



Measuring Academic Resilience Among Vocational Students; A Comparative Study Based on Vocational Fields

I Putu Agus Apriliana^{1,*} Andriani P. Nalle²

Guidance & Counseling Department, Universitas Nusa Cendana, Indonesia

**Corresponding author. Email: i.putu.agus.apriliana@staf.undana.ac.id*

ABSTRACT

Academic activities in vocational schools vary, shaped by the distinct target skills within each vocational field. Predictably, students encounter specific academic challenges and difficulties unique to their chosen field. Recognizing the importance of academic resilience as a vital component, schools play a crucial role in fostering essential psychological aspects among students. This study delves into the exploration of academic resilience among students in vocational schools, aiming to analyze variations based on their respective vocational fields. A total of 207 respondents actively participated in and completed the online survey. The self-developed instrument for academic resilience demonstrated validity (ranging from 0.539 to 0.844) and reliability (ranging from 0.705 to 0.836), effectively measuring students' abilities to navigate academic setbacks, challenges, adversity, and pressures. The data analysis, conducted using JASP Version 0.16.3.0, encompassed both univariate and differences analysis. The results revealed no significant differences in academic resilience among students across the five vocational fields. However, a closer examination, considering both items and aspects of the measurement instruments, highlighted that students in both the maritime and technology & engineering fields exhibited low and very low levels of academic resilience. These findings underscore the need for targeted interventions to enhance skills, both on an individual level and as part of the school's support system. This baseline data provides valuable insights for shaping programs aimed at promoting positive academic outcomes in vocational schools more effectively.

Keywords: *Academic Resilience, Psychological Aspect, School, Middle Students, Vocational Education*

1. INTRODUCTION

The vocational student is students who learn specific skills needed in certain jobs. It is a part of developing vocational identity as occupational choices for their carrier future [1]. In the Indonesian vocational education system, the main focus of vocational schools is to produce proficient, independent, and competitive prospective workers. The competencies developed by the school refer to the competencies needed in the world of work and industry [2], [3]. Not only producing graduates who are prepared to work but graduates who are creative for entrepreneurship are also a hope [4]. The opportunity to continue studies to a higher level is also facilitated, ideally to continue to vocational colleges but not limited to other universities.

Each vocational school has characteristics related to the skills developed according to the vocational field program offered. Not only skills (psychomotor) but also focus on developing their knowledge and attitude [5]. In vocational schools, students' academic activities predominantly center around learning and practical application in laboratories, a departure from traditional classroom settings. Additionally, the school structures programs that include practical job training outside the school premises. This academic environment prompts students to engage in diverse efforts within their chosen areas of expertise. Beyond the conventional academic challenges, these students contend with heightened psychological, cognitive, cultural, and behavioral considerations, given the practical nature of their educational pursuits [6]. More prepared physically and

mentally will maximize their academic activities in the context of vocational education.

Attention to the internal side, including the psychological condition of students, is essential to maximize student performance in various academic

group. Those in the high group must also pay attention to retain their resilience abilities.

This study aims to delve into academic resilience among vocational students, considering their respective vocational field backgrounds. Given the inherent

Table 1. Descriptive Data of Academic Resilience Based on Vocational Fields

Vocational Fields	N	Mean	SD	SE	95% Confidence Interval for Mean		Min.	Max.
					Lower	Upper		
					Technology & Engineering	11		
Information & Communication Technology	51	3.46	.60	.08	3.29	3.63	2.30	5.00
Maritime	26	3.29	.64	.13	3.03	3.55	2.30	4.40
Business & Management	71	3.48	.45	.05	3.38	3.59	2.50	4.90
Tourism	38	3.53	.44	.07	3.38	3.67	2.50	4.30
Art & Creative Industry	10	3.40	.66	.21	2.93	3.87	2.80	5.00

**Note:* SD=Standard Deviation; SE=Standard Error; Min.=Minimal; Max=Maximal

activities. Academic resilience is one of the psychological conditions that need to get the attention of the vocational school [7]. This psychological aspect significantly positively correlates with the learning environment [8]. Academic resilience is one of students' ability to respond positively to adversity [9]. Several studies have found that academic resilience has been shown to contribute positively to students' academic performance and academic success [10], [11]. Promotion by the school of the important role of this psychological aspect among students is needed [12], [13] and investigating the level of their condition is part of a comprehensive evaluation by the school.

Academic resilience is gaining more attention in the context of academic activities in schools. Resilient students are recognized to cope well with stress and anxiety in school-related situations [14], [15]. Furthermore, they can sustain ideal motivation levels and perform excellently in adversity [16]. Students who rely on personal resources, such as academic resilience, prefer to exert maximum effort to attain their objectives when faced with academic tasks [17]. Their commitment is also recognized as more active and adaptive in the school environment [18].

