Contribution of managerial capabilities and achievements in industrial work practices to the interest in automotive entrepreneurship

Al Fajri¹, Slamet Priyanto², Nurcholish Arifin Handoyo Handoyo³

¹,²,³Pendidikan Teknik Mesin, Universitas Sarjanawiyata Tamansiswa, Yogyakarta
E-mail: ¹azityro1@gmail.com, ²slamet.priyanto56@yahoo.com, ³arifin@ustjogja.ac.id

Abstract. The purpose of the research is to know how much contribution of managerial ability and industrial work practice achievements either partially or simultaneously to the interest in automotive entrepreneurship. The type of research is ex-post facto research with a population of 67 students class XII of the Automotive Engineering Expertise Program. The number of samples is determined with Harry King nomogram’s as many as 63 students and taken by simple random sampling technique. The instrument of data collection use questionnaire for managerial ability and interest in automotive entrepreneurship, and documentation for the industrial work practice achievements. The data analysis technique uses descriptive statistics; analysis prerequisite test use normality, linearity, and multicollinearity tests; and hypothesis test use partial correlation, multiple correlations, and F-test with multiple regression analysis. The results showed that: (1) managerial ability and industrial work practice achievements simultaneously contributed positively and significantly by 58.1% to the interest in automotive entrepreneurship; (2) managerial ability contributed positively and significantly by 54.3% to the interest in automotive entrepreneurship; and industrial work practice achievements contributed positively but not significantly by 1.3% to the interest in automotive entrepreneurship.

Keywords: managerial ability, industrial, automotive entrepreneurship

Introduction

Education is one of the activities that cannot be separated from human life today. Planned conscious effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious, spiritual strength, self-control, personality, intelligence, morals noble, and the skills needed by him, society, nation, and country [1].

However, in its implementation, education has many problems which until now have not been fully resolved. One of the problems is the problem of absorption of education graduates in the workforce that cannot be fully absorbed by the availability of existing employment. In this case, unemployment is a problem in the world of education to date.

The government continues to work to overcome this unemployment problem through the SMK revitalization program. Vocational Revitalization aims to improve the quality and competitiveness of Indonesian human resources through Vocational High Schools. Stated that vocational education aims to improve intelligence, knowledge, noble personality, and skills of students to live independently and follow further education by vocational programs [2].

Based on these objectives, it means that SMK aims to educate students to become graduates who have the knowledge, attitudes, and skills by the competencies of graduates of their majors so that when they graduate they are ready to enter the world of work or entrepreneurship.

Muhammadiyah Gamping Vocational School is one of the Vocational Schools that prepare students so that when they graduate, they are ready to enter the world of work or entrepreneurship. This can be seen from the subjects taught there such as creative and
entrepreneurial product subjects which aim to provide knowledge to students about entrepreneurship, automotive productive subjects aimed at providing knowledge and skills in the automotive field, as well as providing work experience in the automotive industry to students through industrial work practices.

However, even though they have been given the provision of knowledge, skills, and experience, it does not necessarily make students ready to open their own business or entrepreneurship as can be seen in the following data about students graduating from the Automotive Engineering Expertise Program of Muhammadiyah Gamping Vocational School in 2017/2018.

Table 1. Percentage of Type of Work for Automotive Engineering Expertise Program Graduates of Muhammadiyah Gamping Vocational School 2017/2018

| No | Type of work     | Total | Percentage |
|----|------------------|-------|------------|
| 1  | Work in the industry | 42    | 67.7 %     |
| 2  | Entrepreneurship  | 5     | 8.06 %     |
| 3  | Go on the college | 2     | 3.23 %     |
| 4  | Not yet working  | 9     | 14.52 %    |
| 5  | Not yet known    | 4     | 6.49 %     |
|    | Total            | 62    | 100%       |

Based on table 1 data, it is known that out of 62 students graduating from the automotive engineering expertise program of Muhammadiyah Gamping Vocational School in 2017/2018 the percentage of graduates who have entrepreneurship is 8.06% lower than the percentage of graduates who have not worked 14.52% of the total 62 graduates. This also indicates that the interest of graduates in entrepreneurship is low.

