyzed. Afterwards, a confirmatory factor analysis (CFA) with the validation sample was analyzed.

CFA was conducted to examine whether the established factor and factor-loading pattern matched the Indonesian setting. CFA procedures employing AMOS version 18.0 were utilized to explore whether the assigned dimensionality and the factor-loading format fit the Indonesian settings. In addition, a measurement model between the connected variables for each dimension, which was developed from theories and empirical research, were tested. To analyze the mediating effect, the bootstrapping technique with the application of the bias-corrected percentile method (Guan, 2003) was applied. Specifically, the bootstrapping technique with a bootstrap sample of 1,000 and bias correction confidence interval of 95% (Mohamad, Mohamad, Ali & Awang, 2018) were used.

The current research employed an index matching as a benchmark to determine goodness-of-fit such as chi-square ($\chi 2$) ($P > 0.05$), comparative fit index ($CFI > 0.90$), Tucker-Lewis index ($TLI > 0.90$), normed chi-square ($\chi 2/df$) (Awang, 2012; Mohamad, Mohamad, Ali & Awang, 2018) and root-mean-square error of approximation ($RMSEA < 0.08$ or 0.100) (Hooper, Coughlan & Mullen, 2008). Moreover, we also calculated cronbach's alpha coefficients, CR and average variance extracted (AVE) (Wong,

Mokhsein, Goh & Hanafi, 2013). Cronbach's alpha was computed to determine the instrument reliability (total and sub-dimension). CR considers that indicators have distinct loadings, whilst AVE captures the variance of its indicator (Mohamad, Mohammad, Ali & Awang, 2018). According to Hair, Black, Babin, and Anderson (2010), alpha values of 0.60 to 0.70 are good. CR must be over 0.60 and AVE must be higher than 0.50 (Awang, 2012; Mohamad, Mohammad, Ali & Awang, 2018).

*Initiatory Analysis: Validity and Reliability of Instrument*

Preliminary analysis considered a large number of data screening-related issues, such as dealing with missing value, normality and multi-collinearity. There were no missing data in present study. As for Kline (2005), univariate normality and multivariate normality were first fulfilled prior to running the analysis with AMOS version 8.0. The kurtosis and skewness scores of each item [(-1.96) - (+1.96)] at the 0.05 significant level (Hair et al., 2010) were used to test normality in the present study. Outputs of preliminary analysis showed that whole items of the measures of life-long learning (skewness and kurtosis scores are in the range of -.421 to 1.857), PERMA (skewness and kurtosis scores are in the range of -.619 to .379), and achievement goal (skewness and kurtosis scores are in the range of -.724 to .782). In terms of multivariate normality [critical ratio of multivariate kurtosis: life-long learning = 52.147; PERMA = 34.341; and achievement goal = 87.438]. This finding indicates that the data set were not of normal distribution with ratio scores more than 5. Therefore, the bootstrapping procedure is used to obtain accurate and stable parameter estimates for this data set (Awang, 2012; Hayes, 2009).

## FINDINGS

### EFA Findings for Life-Long Learning

The KMO score of the data for life-long learning was highly satisfied (0.754 > 0.700) and the score of Bartlett's Test of Sphericity was 2098.594 [$p < 0.001$]. Moreover, a seven-dimension solution are determined using Varimax rotation, with an examination of eigenvalues (>1) explaining 69.693% of variance. The life-long learning dimensions and their contributions were; relationships dimension, 24.227%; meaning-making dimension, 11.041%; creativity dimension, 9.068%; growth orientation dimension, 8.319%; strategic awareness dimension, 6.470%; dependence and fragility dimension, 5.615%; and critical curiosity dimension, 4.954%. Measures of communality for all items were 0.571 to 0.818 (>0.50), which presented that EFA was adequate. Finally, all identified 21 items for life-long learning were more than 0.50 (0.634-0.888), indicating high loading factors.

### EFA Findings for Achievement Goals

The KMO score of the data for achievement goal was also highly satisfactory (0.840> 0.700) and the score of Bartlett's Test of Sphericity was 3386.616 [$p < 0.001$]. Moreover, a six-factor solution are determined employing Varimax rotation, with an examination of eigenvalues (>1) explaining 80.413% of variance. The achievement goal factor dimensions and their contributions were; other-avoidance dimension, 30.403%;

other-approach dimension, 12.009%; task-avoidance dimension, 9.298%; task-approach dimension, 7.537%; self-avoidance dimension, 6.596%; and self-approach dimension, 5.572%. Measures of communality for all items were 0.518 to 0.914 (>0.50), which presented that EFA was appropriate. Finally, all identified 18 items for life-long learning were 0.725-0.897 (> 0.50), indicating high loading factors.

