

# What Determines Students' Performance in Introductory Accounting Classes? A Mixed Method

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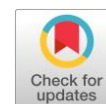
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## ABSTRACT

This study investigated factors determining students' performance in the Introductory Accounting classes. It was carried out using a mixed-method approach. Three research hypotheses based on the results of prior studies were tested using regression analysis. Additionally, a qualitative approach using thematic analysis was used to identify factors influencing students' performance. The study involved 90 students who were selected using the purposive sampling method. Secondary data related to those students were gathered through a documentation procedure, whereas primary data were obtained through interviews and observation involving those sample students. The results of the quantitative analysis showed that motivation had a positive impact on students' performance in Introductory Accounting classes. It was also observed that female students had better performance than male students. However, this study did not find accounting educational background as a significant variable in determining students' performance. For the thematic analysis, the study observed nine factors influencing the students' performance in Introductory Accounting classes. Those factors were related to lecturers, learning method, classroom, family background, references, assignments, tutor, and group study. This study contributes to the upward literature in accounting education. It also provides an insight for the Accounting Study Program in higher education institutions in designing accounting curricula, for lecturers in designing learning processes, and for accounting students in understanding the determinants of their performance.



## KEYWORDS

Accounting students' performance  
Gender  
Motivation  
Mixed method  
Educational background



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## Introduction

In the last few decades, competition in the accounting services market has become increasingly challenging for both Indonesia's current and prospective accountants. Though the competition might already be challenging due to the influx of foreign practitioners that came after their permitance in the early 2000s, it has yet to loosen. In 2017, the Indonesian Minister of Finance issued a regulation on registered accountants (Minister of Finance's Regulation Number 216/PMK.01/2017, 2017). One of the verses in the regulation provides regulation on foreign accountants, implying that foreign accountants in Indonesia are legal/protected by the law. As a result, Indonesian current and prospective accountants must be prepared to compete with foreign accountants who usually understand both theories and practice better than local accountants.

The implementation of accounting liberalization also tightened the competition in accounting services in Indonesia. According to Kartikasasi (2005), the liberalization involved the creation of a new institution as an authority for the accounting industry in ASEAN, including certified public accountants. Since the introduction of the ASEAN Economic Community in 2016, accountants who hold a Certified Public Accountant (CPA) license can enter and operate in every country in ASEAN. However, a study conducted by Putri (2016) reported that Indonesian accountants' current acquired competency was insufficient to win the competition in the ASEAN Economic Community.

Following the accounting service industry competition, as mentioned earlier, Indonesia has to improve the qualifications of accountants and prospective local accountants. Furthermore, as providers of accountant services, accounting education institutions will also get the impact. The institutions,

especially higher education institutions (universities), must try to improve the ability and quality of their students.

Previous studies in accounting education like Onay and Benligiray (2018) have found that accounting students must understand accounting basics to achieve a good level of ability and quality. With good knowledge of accounting basics, the students will gain a solid foundation in studying accounting in the following years. Students with a solid foundation will find it easier to learn and master accounting. After graduation, they will be better prepared to enter the competition for accounting services.

At a university level, the basics of accounting are usually studied in the first semester, which is in the Introductory Accounting course. If students succeed in taking the Introductory Accounting class, they will be more likely to have a strong foundation for studying the following courses. Given this, lecturers of Introductory Accounting courses need to understand what factors determine their students' performance. By understanding the factors, the lecturer will be able to create and or adjust a conducive teaching and learning process.

Research on factors influencing the performance of accounting students in Introductory Accounting classes has been widely carried out internationally (Schroeder, 1986; Mitchell, 1985; Tan, Chan, & Tan, 1988; Doran, 1991; Keef & Hooper, 1991; Keef, 1992; Ayeung, 1993; Lynn, Shehata, & White, 1994; Rohde, 1996; Lee, 1999; Rankin, Silvester, Valley, & Wyatt, 2003; Jansen & de Villiers, 2016; Everaert, Opdecam, & Maussen, 2017; Onay & Benligiray, 2018; Papageorgiou & Callaghan, 2020; Sari & Suryani, 2021). The previous studies from the last five decades found that education background, learning motivation, and student gender significantly affected students' performance in Introductory Accounting classes. Additionally, Tan et al. (1988), Keef (1992), Keef and Hooper (1991), Ayeung (1993), Rohde (1996), and Lee (1999) found that students with accounting education in high school performed significantly better than students without accounting background.

Departing from the description above, the current researchers were interested in understanding whether some of the factors found to influence students' performance in Introductory Accounting classes in various countries also applied in Indonesia. As most of the previous studies were carried out in developed countries, replicating the studies in the Indonesian context might enrich the development of accounting education in developing countries. As in other developing countries, Indonesian accountants need to improve their knowledge and skills to win the global competition. The education support system in developing countries is usually not as good as in developed countries. Therefore, higher education institutions in developing countries need to design the best way to enhance accounting students' knowledge, skills, and experience.