Academic resilience is essential for vocational students participating in school-based academic activities. This skill is part of the psychological factor; thus, exploring their condition's level is necessary. Academic resilience is essential for vocational students because it can improve their well-being in educational activities [19]. Because this skill is part of the psychological element, assessing the condition using psychological instruments is required. It will be feasible to identify their level of abilities by collecting data using psychological instruments, and relief efforts may be directed at individuals who are known to be in the low

differences in their academic activities, a comparative study is conducted. The examination includes an in-depth investigation into each construct and item to gain a comprehensive understanding of the factors influencing academic resilience in this context.

2. METHOD

2.1 Participants' Demographic Data

The total of respondents participating in this study and the utterly online instrument is 207 vocational students (38.6% Male and 61.4% Female). They are students with a mean age of 16.80 from Public Vocational Schools in Kupang City, Indonesia. We use regulations from Direktur Jenderal Pendidikan Dasar dan Menengah No. 06/D.D5/KK/2018, Ministry of Education and Culture - Indonesia, to classify vocational fields. Their vocational fields are 11 (5.3%) technology & engineering fields, 10 (4.8%) art & creative industry fields, 38 (18.4%) tourism fields, 71 (34.3) business & management fields, 26 (12.6%) maritime fields and 51 (24.6%) information & communication technology fields.

2.2 Measurement Instrument

The short-form self-report model of measurement instrument was developed to measure academic resilience among vocational students. We created this instrument based on academic resilience by Martin & Marsh [20], which measured students' skills in dealing with academic setbacks, challenges, adversity, and pressures. The 5-point Likert scale was used for responses to items; strongly agree (5), agree (4), undecided (3), disagree (2) and strongly disagree (1) and otherwise for unfavourable items. The 11-item instrument has validity ranging from 0.539 to 0.844 and reliability ranging from 0.705 to 0.836 in each construct.

Based on evidence psychometrically, academic resilience among vocational students is measurable by this instrument.

2.3 Procedures

This study is a cross-sectional survey. The data on academic resilience was collected online using the SurveyMonkey platform. The data was only once collected to determine conditions based on the research objectives.

These online surveys were conducted starting from April until May 2023. The electronic-based instrument was distributed with assistance from the school counsellor with permission from the school Principal through the platform WhatsApp groups of students. Participants will automatically leave this online survey in the initial part of the instrument when they are unwilling to participate, and their data will not be recorded as respondents.

2.4 Data Analysis

The online survey data was administered using Microsoft Excel. Only completely responded data were managed for analysis and excluded for incomplete responses. The demographic data of respondents and instrument data were analyzed descriptively. The analysis of variance (ANOVA) was used to examine differences based on vocational fields. Levene's statistical test was used to confirm the homogeneity of data to fulfil the assumptions for parametric analyses. All of the process data analysis in this study using JASP Version 0.16.3.0.

3. RESULTS & DISCUSSION

3.1 Results

Table 2. Mean Score of Items based on Vocational Fields

Items	TE	IC	MR	BM	TR	AC
DAS 1	2.18	2.59	2.35	2.75	2.66	2.60
DAS 2	2.36	2.47	2.42	2.55	2.42	2.60
DAS 3	2.55	2.96	2.62	2.85	3.05	2.90
DAC 1	3.91	4.20	4.04	4.08	4.58	4.10
DAC 2	3.45	4.25	4.23	4.01	4.26	4.10
DAC 3	3.91	4.08	4.08	4.07	4.03	4.00
DAA 1	4.09	4.12	4.19	4.06	4.11	4.10
DAA 2	4.09	4.06	4.15	4.24	4.24	4.00
DAP 1	2.73	3.31	2.85	3.37	3.47	3.20
DAP 2	2.91	3.16	2.85	3.13	2.87	3.00
DAP 3	2.73	2.90	2.38	3.23	3.21	2.90

**Note:* DAS=Deal with Academic Setbacks; DAC=Deal with Academic Challenges; DAA=Deal with Academic Adversity; DAP=Deal with Academic Pressure; TE=Technology & Engineering; IC=Information & Communication Technology;

3.1.1 Descriptive Analysis of Academic Resilience

The data of academic resilience presented based on vocational fields with the mean, Standard Deviation (SD), standard error, and 95% confidence interval for the average, maximum and minimum. The students from the Tourism field had the highest mean score (M=3.53, SD=.44), and those from the Technology & Engineering field had the lowest mean score (M=3.15, SD=.57). More specifically, the data is presented in Table 1.

