International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

Investigation of the Individual Characteristics that Predict Academic Resilience

Süleyman Avcı[1]
[1]Marmara University, 0000-0003-3185-3914

Article History
Received: 19.02.2022
Received in revised form: 26.08.2022
Accepted: 29.08.2022
Article Type: Research Article

To cite this article:

Avcı, S. (2022). Investigation of the individual characteristics that predict academic resilience. *International Journal of Contemporary Educational Research, 9*(3), 543-556. https://doi.org/10.33200/ijcer.1076091

International Journal of Contemporary Educational Research
Volume 9, Number 3, September 2022, 543-556 ISSN: 2148-3868

Investigation of the Individual Characteristics that Predict Academic Resilience

Süleyman Avcı[1]*
[1]Marmara University

Abstract

The percentage of students with lower academic achievement than their peers due to their socio-economical disadvantages is globally accepted as an indicator of inequality. Some students, despite their disadvantages, are as successful as their advantaged peers. The family and individual characteristics and academic experiences of these students, who are referred to as academically resilient, provide useful information to the institutions that work to increase the academic success levels of other disadvantaged students. Accordingly, this study aims to determine the individual characteristics of academically resilient students, focusing on the PISA Turkey results. In line with the OECD criteria, an equal number of academically resilient (N=214) and academically disadvantaged (N=214) students participated in the study. Students whose economic, social, and cultural index values are amongst the bottom 25% were considered to be disadvantaged, and those who performed at level 3 and above in reading proficiency were regarded to be successful. Eighteen individual characteristics measured within the scope of PISA research were included in the study as independent variables. A binary logistic regression analysis was used in the analysis of the data. The regression model created in line with the findings predicted 67 percent of the variance in academic resilience and made an accurate classification of 85 percent. In order of their power, the predictors of academic resilience are grade repetition, use of metacognitive learning strategies (understanding, summarizing, evaluating credibility), reading for enjoyment, attitude towards academic competition, self-efficacy, and the desired occupation.

Keywords: Academic Resilience, PISA, Individual Characteristics

Introduction

Inequality in accessing education is a common problem, especially in low-income countries, despite new and improved capabilities. Inequality begins within the family and persists in the educational environment, but depending on the quality of the education provided, it may partially decrease in time. Factors such as living in a low socio-economic status household, inability to study at home, health problems, being an immigrant, and insufficient school opportunities lead to and deepen inequality in education (Jacob and Holsinger, 2008; UNESCO, 2018; World Bank, 2018). One of the main goals of education systems is to prevent the emergence of differences in the academic achievement levels of students due to the reasons listed (Niemi, 2021). Negative conditions that arise for different reasons do not affect all students equally. Students called "academically resilient" are those who can be as successful as their advantaged peers under disadvantaged conditions. The cognitive and affective characteristics of these students and the conditions that lead them to succeed under negative conditions have been a topic of interest for a long time (Martin & Marsh, 2006). The OECD uses the proportion of academically resilient students as an educational inequality indicator. The higher the number of academically resilient students is in a country, the better educational equity is achieved (OECD, 2018a). PISA, in addition to academic tests, encompasses measurement tools to determine the individual characteristics of academically resilient students in a multi-dimensional manner. Reports on academic resilience are published by the OECD based on the PISA results. In these reports, inter-country comparisons are made and findings on educational inequality are presented. Turkey is among countries in which the number of academically resilient students is low and therefore, educational inequality is prevalent (OECD, 2018a; Agasisti et al., 2018). Identifying the individual characteristics of academically resilient students that lead them to success provides useful information that will help reduce educational inequality. Studies that investigated the individual

* Corresponding Author: *Süleyman Avcı, suleyman.avci@marmara.edu.tr*

characteristics of academically resilient students based on PISA Turkey data (Morsunbul & Yazar, 2021; Yavuz, 2015; Yüce, 2019) utilized a few variables, while in this study, a broader perspective was adopted. It is thought that the findings of this study will serve as a guide for educational researchers and practitioners. This study aims to "determine the individual characteristics that predict the academic resilience levels of high school students." Accordingly, answers were sought to the following research questions: (1) What distinguishing personal characteristics distinguish academically resilient high school students from low socioeconomic backgrounds? (2) How predictive of academic success levels are individual characteristics of high school students from low socioeconomic backgrounds?

Literature Review

Academic Resilience

Resilience is defined as the ability of an individual to successfully overcome adversity brought about by negative life situations (Chung, 2008). Resilience is a positive factor that helps with adaptation rather than a personality trait; it refers to exposure to and coping with difficulties and the environment's support to cope with them (Lutha & Cicchetti, 2000). Resilience can be a topic of discussion when an individual faces difficulty and successfully overcomes and copes with it. The difficulty mentioned in the definition is the environmental conditions that threaten or prevent the fulfillment of developmental tasks at respective ages (Schoon, 2006). Different types of resilience are named in accordance with the areas on which they focus, as in psychological resilience (Fletcher & Sarkar, 2013), academic resilience (Martin & Marsh, 2006), physical resilience (Whitson, Duan-Porter, Schmader, Morey, Cohen, & Colón-Emeric, 2016), and emotional resilience (Grant & Kinman, 2014). In particular, the studies on resilience in the psychology literature, which constitutes the basis of studies on other types of resilience, focus on the findings obtained from traumatized and distressed individuals and risk groups who perform better than expected. In the psychology literature, the first studies on resilience, which focused on psychological issues, date back to the mid-1970s (Lutha, & Cicchetti, 2000).

On the other hand, the first studies on academic resilience, which focused on the experiences of immigrant children, date back to 1991 (Waxman, Gray, & Padron, 2003). There are two definitions of academic resilience in the literature due to the difference in classifying the problems that negatively affect students' academic achievement levels. Academic resilience is defined by the OECD (2018a, p.6) as "students who succeed in school despite coming from a socioeconomically disadvantaged background." Similarly, Agasisti and Longobardi (2014) defined academically resilient students as those who come from a disadvantaged socio-economic background and yet achieve a relatively high level of academic achievement. As can be seen in these definitions, a low socio-economic background is regarded as the main obstacle to academic success. Martin (2013) defined academic resilience as students' capacity to overcome problems that prevent academic development.

Similarly, Cassidy (2016) defined academic resilience as the increased likelihood of educational success despite adversity. According to Wang, Haertel, and Walberg (1994), academic resilience is the heightened likelihood of success in school and other life accomplishments despite environmental adversities brought about by early traits, conditions, and experiences. These three definitions represent varying opinions on the barriers to academic success. It can be seen that in these definitions, different factors such as the status of the student group (low SES, being an immigrant or minority, etc.) and negative conditions (poverty, the situation at home, studying environment, number of siblings, having a single parent, school facilities) were taken into consideration (Waxman et al., 2003).

Individual Characteristics of Academically Resilient Students

A number of variables were found in studies on the distinguishing personal characteristics of academically resilient students. In a compilation study by Gafoor and Kottalil (2011), the personal characteristics of academically resilient students were identified and grouped under four dimensions: within-child protective factors (motivational factors, self-beliefs, cognitive factors, meta-cognitive factors, emotional relationships, social skills), within-family protective factors (parental expectations, parental involvement, total family environment), within-school protective factors (school organizational factors, school atmosphere, teacher behavior, instructional factors, peer behavior), and within-community protective factors (personnel support, community resources, cultural support).