Additionally, the current researchers were also interested in exploring other possible factors affecting students' performance in Introductory Accounting classes. Unlike the previous studies that were only quantitative, this present study applied both quantitative and qualitative approaches. It did not only use secondary data for hypothesis testing, but it also utilized primary data gathered from interviews and observation to explore any other possible factors influencing accounting students' performance. Hence, the first aim of this study was to investigate whether student educational background, student motivation, and gender impacted students' performance in Introductory Accounting class. Secondly, this study also aimed to identify other factors influencing students' performance in Introductory Accounting class.

This study was limited to students who took the Introductory Accounting 1 course at the Accounting Study Program, Universitas Ahmad Dahlan, for the 2018/2019 academic year. Hopefully, this study may provide an insight into the development of accounting education. Practically speaking, this research is expected to provide input for Accounting Study Programs in both public and private universities and Introductory Accounting lecturers to design the learning model and curriculum. It is also expected that this study will help accounting students understand factors influencing their performance to act accordingly

## **Literature Review**

Previous studies on accounting education, especially those discussing students' performance in attending Introductory Accounting classes, had a similar objective. The studies aimed to analyze various factors influencing students' performance in Introductory Accounting. The studies can be grouped into three groups based on the variables being investigated.

The first group of studies analyzed the effect of educational background on students' performance in Introductory Accounting class. Those studies included Tan et al. (1988), Keef (1992), Keef and Hooper (1991), Auyeung (1993), Rohde (1996), and Lee (1999). The educational background was related to whether the student had an accounting subject in high school. By using the ANOVA analysis, most of the studies reported that students who had received accounting subjects during their education at high school had better abilities than students who had never received accounting subjects before. Only Keef (1992), in a study conducted in New Zealand, did not find a significant effect of high school accounting education on students' performance in introductory accounting classes. It means that, in general, the experience of accounting education in high school has a significant effect on students' performance in taking introductory accounting classes.

The second group of previous studies included the analysis of academic ability's impact on students' performance in introductory accounting courses (Schroeder, 1986; Booker, 1991; Kukreja and Ali, 2013). Because these studies aimed to determine the effect of one dependent variable, which was academic ability, on the performance of accounting students in attending introductory accounting courses, the analytical tool used was univariate analysis. Previous studies used different measurements for students' academic performance. Eskew (1988) used scores from college entrance tests to measure student academic ability, while Schroeder (1986) used final high school exam scores. Meanwhile, Booker (1991) and Kukreja and Ali (2013) used the value of the student achievement index to measure students' academic ability. Although using different measurements, all of these studies showed a similar result: academic ability significantly affected students' performance in Introductory accounting courses. Furthermore, it is known that students' academic ability has a positive influence. The higher the test scores for the college entrance exams or the higher the final exam scores during high school or the higher the student achievement index, the higher the student's ability to attend lectures.

The third research group is studies that aimed to analyze factors that influence students' performance in taking introductory accounting courses. The studies included Eskew (1988), Farley (1988), Doran (1991), Thoo (1994), Rohde (1996), Lee (1999), Rankin et al. (2003), Jansen and Villiers (2016), Everaert et al. (2017), Onay and Benligiray (2018), Papageorgiou and Callaghan (2020), and Sari and Suryani (2021). These studies utilized multivariate analysis and found several factors affecting students' performance in introductory accounting courses. The factors included educational background, academic ability, motivation to learn, and student demographic factors such as age, gender, and place of residence.

A study conducted by Eskew (1988) found educational background as a significant variable affecting students' performance in Introductory Accounting courses in America. The educational background was measured using a dummy variable of 1 if students had received accounting education in high school and 0 if they did not. Additionally, it also found that academic ability as measured by university entrance test scores and motivation to study as measured by class attendance had a positive effect.

Next, Thoo (1994) attempted to analyze whether accounting education in high school, grades in Mathematics in high school, high school final exam scores, student gender, student age, and student residence significantly influenced student performance in Malaysia. In line with the findings of Eskew & Faley, Thoo also found that accounting education in high school, high school mathematics scores, high school final exam scores, and class attendance had a significant effect. Furthermore, although it was found that gender had a significant impact, Thoo was unable to prove that students' age and place of residence had a significant effect.

More recent studies involving many independent variables were carried out by Jansen and Villiers (2016), Everaert et al. (2017), Onay and Benligiray (2018), and Sari and Suryani (2021). They examined the effect of accounting education in high school, university entrance test scores, high school final exam scores, student age and place of origin, learning method, motivation to study, and gender on students' performance in introductory accounting classes. In line with other studies, these studies found that accounting education in high school, high school final exam scores, and class attendance positively affected student ability.

