



## Exploring the interplay between Mindset, Well-being, and Academic Achievement: Mediating role of Metacognitive Learning

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### Abstract

*The present survey study explores the mediating role of metacognitive learning in the relationship of growth mindset, subjective well-being, and academic achievement. The sample consists of 407 male and female students of the undergraduate degree program at a private university in Pakistan. The data collection tools were the Growth Mindset Scale (Dweck, 1999, 2006), the subscale of Motivated Strategies for Learning Questionnaire (MSLQ, Pintrich & Groot, 1990), the BBC subjective well-being scale (Pontin et al. 2013), and the Academic Performance Questionnaire (Birchmeier et al. 2015). The AMOS statistical analysis suggested that metacognitive learning strategies mediate the relationship of a growth mindset and subjective well-being with academic achievement. Furthermore, the result has suggested a direct relationship between Growth mindset and academic achievement, also there is a positive relationship between Growth mindset and Subjective Well-being. Overall, this study reinforces the idea that having a growth mindset has a positive impact on one's overall sense of well-being. The present study highlighted the importance of metacognitive strategies in enhancing academic performance thus making it necessary to create an environment in academia where students can embrace a growth mindset which will ultimately increase their well-being and emotional health.*

**Keywords:** *Metacognitive learning, Growth Mindset, subjective well-being, academic achievement*



## Introduction

Mindset is one of the major elements contributing to an individual's effective behavior, life achievements, and happiness (Dweck, 2006; Kern et. al., 2015; Zeng et al., 2016). The Organization for Economic Co-operation and Development (OECD), reported that 59% of the students worry due to the difficulty of the task, 54% become very nervous when they are unable to solve the task, and 37% become tensed while studying (OECD, 2015, 2017), shedding light on the potential influence of a fixed mindset on these emotional responses. In essence, these OECD findings provide valuable insights into the emotional responses of students, suggesting a plausible connection between a fixed mindset and heightened concerns related to task difficulty, problem-solving, and general study-related stressors. Some individuals cope with failures and challenges more positively which makes them higher achievers it has been found in Several researches conducted to develop a theoretical understanding of this phenomenon (Blackwell et al., 2007; Good et al., 2003; Paunesku et al., 2015).

Academic achievement-related behavior can be traced by the different beliefs students hold or opt for in situations of achievement (Urdu, 1997). Previous studies have found that students' self-beliefs about their academic abilities may influence academic achievement in the long term (Valentine et al., 2004). These internal beliefs or mindsets may be fixed or growth-oriented (Dweck, 2006). Students with growth mindsets believe their academic abilities can change, which leads to higher grades and academic persistence in contrast to students with fixed mindsets. Previous studies have also suggested that a growth mindset is positively correlated with higher academic performance and subjective well-being (Dweck, 2010). However, much of the research has been conducted separately to establish the relationship between growth mindset (i.e. Ortiz, 2019), subjective well-being (i.e. Bortes et. al., 2021), and academic achievement. Relatively little is known about the process explaining the established relationship among these variables. So, the present study aims to examine the process of explaining the relationship between growth mindset, subjective well-being, and academic achievement, mediated by meta-cognitive learning.

## Literature Review

### Mindset and academic achievement

The theory of mindset has explored why some students enjoy learning although the task is difficult, while few students feel worried, anxious, and/or unwilling to do difficult tasks (Dweck, 1999). The theory proposed the mindset spectrum ranging from growth mindset to fixed mindset, a spectrum illustrating different mindsets and their effect on the different domains of life. A person can have a fixed mindset in one domain of life and a growth mindset in another area of



life. Individuals having fixed mindsets perceive intelligence as unchangeable (Dweck, 1999; Mueller & Dweck, 1998). And students with a fixed mindset take their academic or general life failures, as a result of their intelligence. It is even more debilitating for the students to try and still fail, this combination leaves students with a fixed mindset and no other excuse for their failure than a lack of intelligence (Dweck, 2006).