The PISA test, performed by the OECD, offers a broad framework of the individual characteristics that improve academic resilience. When they are provided with better educational opportunities, the academic achievement levels of students from low socio-economic backgrounds increase more than those of other similar disadvantaged students. Good educational opportunities include rich teaching materials and equipment, various

extra-curricular and social activities, and attentive and supportive school administration. The teaching strategies employed by teachers (student-centered, feedback-intensive, questioning) and the time students spend at school for classes also affect learning (Agasisti & Longobardi, 2014; Agasisti & Longobardi, 2017; Agasisti et al, 2018; OECD, 2011; García- García-Crespo et al., 2019; OECD, 2018a; Sandoval-Hernandez, & Cortés, 2012). A student who is academically resilient has a strong sense of belonging to their school (Aydner & Kalender, 2015). Despite coming from low socioeconomic backgrounds, academically resilient students have better access to learning environments, computers and the Internet, other academic resources, and reading materials than other disadvantaged students (OECD, 2018a). Also, parents' education levels of academically resilient students are higher than those of other disadvantaged students (Karklina, 2012). Having received pre-school education fosters better academic achievement at later ages (Cheung et al., 2014). Academic resilience is regarded as an alterable attribute affecting students' school success rather than a fixed character trait (Waxman et al., 2003). Numerous factors have been identified in studies carried out to investigate the individual characteristics that help students achieve academic resilience. Academically resilient students have higher expectations for their study period (Cheung et al., 2014; Erberer et al., 2015; Sandoval-Hernández, & Bialowolski, 2016), allocate more time for homework (Sandoval, 2016), have better attitudes toward learning (Frempong et al., 2016; OECD, 2011), and are more self-confident García-Crespo et al., 2019; Sandoval-Hernandez, & Cortés, 2012;), self-efficacious (Cheung, 2017), motivated (Agasisti, & Longobardi, 2014; Cakir, 2011; Sandoval-Hernandez, & Cortés, 2012), and better pre-informed (Cheung, 2017).

Identifying Academically Resilient Students

A specific level of disadvantage and success must be sought in identifying academically resilient students. PISA and TIMMS tests consider economic, social, and cultural variables in determining disadvantaged groups. The PISA index of economic, social, and cultural status (ESCS) takes into account parental occupation and the highest level of parental education, as well as possessions related to family wealth and home educational resources (educational materials, number of books, cars, computers, musical instruments, etc.) (OECD, 2018b). The home educational resources (HER) index developed by TIMMS takes into account the father's and mother's highest educational levels, the number of books at home, and home possessions (Broer, Bai, & Fonseca, 2019). While students whose PISA ESCS index values are amongst the bottom 25% are considered to be disadvantaged (OECD, 2018b), TIMMS divides students according to their HER index scores into three levels: high, medium, and low, and those who are at the low level are considered to be disadvantaged. The characteristics of the group in which the study is carried out are another pivotal variable in the identification of disadvantaged students. In relevant studies, being an immigrant, minority, or disabled is regarded as a criterion to be included in the disadvantaged students' group (Anagnostaki, Pavlopoulos, Obradović, Masten, & Motti-Stefanidi, 2016; Freeman, Stoch, Chan, & Hutchinson, 2004; Perez, Espinoza, Ramos, Coronado, & Cortes, 2009).

The second criterion in determining academically resilient students is the percentile of those who will be considered successful. Students who achieve a level 3 or higher in mathematics, science, or reading are considered successful by the OECD (2018a). Agasisti et al. (2018) emphasized that for students to be successful, they must perform at level 3 or above in all three areas. In addition, values such as the top 20, 25, and 33 percent are taken as the cut-off values. In their studies on TIMSS scores, Cheung et al. (2014), Agasisti et al. (2018), Erberer et al. (2015), and Sandoval-Hernández and Bialowolski (2016) adopted a cutoff value in determining successful students.

Characteristics Taken into Consideration

Within the scope of the PISA test, many different types of data on family, school, and individual characteristics are collected. In this study, the dimension of individual characteristics was taken into consideration, and family and school dimensions were excluded. Descriptive information about the variables is as follows:

Metacognitive Knowledge: Metacognitive knowledge is a higher-order thinking process that includes active control over cognitive processes. Metacognitive knowledge helps learners to plan and allocate learning resources, monitor their current knowledge and skill levels, and evaluate their learning level during problem-solving or knowledge acquisition (OECD, 2014). In PISA 2018, three metacognitive strategies were evaluated in the reading field: summarizing and understanding a text, memorizing, and assessing the quality and credibility of sources included in the texts. While the first two strategies were evaluated in previous years, the third strategy was added in 2018 to emphasize the credibility of digital means of communication (OECD, 2018b).

Expectations for the future: The students' expectations were evaluated by their desired occupations. The more prestigious the occupations, the higher the scores they contributed. (OECD, 2018b).

Reading for enjoyment: This refers to how much the student enjoys reading (OECD, 2018b).

Attitudes towards learning at School: refers to students' attitudes towards education and training at school (OECD, 2018b).

Competitiveness: refers to the students' ability to cope with the competitive learning environment (OECD, 2018b).

Motivation to master tasks: refers to students' motivation to perform academic tasks (OECD, 2018b).

Fear of failure: refers to students' fear of academic failure. Although fear of failure motivates some students to study harder, it usually negatively affects students' academic achievement levels (Martin, 2002).

Subjective well-being: refers to an individual's overall satisfaction with their lives as well as their perception of their feelings about it (Diener & Ryan, 2009). Students with higher levels of subjective well-being may be more successful academically (Nickerson, Diener, & Schwarz, 2011)

Self-efficacy: refers to one's belief in one's own capacity to fulfill certain tasks in the face of problems (Bandura, 1987). Self-efficacy is important in developing academic resilience (Rachmawati, Setyosari, Handarini, & Hambali, 2021).

Mastery goal orientation: Refers to the aspiration and effort towards achieving learning goals, perpetuated by intrinsic motivation (Pintrich, 2000).

Sense of belonging at school: Refers to students' perceiving and experiencing respect, acceptance, and embracement. Thanks to these feelings, students feel a sense of belonging to the school (Strayhorn, 2018).

Cognitive flexibility: refers to the use of knowledge and experience to develop, adjust, and combine ways to cope with novel and different situations (Spiro, 1988).

Grade repetition: refers to whether the student has repeated a grade or not.

Method

Research Model

In this study, the relational screening model, which aims to determine the presence of two or more variables and to specify the relationships between the variables, was adopted. The relational screening model is used to identify the direction and strength of the relationship between two or more variables (Creswell & Creswell, 2017). A binary logistic regression analysis was performed on PISA data to determine academically resilient students' individual characteristics.

