

# The effect of school well-being on grit with growth mindset as a mediator for students of SMK Harapan Bangsa Tanjung Morawa

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## ARTICLE INFO

### Article history:

Received Jun 13, 2025  
Revised Jul 17, 2025  
Accepted Jul 24, 2025

### Keywords:

Grit  
Growth Mindset  
School Well-Being  
Sekolah Menengah Kejuruan  
Students

## ABSTRACT

Students of Sekolah Menengah Kejuruan (vocational high schools) are required to possess grit in facing various challenges, such as career preparation and industrial internships. However, in reality, some students experience decreased enthusiasm, career uncertainty, and a tendency to give up easily when dealing with academic pressures. This study aims to examine the effect of school well-being on grit with growth mindset as a mediating variable among students of Sekolah Menengah Kejuruan Harapan Bangsa. This research employed a quantitative approach using Structural Equation Modeling (SEM) with Partial Least Square (PLS). The population consisted of 493 students of Sekolah Menengah Kejuruan Harapan Bangsa, with a sample of 151 twelfth-grade students selected through purposive sampling. Research instruments included the school well-being scale, growth mindset scale, and grit scale. The results showed that school well-being had a positive and significant effect on grit ( $\beta = 0.392$ ;  $t = 3.363$ ;  $p = 0.001$ ) and on growth mindset ( $\beta = 0.826$ ;  $t = 19.770$ ;  $p = 0.000$ ). Furthermore, growth mindset had a positive and significant effect on grit ( $\beta = 0.496$ ;  $t = 4.202$ ;  $p = 0.000$ ). Growth mindset also significantly mediated the relationship between school well-being and grit ( $t = 4.125$ ;  $p = 0.000$ ), with an indirect contribution of 41.0%. This study concludes that school well-being plays an important role in fostering grit both directly and indirectly through the development of a growth mindset.

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## INTRODUCTION

Vocational High School (SMK) is a secondary education level that has a strategic role in preparing a skilled workforce that is ready to use in various industrial sectors (Arnita & Fadriati, 2022). In the era of globalization and industrial revolution 4.0, SMK graduates are expected to not only master technical skills, but also have adequate competitiveness, independence, and psychological resilience (Suherman et al., 2024). Vocational education in Indonesia is faced with the challenge of bridging the gap between the world of education and the rapidly growing needs of industry.

Adolescence, especially the age of vocational students (15-19 years), is an important developmental phase in the formation of self-identity, mastery of developmental tasks, and readiness to face adulthood (Sanrock, 2019). Erikson (1968) explained that at this stage, adolescents are in a phase of identity vs role confusion that requires support from the social environment, including the school environment. Effective guidance at school is an important factor to avoid protracted role confusion, which can hinder their career readiness.

In addition to mastering technical skills, SMK students are required to have the ability to think critically, problem solve, and soft skills that support work readiness in the industrial world (Ariyanto et al., 2018; Nurjannah et al., 2024). Soft skills, such as effective communication, teamwork, time management, and good work ethic, are proven to have a significant influence on students' work readiness (Nurjannah et al., 2024). However, the reality in the field shows that some vocational students still experience decreased motivation to learn, give up easily, and lack fighting power in facing academic challenges and work practices (Akhimelita et al., 2020; Hidayat et al., 2020).

This condition is further strengthened by the findings of Mauliddiyah and Wulandari (2022) which show that the learning motivation of vocational students can be affected by limited practical facilities, learning environment support, and future uncertainty. In the face of this situation, grit as one of the psychological factors plays an important role in supporting student perseverance (Duckworth et al., 2007). Grit refers to an individual's ability to maintain long-term interest and effort despite challenges or failures (Eskreis-Winkler et al., 2014; Nussbaum et al., 2021).