The low interest in entrepreneurship can be caused by a lack of supporting factors for entrepreneurship. According to [3], one of the supporting factors for entrepreneurship is a personal factor, namely ability in management or managerial ability. Managerial skills cannot be separated from management activities. In general, according to [4] management activities consist of "planning, organizing, implementing, and controlling." Managerial skills can be obtained by students through organizations in schools and outside schools as well as entrepreneurial learning processes. Further states that to support the interest in entrepreneurship, technical skills are needed [3]. According to [5], technical skills are the ability to do work, such as repairing machinery in the automotive field. This capability can be obtained through the learning process and work experience in the automotive field. To support students' technical skills, Gamping Muhammadiyah Vocational School strives to organize Dual System Education, namely industrial work practices.

The implementation of industrial work practices in the automotive engineering expertise program of Gamping Muhammadiyah Vocational School will provide students with work experience in the automotive field which is recorded in schools as an achievement of industrial work practices. This achievement will certainly foster interest in entrepreneurship. According to [3], the trigger or impetus is needed to foster interest in entrepreneurship. Triggers or impulses can be in the form of achievements.

The industrial work practices of students in the automotive engineering expertise program of Gamping Muhammadiyah Vocational School are on average above the minimum completeness criteria. However, achievement in industrial work practices if it is not maximally utilized by graduates of the automotive engineering expertise program at Gamping Muhammadiyah Vocational School will be in vain. This is reinforced by table 1 data that the number of graduates who have not worked is still more than graduates who are entrepreneurs. Based on this information, there are several variables that will be examined, namely the interest in entrepreneurship in the automotive sector, managerial capabilities, and achievement of industrial work practices.

Interest in Automotive Entrepreneurship

The interest in automotive entrepreneurship consists of three main words, namely: interest, entrepreneurship, and automotive. States that interest is a tendency and high enthusiasm or a great desire for something [6]. According to Hilgard in [7], interest is the tendency to keep paying attention and feel happy doing certain activities. Furthermore, according to [7], interest is a feeling of preferring and being interested in a thing or activity, without being told. Based on this understanding, it can be concluded that
interest is the tendency of the heart to feel more interested and happy about a thing or activity without coercion.

States that entrepreneurs are "people who see opportunities and then create an organization to take advantage of these opportunities" [3]. In line with that [8] argues that entrepreneurship is a person's activity in organizing, operating, and calculating risk for a business that brings profit. Based on this understanding means entrepreneurship is an activity carried out by someone to break down the economy using existing opportunities, either with new goods or new services or optimize existing goods or services. State that automotive is a matter related to motorized vehicles such as cars or motorbikes [9]. Automotive includes planning, development, production, and maintenance. Based on the above meanings, it can be concluded that the interest in automotive entrepreneurship is the tendency of one's heart to break down the economy using opportunities related to designing, developing, producing, and caring for a car or motorcycle without coercion.

The emergence of an interest in automotive entrepreneurship in a person is certainly triggered because of the ability or the skills they have. This is reinforced by [3] which states that the more skills a person has, the higher the interest in entrepreneurship will be. These abilities include managerial abilities. The managerial ability or ability in management, according to [3] is also one of the determinants of success in entrepreneurship.

Managerial Ability

Managerial ability, according to [10], is a person's ability to manage existing resources to achieve goals and various targets that have been set. Furthermore, according to [5], the managerial ability is the ability of a person to carry out management functions. The management function according to [4] can not be separated from the activities of planning (planning), organizing (organizing), implementing (actuating), and controlling (controlling). Based on this understanding, it can be concluded that managerial ability is the ability possessed by someone in planning, organizing, implementing, and controlling to achieve a set goal or target. So that an entrepreneur needs to have good managerial skills to be able to run his business.

Implementing skills is a skill to run a business by utilizing the skills possessed, one of which is the skills in the automotive field. One of the skills in the automotive field in Vocational School is through industrial work practices. Industrial work practice is a learning process that is carried out directly in DU / DI by the field of study. Then how well students in carrying out industrial work practices are expressed by an achievement value that is the achievement of industrial work practices.