Participants

PISA assesses 15-year-old students who receive face-to-face education, regardless of the type of educational establishment in which they are enrolled, their socio-economic levels, and the country (PISA, 2018b). As a part of the PISA test performed by the OECD, data on students, families, teachers, school administrators, and schools is also collected. The data obtained from the PISA test, takenby selected students from each country, is used to draw up a general report, and the OECD databases are available to researchers for detailed analysis. 189 schools and 6855 students from Turkey participated in the 2018 PISA test. The academically resilient students were identified in line with the criteria set by the OECD. Accordingly, students whose economic, social, and cultural index scores are amongst the bottom 25% were selected. This group is made up of Turkish students who are classified as socio-economically and culturally disadvantaged. PISA tests evaluate students in three academic areas by means of detailed questions. Since the major domain was reading literacy in PISA 2018, the scores obtained from reading questions were taken into account in the selection of successful students in order to include the variables related to reading in the data analysis. Of the students whose ESCS scores are amongst the bottom 25%, those who performed at level 3 and above in reading proficiency were included in the study. It was accepted that 214 students (3.1%) who met both criteria were academically resilient. For comparison purposes, 214 students who are among the bottom 25% in terms of ESCS scores but performed below level 3 in reading comprehension were also included in the study. Descriptive information about the students included in the study is given in Table 1.

Table 1: Descriptive information about students included in the study

		Not Resilient		Resilient		Total	
		F	%	F	%	F	%
Gender	Boy	118	55,1	79	36,9	197	46,0
	Girl	96	44,9	135	63,1	231	54,0
School Type	General Secondary Education	96	44,9	182	85,0	274	64,9
	Vocational and Technical Secondary Education	118	55,1	32	15,0	150	35,0
Total		214	100,0	214	100,0	428	100,0

Data Collection Tools

The researchers developed measurement tools whose validity and reliability were proven and were used in collecting PISA data. The variables of grade repetition and gender are binary categorical. The number of items, the answer scale, and sample questions regarding other variables are given in Table 2. In the PISA database, standardized total scores are obtained from both the raw answers given to the scale items and the sum of the answers given to the items. In this study, these standard scores were used, and as per the PISA technical report, the scales were accepted to be valid and reliable, and no further analysis was performed on the results.

Table 2: Descriptive information about variables

Variables (PISA Codes)	Items (N)	Scale	Sample Item
Understanding and remembering (UNDREM)	6	6-point (Not useful at all- Very useful)	I quickly read through the text twice.
Summarising (METASUM)	5	6-point ert (Not useful at all- Very useful)	I try to copy out accurately as many sentences as possible.
Assessing credibility (METASPAM)	5	6-point (Not useful at all Very useful)	Check the sender's email address
Expected occupational status (BSMJ)		Open ended	What kind of job do you expect to have when you areabout 30 years old?
Joy/Like reading (JOYREAD)	5	4-point (Strongly disagree- Strongly agree)	I read only if I have to.
Attitudes towards learning activities (ATTLNACT)	3	4-point (Strongly disagree- Strongly agree)	Trying hard at school is important.
Competitiveness (COMPETE)	3	4-point (Strongly disagree- Strongly agree)	I enjoy working in situations involving competition with others.
Work mastery (WORKMAST)	4	4-point (Strongly disagree- Strongly agree)	I find satisfaction in working as hard as I can.
Fear of failure (GFOFAIL)	3	4-point (Strongly disagree- Strongly agree)	When I am failing, I worry about what others think of me.
Subjective well-being (SWBP)	9	4-point (Asla- Hep)	Happy
Self Efficacy (RESILIENCE)	5	4-point (Strongly disagree- Strongly agree)	I usually manage one way or another. 01 02
Mastery goal orientation (MASTGOAL)	3	5-point (Not at all true of me-Extremely true of me)	My goal is to learn as much as possible.
Belonging to school (BELONG)	6	4-point (Strongly agree- Strongly disagree)	I make friends easily at school.
Cognitive flexibility (COGFLEX)	6	5-point (Very much like me-Not at all like me)	I can deal with unusual situations.

Source: (OECD, 2018b)

Data Analysis

Percentage and frequency values were calculated for the descriptive characteristics of the students included in the study. A binary logistic regression analysis was performed to identify academically resilient students' individual characteristics. Binary logistic regression analysis is performed when the dependent variable is binary categorical and the independent variables are interval, ordinal, or categorical. In this study, gender and grade repetition variables were categorical, metacognitive knowledge was ordinal, and other variables were interval. The low number of assumptions in logistic regression analysis also makes it easier for researchers to perform the analysis. In logistic regression analysis, there should be no extreme data values and or multicollinearity between independent variables (Hilbe, 2009).

Results

In binary logistic regression analysis, there should be no extreme data values or multicollinearity between independent variables. Tolerance and VIF values were calculated to find out whether there was multicollinearity between the variables. To be suitable for the analysis, the tolerance value of the variables should be below 1 and the VIF value should be below 10 (Hilbe, 2009). The VIF and tolerance values were found to be below the respective cut-off values, indicating no multicollinearity between the variables. In this study, standardized residual values were calculated through casewise diagnostics to detect outliers. In this study, standardized residual values were calculated through casewise diagnostics to identify any outliers. Standardized residual values above 3 were accepted as extreme. No outliers were detected in this study. The data analysis started after the assumptions were provided.

Table 3: The result of the binary logistic regression analysis performed to determine the individual characteristics that predict academic resilience

Independent variables	B Coeff.	SE	Wald	df	Sig.	Exp(B) Odss Ratio	95% C.I.for EXP(B) Lower	Upper
Grade Repetition (Yes)	3,445	,845	16,640	1	,000	31,348	5,988	164,098
Expected Occupational Status	,029	,008	11,775	1	,001	1,029	1,012	1,046
Understanding and Remembering	,634	,175	13,087	1	,000	1,886	1,337	2,659
Summarising	,900	,180	25,091	1	,000	2,460	1,730	3,499
Assessing Credibility	,998	,157	40,262	1	,000	2,714	1,994	3,694
Joy/Like reading	,487	,187	6,782	1	,009	1,627	1,128	2,346
Attitudes Towards Learning Activities	,055	,144	,145	1	,703	1,056	,797	1,401
Competitiveness	,479	,136	12,349	1	,000	1,614	1,236	2,108
Work Mastery	-,116	,183	,406	1	,524	,890	,622	1,273
Fear of Failure	-,098	,156	,399	1	,527	,906	,668	1,230
Subjective Well-Being	-,249	,144	3,002	1	,083	,780	,588	1,033
Self Efficacy	,424	,162	6,861	1	,009	1,528	1,113	2,098
Mastery Goal Orientation	-,240	,168	2,035	1	,154	,786	,565	1,094
Cognitive Flexibility	-,190	,174	1,183	1	,277	,827	,588	1,164
Belonging to School	,209	,159	1,738	1	,187	1,233	,903	1,683
Gender (Girl)	,353	,327	1,166	1	,280	1,424	,750	2,703
Constant	-5,967	1,105	29,174	1	,000	,003		
Nagelkerke R^2=.667, Omnibus Chi-square=330,849, df=16, p=.000, Hosmer ve Lemeshow= p>.05								

