RESEARCH ON EDUCATION AND PSYCHOLOGY (REP)

Received: April 3, 2024
Accepted: June 2, 2024
http://dergipark.org.tr/rep

e-ISSN: 2602-3733

June 2024 ◆ 8(1) ◆ 165-181

Research Article

https://doi.org/10.54535/rep.1464116

Students' Patience As Predictor of their Growth Mindset

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Abstract

The purpose of this study is to examine the predictive power of students' patience on the sub-dimensions of interpersonal patience and long-term patience and short-term patience; the growth mindset and its sub-dimensions of procrastination, belief in invariance, effort and belief in development. The study group of the research consists of 7426 students who are studying in different geographical regions of Türkiye. They were picked for the study by using the progressive sampling method. "Patience Scale" and "Growth Mindset Scale" were used for data collection. In the study, the relationship between the independent variable and the dependent variable was tested by Pearson product moment correlation coefficient analysis method and the predictive power of independent variables on the dependent variable was tested by multiple regression analysis method. According to the results, the long-term patience and then the interpersonal patience sub-dimension of students' patience predicts the variability in the procrastination and belief in invariance dimension of their growth mindsets. The long-term patience and then the interpersonal patience sub-dimension of the patience of them predict the variability in the effort and belief in invariance sub-dimension of the developmental traits. It statistically significantly predicts the variability of patience of them in growth mindsets. One of the suggestions developed within the scope of the research findings is to investigate the reasons why the short-term patience dimension does not predict the growth mindset like the other dimensions.

Key Words

Growth mindset • Belief in invariance • Student • Patience

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Citation: Yılmaz, E. (2024). Students' patience as predictor of their growth mindset. *Research on Education and Psychology*, *8*(1), 165-181.

Introduction

Since growth mindset is a variable that affects students' academic achievement and learning, it has attracted great interest of academicians (Sisk et al., 2018). Growth mindset can be explained as individuals' beliefs about the development of their abilities (Yılmaz, 2022). Belief in growth mindset is associated with the belief that one's intellectual ability is malleable and can be developed with effort (Cheong et al., 2023). This belief may be related to patience of students. If patience is considered as the emotional core of a certain set of emotions, it can be said that perseverance, fortitude, endurance and self-control are relatives of this core emotion (Doğan, 2017). Patience, the capacity to delay gratification, gives students the power to focus on learning and avoid actions that are not in line with their goals and objectives (Berlinski, 2019). For this reason, students' patience can affect their growth mindsets. As in its simplest definition, patience is the tendency to wait calmly when faced with frustration or difficulties (Schnitker, 2012). Beliefs of them that they can develop their abilities and intelligence (growth mindset) may be related to their patience. The development of abilities is not an instantaneous process. It requires time and effort. Ensuring the continuity of the effort and time that students will devote to the development of their intelligence and abilities and being persistent about it may be related to their patience. In this study, the predictive power of students' patience on their growth mindsets was investigated. No research directly related to this issue was found in the sources that were scanned. For this reason, it is assumed that the findings of the research will fill an important gap in the literature. In this research, answers to the following questions will be sought:

• Is there a relationship between students' interpersonal patience, long-term patience and short-term patience sub-dimension scores and the growth mindset and its sub-dimensions of procrastination, belief in invariance, effort and belief in invariance?

• Do the interpersonal patience, long-term patience and short-term patience sub-dimensions of students' patience predict the variability in the growth mindset and its sub-dimensions of procrastination, belief in invariance, effort and belief in development?

Literature

In the study, it was aimed to examine growth mindsets of the students in terms of their patience. In the literature section of the study, the concepts of growth mindset development and patience were explained.