Based on the review of the relevant literature, it can be concluded that, generally, accounting education in high school is the most dominant factor in influencing the performance of accounting students in taking Introductory Accounting courses. The other variables that had a significant effect were university entrance test scores, followed by high school final exam scores, Mathematics subject

scores, student motivation, and gender. In this current study, the researchers only focused on analyzing the effect of accounting education in high school, student motivation, and student gender. The present study did not examine the impact of university entrance exam scores and high school final exam scores because the University of Ahmad Dahlan, from which the samples were selected, did not publish data related to both scores.

### **Hypotheses Formulation**

Based on the review of the relevant literature, the current researchers proposed three hypotheses in this study. The development of the three hypotheses is presented in the following discussion.

#### **The Effect of Educational Background on Students' Performance**

The first hypothesis was related to the impact of educational background on students' performance in Introductory Accounting class. The educational background referred to in this study was accounting education in high school. Students who have received accounting lessons during high school already have an initial understanding of accounting. It made it easier for them to take Introductory Accounting classes. Therefore, they tend to have a better performance than students without accounting lessons during their time in high school.

The earlier statement was supported by studies like Thoo (1999), Everaet et al. (2017), and Onay and Beligiray (2018). They found that educational background positively affected students' performance in Introductory Accounting. Therefore, the first hypothesis in this study was formulated as follows:

H1. Educational background positively affects students' performance in Introductory Accounting classes.

#### **The Effect of Learning Motivation on Students' Performance**

The second hypothesis of this study was related to the effect of learning motivation on students' performance in Introductory Accounting classes. Theoretically, attending classes regularly without skipping class would allow students to learn more. The possibility of a diligent student succeeding in achieving learning goals is higher than a less diligent student. Students who never missed a class were considered students with high motivation to study. Therefore, high motivation students could be associated with better performance.

Research conducted by Thoo (1999), Everaet et al. (2017), as well as Onay and Beligiray (2018) supported the earlier explanation. Therefore, the second hypothesis in this study was formulated as follows:

H2. Learning motivation positively affects students' performance in Introductory Accounting classes.

#### **The Effect of Gender on Students' Performance**

The third hypothesis was about the effect of gender on students' performance in Introductory Accounting class. Theoretically, male and female students have different psychological and physical characteristics. These differences can cause differences in the way and enthusiasm of learning.

Previous studies on the effect of gender on students' performance in Introductory Accounting, such as Rankin et al. (2003), Jansen and Villiers (2016), Everaet et al. (2017), and Sari and Suryani (2021), also found that gender affected the performance of students in Introductory Accounting class. Based on this explanation, the third hypothesis in this study was formulated as follows:

H3. Gender affects students' performance in Introductory Accounting classes.

## Research Method

This study was conducted based on a combination of quantitative and qualitative approaches. The subjects of this current study were students of the Accounting Study Program of Universitas Ahmad Dahlan, and the samples were selected based on the purposive sampling method. The criteria used in choosing the samples were as follows: 1). The student should take Introductory Accounting course year 2018/2019 managed by the researchers; 2). The student had to pass the Introductory Accounting course with a minimum score of 40 (similar to a final score of D). Based on these criteria, the final sample for this study was 90 students.

The data used to achieve the objectives of this study were both secondary and primary data. The secondary data that were documented from the university's Academic Information System were used to achieve the first research objective. In contrast, primary data collected from semi-structured interviews were used to achieve the second objective. The interviews involved 90 students selected as the sample of this study. All the students were asked their opinion about what determines their performance in Introductory Accounting classes and what made the learning easier.

Additionally, the researchers also carried out a series of observations during the learning process in the classroom. The observation results could be used to verify the interviews' results. They might also allow the researcher to understand better the theme being investigated.

This study utilized one dependent variable and three independent variables to achieve the first research objective. The dependent variable was students' performance in Introductory Accounting and measured by the final score earned by each student for the subject (abbreviated with "Score"). The independent variables were educational background (abbreviated with "Edu"), learning motivation (abbreviated with "Mot"), and gender (abbreviated with "Gen"). Educational background was measured by dummy variable one if the student had an accounting lesson in their high school and 0 otherwise. The motivation variable was measured by the number of days the student attended the class, whereas gender was measured by dummy variable 1 for male students and 0 for female students.