This study included 16 individual characteristics evaluated within the scope of PISA as independent variables. The regression model that emerged as a result of the binary logistic regression analysis performed to determine the impact of the independent variables on the participants' academic resilience levels was found to be statistically significant (Omnibus X2 (16) = 330,849, p <.05, Hosmer and Lemeshow= p>.05). The independent variables of the study predict 67% of the variance in students' academic resilience levels. Among the independent variables, grade repetition, desired occupation, understanding, summarizing, assessing credibility, reading for enjoyment, competitiveness, and self-efficacy were significant ($p<0.05$). On the other hand, the variables of attitudes towards learning at school, motivation to master tasks, fear of failure, subjective well-being, cognitive flexibility, sense of belonging at school, mastery goal orientation, and gender were found to be insignificant ($p>0.05$). The statistically significant variables in the order of their predictive powers are grade

repetition (3.445), understanding (.998), summarizing (.900), assessing credibility (.634), reading for enjoyment (.487), competitiveness (.479), self-efficacy (.424), and desired occupation (.029). Academically resilient students are those who have not repeated a grade, have high hopes for the future, make use of metacognitive strategies, enjoy reading, enjoy competition, and have high self-efficacy (Table 3).

Findings show that grade repetition is an important determinant of academic resilience. Grade repetition is 3134 percent more common among non-academically resilient students, according to the exp(B) value. Students who do not repeat a grade have a 97% chance of being academically resilient, whereas it is only 3% for those who do.

It was observed that the use of metacognitive knowledge in reading is a significant predictor of academic resilience. The same can be held to be valid for all three sub-dimensions that constitute metacognitive knowledge. The Exp(B) value shows that the chance of being academically resilient is 65% for those with high levels of reading-remembering, 71% for those with high levels of summarizing, and 73% for those with high levels of assessing credibility.

It is seen that the self-efficacy levels of a student are an important variable in predicting academic resilience. Competitive students with high self-efficacy levels are 19% more likely to have academic resilient than non-competitive students. Students with high self-efficacy are 65% likely to have academic resilience, while those with low levels of self-efficacy are only 35% likely to be academically resilient.

Findings show that the level of competitiveness is a partially important predictor of academic resilience. The Exp(B) value demonstrates that competitive students are 15% more likely to be academically resilient. While students who avoid or do not like competition are 60% more likely to be academically resilient, those who avoid or do not like competition are only 40% likely to have academic resilience.

It is seen that the self-efficacy levels of a student are an important variable in predicting academic resilience. The Exp(B) value shows that students with high self-efficacy levels are 19% more likely to have academic resilience. Students with high self-efficacy are 65% likely to have academic resilience, while those with low levels of self-efficacy are only 35% likely to be academically resilient.

Although the desired occupation is a significant predictor, it is not found to be significantly discriminative. Exp(B) value shows that those aiming for high-level jobs are 3% more likely to have academic resilience. Those aiming for a high-level job have a 51% chance of being academically resilient, while those aiming for a low-level job have a 49% chance.

Table 4: Classification table of the binary logistic regression analysis performed to identify the individual characteristics that predict academic resilience

Observed	Predicted		Percentage Correct
	Not Resilient	Resilient	
Not Resilient	181	33	84,6
Resilient	28	184	86,8
Overall Percentage			85,7

According to the classification table, the proposed regression model correctly classified the students who were not academically resilient by 84.6% and the students who were academically resilient by 86.7%. The overall accuracy percentage of the classification is 85.7. An accuracy of over 80% in both dimensions shows that the model produced very accurate results (Table 4).

Discussion

Sixteen individual characteristics evaluated within the scope of PISA were included as independent variables in the regression model developed to identify the individual characteristics predicting academic resilience in high school students. It was concluded that eight of these variables were significant predictors and predicted 67% of the variance in academic resilience. The high predictive value manifests the strong explanatory power of the independent variables. Another indicator that the proposed model is extremely effective in predicting students' academic resilience levels is that it has a classification accuracy of over 85%. This demonstrates that the proposed model can classify students as academically resilient or academically weak based on their individual characteristics.

The predictors of academic resilience, in order of their power, are grade repetition, use of metacognitive learning strategies (understanding, summarizing, evaluating credibility), reading for enjoyment, attitude towards academic competition, self-efficacy, and the desired occupation. The strongest predictor of academic resilience is whether the student has repeated a grade or not. Not having repeated a grade in primary and/or secondary school significantly increases the possibility of being academically resilient. Grade repetition is applied to students who have academic difficulties. According to PISA data, 12% of all students who took the test and 14.5% of Turkish students who took the test stated that they repeated grade once. This rate is 20% for students who are socio-economically disadvantaged and 7% for pupils who are advantaged (OECD, 2014). Instead of making them repeat a grade, socioeconomically disadvantaged and failing pupils can be encouraged to advance in academic levels alongside their age group by engaging in extracurricular activities to address their learning disabilities. The findings of this study also show that grade repetition negatively affects academic achievement. This is shown by the fact that students who don't have to repeat a grade are more likely to be strong-willed. But it should also be taken into account that students who don't do well in school have to repeat a year.
Making use of metacognitive learning strategies is second to grade repetition in predicting academic resilience. Although metacognitive learning strategies consisting of three sub-dimensions (understanding, summarizing, and assessing credibility) differ within themselves, all three are among the top predictors of academic resilience. The use of metacognitive strategies is an important variable predicting academic success (Vrugt & Oort, 2008; Young & Fry, 2008). Disadvantaged students who employ these strategies effectively are more successful than their peers from similar backgrounds. Metacognitive strategies are used by people who are aware of how they learn and try to take control of it. These students can plan their own learning well and do it on purpose. So, they do better in school because they know how to study effectively. It can be said that teaching disadvantaged students how to use meta-cognitive strategies will help them do better in school. In their study, Rashidzade and Hashemi (2019) concluded that the use of metacognitive strategies improves academic resilience.

It was found that reading for enjoyment is another significant predictor of academic resilience. As the attitude towards reading books is a variable that predicts academic success (Bastug, 2014; Kush, Watkins & Brookhart, 2005), it is natural that it is also a predictor of academic resilience. The OECD also takes into consideration the number of books at home while identifying disadvantaged students. Although the number of books in disadvantaged students' homes is low, academically resilient students have more books in their homes than non-academically resilient students (OECD, 2018). Accordingly, it can be concluded that children who grow up in homes where they have access to books develop a positive attitude towards reading. The findings of this study are similar to those in other relevant studies in the literature. In a study carried out by García-Crespo, Galián, Fernández-Alonso and Muñiz, (2019) on PIRLS exam results, reading for enjoyment was found to be a predictor of academic resilience. In the study conducted by Kasap, Doğan and Koçak (2021), it was concluded that reading for enjoyment is one of the most important predictors of academic success.

