Mindset and Resilience: A Correlational Study in Senior High School 12th Grade Students

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Article Info

Abstract

Background: Senior high school students in the last academic year face increasingly high academic and social pressures. This increasing adversity level must be followed by high adaptation competence called resilience. Mindset influences students' responses and ways of facing adversities. **Objective:** Examine the correlation between mindset and resilience in 12th grade students in SMAN 5 Surakarta. **Method:** 196 students from 12th grade in SMAN 5 Surakarta obtained through simple random sampling in October 2023. Out of the total data from 196 students, only 190 students met the criteria to continue (Male=41.05% and Female=58.95%; Age range=16-19; M_{age}=17.19). The psychological scales used were the Resilience Scale (r=0.902) and the Mindset Scale (r=0.801). **Results:** The finding of Pearson's correlation showed that mindset and resilience have a significant positive relationship (r=0.372; $p<0.05$). The relationship that occurs is relatively low and mindset determines resilience by 13.8% (r^2=0.138). The findings also revealed that male students have higher resilience ($M_{difference}$= 3.478; $p<0.05$). **Conclusion:** The results of this study imply that the more students have a growth mindset, the higher their resilience.

Keywords: Mindset, resilience, high school student

Abstrak

Latar Belakang: Siswa yang berada dalam tahun terakhir di SMA menghadapi tuntutan akademik dan sosial yang semakin tinggi. Tantangan yang semakin meningkat ini harus diikuti oleh kompetensi adaptasi yang tinggi atau disebut resiliensi. *Mindset* mampu memengaruhi respons dan cara siswa dalam menghadapi tantangan ataupun kesulitan. **Tujuan:** Mengetahui hubungan antara *mindset* dengan resiliensi pada siswa kelas XII SMAN 5 Surakarta. **Metode:** 196 siswa kelas XII SMAN 5 Surakarta diperoleh melalui *simple random sampling* pada Oktober 2023. Dari 196 data terkumpul, hanya 190 data yang bisa dilanjutkan untuk dianalisis (Laki-laki=41.05% and Perempuan=58.95%; Usia =16-19; M_{usia}=17.19). Resiliensi diukur menggunakan Skala Resiliensi (r=0.902) dan *mindset* diukur dengan Skala *Mindset* (r=0.801). **Hasil:** Berdasarkan uji korelasi *product moment Pearson*, dibuktikan bahwa *mindset* dan resiliensi memiliki hubungan positif yang signifikan (r=0.372; $p<0.05$). Hubungan yang terjadi tergolong rendah dan *mindset* menentukan resiliensi sebesar 13.8% (r^2=0.138). Hasil penelitian juga menemukan bahwa siswa laki-laki memiliki resiliensi yang lebih tinggi daripada siswa perempuan ($M_{difference}$= 3.478; $p<0.05$). **Kesimpulan:** Hasil penelitian menunjukkan bahwa semakin siswa memiliki *growth mindset*, semakin tinggi resiliensi siswa.

Keywords: Pola pikir, resiliensi, siswa SMA

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The final year of senior high school could bring lots of pressure for students. Students in the 12th grade senior high school face developmental tasks as adolescents and high academic demands as students. As adolescents, students grab the tasks for developing cognitive skills, also finding self-identity (Kayyis, 2019; Hidayah, 2016). The self-identity crisis drives adolescents to build a strong understanding of physical and psychological characteristics, maintain interactions with the environment, and determine future and social roles in society (Hidayah, 2016). The pressure of these developmental tasks also manifested in the increasing academic loads. In the final year of senior high school, students have focused on preparing for various exams and university entrance tests. Therefore, students tend to get dense learning schedules and materials (Deantri & Sawitri, 2020). At the same time, the crisis of deciding future choices, especially related to study and career plans, haunts the students. These conditions become stressors that could bring up negative emotional experiences for students (Deantri & Sawitri, 2020; Nečasová, 2021).

Regarding facing stressful situations, every individual, in this case the student of 12th grade, needs to have the resilience to be able to adapt positively (Hendriani, 2018). In the 21st century, resilience is seen as a fundamental competence for most all ages to face life's adversities, including for adolescents (Olson & DeFrain, 2003 in Hendriani, 2018). Resilience is viewed as an individual's personal qualities to face adversities (Connor & Davidson, 2003). Resilience consists of two concepts, called adversity and positive adaptation. This adversity comes from the daily tasks until phenomenal or traumatizing events in life. Then, those adversities must be followed by appropriate positive adaptation (Fletcher and Sarkar, 2013).