In Table 2, the data present the mean score of items based on the vocational fields of students. The item with the highest mean score is "DAC 1" (M=4.58) from the Students' Tourism field. This item stated that *I don't care about the consequences of not doing schoolwork*. Otherwise, the item "DAS 1" (M=2.18) had the lowest mean score from the Students Technology & Engineering field. Specifically, data is shown in Table 2.

In Table 3, the data present frequencies in each aspect of academic resilience based on students' vocational fields. Only the aspect of deal with academic adversity shows are close to acceptable criteria because only one group had a very low category (BM=1.4%). In this aspect, dominant data is the very high and high category. The other aspect needs attention because the distribution varies data in each category. More specifically, the data is presented in Table 3.

3.1.2 Differences Analysis of Academic Resilience Based on Vocational Fields

As a precondition of parametric analysis, the homogeneity test of data using Levene's test was done. The result shows an F-values of 2.133 with a significance value of 0.063 (>0.05), indicating that the data is homogeneous. Therefore, the data fulfil the assumptions for parametric analyses. The analysis of variance (ANOVA) was used to determine the difference in academic resilience based on vocational fields. The result shows an F-values of 1.358 with a significance value of 0.242 (>0.05), indicating that hypothesis null is accepted. This finding suggests that statistically insignificant, so there are no differences in students' academic resilience based on vocational fields.

3.2 Discussion

This study investigates academic resilience among vocational school students based on vocational fields. The findings on the difference in students' academic resilience based on vocational fields were statistically insignificant. The test of analysis variance (ANOVA) results showed a significance value of more than 0.05, so the null hypothesis is accepted. Five vocational fields of students were examined, indicating that their general score of academic resilience is not different. This finding also aligns with the study by [21] that students'

academic resilience is no correlation of attributable to their fields of study.

The data report, based on mean scores, indicates that students' academic resilience in vocational schools falls within the above-average range, ranging from 3.15 to 3.53. However, a closer examination of the 11-item measurement reveals that some items scored below average, with three items registering a low mean score (<2.60). Notably, the item labeled "DAS1" garnered the lowest mean score response (2.18) from students in technology & engineering fields compared to other items. This specific item is part of the construct measuring students' skills in dealing with academic setbacks, and its statement is as follows: "I have done my schoolwork to the fullest, but my grades are still bad; because of that, it took me a long time to get excited again." Given these findings, educators are urged to pay particular attention to this aspect of academic resilience. Addressing such concerns promptly is crucial to helping students overcome challenges and maintaining their enthusiasm for academic tasks, thereby fostering their potential for improvement.

Furthermore, 2 items show a moderate mean score (2.61 to 3.39), and 6 items show a high mean score (>3.40). The highest mean score response (4.58) compared with another item is in item "DAC1" by students from tourism fields. This item is a part of the construct that measure students' skills in dealing with academic challenges. This data response indicated that vocational students obey the academic school rules.

This study also investigates distribution frequency in each aspect of academic resilience based on vocational

fields and the level classifying into five categories. First, investigate the aspects of deal with academic setbacks in low and very low categories. The data show the percentage start from 0% to 50%. Students from technology & engineering fields have the highest percentage in this category (low = 36.4% and very low = 27.3%). Otherwise, the aspect deals with academic setbacks in high and very high categories, with the percentage from 0% to 12.7%. Students from information & communication technology fields have the highest percentage in this category (high = 11.8% and very high = 9.8%). For moderate categories, the data show starts from 23.5% to 50%.

Second, the aspect deal with academic challenges in low and very low categories. The data show the percentage start from 0% to 30%. Students from maritime fields have the highest percentage in this category (low = 23.1% and very low = 26.9%). Otherwise, the aspect deals with academic challenges in high and very high categories, with the percentage from 7.7% to 34.2%. Students from business & management fields have the highest percentage in this category (high = 29.6% and very high = 12.7%). The data show moderate categories start from 26.9% to 63.6%.