Attitude towards academic competition is one of the important predictors of academic resilience. Students who have positive attitudes towards and do not refrain from competition and study harder in a competitive environment are more likely to be academically resilient. Although the Turkish education system draws on a student-centered teaching approach encompassing cooperative learning guided by curricula and teacher instruction (Kısa, Uysal & Kavak, 2020; MEB, 2018), the existence of high school and university entrance exams does not change the fact that there is competition among students and it impacts the educational environment. The existence of quality differences between different high schools and universities leads to students competing for a handful of educational institutions. Therefore, students who are in competition with their peers and perform better in a competitive environment can be more successful academically.

Self-efficacy, another essential predictor of academic resilience, refers to individuals' belief in t their self-fulfilling certain tasks in the face of problems (Bandura, 1987). Students with high levels of self-efficacy are also more successful academically (Caprara, Vecchione, Alessandri, Gerbino & Barbaranelli, 2011; Yusuf, 2011). Individuals with high self-efficacy try to cope with difficult situations instead of avoiding them and eliminate factors that lead to failure more easily (Bandura, 2010). Accordingly, it can be held that students with high self-efficacy are also academically resilient. A student can have high self-efficacy in a subject if he or she is sure that he or she can do well in that subject. Self-efficacy will improve when people talk about doing well in school and being successful in the world around them. On the other hand, a person's sense of self-efficacy may go down if the opposite is true (Bandura, 2010). Studies that help students from bad situations feel better about themselves might help them do as well in school as their peers from better situations. The findings of this study are parallel to those of García-Crespo, Galián, Fernández-Alonso, Muñiz, (2019) and Salvo-Garrido, Vargas, Urra, Gálvez-Nieto and Miranda-Zapata, (2019).

Among the eight variables that predict academic resilience, the desired occupation variable is the one with the lowest predictive power. Aspiration for high-level jobs increases the students' academic resilience levels. Also, there is a linear relationship between the level of realism regarding the desired profession and the level of academic resilience (Krammer, Sommer & Arendasy, 2016). Having decided on a profession to do in the future means positive expectations about the future, which, in turn, means better academic resilience (Sandoval-Hernández & Białowolski, 2016). At the elementary, middle, and high school levels, seeking a good job is within the range of a far-off goal. Because of this, there won't be much of a link between how well you do in school and what you want to do with your life. Avcı (Avcı, 2013) talks about how important it is to set smaller goals for long-term goals in order to strengthen this connection.

It has been concluded in this study that attitudes towards learning at school, motivation to master academic tasks, fear of failure, subjective well-being and cognitive flexibility levels, sense of belonging at school, mastery goal orientation, and gender are not significant predictors of academic resilience. Attitude towards learning at school refers to students' positive or negative views on academic activities at the respective educational institution. Although it has been concluded in this study that attitude towards learning at school does not predict academic resilience, this finding differs from the general consensus in the literature. Having a positive attitude towards learning at school contributes to the increase in academic success as well (Fakeye, 2010; Kpolovie, Joe, & Okoto, 2014; Moè, Pazzaglia, Tressoldi, & Toso, 2009). In addition, having a positive attitude towards learning at school is regarded as one of the individual characteristics of academically resilient students (Borman & Rachuba, 2001; Borman & Overman, 2004). The PISA test results of the 9th-grade students are actually indicators of the education they received in primary and secondary schools. Students took into account the new educational approach they encountered in their high schools while answering the questions related to attitude, which may be the reason why attitude towards learning at school was not found to be a significant predictor of academic resilience. At the same time, the fact that attitudes in the academic environment differ by course rather than in general may have contributed to this result.

When the motivation to master academic tasks is combined with academic resilience, the likelihood of high academic achievement increases (Martin, 2002). High motivation to master academic tasks impacts the level of academic resilience as well. In this study, however, a contrary finding has been obtained. In a study carried out by Gamazo and Martínez-Abad (2020) on PISA data, it was concluded that motivation to master academic tasks is a predictor of academic success.

As far as fear of failure is concerned, it is more likely that this fear will lead students to failure caused by self-doubt than to success. So, it can be held that fear of failure does not contribute to academic resilience (Martin, 2002; Martin, & Marsh, 2008). This is especially valid for students from low socio-economic backgrounds (Nsiah, 2017). It has been concluded in this study that fear of failure is not a significant predictor of academic resilience. The lack of any sanctions or negative consequences for failing the PISA exam could be the reason why there is no correlation between anxiety and academic success.

Subjective well-being refers to happiness, satisfaction with life, and the presence of positive and low negative affect (Ryan, & Deci, 2001). Differing from the findings of this study, Eva, Parameitha, Farah and Nurfitriana (2020) revealed that there is a relationship between subjective well-being and academic resilience. Also, there is a significant relationship between subjective well-being and academic achievement (Chattu et al., 2020; Tong, Li, & Shu, 2021). Success on the PISA test shows long-term academic knowledge, but subjective well-being shows what's going on right now. Because the PISA test is given in the ninth grade in Turkey, there may not be a link between the two, but the results show what the students learned in secondary school. Different levels of subjective well-being may have been caused by things like students not being able to adjust to their new school or not being able to make friends.

Sense of belonging at school refers to the students' seeing themselves as a part of their school and classroom and feeling respect, acceptance, and embracement (St-Amand, Girard, & Smith, 2017; Strayhorn, 2018). Different from the results of this study, it was found in different studies (García-Crespo, Galián, Fernández-Alonso & Muñiz, 2019, García-Crespo, Fernández-Alonso, & Muñiz, 2021) that there is a relationship between a sense of belonging at school and academic resilience. Students who exhibit a high level of affiliation with their schools are more academically resilient. It is possible that since the students included in this study are only 9th-graders, they have not yet had experiences that would make them feel like they belong to their schools, regardless of their academic achievement levels.

Cognitive flexibility refers to the use of knowledge and experience to develop, adjust, and combine ways to cope with novel and different situations. Students with improved cognitive flexibility easily adapt to new

conditions when they encounter difficulties (Spiro, 1988). In studies carried out by Canas, Fajardo and Salmeron (2006) and Yavuz and Kutlu (2016), similarly with this study, it was found that there was no difference in terms of cognitive flexibility between academically resilient and non-academically resilient students. The researchers justified this finding, which is not compatible with the consensus in the literature, with cultural differences.

Mastery goal orientation is the aspiration and effort towards achieving learning goals and is perpetuated by intrinsic motivation (Pintrich, 2000). Goal orientation affects students' learning and academic achievement (Zimmerman, & Kitsantas, 1997). There is a moderate relationship between goal orientation and academic achievement (Gul & Shehzad, 2012; Hejazi, Lavasani, Amani, & Was, 2012). No research has been found in the literature that investigates the relationship between mastery goal orientation and academic resilience.

Finally, it has been concluded that gender is not a significant predictor of academic resilience. This finding is also consistent with the findings of the study carried out by Martin and Marsh (2008). There are studies in the literature that find that females' academic resilience levels are higher (Yavuz & Kutlu, 2016). In their study carried out with students from five different Asian countries, Sandoval-Hernández and Białowolski (2016) stated that academic resilience did not vary by gender in students from four nations, with the exception of Korea, where the academic resilience levels of males were found to be higher. According to Garca-Crespo, Fernández-Alonso, and Muiz, (2021) and Agasisti et al. (2018), males have higher levels of academic resilience than females. The fact that gender is not a predictive variable for academic resilience is a very positive result for Turkish society. This result suggests that the factors that affect academic resilience positively or negatively affect boys and girls equally and that parents and teachers do not make a difference between them.