Growth Mindset

Growth mindsets of students are related to their mindsets. Mindset is the cognitive activities related to the tasks we perform and the cognitive frameworks we use to make meaning and interpretations (French, 2016; Mather et al., 2013). Mindset Theory relates to an individual's positive or negative beliefs that personality traits such as intelligence, ability, and temperament can be developed (Haimovitz & Dweck, 2017). Students have two types of theories. These are Trait and Incremental theories. Trait theory is the tendency of individuals to think that abilities are fixed, uncontrollable characteristics and that ability depends on factors beyond the control of the individual (Dweck, 1999; Dweck & Leggett, 1988). The incremental theory, on the other hand, is the way of thinking that the qualities individuals possess are malleable and that the relevant ability can be developed over time (Elliott & Dweck,

1988). According to Dweck (2016), there are two different perspectives on intelligence: existential and incremental. Existential theorists see themselves as a combination of fixed traits that can be evaluated and do not change (fixed mindset), whereas incremental theorists believe that traits or qualities can be developed through effort and experience (growth-oriented mindset).

Growth mindset is the belief that individuals can improve their intelligence through effort. Self-Theory of Development is a belief that a trait such as intelligence or ability can be grown or developed over time (Beere, 2016; Dweck, 2012; Keenan, 2018; Orosz et al., 2017; Yeager & Dweck, 2012). Students with a growth mindset perceive the skills related to embracing challenges, persevering in the face of obstacles, effort and work as a means of learning. They use feedback to improve and are inspired by the success of others; they are focused on learning (Dweck, 2012.) Self-Theory of Development is associated with self-confidence and resilience of students as learners, which in turn increases their positive mental health and well-being (Dweck, 2007; Yeager & Dweck, 2012). Students with a well-developed self-theory of development are aware of their own learning path and learn in that way, try to overcome difficulties and strive to learn. These students tend to be lifelong learners and are motivated by their personal development. They do not see failure as a threat and continue to learn in order to succeed (Dweck, 2012; Ng, 2018).

The fixed mindset dimension is the belief that qualities such as intelligence or ability are immutable (Yeager & Dweck, 2012). This belief entails the idea that individuals' basic characteristics are innate and cannot be changed or developed later (Dweck, 2016; Yeager & Dweck, 2012). With the fixed mindset, people make more progress when a task they encounter unfolds in a way that matches their understanding. However, when a task does not go as they have expected, they often decide that they do not have enough intelligence for the task and lose interest and give up easily. Therefore, when they start a task, they usually aim to get a good result quickly in order to keep their interest alive (Dweck, 2007). Students who have developed fixed mindset feel that making an effort makes them feel unsuccessful. According to them, if a person has talent, he/she does not need to make any effort. Only one's talent alone can make one successful (Bayrakçeken et al., 2021). Fixed mindset can lead students to procrastination. These students may prefer inaction and inactivity to doing and changing things (Yılmaz, 2022). Procrastinating students do not easily abandon their own truths and value judgments (Schein, 1990). Also, procrastinating individuals do not easily abandon their old habits and thoughts and do not accept that change and innovation can support them (Çankaya & Demirtaş, 2010). Negative reactions to change can create resistance (Zaltman & Duncan, 1977). Students with developed fixed mindset are resistant to change. These students do not want to get moving, be persistent or overcome obstacles (Yılmaz, 2019; Yılmaz, 2022).

Patience

Patience is defined as the capacity to tolerate or acquiesce to pain, problems or delays without becoming angry or irritated in the face of distressing situations such as pain, poverty, injustice, etc. (Oxford Dictionary, 2024; Turkish Language Association Dictionary, 2024). The word patience comes from the Latin root pati, which means "to suffer". As it can be understood from these definitions, patience is the ability to endure destructive situations, to cope

with the emotions caused by those situations, to control destructive emotions and to exhibit behaviors that would allow a person to cope with those situations without giving up.

According to Blount and Janicik (1999), patience is related to procrastination, self-control and self-regulation skills. Procrastination is related to how a person evaluates the delay and how he/she reacts to that process. Self-control is the ability to manage one's own emotions and behaviors in the face of delay. The self-regulation dimension is to find something to do, think of something else or re-evaluate the situation in a new way in situations that require patience (Blount & Janicik, 1999).