**EFA Findings for PERMA-Profilers**

The KMO score of the data for PERMA-Profilers was also highly satisfied (0. 868> 0.700) and the score of Bartlett's Test of Sphericity was 2832.923 [$p < 0.001$]. Moreover, a five-dimension solution are determined utilizing Varimax rotation, with an examination of eigenvalues (>1) explaining 80.743% of variance. The PERMA factor dimensions and their contributions were; meaning dimension, 45.323%; accomplishment dimension, 11.322%; positive emotion dimension, 10.159%; engagement dimension, 7.148%; and relationship dimension, 6.791%. Measures of communality for all items were more than 0.500 (0.637 - 0.900), which presented that EFA was suitable. Finally, all recommended 15 questions for PERMA were 0.668-0.898 (> 0.50), indicating high loading factors.

**Correlations Between Constructs**

The findings revealed significant correlation between life-long learning, PERMA, mastery goal and performance goal (see Table 1). Moreover, life-long learning significantly correlated with PERMA (r=.235), mastery goal (r=.396), performance goal (r=.300). PERMA was significantly correlated with mastery goal (r = 0.323) and performance goal (r = 0.259). Finally, mastery goal was significantly correlated with performance goal (r = 0.661). Moreover, the outputs also showed a significant correlation among sub-component of life-long learning (r scores are in the range of 0.129 to 0.525), sub-component of PERMA (r scores are in the range of 0.344 to 0.565) and sub-component of achievement goal (r scores are in the range of 0.361 to 0.501). This significant correlation indicates the discriminant validity of the constructs was achieved since the correlation matrix yielded relationships not more than 0.90 (Kline, 2005).

Table 1
Bivariate correlation between constructs

| Constructs | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. Life-long learning | - | | | |
| 2. PERMA | .235** | - | | |
| 3. Mastery goal | .396** | .323** | - | |
| 4. Performance goal | .300** | .259** | .661** | - |
| Skew | -.421 | -.619 | -.614 | -.724 |
| Kurtosis | 1.857 | .379 | .203 | .782 |

** Correlation is significant at the 0.01 level (2-tailed)

**Measurement Models**

The measurement model was employed to confirm that unobserved variables were reflected by observed variables before evaluating hypothetical structural model. The

measurement model of life-long learning showed an acceptable match between data models and sample sizes, $\chi^2$ = 321.185, $\chi^2$/df = 1.912 CFI = 0.919, TLI = 0.901 and RMSEA = 0.058. The measurement model showed good fit statistics for PERMA model, $\chi^2$ = 153.116, $\chi^2$/df = 1.914 CFI = 0.974, TLI = 0.966 and RMSEA = 0.058. The analysis of the CFA technique also showed the scores of the index was matched between data models and sample sizes for mastery goal, $\chi^2$ = 238.447, $\chi^2$/df = 3.974 CFI = 0.901, TLI = 0.901 and RMSEA = 0.099 (Awang, 2012; Hooper et al., 2008; Mohamad et al., 2018). The measurement model of performance goal showed an acceptable match between data models and sample sizes, $\chi^2$ = 15.671, $\chi^2$/df = 1.959 CFI = 0.992, TLI = 0.986 and RMSEA = 0.059 (Awang, 2012; Hooper et al., 2008; Mohamad et al., 2018) (see Table 2).

Table 2
Examination of the measurement model

| Goodness-of-fit | Measurement standard | Results | | | |
|---|---|---|---|---|---|
| | | Life-long learning | PERMA | Mastery goal | Performance goal |
| $\chi^2$ | $p > 0.05$ | 321.185 | 153.116 | 238.447 | 15.671 |
| $\chi^2/df$ | < 5.00 | 1.912 | 1.914 | 3.974 | 1.959 |
| CFI | > 0.900 | 0.919 | 0.974 | 0.901 | 0.992 |
| TLI | > 0.900 | 0.901 | 0.966 | 0.901 | 0.986 |
| RMSEA | < 1.00 | 0.058 | 0.058 | 0.099 | 0.059 |

**Note.** $\chi$2: Chi-square goodness of fit; df: Degrees of freedom; RMSEA: Root mean square error of approximation; TLI: Tucker-Lewis fit index; CFI: Comparative fit index

**An Examination of Hypothetical Structural Model**

The result of the structural equation model is presented in Table 3. The results showed a good fit between data models and sample sizes, $\chi^2$ = 2281.962, $\chi^2$/df = 1.680, CFI = 0.900, TLI = 0.900 and RMSEA = 0.050 (Awang, 2012; Hooper et al., 2008; Mohamad et al., 2018) (see Table 9). The factor loading for latent variables were more than 0.50 (0.501 - 0.947), which surpassed the 0.50 desired criteria (Hair et al., 2010).