Conclusion and Recommendations

This study proposed a regression model with high explanatory and classification power that reveals the individual characteristics of academically resilient students. Grade repetition, using meta-cognitive learning strategies (understanding, summarizing, evaluating credibility), reading for enjoyment, attitude towards academic competition, self-efficacy, and the desired occupation were found to be the most powerful predictors of academic resilience among the 16 independent variables considered in the analysis. The remaining variables—including gender, a student's sense of belonging at school, their level of cognitive flexibility, their fear of failure, and their motivation to master academic tasks—were found to not be significant predictors of academic resilience.

Only the individual characteristics of the students were included in the analysis. Similar studies can be carried out with a focus on different variables related to family and school. This study was carried out with Turkish students; a comparative study can be conducted with students from different countries. The OECD (2018a) data shows that academically resilient students are approximately 50% more likely to pursue higher education than other disadvantaged students. Within the framework offered by this study, complementary activities can be carried out with students to alleviate the disadvantages of being from low socio-economic backgrounds. Terminating the application of grade repetition, which has been proven to be of no academic benefit, and closing the academic gaps through complementary activities to be carried out in the later grades will increase academic success. Also, students' skills related to the variables identified in this study, namely using metacognitive learning strategies (understanding, summarizing, and assessing credibility), reading for enjoyment, attitude towards academic competition, self-efficacy, and desired occupation, can be improved through appropriate activities. Activities oriented towards improving students' metacognitive skills are widely employed and useful practices. Deciding on an occupation to do in the future is actually about having a positive outlook toward the future. It can be said that academic resilience will increase when students are encouraged to set goals for the future and start to work towards these goals today. In improving these skills, the most important role falls to the school counselors.

Conflicts of Interest

There is no potential conflicts of interest in the study.

Ethical Approval

Ethical approval was not obtained because open access PISA data was used for the article.

References

Agasisti, T., & Longobardi, S. (2014). Inequality in education: Can Italian disadvantaged students close the gap? *Journal of Behavioral and Experimental Economics, 52*(C), 8–20. https://doi.org/10.1016/j.socec.2014.05.002.

Agasisti, T., & Longobardi, S. (2017). Equality of educational opportunities, schools' characteristics and resilient students: An empirical study of EU-15 countries using OECD-PISA 2009 data. *An International and Interdisciplinary Journal for Quality-of-Life Measurement, 134*(3), 917–953. https://doi.org/10.1007/s11205-016-1464-5.

Agasisti, T., Avvisati, F., Borgonovi, F., & Longobardi, S. (2018). *Academic resilience: What schools and countries do to help advantaged students succeed in PISA*. OECD Education Working Papers, 167. https://doi.org/10.1787/e22490ac-en.

Anagnostaki, L., Pavlopoulos, V., Obradović, J., Masten, A., & Motti-Stefanidi, F. (2016). Academic resilience of immigrant youth in Greek schools: Personal and family resources. *European Journal of Developmental Psychology*, *13*(3), 377-393. https://doi.org/10.1080/17405629.2016.1168738

Aydiner, A., & Kalender, I. (2015). Student segments based on the factors related to sense of belonging across disadvantaged and resilient groups in PISA 2012. *Procedia - Social and Behavioral Sciences, 174*, 3299–3305. https://doi.org/10.1016/j.sbspro.2015.01.997.

Bandura A. (1987) *Self Efficacy*. San Francisco, Calif: W.H. Freeman;

Bandura, A. (2010). Self-efficacy. The Corsini encyclopedia of psychology. *John Wiley & Sons, Inc. doi*, *10*(9780470479216), 1-3. https://doi.org/10.1002/9780470479216.corpsy0836

Bastug, M. (2014). The structural relationship of reading attitude, reading comprehension and academic achievement. *International Journal of Social Sciences and Education*, *4*(4), 931-946.

Borman, G. D., & Overman, L. T. (2004). Academic resilience in mathematics among poor and minority students. *The Elementary School Journal*, *104*(3), 177-195.

Borman, G. D., & Rachuba, L. T. (2001). *Academic success among poor and minority students*: An *analysis of competing models of school effects*. Retrieved from ERIC database. (ED451281) https://doi.org/10.1086/499748

Broer, M., Bai, Y., & Fonseca, F. (2019). Methodology: Constructing a Socioeconomic Index for TIMSS Trend Analyses. In *Socioeconomic Inequality and Educational Outcomes* (pp. 19-34). Springer, Cham. https://doi.org/10.1007/978-3-030-11991-1_3

Cakir, M. (2011). Enhancing mendelian genetics concepts using a guided computer-mediated inquiry. *Journal of Baltic Science Education, 10*(3).

Canas, J. J., Fajardo, I., & Salmeron, L. (2006). Cognitive flexibility. *International encyclopedia of ergonomics and human factors*, *1*, 297-301.

Caprara, G. V., Vecchione, M., Alessandri, G., Gerbino, M., & Barbaranelli, C. (2011). The contribution of personality traits and self-efficacy beliefs to academic achievement: A longitudinal study. *British Journal of Educational Psychology*, *81*(1), 78-96. https://doi.org/10.1348/2044-8279.002004

Cassidy, S. (2016). The Academic Resilience Scale (ARS-30): A new multidimensional construct measure. *Frontiers in psychology*, *7*, 1787. https://doi.org/10.3389/fpsyg.2016.01787

Chattu, V. K., Sahu, P. K., Seedial, N., Seecharan, G., Seepersad, A., Seunarine, M., ... & Singh, A. (2020). Subjective well-being and its relation to academic performance among students in medicine, dentistry, and other health professions. *Education Sciences*, *10*(9), 224. https://doi.org/10.3390/educsci10090224

Cheung, K. C. (2017). The effects of resilience in learning variables on mathematical literacy performance: A study of learning characteristics of the academic resilient and advantaged low achievers in Shanghai, Singapore, Hong Kong, Taiwan and Korea. *Educational Psychology, 37*(8), 965–982. https://doi.org/10.1080/01443410.2016.1194372.

Cheung, K. C., Sit, P. S., Soh, K. C., Ieong, M. K., & Mak, S. K. (2014). Predicting academic resilience with Reading engagement and demographic variables: Comparing Shanghai, Hong Kong, Korea, and Singapore from the PISA perspective. *The Asia-Pacific Education Researcher, 23*(4), 895–909. https://doi.org/10.1007/s40299-013-0143-4.

Chung, H. F. (2008). *Resiliency and character strengths among college students.* [Doctoral dissertation]. The University of Arizona, Tucson.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage.