For adolescents, resilience is needed for dealing with crises and physical or emotional changes that occur (Ayse & Kogar, 2021). The age range of 12th grade students falls within 17-18 years old which is categorized as a middle adolescent stage (Kayyis, 2019). With resilience, students will interpret difficult situations as challenges, rather than threats (Fuster, 2014). Previous studies found that resilience contributes to increasing problem-solving skills in the Czech Republic's students (Nečasová, 2021), reducing academic stress, psychological distress, and suicidal ideation, also withstand the effects of stress on students' depressive symptoms in Indonesia (Azzahra, 2017; Rahayu & Djabbar, 2019; Shintia & Maharani, 2021; Priambudi, 2022). The presence of resilience among 12th grade students will help students find an effective coping strategy to bounce back from adversity, and even gain achievements.

However, according to the field data, the individual resilience index of Indonesian people is still in the average category (*World Risk Poll,* 2021). The resilience of senior high school students in Indonesia also still spread in the low, average, and high categories, even found predominantly low (77.6%) in senior high school students in Jakarta (Shintia & Maharani, 2021; Adiyanto & Nusantoro, 2021; Priambudi, 2022). Based on a preliminary study conducted by a researcher on students in 12th grade at State Senior High Schol 5 Surakarta (SMAN 5 Surakarta), several students could not entertain themselves when it comes to problems and negative emotions. The majority of students also still lack self-control, indicated by the inability to think clearly and stay focused under pressure. Therefore, the resilience of those students needs to be improved by examining the factors contributed.

Resilience is a dynamic process involving individual, social, and environmental factors (Rutter, 1985; Hendriani, 2018). One of the individual factors that determine resilience is an individual's belief to be able to face pressure and adversity (Rutter, 1985). The process of interpreting this adversity and pressure is formed from the capacity to process experience, put meaning, and incorporate it into a belief system. This belief system then manifested as a mindset (Rutter, 1985; Dweck, 2019). According to Dweck (2019), mindset is a belief in the malleability of personal qualities. Mindset includes attitudes, values, basic beliefs, and the way of self-perception (Mudzakkir, 2020). A person's cognitive beliefs and judgments can elicit different responses to the same situation and greatly influence the way directs life (Rutter, 1985; Dweck, 2019). In difficult situations, individual *mindset* affects individual resilience (Edwina &; Sembiring, 2021).

Mindset is found to be on a continuum from a fixed mindset to a growth mindset (Dweck, 2015; Dweck, 2019; Edwina & Sembiring, 2021). According to the Mindset's theory of Dweck (2019), person who

believes personal characteristics are permanent or cannot be changed is called a fixed mindset. At the other end of the continuum, a belief that personal characteristics could be improved through certain determination and effort, called a growth mindset. The difference between a fixed mindset and a growth mindset affects an individual's response to facing adversity.

A growth mindset encourages individuals to work harder and smarter when it comes to difficulties or setbacks (Dweck, 2019). A challenge is accepted and viewed as a process to improve capacity. These mastery-oriented strategies could increase resilience (Yeager & Dweck, 2012; Dweck, 2019). On the other hand, a fixed mindset causes individuals to be more vulnerable and brings out feelings of being trapped and giving up in response to setbacks. As a result, individuals tend to label themselves as losers or show a helpless orientation (Bernecker & Job 2019; Dweck, 2019).

The correlation between mindset and resilience was found in a study by Yeager dan Dweck (2012), which showed that a student's mindset is related to the potential development of personal characteristics promoting resilience when facing social and academic adversities. Maltby et al. (2016) also found that mindset can be a resilience strategy to deal with online trolls, someone who intentionally uploads offensive posts. Mindset was proven to have a negative correlation with depression and suicidal ideation that is related to resilience (Clark, 2018). When individuals adopt a growth mindset, individuals will tend to apply adaptive coping to promote resilience and psychological well-being (Gunnarsdóttir, 2021; Janssen & Atteveldt, 2023).