Students having fixed mindsets significantly ignore encouraging feedback and feel pressured by their peers' success (Saunders, 2013) which makes them blame external factors for their failures. For example, if they fail a test, students with a fixed mindset may blame the teacher by saying, "They didn't teach us that," or, "That wasn't in the course. " As a result, students with a fixed mindset believe that their failure was not because of their low skills or determination, but instead the actions of other people (Dweck, 2006). Not taking responsibility and working on their lacking, they have decreased academic performance.

In contrast, students with having growth mindset believe that intelligence is imperfect and changeable and they grow and learn from their failures. Students with a growth mindset believe in the importance of hard work which allows them to take failures as a motivator that motivates them to continue their best performance (Blackwell et. al., 2007; Plaks & Stecher, 2007). Ultimately, their consistency and willingness to put effort and hard work results in academic achievement and success (Dweck, 1999, 2006). Additionally, growth mindset students use positive feedback to learn from and improve the success of peers (Saunders, 2013). Dweck (2006) observed improvement in students even when the feedback was negative. Students possessing a growth mindset do not put responsibility on external factors for their failures, and they find solutions to become on given tasks.

In a nutshell, "Mindsets (or implicit theories) are people's lay beliefs about the nature of human attributes, such as intelligence or personality" (Ortiz et. al., 2019). People with a fixed mindset assume that intelligence is a trait that cannot be changed, whereas those with a growth mindset believe it is an amenable quality that can be enhanced and created. And growth mindset has a positive impact on the motivation of students which leads them to perform better in their academics. Thus the present aims to explore the links between mindsets and academic achievement of students.



H1: A growth mindset is positively correlated with high academic achievements.

### **Subjective Well-being and Academic Achievement**

Subjective well-being is defined by affective and cognitive aspects of construct which consist of three factors: positive affect, negative affect, and life satisfaction. Positive affect is explained as an individual's ability to feel positive emotions i.e. happiness, on the other hand, negative affect is explained as the ability of an individual to feel distress, and life satisfaction is explained as the cognitive factor that defines a person's evaluation of his or her quality of life. SWB plays a crucial role in academics based on the broaden-and-build theory of positive emotions (Fredrickson, 2001). According to this theory, positive affects relate to the growth mindset, and increased focus on studies, while negative affects i.e. worries and sadness are related to the negative cognitions that negatively influence studies (i.e. King et. al., 2015).

Previous literature has suggested a positive relationship between subjective well-being and a higher level of success in many domains of life i.e. health, work, and interpersonal relationships (Lyubomirsky et. al., 2005). Literature, in previous years, has also established the positive link between well-being and happiness in academia (Valdez, 2023; Ciarrochi et. al., 2016).

Academic achievement is the measurable outcome of learning, typically assessed through grades, standardized tests, and other evaluations. Previous studies have suggested that academic performance is not only linked with the abilities or skills of students but also how they see and manage their failures and link success with their effort (Blackwell et. al., 2007; Dweck & Leggett, 1988; Yeager et al., 2014). Academic achievement is positively associated with higher subjective well-being (Bortes et. al., 2021), growth mindset (Wang et. al, 2021), and metacognitive skills (Miller & Srougi, 2020).

Pieces of evidence from past research have suggested that individual Well-being is related to the growth mindset. It has been well-established that a fixed mindset (entity theory of intelligence) is positively correlated with negative affect and negatively correlated with positive affect and life satisfaction (Valdez, 2023), however, a growth mindset (implicit theories) is positively associated with positive affect and life satisfaction (Dweck, 2000). The present study also aimed to establish a relationship between the paradigm of subjective well-being, growth mindset, and academic achievement as Pakistani culture lacks data on this relationship.



H2: There is a significant relationship between subjective well-being and academic achievement

H3: A growth Mindset will positively correlate with a higher level of subjective wellbeing

### **Meta Cognitions as a mediator**

Metacognition is the ability of an individual to regulate and be aware of his or her thoughts (Flavell, 1987). Metacognitive regulation is divided into three skills that can be improved and built with practice, these three are planning, monitoring, and evaluation. The planning phase consists of identifying the aims and exploring ways to reach the aim, monitoring refers to the assessment of the progress and understanding of one's aim, and lastly, evaluation entails the assessment of the process of the goal achievement (Zimmerman & Moylan, 2009).