Diener, E., & Ryan, K. (2009). Subjective well-being: A general overview. *South African journal of psychology*, *39*(4), 391-406. https://doi.org/10.1177/008124630903900402

Erberer, E., Stephens, M., Mamedova, S., Ferguson, S., & Kroeger, T. (2015*). Socioeconomically disadvantaged students who are academically successful: Examining academic resilience cross-*

nationally. IEA Policy Brief series, 5. Retrieved from http://pub.iea.nl/fileadmin/user_upload/Policy_Briefs/IEA_Policy_Brief_Dec2013.pdf

Eva, N., Parameitha, D. D., Farah, F. A. M., & Nurfitriana, F. (2020). Academic resilience and subjective well-being amongst college students using online learning during the COVID-19 pandemic. *KnE Social Sciences*, 202-214. https://doi.org/10.18502/kss.v4i15.8206

Fakeye, D. O. (2010). Students' personal variables as correlates of academic achievement in English as a second language in Nigeria. *Journal of Social Science, 22*(3): 205-211. https://doi.org/10.1080/09718923.2010.11892803

Fletcher, D., & Sarkar, M. (2013). Psychological resilience. *European Psychologist*. https://doi.org/10.1027/1016-9040/a000124

Freeman, J. G., Stoch, S. A., Chan, J. S., & Hutchinson, N. L. (2004). Academic resilience: A retrospective study of adults with learning difficulties. *Alberta Journal of Educational Research*, *50*(1).

Frempong, G., Visser, M., Feza, N., Winnaar, L., & Nuamah, S. (2016). Resilient learners in schools serving poor communities. *Electronic Journal of Research in Educational Psychology, 14*(2), 352-367. https://doi. org/10.14204/ejrep.39.15038.

Gafoor, K. A., & Kottalil, N. K. (2011). Within child factors fostering academic resilience: A research review. *Online Submission*, *2*(2), 104-117.

Gamazo, A., & Martínez-Abad, F. (2020). An exploration of factors linked to academic performance in PISA 2018 through data mining techniques. *Frontiers in Psychology*, *11*, 3365. https://doi.org/10.3389/fpsyg.2020.575167

García-Crespo, F. J., Fernández-Alonso, R., & Muñiz, J. (2021). Academic resilience in European countries: The role of teachers, families, and student profiles. *Plos one*, *16*(7), e0253409. https://doi.org/10.1371/journal.pone.0253409

García-Crespo, F. J., Galián, B., Fernández-Alonso, R., & Muñiz, J. (2019). Educational resilience in reading comprehension: Determinant factors in PIRLS-Europe, Resiliencia Educativa en Comprensión Lectora: Factores determinantes en PIRLS-Europa. *Revista de Educacion, 2019*(384), 71–96. https://doi.org/10.4438/1988-592X-RE-2019-384-41

Grant, L., & Kinman, G. (2014). Emotional resilience in the helping professions and how it can be enhanced. *Health and Social Care Education*, *3*(1), 23-34. https://doi.org/10.11120/hsce.2014.00040

Gul, F., & Shehzad, S. (2012). Relationship between metacognition, goal orientation and academic achievement. *Procedia-Social and Behavioral Sciences*, *47*, 1864-1868. https://doi.org/10.1016/j.sbspro.2012.06.914

Hejazi, E., Lavasani, M. G., Amani, H., & Was, C. A. (2012). Academic ıdentity status, goal orientation, and academic achievement among high school students. *Journal of Research in Education*, *22*(1), 291-320.

Hilbe, J. M. (2009). *Logistic regression models*. Chapman and hall/CRC. https://doi.org/10.1201/9781420075779

Jacob, W. J., & Holsinger, D. B. (2008). Inequality in education: A critical analysis. In *Inequality in education* (pp. 1-33). Springer, Dordrecht. In DB Holsinger & WJ Jacob (eds). *Inequality in Education: Comparative and International Perspectives*. Hong Kong: Comparative Education Research Centre, The University of Hong Kong.

Karklina, I. (2012). *Family and children educational outcomes: social resilience within economically deprived families in Latvia*. Paper presented at the rural environment. Education. Personality. (REEP). Proceedings of the international scientific conference Latvia.

Kasap, Y., Doğan, N., & Koçak, C. (2021) PISA 2018'de okuduğunu anlama başarısını yordayan değişkenlerin veri madenciliği ile belirlenmesi. *Manisa Celal Bayar Üniversitesi Sosyal Bilimler Dergisi*, *19*(4), 241-258. https://doi.org/10.18026/cbayarsos.959609

Kpolovie, P. J., Joe, A. I., & Okoto, T. (2014). Academic achievement prediction: Role of interest in learning and attitude towards school. *International Journal of Humanities Social Sciences and Education (IJHSSE)*, *1*(11), 73-100.

Krammer, G., Sommer, M., & Arendasy, M. E. (2016). Realistic job expectations predict academic achievement. *Learning and Individual Differences*, *51*, 341-348. https://doi.org/10.1016/j.lindif.2016.09.010

Kush, J. C., Watkins, M. W., & Brookhart, S. M. (2005). The temporal-interactive influence of reading achievement and reading attitude. *Educational Research and Evaluation*, *11*(1), 29-44. https://doi.org/10.1080/13803610500110141

Lutha, S. S., & Cicchetti, D. (2000). The construct of resilience: implications for interventions and social policies. *Development and Psychopathology*, *12*(4), 857–885. https://doi.org/10.1017/s0954579400004156

Martin, A. (2002). Motivation and academic resilience: Developing a model for student enhancement. *Australian Journal of Education*, *46*(1), 34-49. https://doi.org/10.1177/000494410204600104

Martin, A. J. (2013). Academic buoyancy and academic resilience: Exploring 'everyday'and 'classic'resilience in the face of academic adversity. *School Psychology International*, *34*(5), 488-500. https://doi.org/10.1177/0143034312472759

Martin, A. J., & Marsh, H. W. (2006). Academic resilience and its psychological and educational correlates: A construct validity approach. *Psychology in the Schools*, *43*(3), 267-281. https://doi.org/10.1002/pits.20149

Martin, A. J., & Marsh, H. W. (2008). Academic buoyancy: Towards an understanding of students' everyday academic resilience. *Journal of School Psychology*, *46*(1), 53-83. https://doi.org/10.1016/j.jsp.2007.01.002

MEB, (2018). *Social studies course curriculum.* Retrived from https://mufredat.meb.gov.tr/ProgramDetay.aspx?PID=354

Moè, A., Pazzaglia, F., Tressoldi, P., & Toso, C. (2009). Attitude towards school, motivation, emotions and academic achievement. *Educational Psychology: Cognition and Learning, İndividual Differences and Motivation*, 259-273.

Morsunbul, Ü., & Yazar, B. (2021). The relationship of academic resilience with dimensions of ıdentity and school attachment: a study on middle school students. *Başkent University Journal of Education*, *8*(1), 1-10.

Nickerson, C., Diener, E. D., & Schwarz, N. (2011). Positive affect and college success. *Journal of Happiness Studies*, *12*(4), 717-746. https://doi.org/10.1007/s10902-010-9224-8

Niemi, H. (2021). Equity and quality as aims of education: Teachers' role in educational ecosystems. In *Good teachers for tomorrow's schools* (pp. 19-36). Brill. https://doi.org/10.1163/9789004465008_002

Nsiah, H. (2017). Fear of failure and the academic performance of students from low-income families. *International Journal of Education and Social Science*, *4*(10), 19-26.