Nevertheless, those previous studies still have several limitations. The correlation between mindset and resilience is still found mediated by another factor (Janssen & Atteveldt, 2023). Mindset was also proven to contribute and correlate with academic and family resilience, not with individual resilience (Edwina & Sembiring, 2021; Sari, 2022; Janssen & Atteveldt, 2023). In contrast, the study by Lumbantobing (2021) found there is no significant association between mindset and academic resilience. This finding shows the inconsistency that needs to be re-examined. Many studies also were conducted on subjects over 18 years old or not by the background of 12th grade students. Therefore, this research becomes a novelty in research with the objective is examining the correlation between mindset and resilience in 12th grade students of SMAN 5 Surakarta. Incorporating the phenomena background, literature, and previous studies, it hypothesized that there is an association between mindset and resilience in 12th grade students of SMAN 5 Surakarta.

Method

This study used a correlational quantitative design that aims to examine the relationship between two variables, mindset (predictor variable) and resilience (criterium variable). This quantitative study is a non-experiment because there are not controls on each variable and the subject/sample.

Sample or Population

The population of this study is totaling 355 students from 12th grade SMA Negeri 5 Surakarta for the 2023/2024 academic year. The sample was obtaining through a simple random sampling, means gives equal probability and chances for all 12th grade on SMA Negeri 5 Surakarta. On October 2023, 196 students were fulfilled the scale (online form). However, after checking and cleaning the data, 6 data were eliminated because detected as outliers. Therefore, there are only 190 data to continue processing.

Data Collection

Data was collected by using two psychological scales through the online form. The first scale is the Resilience Scale, used to measure the student's resilience. This Resilience Scale is adapted from Arum (2023) which is a back-to-back translation of CD-RISC 25 (Connor & Davidson, 2003). After validity and reliability scale tests, this scale consists of 23 favorable items with a reliability value of 0.902. Five answer choices that refer to the Likert scale on each item, namely 1 (Very Appropriate), 2 (Appropriate), 3 (Neutral), 4 (Inappropriate), and 5 (Strongly Inappropriate). A higher total score indicates higher resilience. The score of resilience is categorized as low, average, and high, by using the mean values and standard deviations from hypothetic data (M=69; SD=15).

The second psychological scale is the Mindset Scale. The Mindset Scale is used to explore the student's mindset which is arranged by Edwina & Sembiring (2021), based on Dweck's Mindset Theory (2019). After validity and reliability scale tests, this scale consists of 17 items with a reliability value of 0.801. The total score is summed based on the answer choices of each item consisting of 1 (Very Inappropriate), 2 (Inappropriate), 3 (Less Appropriate), 4 (Quite Appropriate), 5 (Appropriate), and 6 (Very Appropriate). In *unfavorable* items, summing is done by reversing the score. The total score of mindset is then categorized based on Anderson (2019) who states that an individual's mindset is on a continuum including, fixed mindset, low growth mindset, mixed mindset, growth mindset, and high growth mindset. The categorization is calculated by using mean values and standard deviations from hypothetic data (MD= 59.5; SD=14).

Data Analysis

The data obtained in this research will be analyzed by using Pearson's product-moment correlation to prove the correlation between mindset and resilience. The coefficient correlation ranged between 0.00–1.00 with marked negative or positive, defining the direction and strength of the relationship that occurs. Before hypothesis testing, a basic assumption test is carried out in the form of normality and linearity tests. The normality test through one sample Kolmogorov-Smirnov aims to see the normality of data distribution ($p>0.05$). Furthermore, the linearity test is conducted to examine the linear relationship between variables uji ($p<0.05$ in linearity and $p>0.05$ in Deviation from Linearity). To see the distribution of data, descriptive statistics and categorization are conducted. Independent sample t-tests are also used to examine the difference of each variable, based on gender (female or male) and group major study (social or science studies). The data analysis is performed with the help of IBM SPSS version 25.

Result

From the 190 data of 12th grade students at SMAN 5 Surakarta in this study, the sample spread of 78 male students (41.05%) and 112 female students (58.95%). Based on the major, there were 90 students from the social studies class group (47.37%) and 100 students from the science studies class group (52.63%). The age of students ranges from 16–19 years old with the average age being 17.19 years old.

The data met all assumption tests so that hypothesis tests can be carried out through Pearson's product-moment correlation. Here is the correlation matrix obtained.