Studies have suggested that the usage of metacognitive skills helps students experience a wider range of positive experiences in a variety of courses such as math (Schneider & Artelt, 2010). Metacognitive learning increases students' engagement in tasks and thus increases their performance and leads to higher achievements (Umemoto, Ito, & Tanaka, 2016). Previous research has established the link between meta-cognitive skills and performance, but limited literature has been found on explaining the role of meta-cognition as a mediator between growth mindset subjective well-being and academic achievements. Hence, the present study aims to explore the mediating role between a growth mindset, subjective well-being, and academic performance.

H4: Metacognitions will mediate the relationship of subjective well-being, and growth mindset with academic motivation.

### **Theoretical framework of the study:**

According to the theory developed by Dweck (2006), mindset is a framework that explains that it's an individual's belief about the nature of intelligence and the malleability of his or her abilities. He explained mindset (or implicit theories) as “, are people's lay beliefs about the nature of human attributes, such as intelligence or personality.” (Dweck, 2012, p. 615). Thus, dividing mindset into two categories: Fixed mindset and Growth Mindset.

Few individuals believe that intelligence is an immutable, fixed thing that a person has (ie, the idea of a single entity); Others view intelligence as a functional trait that can be increased and



improved (incremental theories) (Blackwell et. al., 2007; Dweck & Leggett, 1988; Yeager & Dweck, 2012). Due to these types of beliefs, people tend to engage in two types of behavior, firstly they develop their abilities which are known as learning goals, secondly, they note the adequacy of their abilities which are performance goals (Dweck & Leggett, 1988; Dweck, 2000).

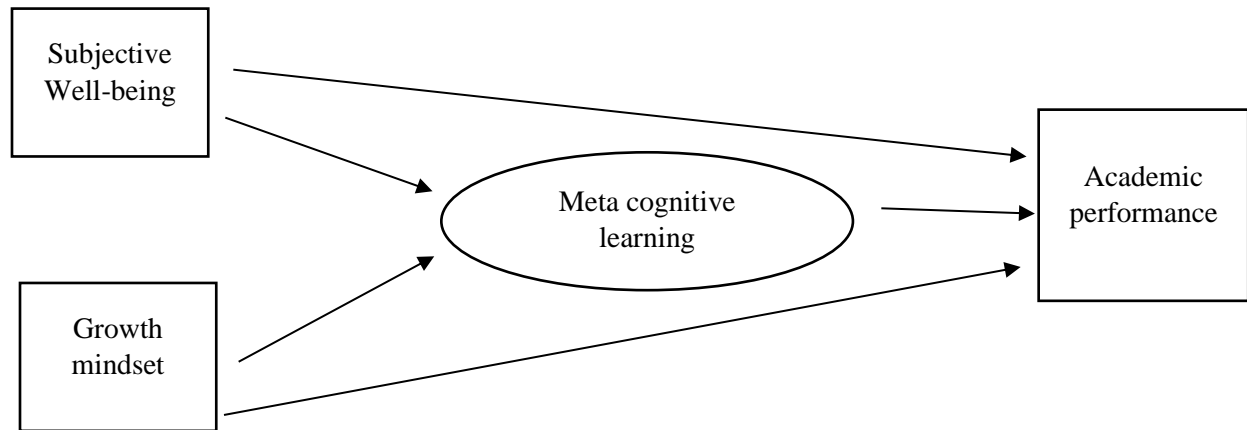
The mindset theory influences an individual's performance, well-being, and cognitions (Ortiz et. al., 2019). People having a growth mindset are more likely to accept challenges, face setbacks persistently and make more efforts to achieve high in their lives thus contributing to higher academic performances. Adopting a growth mindset can promote a positive outlook on challenges which will increase resilience and a sense of achievement in students thereby influencing the subjective well-being of students (Yeager & Dweck, 2012). Students can also enrich their metacognitive strategies through a growth mindset, encouraging students to view studies as iterative processes that will influence their approach and monitor their cognitive activities (Tanner, 2012).