Industrial Work Practice Achievements

According to [6], the achievement is the value of changes in behavior (creativity, taste, and intention) due to experience and learning process. In line with that according to [11] achievement is a learning outcome which is an emphasis of potential skills or capacity possessed by a person, while the indications can be seen from their behavior, both behavior in the form of knowledge, thinking skills, and motor skills. Based on this understanding, it can be concluded that achievement is the value of the results obtained through the process of experience or learning, which includes changes in behavior, thinking skills, and motor skills.

Industrial work practices are another name for dual system education. States that dual system education is a form of vocational expertise education which systematically and synchronously integrates educational programs in vocational secondary schools with the mastery program of expertise acquired through working directly on real work at the partner institution is directed towards achieving a certain level of professional expertise [12].

So that the performance of industrial work practices can be interpreted as the value of changes in behavior, thinking skills, and motor skills acquired through the process of diving and direct learning in the industrial world.

Research Methods

This type of research is ex-post facto research. The research paradigm used is as follows:
Figure 1. Double Paradigm with Two Free Variables [13]

Information:
X1 = Managerial ability
X2 = Industrial work practice achievements
Y = Interest in entrepreneurship in the automotive sector
r1 = Partial correlation X1 with Y
r2 = Partial correlation X2 with Y
R = Double correlation between X1 and X2 as a result together with Y

The study population was 67 students of class XII automotive engineering expertise program Gamping Muhammadiyah Vocational High School 2018/2019. The number of samples is determined using the Nomogram Harry King. So that 63 students were obtained as samples and taken by simple random sampling technique.

The data collection technique uses a questionnaire to measure managerial ability and interest in automotive entrepreneurship as well as documentation to collect data on industrial work practice achievements. The data analysis technique uses descriptive statistics; analysis prerequisite test using normality, linearity, and multicollinearity tests; and hypothesis testing using partial correlation, multiple correlations, and F test with multiple regression analysis.

**Result and Discussion**

Data on interest in automotive entrepreneurship is obtained based on questionnaire scores. Based on data on interest in entrepreneurship in the automotive sector, it was obtained:

**Table 2. Data Description**

| Mean  | Median | Mode | Lowest | Highest |
|-------|--------|------|--------|---------|
| 98,71 | 99     | 99   | 61     | 118     |

Then the data is presented in the category table with five categories, namely very low, low, medium, high, and very high, which can be seen in the following table.

**Table 3. Categories of Interest in Automotive Entrepreneurship**

| Value  | Category | Frequency | Percentage (%) |
|--------|----------|-----------|----------------|
| 0 - 52 | Very low | 0         | 0              |
| 53 - 67| Low      | 1         | 2              |
| 68 - 82| Medium   | 4         | 6              |
| 83 - 97| High     | 22        | 35             |
| 98 - 120| Very high| 36       | 57             |
| Total  | 63       | 100       |                |

Based on the description and data categories, it can be concluded that the average score of interest in automotive entrepreneurship owned by students belongs to the very high category.

Data on managerial ability is obtained based on questionnaire scores. Based on managerial capability data collected:

**Table 4. Data Description**

| Mean  | Median | Mode | Lowest | Highest |
|-------|--------|------|--------|---------|
| 92,98 | 95     | 93   | 55     | 120     |

Then the data is presented in the category table with five categories, namely very low, low, medium, high, and very high, which can be seen in the following table.

**Table 5. Managerial ability categories**

| Value   | Category  | Frequency | Percentage (%) |
|---------|-----------|-----------|----------------|
| 0 - 52  | Very low  | 0         | 0              |
| 53 - 67 | Low       | 3         | 5              |
| 68 - 82 | Medium    | 14        | 22             |
| 83 - 97 | High      | 21        | 33             |
| 98 - 120| Very high | 25        | 40             |
| Total   | 63        | 100       |                |

Based on the description and data categories, it can be concluded that the average score of managerial abilities possessed by students is included in the high category.

Data on achievement of industrial work practices are obtained based on student report cards. Based on data on industrial work practice achievements obtained:

**Table 6. Description of data**

| Mean  | Median | Mode | Lowest | Highest |
|-------|--------|------|--------|---------|
| 81,90 | 81,2   | 85   | 70     | 92      |

Then the data is presented in the category table with five categories, namely very low,
low, medium, high, and very high, which can be seen in the following table.