In this study, patience was evaluated in three dimensions which are short-term patience, long-term patience and interpersonal patience. Short-term patience refers to a person's patience in daily life (Eliüşük & Arslan, 2016; Schnitker, 2012). Long-term patience is associated with being patient while facing difficulties in life. It is the person's ability to cope with any challenging situation. Interpersonal patience dimension is defined as the tolerance that a person shows to other people in social relationships (Schnitker, 2012). Patience is important for students. Because it is a necessary virtue when students are trying to do their homework, trying to meet their needs in the canteen, continuing to attend their classes, especially those in which they are uninterested, dealing with their relationships with disagreeable friends, trying to cope with parental expectations, and especially trying to adapt to the changes of adolescence (Hanushek et al., 2020).

Growth Mindset and Patience

Researches repeatedly show that students with a growth mindset are more motivated and achieve higher grades and achievement test scores in difficult subjects, especially in challenging school transitions. Besides, individuals' growth mindset leads them to believe that abilities can be developed through hard work, good strategies and good mentoring (Dweck, 2014). Belief in the development of one's own abilities may require patience. Patience is the tendency to wait calmly in the face of frustration, distress or pain (Schnitker, 2012). According to the literature, patience is positively related to academic achievement, goal achievement, and interpersonal success (Schnitker, 2012) and subjective well-being, virtue, and growth (Schnitker & Emmons, 2007). Similarly, patience is negatively related to loneliness and depression (Schnitker, 2012). Patience also has the power to catalyze the acquisition of other character strengths other than itself (Pincoffs, 1986).

Patience is also very important for adolescents because they have poorly developed self-management control (Blakemore & Choudhury, 2006; Casey et al., 2005). Instead, adolescents have high impulsivity and thrill-seeking behavior (Smith et al., 2012). Adolescents are confronted with developmental tasks that require patience (applying to university, taking boring classes, and establishing romantic relationships). Some studies have found that individuals who exhibit patience and self-control during childhood or adolescence have better outcomes in terms of health, school performance, and social competence (Golsteyn et al., 2014; Mischel et al., 1989; Moffitt et al., 2011). As a result, patience can be seen as an active process that helps individuals to remain calm and capable of resisting in difficult situations. This process may affect the growth mindsets of students significantly.

Method

Research Model

In the study, it was aimed to determine the predictive power of students' patience on the Growth Mindset. In the study, correlational design was structured within the scope of quantitative research. Correlational design is carried out to describe the relationship between variables (Creswell, 2013). While the independent variable of the study was the students' patience, the dependent variable was Mindset Theories.

Sample Group

The study group of the research consists of students who are studying in different geographical regions of Türkiye and were determined by using the Progressive sampling method. In the progressive sampling process, students were stratified based on the region where they study. Schools in each stratum were assumed to be a cluster. The scales were applied in schools that were determined by using the random sampling method. The sample of the study consisted of 7426 students to whom the scales were applied in the selected schools.

Table 1

Statistical data about the sample group

Gender	**Frequency (f)**	**Percentage (%)**
Female	4392	59,1
Male	3034	40,9
Grade		
7	2014	27,12
8	1719	23,14
9	1260	16,95
10	1486	20,02
11	947	12,75
Total	7426	100

The study group consisted of 59.1% female and 40.9% male students. The students in the study group were 27.12% in the seventh grade, 23.14% in the eighth grade, 16.95% in the ninth grade, 20.02% in the tenth grade and 12.75% in the eleventh grade.

Data Collection Tools

Within the scope of the research, three data collection tools were used. These are; "Patience Scale", "Growth Mindset Scale" and "Personal Information Form".

Patience Scale

Patience Scale was developed by Schnitker (2012). It was adapted into Turkish by Eliüşük and Arslan (2016). The scale consists of 11 items and 3 sub-dimensions. The sub-dimensions of the scale are Interpersonal Patience, Long-Term Patience (patience in the face of difficulties in life) and Short-Term Patience (patience in daily life). The scale is a 5-point Likert-type scale. The fit indices of the scale are RMSEA= .076, CFI= .96, GFI= .93, NNFI=.94. Reliability coefficients; test-retest =.81, internal consistency = .82. Some items on the scale; "I know how to wait in

difficult times", "I am patient with life's difficulties". The reliability internal consistency coefficients (Cronbach's Alpha) of the scale in the study group were .66 for the Interpersonal Patience dimension, .71 for the Long-Term Patience dimension and .65 for the Short-Term Patience dimension. For the whole Patience Scale, .80 was the result.