Another theory that has practical implications for these variables is the Self-determination theory (SDT). It suggests that people are innately driven by the need for autonomy, competence, and relatedness (Deci & Ryan, 2012). SDT hypothesized that when an individual feels independent and competent then he/she is more likely to have a higher level of life satisfaction and motivation. Theory suggests that encouraging autonomy, competence, and relatedness in studies will enhance intrinsic motivation and intrinsic motivation plays an important role in increasing the performance of students (Orsini et. al., 2015). Fulfilling these needs will foster a sense of agency, achievement, and social connection that will empower a student's mindset to plan, monitor, and evaluate their metacognitive strategies in academia and overall life.

By combining Dweck's theory of mindset with Self-determination Theory, the above-mentioned theoretical framework provides a comprehensive basis for the relationships between metacognitive development, personal well-being, and high academic performance. This model suggests that embracing a growth mindset and enhancing autonomy, competence, and relatedness in academia may have positive effects on the cognitive, emotional, and motivational aspects of one's educational experience. This framework serves as a basis for enhanced research and collaboration aimed at promoting better educational outcomes and performance.



Figure 1  
*Conceptual Framework*



## Research Methodology

### Participants and Procedure

To explore the relationship between the growth mindset, subjective well-being, metacognitive learning, and academic achievement, the Survey research design was used to gather data.

It is also worth noting that since it is difficult to estimate the overall population of the students studying in various universities, therefore, this sample is drawn from a relatively large population which is difficult to estimate. However, one can be sure that the population of university students in Karachi is no greater than one million. Therefore, on the basis of the suggestions of Krejcie and Morgan (1970), it was decided to collect data from at least 384 respondents. In this regard, since data were collected from the same set of individuals at three different points in time; therefore, there are always chances that some of the respondents can fill the initial instrument and then refuse to fill in the questionnaires again. This creates problems as it reduces the overall sample size. Hence, in order to resolve this issue, it was decided that each questionnaire will be sent to at least 500 respondents so that the overall sample size may remain over the 384 threshold.

In this regard, 500 respondents were asked to fill the instrument one; from these five hundred respondents 478 returned the filled questionnaires. One month after the completion of data collection from respondents in the first wave, those 478 respondents who had already filled the first instrument were asked to fill in the second instrument. This time, only 441 respondents



returned the filled instruments. Similarly, a month after completion of data collection from respondents in the second wave, those 441 respondents who had already filled the first and the second instruments were asked to fill in the third instrument. From these 441 respondents, 407 filled in and returned the third and fourth instrument. Hence, there were a total of 407 sets of instruments and each set of instruments comprised three instruments. This data was used for the analysis purposes.

Once the data is collected, the Cronbach alpha test using SPSS software is applied to test the internal reliability. After testing the internal reliability of the instruments used in the study, the confirmatory factor analysis was applied for the purpose of extracting composite reliability; and convergent and discriminant validities. Finally, five separate structural equation models were used using AMOS for testing the mediation. This is done so because Kline (2006) argued that mediation analysis using AMOS cannot be applied if there are more than one mediators or dependent variables. This is because if mediation is applied in the presence of more than one mediator or dependent variable, the researchers can calculate the indirect effect but it will not help the researchers in calculating the indirect effect caused by each mediator or indirect effect on each dependent variable respectively. Consequently, as this study has multiple mediators and multiple dependent variables, therefore, it was essential to apply separate models to test hypotheses.

### **Measures**

The data was collected using four separate questionnaires. In this regard, it should be noted that the first questionnaire consisted of three items. These three items were adapted from growth mindset likert scale given by Dweck (1999,2006). The second questionnaire consisted of nine items; these items were adapted from the BBC- Subjective well-being scale for measuring the subjective well-being. Now, if we talk about the third instrument, there were eight items in the third instrument. These items were adapted from and were used for measuring academic achievement. Furthermore, to measure meta cognitive learning strategies the 13-item cognitive learning subscale of motivated strategies for learning questionnaire (MSLQ, Pintrich & Groot, 1990) was used. In order to conduct this study, data were collected using these three instruments at three different points in time. It should be noted that the reason to collect data at different points in time is to avoid the common method bias