Table 3
Examination of the hypothetical structural model

| Goodness-of-fit | Measurement standard | Results |
|---|---|---|
| $\chi^2$ | $p > 0.05$ | 2281.962 |
| $\chi^2/df$ | < 5.00 | 1.680 |
| CFI | > 0.900 | 0.900 |
| TLI | > 0.900 | 0.900 |
| RMSEA | < 1.00 | 0.050 |

**Note.** $\chi$2: Chi-square goodness of fit; df: Degrees of freedom; RMSEA: Root mean square error of approximation; TLI: Tucker-Lewis fit index; CFI: Comparative fit index

Moreover, the hypothetical structural model showed in Figure 2 was the final structural model that showed the relationship between mastery goal, performance goal, PERMA and life-long learning.

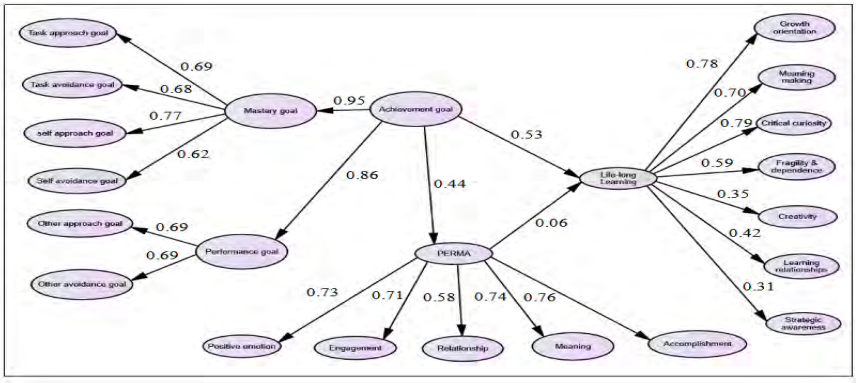


Figure 2
Final model of the study

Moreover, the direct path coefficient of mastery goal to life-long learning was significant (β= .42, p< .001). Thus, H1 is fully supported. Students who use mastery goal accomplished well in the life-long learning. Moreover, the direct path coefficient of performance goal to life-long learning was also significant (β= .22, p< .05). H2 is fully accepted. Performance goal of students are vital in improving life-long learning.

**Effect Testing of PERMA on the Relationships between Mastery Goal, Performance Goal and Life-Long Learning**

We hypothesized that the PERMA has indirect effects on the correlation between mastery goal, performance goal and life-long learning. The standardized direct effects, indirect and total effects of constructs are presented in Table 4.

Table 4

Result of bootstrapping for the indirect effect test

| Path | Direct effect | | Indirect effect | | Total effect | | Result |
|---|---|---|---|---|---|---|---|
| | β | *p* values | β | *p* values | β | *p* values | |
| MG→WB→LL | 0.524 | 0.003 | 0.035 | 0.297 | 0.559 | 0.002 | No Mediation |
| PG→WB→LL | 0.437 | 0.002 | 0.051 | 0.031 | 0.490 | 0.002 | Partial Mediation |

**Note:** MG: mastery goal; WB: PERMA; PG: performance goal; LL: life-long learning

Table 4 revealed the output of the mediating effect of the PERMA between mastery goal, performance goal and life-long learning. Result of bootstrapping for the indirect effect test showed that there is no indirect effect of PERMA (β = 0.035; p >0.05; CI: -.034 ~ .108) for mastery goal and life-long learning. Hypothesis is confirmed and mastery goal has a direct significant effect on life-long learning (β = 0.524; p < 0.05; CI: .350 ~.680). Therefore, hypothesis is not fully confirmed where there is no indirect effect of PERMA between mastery goal and life-long learning. In addition, a partial indirect effect of PERMA (β = 0.051; p < 0.05; CI: .005 ~.127) for performance goal on

life-long learning ($\beta = 0.437$; $p < 0.05$; CI: .231 ∼.639) was also observed. Hypothesis is confirmed and performance goal has a direct significant effect on life-long learning ($\beta = 0.437$; $p < 0.05$; CI: .231 ∼.639). Therefore, hypothesis is fully confirmed where there is partial indirect effect of PERMA between mastery goal and life-long learning.