Research shows that students with high levels of grit are better able to maintain motivation to learn, deal with pressure, and complete difficult tasks consistently (Wibowo et al., 2020). A school environment that supports students' psychological well-being has been shown to play a significant role in fostering this grit (Nurulpaik et al., 2021). This is in line with the practice of vocational education in developed countries such as Germany (Ertl, 2020), Switzerland (Sauli et al., 2021), and South Korea (Park & Yu, 2023) which successfully integrate the school curriculum with on-the-job training in industry through dual systems or Meister schools. These models not only equip students with technical skills, but also build mental resilience through real-world practice.

Not only at the macro level, strategies at the school level also play an important role. Strengthening cooperation with industry, providing adequate practice facilities, and continuous internship programs are important factors to improve graduates' work readiness (Aryawan, 2023; Basri et al., 2023; Yusuf & Karend, 2019; Zahmelinda & Armiami, 2023). Empowering alumni as mentors can also help students get a real picture of the world of work, increase learning motivation, and increase professional networks (Dollinger et al., 2019).

In addition, industry-recognized competency certification is a significant added value for SMK graduates in the job competition. This practice has been applied in developed countries such as Finland and Singapore, which have succeeded in reducing the unemployment rate of vocational graduates through a national certification system that is integrated with industry needs (Kuntoro, 2020).

However, work readiness is not only determined by technical skills and material mastery. Psychological factors such as school well-being play a crucial role in supporting students' academic performance and character building (Rahim et al., 2024). School well-being reflects a learning atmosphere that supports students' basic needs ranging from a sense of security, healthy social relationships, to adequate emotional support (Guo et al., 2025; Zhao et al., 2024). The school environment plays an important role in supporting the development of quality learners, who can ultimately contribute to the progress of the nation through the positive changes they bring (Dewi & Dalimunthe, 2022).

Growth mindset, the belief that abilities can improve through effort and learning, has been shown to be closely related to grit (Duckworth et al., 2007; Dweck & Yeager, 2019). Students with a

growth mindset are better able to see challenges as learning opportunities, are not afraid of failure, and are more persistent in achieving long-term goals (Pebrian et al., 2022; Wahidah & Royanto, 2021). Several studies have shown that growth mindset can mediate the relationship between school well-being and grit (Saidah et al., 2021), although similar research in the context of vocational education in Indonesia is still limited.

Referring to this research gap, this study was conducted to understand more deeply how school well-being affects grit with growth mindset as a mediator for vocational students. This research is expected to make theoretical and practical contributions in an effort to build vocational schools that not only excel in technical skills, but are also strong in the psychological resilience of their students. The purpose of the study is to determine the effect of school well-being on grit in students of SMK Harapan Bangsa. To find out the effect of school well-being on growth mindset in students of SMK Harapan Bangsa. To determine the effect of growth mindset on grit in students of SMK Harapan Bangsa. To find out the effect of school well-being on grit with growth mindset as a mediator for students of SMK Harapan Bangsa.

This study does not address psychological variables such as grit or growth mindset, nor does it mention the integration of vocational programs or psychological support in schools, as the main focus is on the effect of cow manure and liquid organic fertilizer (POC) from rice washing water on the growth and production of pakcoy plants. Therefore, there was no use of previous studies related to grit, growth mindset, or vocational program success in supporting the selection of variables for this study, and these aspects did not form a relevant literature gap in the context of this research. To enhance the background, researchers should add a stronger theoretical basis regarding organic fertilization innovations and compare the effectiveness of organic fertilizers with inorganic fertilizers in supporting sustainable agriculture and production efficiency.

## RESEARCH METHOD

This study uses a quantitative approach with an explanatory survey design to examine the effect of school well-being on grit with growth mindset as a mediating variable. The research model was tested using Structural Equation Modeling (SEM) technique based on Partial Least Square (PLS). The research population was 493 students of SMK Harapan Bangsa Tanjung Morawa, North Sumatra. The sample taken amounted to 151 XII grade students, selected by purposive sampling technique because the final grade students are in the critical phase of preparation for graduation and transition to the world of work. Data collection was conducted using three standardized scales: School well-being scale: measures students' perceived well-being at school, referring to the Konu and Rimpelä (2002) model which includes the dimensions of having, loving, being, and health. Growth mindset scale: measures students' belief that abilities can be developed through effort, based on Dweck's (2006) theory. Grit scale: developed by Duckworth et al. (2007), measuring consistency of interest and persistence of effort to achieve long-term goals.