## Results

Two major statistical analyses were used in this research; these include the confirmatory factor analysis and the structural equation models. Results of these analyses are given below:

### Results of Confirmatory Factor Analysis

This section presents results of confirmatory factor analysis that were extracted using AMOS. In this regard, the table indicates model fit indices of the confirmatory factor analysis:

Table 1  
CFA Model Fit Indices

Model	CMIN/df	CFI	GFI	AGFI	NFI	RMSEA	Status
SEM	1.984	0.914	0.916	0.823	0.906	0.0765	Fit

Table 1 indicates that the value of CMIN/df is less than 2, the CFI, GFI and NFI values are greater than 0.9. Furthermore, the table indicates that the AGFI value is greater than 0.8 and the RMSEA value is less than 0.08. All this indicates that the model is statistically fit. After testing the model fit indices, standardized factor loadings were extracted. Results of confirmatory factor analysis are given below:

Table 2  
Factor Loadings and Reliability

Variable Name	SFL	CR	Cronbach Alpha	AVE
Growth Mindset			0.933	0.930
GMS1	0.945			
GMS2	0.940			
GMS3	0.832			
Subjective Well-being		0.968	0.964	0.774
SWB1	0.877			
SWB2	0.855			
SWB3	0.799			
SWB4	0.846			
SWB5	0.911			
SWB6	0.927			
SWB7	0.882			
SWB8	0.849			
SWB9	0.961			
Metacognitive Learning		0.956	0.954	0.729
MCL1	0.745			
MCL2	0.855			



MCL3	0.864			
MCL4	0.945			
MCL5	0.813			
MCL6	0.879			
MCL7	0.905			
MCL8	0.811			
Academic Achievement		0.959	0.957	0.769
AA1	0.855			
AA2	0.962			
AA3	0.808			
AA4	0.866			
AA5	0.849			
AA6	0.913			
AA7	0.876			

Note: SFL is Standardized Factor Loadings, CR is Composite Reliability and AVE is Average Variance Extracted

Table 2 indicates the values of standardized factor loadings, composite reliability, and average variance extracted. The table also includes the values of Cronbach alpha which were extracted from the SPSS previously. Upon analyzing the values in the table 2, one can suggest that since the standardized factor loadings of all the factors are above 0.7, therefore, there are no issues pertaining to the factor loadings. Hence, four factors are confirmed. Furthermore, since the Cronbach alpha values of all the variables are above 0.7, this indicated that the factors are internally consistent and there is no issue pertaining to the internal reliability of the instrument. The table also presents the values of composite reliability and the average variance extracted. These values are calculated using the formulas suggested by Fornell and Larcker (1981). In this regard, it should be noted that similar to the Cronbach alpha reliability, the values of composite reliability are also greater than 0.7, this indicates that there are no problems associated with the composite reliability as well. Apart from this, Fornell and Larcker (1981) suggested that if the value of AVE is greater than 0.5 and the CR value is greater than AVE; one can suggest that the variable is valid in terms of convergent validity. Carefully analysis the above table leads to the conclusion that all the variables included in the study are valid in terms of convergent validity as the values of AVE of all the variables are greater than 0.5 and their CR values are greater than the values of their respective AVEs.



Table 3  
Discriminant Validity

Construct Item	GM	SWB	ML	AA
GM	0.907*			
SWB	0.045	0.879*		
ML	0.124	0.445	0.853*	
AA	0.547	0.554	0.654	0.876*

Note: \* Square Root of AVE as Criterion

Table 3 is meant to determine if the variables are valid in terms of discriminant validity. In this regard, since the square roots of AVE of all the variables are greater than their correlation with other variables, hence, all the variables included in the study are valid in terms of discriminant validity.