Kısa, N., Uysal, F., & Kavak, Y. (2020). Student-centered learning dimension of the bologna process: ıts reflections in education faculty curricula. *Journal of Higher Education 10*(1), 85-95. https://doi.org/10.2399/yod.19.014

OECD (2014). What is metacognition? in *Critical Maths for Innovative Societies: The Role of Metacognitive Pedagogies*. OECD Publishing. https://doi.org/10.1787/9789264223561-6-en.

OECD, (2014). *Are disadvantaged students more likelyto repeat grades?* Retrieved from https://www.oecd.org/pisa/pisaproducts/pisainfocus/pisa-in-focus-n43-(eng)-final.pdf

OECD, (2018b). *PISA 2018 technical report*. Retrieved from https://www.oecd.org/pisa/data/pisa2018technicalreport/

OECD. (2005). *PISA 2003: Technical report*. Retrieved http://www.pisa.oecd.org/dataoecd/49/60/35188570.pdf,

OECD. (2010). *PISA 2009 results: Overcoming social background equity in learning opportunities andoutcomes (volume II).* OECD Publishing.

OECD. (2011). *Against the odds: Disadvantaged students who succeed in school*. OECD Publishing.

OECD. (2017). *PISA 2015 technical report*. Retrieved from https://www.oecd.org/pisa/sitedocument/PISA-2015-technical-report-final.pdf.

OECD. (2018a). *Equity in education: Breaking down barriers to social mobility*. OECD Publishing. https://doi.org/10.1787/9789264073234-en

Perez, W., Espinoza, R., Ramos, K., Coronado, H. M., & Cortes, R. (2009). Academic resilience among undocumented Latino students. *Hispanic Journal of Behavioral Sciences*, *31*(2), 149-181. https://doi.org/10.1177/0739986309333020

Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. In *Handbook of self-regulation* (pp. 451-502). Academic Press. https://doi.org/10.1016/B978-012109890-2/50043-3

Rachmawati, I., Setyosari, P., Handarini, D. M., & Hambali, I. M. (2021). Do social support and self-efficacy correlate with academic resilience among adolescence?. *International Journal of Learning and Change*, *13*(1), 49-62. https://doi.org/10.1504/IJLC.2021.111664

Rashidzade, A., & Hashemi, T. (2019). Interactive effectiveness of training selfregulated-metacognitive strategies and academic self-concept on academic resilience and positive emotions. *Social Cognition*, *8*(1), 141-164.

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, *52*(1), 141-166. https://doi.org/10.1146/annurev.psych.52.1.141

Salvo-Garrido, S., Vargas, H. M., Urra, O. V., Gálvez-Nieto, J. L., & Miranda-Zapata, E. (2019). *Students with socioeconomic disadvantages who have academic success in language: Examining academic resilience in South America*. https://doi.org/10.20944/preprints201912.0043.v1

Sandoval-Hernández, A., & Bialowolski, P. (2016). Factors and conditions promoting academic resilience: A TIMSS-based analysis of five Asian education systems. *Asia Pacific Education Review, 17*(3), 511–520. https://doi.org/10.1007/s12564-016-9447-4.

Sandoval-Hernandez, A., & Cortés, D. (2012). *Factors and conditions that promote academic resilience: A cross-country perspective.* In Paper presented at the international congress for school effectiveness improvement (ICSEI). Sweden.

Schoon, I. (2006). *Risk and resilience: adaptations in changing times.* Cambridge University Press. https://doi.org/10.1017/CBO9780511490132

Spiro, R. J. (1988). Cognitive flexibility theory: Advanced knowledge acquisition in ill-structured domains. *Center for the Study of Reading Technical Report; no. 441*.

St-Amand, J., Girard, S., & Smith, J. (2017). Sense of belonging at school: Defining attributes, determinants, and sustaining strategies. *IAFOR Journal of Education, 5*(2), 105–119. https://doi.org/10.22492/ije.5.2.05

Strayhorn, T. L. (2018). *College students' sense of belonging: A key to educational success for all students*. Routledge. https://doi.org/10.4324/9781315297293

Tong, Y., Li, J. X., & Shu, B. (2021). Is children's academic performance valuable to parents? Linking children's effort vs. results and fathers' vs. mothers' subjective well-being. *Child Indicators Research*, *14*(2), 583-605. https://doi.org/10.1007/s12187-020-09763-3

UNESCO. (2018). *One in every five children, adolescents and youth is out of school worldwide*. UNESCO Institute for Statistics. Retrieved from http://uis.unesco.org/sites/default/files/documents/fs48-one-five-children-adolescents-youth-out-school-2018-en.pdf

Vrugt, A., & Oort, F. J. (2008). Metacognition, achievement goals, study strategies and academic achievement: pathways to achievement. *Metacognition and learning*, *3*(2), 123-146. https://doi.org/10.1007/s11409-008-9022-4

Wang, M., Haertel, G., & Walberg, H. (1994). Qu'est-ce qui aide l'élève à apprendre? *Vie Pédagogique, 90*, 45-49.

Waxman, H. C., Gray, J. P., & Padron, Y. N. (2003). *Review of research on educational resilience. Research Report.* Washington Institute of Education Sciences.

Whitson, H. E., Duan-Porter, W., Schmader, K. E., Morey, M. C., Cohen, H. J., & Colón-Emeric, C. S. (2016). Physical resilience in older adults: systematic review and development of an emerging construct. *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences*, *71*(4), 489-495. https://doi.org/10.1093/gerona/glv202

World Bank. (2018). *World development report 2018: Learning to realize education's promise*. Retrived from https://www.worldbank.org/en/publication/wdr2018 https://doi.org/10.1596/978-1-4648-1096-1

Yavuz, H. Ç. (2015). *Investıgatıon of the factors affectıng economıcally dısadvanteged senıor hıgh schoool students' academıc resılıence* [Master's thesis]. Ankara University.

Yavuz, H., & Kutlu, Ö. (2016). Investigation of the factors affecting the academic resilience of economically disadvantaged high school students. *Education and Science*, *41*(186). https://doi.org/10.15390/EB.2016.5497

Young, A., & Fry, J. D. (2008). Metacognitive awareness and academic achievement in college students. *Journal of the Scholarship of Teaching and Learning*, *8*(2), 1-10.

Yusuf, M. (2011). The impact of self-efficacy, achievement motivation, and self-regulated learning strategies on students' academic achievement. *Procedia-Social and Behavioral Sciences*, *15*, 2623-2626. https://doi.org/10.1016/j.sbspro.2011.04.158

Yüce, A. (2019). *Perceıved socıal support and self efficacy as predıctors of academıc resılıence ın adolescence* . [Master's thesis]. Akdeniz University, Antalya.

Zimmerman, B. J., & Kitsantas, A. (1997). Developmental phases in self-regulation: Shifting from process goals to outcome goals. *Journal of Educational Psychology*, *89*(1), 29. https://doi.org/10.1037/0022-0663.89.1.29