Table 1. Correlation Matrix between Variables

Variable	*Mindset*	Resilience
Mindset	1	0.372*
Resilience	0.372*	1

*) Significant ($p<0.05$)

Based on Table 1, mindset and resilience have a correlation coefficient of 0.372 with a significance of 0.000 ($p<0.05$). Thus, the research hypothesis is proven, that is, there is a significant association between mindset and resilience. The association between mindset and resilience is positive, meaning that every increase in mindset score will be followed by an increase in resilience score, and vice versa. However, the coefficient correlation between the two variables ($r=0.372$) falls within the range of 0.20-0.399, so the relationship that occurs is relatively low (Sugiyono, 2022).

Furthermore, a researcher categorized each variable to see the distribution of students' mindset and resilience. The mindset categorization is shown in the table below.

Table 2. Mindset Categorization

Category	Score Range	Sum	Percentage
Fixed	X≤31.5	0	0%
Low Growth	31.5<X≤52.5	1	0.53%
Mixed	52.5<X≤66.5	29	15.26%
Growth	66.5<X≤80.5	**87**	**45.79%**
High Growth	X>80.5	73	38.42%

Based on Table 2, it was found that there were 73 students (38.42%) who had a high growth mindset, 87 students (45.79%) who had a growth mindset, 29 students (15.26%) who had a mixed mindset, and only 1 student (0.53%) with a low growth mindset. The results show that none of the students have a fixed mindset. To sum up, students predominantly have a growth mindset.

Then, the results of resilience categorization are shown in the table below.

Table 3. Resilience Categorization

Category	Score Range	Sum	Percentage
Low	X<54	0	0%
Average	54<X<84	52	27.37%
High	X≥84	**138**	**72.63%**

Based on Table 3, it was found that there were 138 students (72.63%) who had a high resilience and 52 students (27.37%) with an average resilience. None of the students had low resilience, means that most of the students have high resilience.

The additional analysis using an Independent Sample t-test was conducted to see whether there was a significant difference within each variable, based on gender and the major group study. The gender group consists of male and female students. Thus, the major group study consists of social and science studies.

Table 4. Summary of Independent Sample t-test

Variable	Group	Independent Sample t-test		
		t	Sig.	Mean Difference
Mindset	Gender	-1.327	0.186 (>0.05)	-1.807
Mindset	Major group study	-1.764	0.079 (>0.05)	-2.359
Resilience	Gender	2.235	**0. 027 (<0.05)**	**3.478**
Resilience	Major group study	-1.053	0.294 (>0.05)	-1.631

Based on the descriptive statistics, on mindset variable, the means of female students were higher than male students (M_{male}=75.49; M_{female}=77.29), and the means of science students were higher than social students ($M_{Science}$=77.67; M_{Social}=75.31). On the resilience variable, found that male students have a higher resilience score means than female students (M_{male}=91.40; M_{female}=87.92), and resilience score means for science students were higher than social students ($M_{Science}$=90.12; M_{Social}=88.49). However, according to table 4, the mean difference between each group was only found significant in the resilience based on gender ($p<0.05$). Male students have shown higher resilience than female students with a mean difference amount of 3.478.

Discussion

The results of this study succeeded in proving the research hypothesis, there is a significant association between mindset and resilience. The association is positive, interpreted that the increase in mindset score is in line with the increase in resilience score. Conversely, if the mindset score decreases, the resilience score also

will decrease. (insert opinion) … The association that occurs between mindset and resilience aligns with Yeager & Dweck (2012), stated that a mindset in the form of a growth mindset increases resilience. Based on the acquisition of the coefficient of determination, the mindset was found to determine resilience by 13.8%.

Mindset influences an individual's belief in capacities and competencies individual. In students, belief about the competencies that could be developed drives students to view academic tasks as beneficial activities for learning (Paunesku et al., 2015 in Munika et al., 2022). A growth mindset gives students the courage to achieve goals and adopt constructive ways to achieve them. A mindset in the form of a growth mindset also makes students focus on maintaining existing plans. The implication is when experiencing setbacks, rather than feeling like a failure or loser, individuals will view it as a learning process (Dweck, 2019). In this case, a growth mindset encourages better problem-solving skills (Munika et al., 2022).