Mindset Theory Scale

Mindset Theory Scale was used to measure growth mindsets of individuals. Mindset Theory Scale developed by Yılmaz (2022) consists of 13 items. It consists of four sub-dimensions. These sub-dimensions are Procrastination, Belief in Invariance, Effort and Belief in Development. In the process of developing the scale, Yılmaz (2022) calculated the reliability coefficients of the Mindset Theory Scale as .72 for the Procrastination sub-dimension, .80 for the Belief in Invariance, .70 for the Effort sub-dimension, .77 for the Belief in Development sub-dimension, and .72 for the Fixed Self-Theory dimension. Some items on the scale; "It's in my hands to develop my intelligence", "I believe that even an intelligent person can improve his/her intelligence".

For the Self-Theory of Development dimension, it was found to be .71. The reliability coefficient of the whole scale is .80. As a result of the internal consistency calculations of the scale, the internal consistency coefficients (Cronbach's Alpha) were found to be .75 for the Procrastination sub-dimension, .84 for the Belief in Invariance, .76 for the Effort sub-dimension, and .82 for the Belief in Development sub-dimension. The reliability coefficient of the whole scale was calculated as .85.

Data Collection

The questions in the data collection tool were administered online to students who volunteered to answer them. Students accessed the scale form from computers and tablets in the computer laboratories at their schools. They were enabled to answer the questions and scale items in the data collection tool by the necessary measurement environment were provided to them. Explanations were made in cases where the students did not understand the questions, had difficulties with them or asked for more explanation.

Data Analysis

While preparing the collected data for analysis, the outliers were first examined. According to Tabachnick and Fidell (2007), one-way outliers can be determined by converting the scores into Z scores. For this reason, the Z values of the values in the data set were examined and 11 data with Z values outside the range of +3 and -3 were excluded from the data set. The normality distribution assumptions of the data set were tested with skewness and kurtosis coefficients.

Table 2

Normality values of study data

Scales	Sub-Dimensions	Skewness Coefficient	Kurtosis Coefficient
Patience	Interpersonal patience	-.327	-.149
	Long-term patience	-.540	-.041
	Short-term patience	-.266	-.417
Growth mindset	Procrastination	.458	.120
	Belief in Invariance	.293	-.469
	Effort	-.482	-.033
	Belief in Development	-.602	-.060
	Growth Mindset	-.185	-.316

The normality assumptions, skewness and kurtosis coefficients of the data set collected in the study were analyzed (Table 2). The skewness and kurtosis coefficients of the students' mindset theories, dimensions and sub-dimensions of mindset theory, perseverance and its sub-dimensions vary between -.602 and .458. It was determined that the data set met the normal distribution conditions. According to George and Mallery (2016), if the skewness and kurtosis values take values between - 2 and + 2, the distribution can be accepted as a normal distribution. Since the skewness and kurtosis coefficients of the data set belonging to the research are between -2 and +2, it is assumed that it meets the normality conditions. Since the data set collected in the research met the assumptions of normal distribution, the analyzes were carried out with parametric tests. The relationship between the independent variable and the dependent variable was tested with Pearson Correlation Coefficient. In the study, the predictive power of the independent variables on the dependent variable was tested by using multiple regression analysis. Before the regression analyses, the absence of multicollinearity problem between the independent variables was accepted when the Variance inflation factors (VIF) was less than 10 and the tolerance value was greater than 0.1 and the Durbin-Watson value, which shows that there is no relationship between the error terms, was between 1.5 and 2.5 (Kalaycı, 2010). In educational research, the significance level is accepted as .05 (Balcı, 2004). For this reason, the significance level accepted in the study is .05.

Findings

In this section, the findings and interpretations of the analyzes conducted within the scope of the objectives of the study are presented.