Third, the aspect deal with academic adversity in low and very low categories. The data show that the percentage start from 0% to 3.8%. Students from maritime fields have the highest percentage in this category (low = 3.8% and very low = 0%). Otherwise, the aspect deals with academic adversity in high and very high categories, with the percentage from 27.3% to 62.0%. Students from information & communication technology fields have the highest percentage in this

Table 3. Distribution Frequency in Each Aspect of Academic Resilience based on Vocational Fields

Level of Aspect	TE	IC	MR	BM	TR	AC
<i>Deal with Academic Setbacks</i>						
Very High	1 (9.1)	5 (9.8)	0 (0.0)	5 (7.0)	4 (10.5)	1 (10.0)
High	0 (0.0)	6 (11.8)	5 (19.2)	9 (12.7)	2 (5.3)	0 (0.0)
Moderate	3 (27.3)	12 (23.5)	8 (30.8)	25 (35.2)	19 (50.0)	4 (40.0)
Low	4 (36.4)	19 (37.3)	6 (23.1)	19 (26.8)	7 (18.4)	5 (50.0)
Very Low	3 (27.3)	9 (17.6)	7 (26.9)	13 (18.3)	6 (15.8)	0 (0.0)
<i>Deal with Academic Challenges</i>						
Very High	1 (9.1)	8 (15.7)	4 (15.4)	9 (12.7)	3 (7.9)	1 (10.0)
High	2 (18.2)	11 (21.6)	2 (7.7)	21 (29.6)	13 (34.2)	2 (20.0)
Moderate	7 (63.6)	16 (31.4)	7 (26.9)	27 (38.0)	15 (39.5)	4 (40.0)
Low	1 (9.1)	11 (21.6)	6 (23.1)	11 (15.5)	2 (5.3)	3 (30.0)
Very Low	0 (0.0)	5 (9.8)	7 (26.9)	3 (4.2)	5 (13.2)	0 (0.0)
<i>Deal with Academic Adversity</i>						
Very High	3 (27.3)	22 (43.1)	11 (42.3)	21 (29.6)	19 (50.0)	3 (30.0)
High	4 (36.4)	25 (49.0)	12 (46.2)	44 (62.0)	16 (42.1)	5 (50.0)
Moderate	4 (36.4)	3 (5.9)	2 (7.7)	5 (7.0)	3 (7.9)	2 (20.0)
Low	0 (0.0)	1 (2.0)	1 (3.8)	0 (0.0)	0 (0.0)	0 (0.0)
Very Low	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.4)	0 (0.0)	0 (0.0)
<i>Deal with Academic Pressure</i>						
Very High	7 (63.6)	23 (45.1)	14 (53.8)	31 (43.7)	19 (50.0)	3 (30.0)
High	1 (9.1)	21 (41.2)	9 (34.6)	35 (49.3)	16 (42.1)	6 (60.0)
Moderate	2 (18.2)	4 (7.8)	1 (3.8)	3 (4.2)	1 (2.6)	1 (10.0)
Low	1 (9.1)	2 (3.9)	2 (7.7)	1 (1.4)	1 (2.6)	0 (0.0)
Very Low	0 (0.0)	1 (2.0)	0 (0.0)	1 (1.4)	1 (2.6)	0 (0.0)

*Note: N(%); TE=Technology & Engineering, IC=Information & Communication Technology, MR=Maritime, BM=Business & Management, TR=Tourism, AC=Art & Creative Industry

category (high = 49.0% and very high = 43.1%). The data in the moderate category start from 7.0% to 36.4%.

Fourth, The data show that the percentage start from 0% to 9.1%. Students from technology & engineering have the highest percentage in this category (low = 9.1% and very low = 0%). Otherwise, the aspect deals with academic pressure in high and very high categories, with the percentage from 9.1% to 63.6%. Students from business & management have the highest percentage in this category (high = 49.3% and very high = 43.7%). The data in the moderate category states from 2.6% to 18.2%.

The limitations of this study were the number of participants in each of the vocational fields analyzed. The group of students with the least number of participants is from the field of art & creative industry (n = 10). Further research is advised to consider the portion in each group. Increasing the number of participants will provide information on findings that can be generalized more widely.

4. CONCLUSION

Students' academic resilience based on their vocational fields is not different. Investigate 11 items indicating item DAS1 has the lowest mean score and item DAC1 has the highest mean score. Investigating data distribution in each aspect shows that the aspects of deal with academic setbacks have higher data in low and very low categories than other aspects. Otherwise, the aspects of deal with academic pressure have higher data in high and very high categories than other aspects. The vocational fields needed to get attention are students from technology & engineering fields and maritime.

Academic resilience among vocational students is a positive energy for success in academic activities. By changing or creating new behaviours, such as discipline, practice, or planning, students' academic resilience can achieve good educational results even in bad conditions and challenges. Schools need to give attention based on aspects of academic resilience that contribute to students' academic resilience by showing their vocational fields background. Although there are no differences based on vocational fields on the general mean score of academic resilience, the investigation finds that there are differences mean scores based on item and aspect of measurement instrument. For this reason, the finding of this study recommends that comprehensive measurement efforts are necessary by educational practitioners to assistance of the academic resilience among vocational students with various backgrounds in vocational fields.

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