### Results of Structural Equation Models

After determining the reliability and validity, five structural equation models were made. Model fit indices of these structural models are given in table 4:

Table 4  
Model Fit Indices

Model	IV	Med	DV	CMIN/df	CFI	GFI	AGFI	NFI	RMSEA	Status
1	GMS SWB	MCL	AA	1.919	0.920	0.922	0.845	0.908	0.0757	Fit
2	GMS	SWB	AA	1.923	0.924	0.927	0.849	0.911	0.0757	Fit
3	GMS	AA	SWB	1.954	0.933	0.956	0.864	0.922	0.0757	Fit
4	GMS	SWB	MCL	1.966	0.928	0.933	0.851	0.915	0.0757	Fit
5	MCL	AA	SWB	1.943	0.940	0.942	0.858	0.930	0.0757	Fit

Table 4 indicates the CMIN/df values, CFI, GFI, NFI, AGFI and RMSEA values. The table indicates that the CMIN/df values for all the models are less than 2. This indicates that the models are statistically fit. Furthermore, the table also indicates that CFI, GFI and NFI values of all the models are greater than 0.9. This further suggests that the models are statistically fit. Moreover, the AGFI values of all the models are also greater than 0.8 and the RMSEA values of all the models are less than 0.08. All these values points towards the fact that all the models used in the study are statistically fit.



After testing the model fit indices, the direct, indirect, and total effects of these models are estimated. Results of mediation analysis are presented in table 5:

Table 5  
Results of Mediation Analyses

Model	Independent Variable	Mediator	Dependent Variable	Effect of IV on Mediator	Direct Effect	Indirect Effect	Total Effect	Degree of Mediation
1	GMS	MCL	AA	0.121*	0.201*	0.074*	0.275*	Partial
	SWB			0.112*	0.185	0.050*	0.235*	Full
2	GMS	SWB	AA	0.211*	0.155*	0.054*	0.209*	Partial
3	GMS	AA	SWB	0.131*	0.106*	0.031*	0.137*	Partial
4	GMS	SWB	MCL	0.211*	0.261*	0.045*	0.306*	Partial
5	MCL	AA	SWB	0.130*	0.255	0.081*	0.336*	Full

\* represent significant values

Table 5 indicates that direct, indirect and total effects of independent variables used in different models. In this regard, the table indicates that in the first model, growth mindset and subjective well-being were used as the independent variables; meta-cognitive learning was used as the mediator whereas academic achievement is used as the dependent variable. The table indicates that both the growth mindset and subjective well-being have significant relationship with the mediator meta-cognitive learning. Furthermore, both the variables have significant indirect effect on the dependent variable academic achievement. This indicates that meta-cognitive learning mediates the relationship between both the variables and the academic achievement.

Furthermore, it should be noted that the direct effect of growth mindset in the presence of meta-cognitive learning as mediator is significant, indicating that the mediation is partial in nature. On the other hand, the direct effect of subjective well-being in the presence of meta-cognitive learning as mediator is insignificant, indicating that the subjective well-being fully mediates the relationship between the two variables.

In the second model, growth mindset is used as the independent variable, subjective well-being is used as the mediator and the academic achievement is used as the dependent variable. In this



model, the effect of independent variable on mediator, the direct, indirect and the total effects were all significant. This indicates that subjective well-being partially mediates the relationship between the growth mindset and the academic achievement.

On the other hand, in the third model, growth mindset is used as the independent variable, academic achievement is used as the mediator and the subjective well-being is used as the dependent variable. In this model, the effect of independent variable on mediator, the direct, indirect and the total effects were all significant. This indicates that academic achievement partially mediates the relationship between the growth mindset and the subjective well-being.

The fourth model is a bit similar to the second model. Like the second model, in the fourth model growth mindset is used as the independent variable and subjective well-being is used as the mediator. However, unlike the second model, this model uses meta-cognitive learning as the dependent variable instead of academic achievement. In this model, the effect of independent variable on mediator, the direct, indirect and the total effects were all significant. This indicates that subjective well-being partially mediates the relationship between the growth mindset and the meta-cognitive learning.