**Table 7. Industrial work practice achievement categories**

| Value  | Category     | Frequency | Percentage (%) |
|--------|--------------|-----------|----------------|
| 0 - 24 | Very low     | 0         | 0              |
| 25 - 41| Low          | 0         | 0              |
| 42 - 57| Medium       | 0         | 0              |
| 58 - 74| High         | 3         | 5              |
| 75 - 100| Very high  | 60        | 95             |
|        | Total        | 63        | 100            |

Based on the description and category of data it can be concluded that the average score of industrial work practice achievements that students have is included in the very high category.

The first hypothesis test, managerial ability, and industry work performance achievements together contribute positively and significantly to the interest in automotive entrepreneurship in class XII automotive engineering expertise programs in Gamping Muhammadiyah Vocational School conducted using multiple correlations and F test with regression analysis.

The results of multiple regression calculations with two predictors (managerial ability and industrial work practice achievements) with one criterion (interest in automotive entrepreneurship) as follows:

**Table 8. Regression analysis**

| Model                  | B        | Std. Error |
|------------------------|----------|------------|
| (Constant)             |          |            |
| Managerial ability     | 17,674   | 21,651     |
| Work practice achievements | 0,654   | 0,077      |
| Industry               | 0,247    | 0,275      |

Based on table 8 and multiple regression equations \( Y = a + b \cdot X \), a multiple regression equation \( Y = 17,674 + 0,654 + 0,247 \) is obtained. This means that \( Y \) is 17,674 when \( X_1 \) and \( X_2 \) are equal to 0, the value of \( Y \) will increase by 0.654 when the value of \( X_1 \) rises every 1 unit, and the value of \( Y \) will increase by 0.247 when the value of \( X_2 \) rises every 1 unit. This explains the higher the value of managerial abilities and the achievement value of industrial work practices will increase interest in automotive entrepreneurship owned by students.

The calculation results of the coefficient of determination are as follows:

**Table 9. Coefficient of determination**

| R        | R Square |
|----------|----------|
| 0,762    | 0,581    |

Based on table 9, it is known that the multiple correlation coefficient (R) between \( X_1 \), \( X_2 \), and \( Y \) is positive at 0.762 and the coefficient of determination (\( R^2 \)) is 0.581. This means that managerial ability (\( X_1 \)) and industrial work practice achievements (\( X_2 \)) together contribute to the interest in automotive entrepreneurship (\( Y \)) by 58.1%.

Significant test results F with ANOVA as follows:

**Table 10. F Test results with ANOVA**

| Model                  | df | F       | Sig. |
|------------------------|----|---------|------|
| Regression             | 2  | 41,597  | 0,000|
| Residual               | 60 |         |      |
| Total                  | 62 |         |      |

Based on table 10, it is known that the value = 41,597 with a significance value = 0,000 and the numerator df = 2 and the denominator df = 60 so that it is obtained = 3,1504. The test results show (41,597)> (3,1504) and a significance value of 0,000 <0,05, then the first hypothesis is accepted. So it can be concluded that managerial abilities and industrial work performance achievements contribute positively and significantly to the interest in automotive entrepreneurship in students.

The results of the first hypothesis test are in line with the research of [14] which shows entrepreneurial subject performance and industrial practice achievement positively and significantly correlated (\( r \) 0.554 and \( p < 0.05 \)) with interest in entrepreneurship. Subject achievements can represent students' managerial abilities because these subjects are taught how to manage a business. Furthermore, the results of the study of [15] show that entrepreneurial conceptual and technical skills, which are managerial skills contribute to the growth of SMEs in Nigeria. It means entrepreneurship requires conceptual skills to plan strategies in decision making, resource allocation, and innovation. In addition to conceptual skills, technical skills are also very important for business growth.

Someone who has good managerial skills in him will make it easier to run the automotive
business which is then supported by achievements (attitudes, knowledge, and skills) obtained through industrial work practices directly at DU / DI. According to [16] interest in having more dependence on internal factors someone has including managerial abilities and industrial work practices and the rest is influenced by external factors which include the social and non-social environment. Then it is reinforced by the opinion of [3] which states that the more skills a person has, the higher the interest in entrepreneurship will be so that the good managerial abilities and industrial work practices that students have will make students more likely to create jobs for themselves.