The relationship between patience of students and growth mindsets and their sub-dimensions was tested with Pearson Correlation Coefficient. The findings of this analysis are given in Table 3.

Table 3

The relationship between students' patience and self-theories of development

			Patience		
Scales	**Sub-Dimensions**		**Interpersonal patience**	**Long-term patience**	**Short-term patience**
Growth mindset	Procrastination	r	-.213**	-.234**	-.137**
	Belief in Invariance	r	-.080**	-.080**	-.062**
	Effort	r	.308**	.332**	.169**
	Belief in	r	.242**	.273**	.129**
	Development	r	.290**	.316**	.173**
	Growth Mindset				

*p < .05; **p < .01

There is a significant positive correlation between students' mindset theories, effort and belief in development sub-dimension scores and interpersonal patience, long-term patience and short-term patience sub-dimensions of patience (p<.01). There is a negative correlation between students' mindset theories, procrastination and belief in invariance sub-dimension scores and interpersonal patience, long-term patience and short-term patience sub-dimensions of their patience (p<.01).

During the analysis process of the study, five multiple regression analyses were conducted to test the predictive power of the interpersonal patience, long-term patience and short-term patience sub-dimensions of the students' patience on the variability in the procrastination, belief in invariance, effort and belief in development sub-dimensions of the self-theory of development. Assumptions of regression analyses were tested for each of the multiple regression analyses. In the analyses conducted for this purpose, it was understood that there was no multicollinearity problem between the independent variables and there was no relationship between the error terms. Regression analysis was performed according to these results.

Table 4

The results of regression analysis on the prediction of students' patience on the procrastination sub-dimension of the growth mindset

Dependent Variable Growth Mindset	**Independent Variable**	**ß**	**t**	**F**	**R2**	**VIF**	**Durbin-Watson**
Procrastination	Fixed	13.369	82.585**	168.141**	.063		1.964
	Interpersonal patience	-.094	-7.241**			1.705	
	Long-term patience	-.178	-11.350**			1.605	
	Short-term patience	-.024	-1.803			1.308	

*p < .05; **p < .01

The regression model created to determine the predictive power of the students' patience for the variability in the procrastination dimension of the growth mindset was found statistically significant as a result of the analysis (F=168.141; P<.01). Students' patience predicts 6.3% of the variability in the procrastination dimension of the growth mindset. While the interpersonal patience and long-term patience sub-dimensions of the students' patience significantly predicted the variability in the procrastination sub-dimension of the growth mindsets (p<.01), the short-

term patience sub-dimension of their patience did not have a significant predictive value (p>.05). When the variability of the students' patience in the procrastination sub-dimension of the growth mindset was analyzed in terms of predictive power, the long-term patience sub-dimension of their patience had the greatest predictive power, followed by the interpersonal patience sub-dimension of their patience.

Table 5

The results of regression analysis on the prediction of students' patience on the belief in invariance sub-dimension of the growth mindset

Dependent Variable Growth Mindset	**Independent Variable**	**ß**	**t**	**F**	**R2**	**VIF**	**Durbin-Watson**
Belief in Invariance	Fixed	8.516	54.972**	21.003**	.008		1.992
	Interpersonal patience	-.034	-2.765**			1.705	
	Long-term patience	-.046	-3.054**			1.605	
	Short-term patience	-.024	-1.872			1.308	

*p < .05; **p < .01

The regression model created to determine the predictive power of students' patience on the variability of developmental self-theories in the dimension of belief in invariance was found statistically significant as a result of the analysis (F=21.003; P<.01). Students' patience predicts 0.8% of the variability of their growth mindsets in the dimension of belief in invariance. While the interpersonal patience and long-term patience sub-dimensions of the students' patience significantly predicted the variability in the belief in invariance sub-dimension of the developmental self-theories (p<.01), the short-term patience sub-dimension of their patience was found to have no significant predictive value (p>.05). When analyzed in terms of the predictive power of the variability in the belief in invariance sub-dimension of growth mindsets of students' patience, the long-term patience sub-dimension of their patience has the greatest predictive power, followed by the interpersonal patience sub-dimension of their patience.