The fifth model is a bit different from all the other models used in this study. In the fifth model, meta-cognitive learning is used as the independent variable and the academic achievement is used as the mediator. Furthermore, subjective well-being is used as the dependent variable in this model. Upon carefully analyzing the table 5, one can find that in this model, the effect of independent variable meta-cognitive learning on mediator academic learning is significant. On the other hand, the indirect effect of meta-cognitive learning on subjective well-being through academic achievement is also significant. This indicates the presence of mediating effect. However, the direct effect of independent variable meta-cognitive learning on dependent variable subjective well-being is not significant in the presence of mediator academic achievement. This shows that academic achievement fully mediates the relationship between meta-cognitive learning and subjective well-being.

## **Discussion**

The mechanism of the relationship between academic achievement and student well-being has recently gained researchers' attention (Guang et al., 2016; Yang et al., 2019). Similarly, the



Present study highlights the significant roles of growth mindset and metacognitive learning in students' academic achievement and well-being. The present study tested different models, and these relationships are discussed further in the following paragraphs.

This study shows the significant impact of a growth mindset on academic achievement. This finding is consistent with recent studies (Macnamara & Burgoyne, 2023; Wang et al., 2020). However, this study further explored the mechanisms of the relation between growth mindset and academic achievement and found that meta-cognitive learning and subjective well-being partially mediate. These results indicate that students who believe they can grow with efforts also try to understand themselves as learners and learn about their thought patterns as learners. They also feel good overall, which helps them improve their academic achievement.

Further, this study explored the direct effect of subjective well-being on academic achievement. Results showed an insignificant direct effect of subjective well-being on academic achievement; however, when metacognitive learning entered into the relationship as a mediating variable, the relationship became significant—metacognition learning showed complete mediation between subjective well-being and academic achievement. These results show that students with higher subjective well-being do not automatically achieve well in academics. However, higher subjective well-being can facilitate metacognitive skills, leading to high academic performance. This result can be interpreted as that high subjective well-being is a strength that can help to build metacognitive learning of learners, leading to academic improvements.

Furthermore, this study confirms the effect of the growth mindset on subjective well-being (Burnette et al., 2020; Zhao et al., 2021). Whereas, metacognitive learning does not directly effect subjective well-being; however, it affects achievement, and achievement leads to subjective well-being, so results show complete mediation between academic achievement in the relationship between metacognitive learning and subjective well-being and partial mediation of academic achievement on the relationship of growth mindset and subjective well-being. These results show that a growth mindset and metacognitive learning lead to academic achievement that, as a result, positively impacts the subjective well-being of learners.

## **Conclusion**



Overall, by testing different models in the study investigating the nexus between growth mindset, metacognitive learning, subjective well-being, and academic achievement can be concluded that a growth mindset and metacognitive skills can enhance learners' subjective well-being and academic achievement, which is the central goal of academic institutes to prepare intellectually and emotionally sound individuals to solve real-world problems as professionals.

### **Limitations and Recommendations**

The present study has a few limitations. It is essential to consider when replicating this study or further exploring the main variables of this study. Firstly, these results cannot be generalized to the population with different characteristics. This data was collected from only one Pakistan region's higher education institutes. Hence, a complete representation of the Pakistani population needs to be present. However, it is advisable for further research for a better understanding of growth mindset and metacognitive learning on academic achievement and well-being of learners. Second, the scope of this study can be broadened by exploring the demographic measures. Gender and socioeconomic factors can be considered to deepen understanding of the phenomenon. Last, as these relationships are now well established, intervention-based studies need to be designed that expose the effect of enhancing growth mindset and metacognitive learning skills on academic achievement and well-being of students.

### **Implications of the Study**

The present study found that metacognitive learning is how an individual's subjective well-being can effect academic achievement, contributing to the theoretical knowledge of this phenomenon. Moreover, the practical implications for education institutes and educators are the following: First, as academic institutes are trying to raise students' emotional awareness and well-being, this is the time that education institutes also focus on developing metacognitive learning of students so they can know themselves as learners, plan their academic practices, and rise above the level they are performing presently. Second, teachers' approach should inculcate a growth mindset in their students; students should be encouraged that with effort, students can improve and become a better version of themselves. Lastly, learners' social-emotional and intellectual development needs to be nurtured harmoniously for personality development through education.



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