Test the second hypothesis; managerial ability contributes positively and significantly to the interest in automotive entrepreneurship in class XII students of automotive engineering expertise program Gamping Muhammadiyah Vocational School is carried out using partial correlation.

The results of the partial correlation calculation between managerial abilities and the interest in automotive entrepreneurship (achievement of industrial work practices as control variables) are as follows:

| Partial correlation | Significance | df |
|---------------------|--------------|----|
| 0.737               | 0.000        | 60 |

Based on table 11, Based on table 11, it is known that the correlation coefficient is positive, that is $r = 0.737$ and the probability value or significance $p = 0.000$. The test results show $(0.737 > 0.252)$ and a significance value of $0.000 < 0.05$, then the second hypothesis is accepted. So it can be concluded that managerial abilities contribute positively and significantly to the interest in entrepreneurship in the automotive field of students.

The determinant coefficient of the partial correlation between managerial ability variables ($X_1$) and the interest in automotive entrepreneurship ($Y$) if the variable industrial work practice achievement ($X_2$) is controlled is $r^2 = 0.543$. This means that managerial ability contributes to the interest in automotive entrepreneurship ($Y$) by 54.3%.

The results of the second hypothesis test are in line with the results of [17] which shows managerial ability has a significant effect (count 5.849 $> t$ table 1.646) on the performance of SMEs. This means that managerial ability influences success in entrepreneurship. Furthermore, the research of [15] shows that conceptual skills are positively and significantly correlated ($r = 0.742$ and $p < 0.05$) with the growth of SMEs in Nigeria and technical skills positively and significantly correlated ($r = 0.889$ and $p < 0.05$) with growth SMEs in Nigeria. This means that conceptual and technical skills contribute to the interest in entrepreneurship so that it can increase the growth of SMEs.

States that interest in having more dependence on internal factors someone has is managerial ability [6]. While the rest is influenced by external factors which include social and non-social environments, this is reinforced by the opinion of [3] that the nature of an entrepreneur is confident, task-oriented and results-oriented, risk-taking, leadership, having his ideas and the ability to implement them, and oriented towards the future.

From this understanding it can be seen that an entrepreneur must take the risk, make a business plan, make a decision, carry out his plan, and lead the course of his business. Then with the managerial capabilities possessed, he can read opportunities and make business plans so that he can then carry out the plan into a business. Therefore, the better managerial capabilities possessed, the better the ability to manage problems can become a business opportunity and will improve student performance.

Test the third hypothesis, the achievements of industrial work practices contribute positively and significantly to the interest in entrepreneurship in the automotive field of class XII students of automotive engineering expertise program Gamping Muhammadiyah Vocational School using partial correlation.

The results of the partial correlation calculation between industrial work practices achievements with interest in automotive entrepreneurship (managerial ability as a control variable) are as follows:

| Partial correlation | Significance | df |
|---------------------|--------------|----|
| 0.115               | 0.372        | 60 |

Based on table 12, it is known that the correlation coefficient is positive that is $r_p=$
0.115, and the probability or significance value = 0.372. The test results show \( r_p(0.115) < r_{table}(0.252) \) and significance (0.372 > 0.05), then the third hypothesis is rejected. So it can be concluded that the achievements of industrial work practices contribute positively but not significantly to the interest in entrepreneurship in the automotive field of students.

The determinant coefficient \( (r^2) \) of the partial correlation between the industrial work practice achievement variable (X2) and the interest in automotive entrepreneurship (Y) if the managerial ability variable (X1) is controlled is \( r^2 = 0.115^2 = 0.013 \). This means that industrial work practices contribute to the interest in automotive entrepreneurship (Y) by only 1.3%.

The results of the third hypothesis test are not by the research of [14] which shows that industrial practice performance is positively and significantly correlated \( (r = 0.439 \) and \( p <0.05 \) with interest in entrepreneurship. Furthermore, [18] also showed that industrial work practices were positively and significantly correlated \( (r = 0.296 \) and \( p <0.05 \) with interest in entrepreneurship. This means that the mismatch of the results of this study with previous research is possible due to several factors including the assessment of industrial work practices that vary greatly depending on the place of industrial work practices, field supervisors in the industrial workplace practice, and school supervisors. This is reinforced by the opinion of [19], which states that the results of the assessment can be different between each assessor. Besides that, it was also strengthened by the absence of an assessment score guideline set by the Gamping Muhammadiyah Vocational School (source: SMK document).