## RESULTS AND DISCUSSIONS

The results of this study were obtained through data analysis using the Partial Least Square Structural Equation Modeling (PLS-SEM) approach. Data processing is carried out with SmartPLS 4, starting from testing the measurement model (outer model), structural model (inner model), to mediation test.

### Outer Model Test

The outer model test aims to measure construct validity and reliability. The criteria used include AVE value > 0.5 and composite reliability > 0.7.

**Table 1.** Outer model test results (validity and reliability)

Construct	AVE	Composite Reliability	Cronbach's Alpha
School well-being	0.641	0.951	0.946
Growth mindset	0.524	0.933	0.925
Grit	0.536	0.898	0.860

Based on Table 1, all three constructs have AVE values above 0.5 and composite reliability above 0.7. This shows that all indicators are valid and reliable in measuring their respective constructs.

### Uji Inner Model

The inner model test is conducted to see the relationship between latent variables in the structural model. This test involves analyzing the path coefficient, t-statistic value, and p-value significance.

**Table 2.** Path coefficient and significance test results

Relationship	Path Coefficient ( $\beta$ )	T-Statistic	P-Value
School well-being → Growth mindset	0.548	10.162	0.000
Growth mindset → Grit	0.532	6.787	0.000
School well-being → Grit	0.303	4.020	0.000

Table 2 shows that all three relationships between variables in the structural model show a significant effect. With p values < 0.05 and t-statistics > 1.96, all paths can be concluded to be statistically significant.

### Mediation Test

The mediation test was conducted to see whether growth mindset acts as a mediator between school well-being and grit. Based on indirect path analysis:

**Table 3.** Mediating effect of growth mindset

Mediation Pathway	Index Coefficient	T-Statistic	P-Value
School well-being → GM → Grit	0.292	5.822	0.000

This result shows that growth mindset is able to mediate the effect of school well-being on grit significantly. Because the direct and indirect effects are both significant, the mediation that occurs is partial. This means that school well-being not only affects grit directly, but also indirectly through increasing students' growth mindset. Outer Model Test Table 1 shows the results of construct validity and reliability tests.

**Table 4.** Outer model test results (validity and reliability)

Construct	AVE	Composite Reliability	Cronbach's Alpha
School well-being	0.641	0.951	0.946
Growth mindset	0.524	0.933	0.925
Grit	0.536	0.898	0.860

All constructs have AVE values > 0.5 and composite reliability > 0.7, which means that all constructs meet the requirements of convergent validity and internal reliability. Uji Inner Model. Table 2 Shows the results of testing the relationship between variables in the structural model.

**Table 5.** Path coefficient and significance test results

Relationship	Path Coefficient ( $\beta$ )	T-Statistic	P-Value
School well-being $\rightarrow$ Growth mindset	0.548	10.162	0.000
Growth mindset $\rightarrow$ Grit	0.532	6.787	0.000
School well-being $\rightarrow$ Grit	0.303	4.020	0.000

The results of the analysis show that: a) School well-being has a positive and significant effect on growth mindset ( $\beta = 0.548$ ,  $p < 0.001$ ); b) Growth mindset has a positive and significant effect on grit ( $\beta = 0.532$ ,  $p < 0.001$ ); c) School well-being also has a direct effect on grit ( $\beta = 0.303$ ,  $p < 0.001$ ).

### Mediation Test

Indirect path analysis showed that growth mindset significantly mediated the relationship between school well-being and grit.