## DISCUSSIONS

The direct path coefficient of mastery goal to life-long learning was statistically significant. The positive relationship is consistent with findings of previous research (Phan, 2014; Wacera Ng'ang'a, Mwaura & Dinga, 2018). Consequently, mastery-oriented individuals may be more oriented towards growth orientation, critical curiosity and relationships/interdependence, which leaves more room for lifelong learning tendency. One possible explanation for this positive and significant relationship is that mastery-oriented students have robust intrinsic motivation that have an impact on the life-long learning (Deci & Ryan, 2002). Moreover, learning goal orientation was identified as a parameter for the will to learn, which was linked to motivational beliefs. Surprisingly, this relationship could not be enhanced by a component of PERMA. The results also showed that the effect on students' subjective well-being was not mediated by changes in positive emotion, engagement, positive relationship, meaning and accomplishment. The bootstrapping analysis proved that a component of PERMA plays no mediating role in the relationship between mastery goal and lifelong learning. It implies reasonably that pupils with high level of mastery goal do not need PERMA component to enhance their life-long learning.

Our study ensures the significant and direct link between performance goal and life-long learning. Findings corroborate those of previous studies (i.e. Duchesne, Larose & Feng, 2019), indicating that performance goal correspond with academic work. One reason can be explained by Dweck (1986) and Nicholls (1984) who indicated that performance goals (maladaptive) are demonstrated through challenge avoidance and minimal perseverance in the face of difficulty. Moreover, pupils with performance goals can predict positive learning outcomes, although this kind of goals has a low relationship with Cumulative Grade Point Average (CGPA). Therefore, students with performance goals could be maximised by a component of PERMA to improve life-long learning. The bootstrapping analysis proved that PERMA plays a partial indirect role in the relationship between performance goals and life-long learning. It can be explained by the positive relationship between positive emotion (Cohn, Fredrickson, Brown, Mikels & Conway, 2009; Lyubomirsky, King & Diener, 2005), engagement (Duchesne, Larose & Feng, 2019; Goss & Sonnemenn, 2017), relationships (Makara, Fishman, Karabenick & Teasley, 2015), meaning (Damon, Menon, & Bronk, 2003; Lee, Krause & Davidson, 2017) and accomplishment (Moeller, Theiler & Wu, 2012) and life-long learning.

To summarize, the current study ensured the importance of considering mastery goal and performance goal underlying students' PERMA and life-long learning. However, students with a high degree of performance goal need PERMA component to enhance their life-long learning. Conversely, students with high level of mastery goal do not need PERMA component to enhance their life-long learning.

## CONCLUSIONS

In this globalized era, due to the rapid pace of changes in science and technology, human beings need to keep continually obtaining and extending knowledge. In order to keep pace with this ever-changing world, it is essential to complement students with skills to cope with the challenges they will face in the future. Teachers need to strengthen students' tendency and willingness towards life-long learning to handle unexpected twenty-first century challenges. Therefore, it is important to explore the factors which are likely contribute to the life-long learning tendency. Accordingly, this study tried to test the relationship between achievement goals and PERMA that might affect students' life-long learning tendency. The results of this study presented the direct effect of mastery goal and performance goal to life-long learning was significant. Although no indirect effect of PERMA for mastery goal and life-long learning was observed, there was an indirect effect of PERMA for performance goal on life-long learning. It means that the students with performance goals could be influenced by an element of PERMA in order to maximize their life-long learning tendency. In other words, through PERMA, instructors can enhance life-long learning tendency among students with performance goals.

These findings have significant practical implications for students, instructors, policy makers and researchers. Instructors should be aware that different types of achievement goals have different effects in students' learning. In other words, students with mastery goals have tendency to continue their learning, while students who have performance goals need a learning environment to provide elements of PERMA in order to boost their life-long learning tendency. It is necessary for instructors and policy makers to apply new instructional strategies and develop a learning environment in universities to foster the students' level of well-being in order to help them further their learning and skills. Taking into account students' achievement goals and PERMA, instructors can enable their students to tackle the challenges they face both at formal education and their future lives. In addition, the model can be a direction for upcoming researchers to forecast students' life-long learning.

## LIMITATIONS AND SUGGESTIONS

It might be extremely beneficial to carry out a longitudinal research following the similar cohort via the academic years. Considering that the current research uses correlational study, viewing the effect of these factors towards life-long learning requires applying an experimental study in future research. Other limitations in the present research is richly associated with application of questionnaire. The establishment of information by a sample survey according to questions available in the self-reported data is confined as applying questionnaires. In addition, a further study could be done to find what other factors make an individual want to enthusiastically engage in learning at any time. Therefore, teachers can help students to become more enthusiastic in keeping their learning throughout their lifespan. In other words, according to the research findings, it would be valuable if teachers bring significant changes to teaching strategies in order to enhance PERMA among students with performance goal. Furthermore, it is imperative for teachers and material designers to be

aware of different needs, interests and goals today's students have in order to apply new teaching strategies to engage students in learning. Therefore, there should be some teacher training workshops to help prospective teachers realize the significance of achievement goals, PERMA and life-long learning.

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