In terms of interpreting effort, individuals with a fixed mindset believe that effort shows one's inability (Dweck, 2019). This belief causes frustration when the individual needs to more effort or experiences difficulties. On the other hand, individuals with a growth mindset believe that effort is needed to achieve something so when faced with adversities, individuals will be more motivated to try (Dweck, 2019). Blackwell et al. (2007) found that when growth mindset students experience challenges, these students continue to make efforts until they obtain higher grades than other students. Thus, it can be said that mindset is related to resilience. The higher the individual's growth mindset, the higher the individual's resilience.

The findings support previous studies that found growth mindset plays a role in increasing resilience (Zarrinabadi et al., 2022; Sari, 2022; Boullion et al., 2021). Growth mindset contributes to psychological adjustment in the form of better resilience (Boullion et al., 2021). In second language learners, a growth mindset leads to an understanding that challenges need to be faced to achieve success, as well as encouraging emotional balance in stressful situations (Zarrinabadi et al., 2022). For students who are trapped in the COVID-19 Pandemic situation, mindset also affects student academic resilience (Sari, 2022).

However, in this study, the correlation found between mindset and resilience was low. The low of correlation could be explained by

This can happen because mindset is an individual's belief related to one's capacity to change. These beliefs play an important role in shaping an individual's way of thinking, but not an action or behavior.

Based on the coefficient of determination, it is also shown that resilience is still determined by other factors outside the mindset, amounting to 86.2%. This can happen because mindset is an individual's belief related to one's capacity to change. These beliefs play an important role in shaping an individual's way of thinking, but not an action or behavior. Meanwhile, someone still needs to bring up real efforts or actions to be able to bounce back from difficulties (Hendriani, 2018; Anderson, 2019).

Furthermore, based on the findings of categorization, the mindset most possessed by 12th grade students of SMAN 5 Surakarta is a growth mindset, which is 87 students (45.79%). On the other hand, none of the students with a fixed mindset. These results show that the dominance of students' mindset is in the growth mindset, so it must be maintained and kept developed. Furthermore, in the results of the resilience categorization, most students had high resilience, which was 138 students (72.63%), and no students were found to have low resilience. Thus, most of the 12th grade students at SMAN 5 Surakarta already have high resilience and it must be maintained.

This study also explored the difference in mindset and resilience in terms of gender and major. Based on the results of the two-mean difference test, there was no significant difference in mindset in terms of gender, and either mindset or resilience in terms of major. Significant differences are only found in resilience in terms of gender. Students with higher resilience were found in male students (M_{male}=91.40; M_{female}=87.92; $p < 0.05$). These results follow research by Dedo (2020) and a meta-analysis by Kogar & Uslu (2021) which showed that male resilience is higher than females. When faced with crises and pressures, men tend to use cognitive

judgments, have more confidence in their abilities and problem-solving, and avoid affective aspects than women Dedo (2020).

This research can enrich references on the association between mindset and resilience. Despite this, the study still has limitations. First, a researcher only examined mindset as a factor related to resilience. However, the findings show that there are still other factors that have the potential to determine resilience. Second, most of the scale filling is done online so monitoring cannot run optimally. Third, this correlation test has not explored in depth between aspects of mindset and aspects of resilience. In addition, mindset and resilience are also measured in general, not in specific fields.

Conclusion

The study has proven that mindset and resilience have a positive significant correlation, involving samples of 12th grade at SMAN 5 Surakarta. The more students have a growth mindset, the higher resilience occurs. Conversely, a fixed mindset is in line with a low resilience. However, the correlation between these variables is in the low category and mindset only determines resilience at 13.8%. To sum up, mindset is a factor that is related to resilience, but there are still other factors to determine resilience. Therefore, students should adopt the growth mindset, both in school and daily. The belief is that view challenges are growth opportunities, will encourage students to be more agile and keep growing.

Suggestion

According to the results, 12th grade students are suggested to build a more growth-oriented mindset. Students can learn about a growth mindset and implement the strategies from this mindset, especially for reaching goals. In terms of building the growth mindset, teachers play a significant role so the teachers need to adopt this mindset as a learning strategy in the class. Teachers are recommended to always support and facilitate students for learning and advancing one's competencies.

For the next researcher, it suggested studying the depth correlation between each variable's aspects, also exploring other factors related to resilience or mediated the association of mindset and resilience. It is recommended to increase the variety of subjects. Researchers that interest in the experiment also could use this finding as a reference.

Acknowledgment

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