**Conclusion**

Based on the results of the research and discussion, some conclusions can be drawn as follows: First, managerial ability and achievement of industrial work practices together contribute positively and significantly by 58.1% to the interest in automotive entrepreneurship in class XII Automotive Engineering Expertise Program at Muhammadiyah Gamping Vocational School; and Thirdly, the achievement of industrial work practices contributed positively but not significantly by 1.3% to the interest in automotive entrepreneurship in class XII Automotive Engineering Expertise Program of the Muhammadiyah Gamping Vocational School.

**References**

[1] P. Indonesia, Undang-Undang Republik Indonesia Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional. Jakarta, 2003.

[2] K. P. dan K. R. Indonesia, Peraturan Menteri Pendidikan Nasional Nomor 22 Tahun 2006 tentang Standar Isi. Jakarta, 2006.

[3] B. Alma, Kewirausahaan untuk Mahasiswa dan Umum. Bandung: Alfabeta, 2018.

[4] N. Fuad, Dasar-Dasar Ketrampilan Manajerial. Jakarta: Creative Idea Communication, 2000.

[5] A. Rusdiana and A. Ghazin, Asas-Asas Manajemen Berwawasan Global. Bandung: Pustaka Setia, 2014.

[6] M. Syah, Psikologi Pendidikan dengan Pendekatan Baru. Bandung: PT Remaja Rosdakarya, 2014.

[7] Slameto, Belajar dan Faktor-Faktor yang Mempengaruhinya. Bandung: PT Rineka Cipta, 2013.

[8] M. Nitisusastro, Kewirausahaan & Manajemen Usaha Kecil. Bandung: Alfabeta, 2012.

[9] S. Amri and Yayan, Dasar-Dasar Otomotif untuk SMK. Jakarta: Prestasi Pustaka, 2011.

[10] S. P. Siagian, Fungsi-Fungsi Manajerial. Jakarta: PT Bumi Aksara, 2007.

[11] N. S. Sukmadinata, Landasan Psikologi Proses Pendidikan. Bandung: Remaja Rosdakarya, 2011.

[12] D. P. M. Kejuruwan, Keputusan Menteri Pendidikan dan Kebudayaan Republik
Contribution of managerial capabilities and achievements in industrial work practices

Indonesia Nomor 323/U/1997 Tentang Penyelenggaraan Pendidikan Sistem Ganda pada Sekolah Menengah Kejuruan. Jakarta, 1998.

[13] Sukardi, Metodologi Penelitian Pendidikan Kompetensi dan Praktiknya. Jakarta: Bumi Aksara., 2015.

[14] G. B. Putro and S. Priyanto, “Korelasi Prestasi Belajar Mata Pelajaran Kewirausahaan dan Prestasi Praktik Industri dengan Minat Berwirausaha Siswa Kelas XII SMK Ma’arif Kota Mungkid Kabupaten Magelang Tahun Pelajaran 2014/2015,” J. Taman Vokasi, vol. 4, no. 1, pp. 83–92, 2016.

[15] A. Ikupolati and Oni, “Entrepreneurs’ Managerial Skill as Determinants for Growth oh Small and Medium Enterprises (SMEs) in Nigeria,” J. Small Bus. Entrep. Dev., vol. 5, no. 1, pp. 1–6, 2017.

[16] M. Syah, Psikologi Belajar. Jakarta: Rajawali Pers, 2015.

[17] R. Sembiring, “Pengaruh Motivasi dan Kemampuan Managerial terhadap Kinerja Usaha Kecil Dan Menengah Di Kota Medan,” J. SULTANIST, vol. 4, no. 1, p. 65–70., 2016.

[18] R. Sampar and S. Priyanto, “Hubungan antara Prestasi Praktik Kerja Industri dan Prestasi Belajar Mata Pelajaran Kewirausahaan dengan Minat Berwirausaha,” J. Taman Vokasi, vol. 6, no. 1, 2018.

[19] H. B. Uno, Perencanaan Pembelajaran. Jakarta: Bumi Aksara., 2014.