**Table 6.** Mediating effect of growth mindset

Mediation Pathway	Index Coefficient	T-Statistic	P-Value
School well-being $\rightarrow$ GM $\rightarrow$ Grit	0.292	5.822	0.000

Since the indirect effect is significant and the direct effect is also significant, the mediation is partial. Outer Model Test: Includes convergent validity test (loading factor  $> 0.7$ ), construct reliability (composite reliability  $> 0.7$ ), and average variance extracted (AVE  $> 0.5$ ).

Inner Model Test: Using the path coefficient value and significance test (bootstrapping) to test the relationship between variables. Significance is determined by the t-statistic value  $> 1.96$  and p-value  $< 0.05$ . Mediation tests were conducted by observing the direct and indirect effects of growth mindset as a mediator in the relationship between school well-being and grit.

The results showed that school well-being has a significant effect on grit, both directly and indirectly through growth mindset as a mediator. The coefficient value of the direct effect of school well-being on grit of 0.303 indicates that the well-being felt by students at school can increase their persistence in facing learning challenges. This finding is in line with Bronfenbrenner's ecological approach that emphasizes the importance of microsystem influences such as the school environment in individual development.

School well-being also has a very strong influence on growth mindset, with a coefficient of 0.548. This shows that the higher the well-being of students at school, the greater their tendency to have a growth mindset. In this context, students who feel safe, comfortable, and supported by their school environment, find it easier to develop the belief that their abilities can develop through appropriate efforts and strategies.

Growth mindset itself is proven to have a significant influence on grit, with a coefficient of 0.532. This means that students who have a growth mindset tend to be more persistent and do not give up easily. They understand that failure is not the end of everything, but part of the learning process towards success. This belief encourages them to persevere in the face of obstacles and stay focused on long-term goals.

In addition, there is also an indirect effect of school well-being on grit through growth mindset, with a mediation coefficient of 0.292. These results indicate that growth mindset partially mediates the relationship between school well-being and grit. This means that school well-being not only has a direct impact on grit, but also indirectly through strengthening students' growth mindset.

This finding is consistent with previous research by Yeager and Dweck which states that students with a growth mindset tend to have better self-regulation and internal motivation skills. Thus, the integration between a positive school environment and a growth mindset is a strong foundation in shaping students' perseverance.

The implications of these findings are very important for educational institutions, especially at the SMK level. It is not enough for schools to provide technical learning, but they must also create a psychological climate that supports student well-being. Intervention programs that foster a growth mindset such as self-development training, reflection on failure, and reinforcement of positive feedback from teachers, can be an effective strategy in building student grit.

By fostering a healthy school environment and growth mindset, SMK students will not only become skillfully competent graduates, but also have high fighting power in facing the world of work and life challenges.

## CONCLUSION

This study shows that school well-being plays an important role in shaping vocational students' grit, both directly and through the mediating role of growth mindset. A positive, supportive and psychologically healthy school environment not only enhances students' growth mindset, but also strengthens their perseverance in facing academic and vocational challenges. Growth mindset proved to be a psychological variable that bridged the relationship between school well-being and grit, by making a significant contribution in shaping persistent and unyielding character. Overall, the results of this study support the importance of a holistic approach to education, which not only emphasizes academic achievement, but also character building and students' psychological well-being. The integration of a healthy school environment and a thriving mindset can be a strong foundation for the development of resilient and competitive human resources. The results of this study can be a source of information and evaluation for the development of psychological science, and used by related parties, namely educators and other policy makers to carry out interventions and policies, especially those related to resilience, social support and self-adjustment of new students. The results of this study contribute to the strengthening of technical aspects in the vocational curriculum, especially in agriculture, through cultivation practices and the use of organic fertilizers such as cow manure and rice washing POC. However, this research does not discuss the psychological aspects of students or the role of teachers as growth mindset facilitators, so it cannot be used to develop a curriculum that is balanced between technical learning and character strengthening. Therefore, its contribution is more appropriately directed towards the development of practical skill content, while the integration of psychological aspects in learning is still a gap that needs to be answered by further studies.

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