Table 6

The results of regression analysis on the prediction of students' patience on the effort sub-dimension of the growth mindset

Dependent Variable Growth Mindset	**Independent Variable**	**ß**	**t**	**F**	**R2**	**VIF**	**Durbin-Watson**
Effort	Fixed	8.278	75.367**	367.084**	.129		1.989
	Interpersonal patience	.107	12.122**			1.705	
	Long-term patience	.179	16.826**			1.605	
	Short-term patience	-.002	-.184			1.308	

*p < .05; **p < .01

The regression model created to determine the predictive power of the students' patience on the variability of the growth mindset in the effort dimension was found to be statistically significant as a result of the analysis (F=367.084;

P<.01). Students' patience predicts 12.9% of the variability of growth mindset in the effort dimension. While the interpersonal patience and long-term patience sub-dimensions of the students' patience predicted the variability in the Endeavor sub-dimension of the developmental attributes significantly (p<.01), the short-term patience sub-dimension of their patience did not have a significant predictive value (p>.05). When the predictive power of the variability of students' patience in the effort sub-dimension of the growth mindsets was analyzed in terms of predictive power, the long-term patience sub-dimension of patience had the greatest predictive power, followed by the interpersonal patience sub-dimension of patience.

Table 7

The results of regression analysis on the prediction of students' patience on the belief in development sub-dimension of the growth mindset

Dependent Variable Growth Mindset	**Independent Variable**	**ß**	**t**	**F**	**R2**	**VIF**	**Durbin-Watson**
Belief in Development	Fixed	9.175	77.117**	277.316**	.084		1.938
	Interpersonal patience	.083	8.667**			1.705	
	Long-term patience	.165	14.344**			1.605	
	Short-term patience	-.008	-.795			1.308	

*p < .05; **p < .01

The regression model created to determine the predictive power of students' patience for the variability of the growth mindset in the belief in development dimension was found statistically significant as a result of the analysis (F=277.316; P<.01). Students' patience predicts 8.4% of the variability in the belief in development dimension of growth mindsets. While the interpersonal patience and long-term patience sub-dimensions of the students' patience significantly predicted the variability in the belief in development sub-dimension of the developmental self-theories (p<.01), the short-term patience sub-dimension of their patience was not found to have a significant predictive value (p>.05). When the predictive power of the variability of students' patience in the belief in development sub-dimension of the growth mindsets was analyzed in terms of predictive power, the long-term patience sub-dimension of patience had the greatest predictive power, followed by the interpersonal patience sub-dimension of patience.

Table 8

The results of regression analysis on the prediction of students' patience on the growth mindset

Dependent Variable	**Independent Variable**	**ß**	**t**	**F**	**R2**	**VIF**	**Durbin-Watson**
Growth Mindset	Fixed	37.568	101.341**	324.811**	.116		1.975
	Interpersonal patience	.317	10.691**			1.705	
	Long-term patience	.568	15.822**			1.605	
	Short-term patience	.039	1.260			1.308	

*p < .05; **p < .01

The regression model created to determine the predictive power of students' patience on the variability of their growth mindsets was found to be statistically significant (F=324.811; P<.01). Students' patience predicts 11.6% of the variability in growth mindsets. While the interpersonal patience and long-term patience sub-dimensions of students' patience significantly predicted the variability in their growth mindsets (p<.01), the short-term patience sub-dimension of their patience did not have a significant predictive value (p>.05). When analyzed in terms of the predictive power of the variability in the growth mindsets of students' patience, the long-term patience sub-dimension of patience has the greatest predictive power, followed by the interpersonal patience sub-dimension of patience.

Discussion, Conclusion and Recommendations

According to the results of the study, the long-term patience and then the interpersonal patience sub-dimension of students' patience predicted the variability in the procrastination and belief in invariance dimension of their developmental self-theories. Procrastination can be defined as an individual's tendency to postpone his/her actions and plans due to some reasons, feeling stagnation and laziness (Sekman, 2007). People who procrastinate may show tendencies such as stagnation, inaction, passivity, monotony, laziness, slothfulness, and may be unwilling to take action (Çankaya & Demirtaş, 2010). Students' procrastination may result from their lack of patience. Negative reactions to change can create resistance (Zaltman & Duncan, 1977). Resistance to change can be explained as the act of undermining the attempts to change the status quo (Timurkan, 2010). This resistance may result from individuals' lack of patience.

Notably, long-term patience of students is more predictive. Long-term patience is defined as the ability of individuals to cope with any challenging experience (Schnitker, 2012). The development of skills and intelligence may not be realized through momentary effort. It requires long-term effort and endeavor. It can be expected that students who do not have long-term patience may not develop their growth mindsets very much. Again, developing people's intelligence and abilities is a long-term and demanding process. The brain's ability to develop decreases with age (Reh, et al., 2020; Werker & Hensch, 2015). In the experimental study conducted by Kitzbichler et al. (2011), more cognitive effort was typically associated with a larger workspace configuration of brain networks, leading to brain development. In this study, for the brain to develop, the individual needs to exert more cognitive effort. Effort is an act that requires patience. Patient individuals can cope with difficulties and make an effort to accomplish tasks (Türkgeldi, 2019). As a result, patient individuals can develop their brains more because they will make the needed effort while performing cognitive activities, and this may affect their developmental self-theories.

Impatience may increase the development of students' procrastination and belief in invariance. Their growth mindsets are related to their belief in change. According to Polites and Karahanna (2012), individuals continue to use the existing system because changing something may be too stressful or emotionally draining (emotionally based procrastination). For this reason, individuals who lack patience can be expected to have belief in invariance. Developing intelligence and abilities may require support and collaboration with others (experts, teachers, mentors, coaches, etc.). If students do not have enough interpersonal patience, they may not receive the support they need from others for improving their intelligence and abilities. Previous studies have shown that adolescents with high

growth mindset have better emotional regulation, are able to change their behavior, motivate themselves, and maintain a high level of mental health in difficult times, thus reducing suicidal thoughts (Sinniah et al., 2015; Zhang et al., 2022). These research results support the findings of this study.

The long-term patience and then the interpersonal patience sub-dimension of students' patience predicted the variability in the effort and belief in development sub-dimension of the growth mindsets. The process of change starts primarily in the mind and is managed by emotions (Bulut, 2010). The belief in change has a structure including steps such as acting, insisting, and overcoming obstacles (Yalçın & Yılmaz, 2023). These skills, which are necessary in the process of change, are related to patience since patience means that an individual should restrain his/her inner impulses and use difficulty as a tool to achieve something beyond the self (Khormaei & Farmani, 2016). Students with patience can be expected to have higher belief in development. The persistence dimension of perseverance is associated with continuous striving (Duckworth & Gross, 2014). Students' belief in developing their abilities and intelligence may require action. Students' being in action requires desire, continuity and persistence. Such characteristics are associated with perseverance (Yalçın & Yılmaz, 2023). Perseverance is associated with continuous striving (Duckworth & Gross, 2014). According to these explanations, it can be expected that patience predicts the effort dimension of the mindset theory.

There is a positive relationship between patience and cognitive intelligence (Ackerman et al., 2005; Conway et al., 2003). Strong and active cognitive systems facilitate being more patient (McClure et al., 2004). In the literature, there is no study examining the growth mindset together with patience. The discussion part of the study was based on studies on similar topics. This study can be considered as one of the first studies to examine students' growth mindsets in terms of patience.

Based on the results of the study, the following suggestions can be made: Students' patience predicts their self-theories of development. Actions to improve their patience may indirectly affect their self-theories of development. Policy makers can make arrangements and revisions to improve patience of students in education programs. Researchers might want to consider that this study can be conducted with different sample groups and different data collection tools. The reasons why patience of them did not predict the growth mindset in the same way as the other dimensions of the short-term patience dimension can be investigated.

Ethic

I declare that the research was conducted in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

Funding

No scholarships or payments have been received from any institution for this article.

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