Since this study used a mixed-method approach, it applied both quantitative and qualitative data analysis methods. The quantitative data analysis methods were descriptive statistics and multiple regressions. The descriptive statistics were used to summarize the data, including testing the frequency distribution, dispersion, and central tendency. Multiple regression analysis was used to test the hypotheses so that the researchers could achieve the first research objective. Based on the three research hypotheses and the measurements of the variables, the regression model proposed by the researchers is presented in Equation 1.

$$\text{Score} = \alpha + \beta_1\text{Edu} + \beta_2\text{Mot} + \beta_3\text{Gen} + \varepsilon \quad (\text{Equation 1})$$

Before performing multiple regression analysis, the researchers conducted classical regression assumptions tests to ensure that the assumptions were met. By referring to Bryman and Cramer (1999), Santoso (2001), and Green and Salkind (2017), the current study performed three classical assumptions tests. They were the test of normality, multicollinearity, and heteroscedasticity. The normality of the residual data was tested using the One Kolmogorov Smirnov test. If the significance of the test results is more than 5%, it means that the residual data in the multiple regression analysis of this study were normally distributed—Vice versa. For the multicollinearity assumption, the VIF (Variant Inflation Factor) value has been used the test the assumption. Netter, Wasserman, and Kutner (2004) stated that if the VIF value was more than 10, there would be multicollinearity. However, Montgomery, Peck, and Vinning (2012) and Santosa (2001) were more careful by saying that multicollinearity occurred when the VIF value was more than 5. For the homoscedasticity assumption, the Glejser test was applied to test the assumption. The test was done by regressing the three independent variables against the absolute value of the residual data.

With regard to the qualitative data analysis, this study applied thematic analysis to achieve the second research objective. According to Nowell, Norris, White, and Moules (2017), thematic analysis is a qualitative research method for identifying, analyzing, organizing, describing, and reporting themes within a data set. It can be used to understand text or information sources that allow researchers to make valid inferences and see patterns to reflect on relevant theories with the meaning being studied (Krippendorff, 2004). The researchers used Nvivo to undertake the analysis, involving data reduction, data display, and conclusion (Miles, Huberman, & Saldana, 2014).

To ensure the validity of the qualitative analysis, the researchers carried out four validity tests. Referring to Creswell and Miller (2000), Nowell et al. (2017), and Moser and Korstjens (2018), the tests were listed as follows: Firstly, the credibility test. The test was intended to check the reliability of the data collected by the researcher. It was conducted through triangulation of research data collection methods. Secondly, the transferability test. It was used to ensure that the data collected in the study could be applied to other contexts with the same characteristics and settings. Thirdly, the dependability test. It aimed to ensure that all research findings were supported by data collected from research participants. Finally, the conformability test was used to ensure that the research results were a function of the research process.

## Results and Discussion

### Descriptive Statistics Analysis Results

As mentioned earlier, this study involved 90 students in Introductory Accounting classes managed by the current researchers. The descriptive statistics of the students are summarized in Table 1 and Table 2.

Table 1. Description of the Participants

Gender	N
Male	45
Female	45
Educational Background	N
Accounting	60
Non-accounting	30

Source: Authors (2022)

Table 2. Descriptive Statistics

	Final Score	Days of attendance
Means	82.59	13.51
Minimum	55.00	11.00
Maximum	98.00	14.00
Standard Deviation	11.96	0.74

Source: Authors (2022)

Table 2 shows that the average value of the final score obtained by the students of Introductory Accounting was 82.59. It indicates that, on average, the students involved in this study had a high understanding of Introductory Accounting. The minimum value obtained was 55 or equivalent to a C value. The table also shows a standard deviation close to 12. It shows that the score obtained by the students in the Introductory Accounting classes spread close to the average value. It means that the variation in the students' performance was relatively low.

Table 2 also provides an overview of the number of days the students attended the Introductory Accounting class. The average attendance was 13.5 days, with a minimum score of 11 days and a maximum of 14 days. It means that the class attendance rate could be classified as high. It could be because University Ahmad Dahlan enforces a regulation stating that the minimum attendance in class is 75% (11 days).

### Multiple Regression Analysis Results

Multiple linear regressions were used to achieve the first research objective to analyze the effect of educational background, gender, and learning motivation on students' performance in Introductory Accounting class. However, as previously explained, the regression analysis results could be considered good if all the underlying classical assumptions were met.

The first classic assumption test was the normality test. The One Kolmogorov Smirnov test results showed a significance value of 0.113. As the significant value was higher than 5%, the researchers concluded that the residual data of this study were normally distributed. Thus, the assumption of normality was met. Concerning the multicollinearity test, the variance inflation factor values of the three independent variables were less than 2. It indicated that there was no multicollinearity problem among the independent variables. Thus, this regression model met the multicollinearity assumption. For the heteroscedasticity test, the results of the Glejser test showed that the significance value of the F test was 0.35. As 0.35 was higher than 5%, the heteroscedasticity problem did not exist in the model proposed by the current researchers.

Since the results of the classic assumptions tests met the requirements, the multiple regression model could be used to test the research hypotheses. The multiple linear regression results are summarized in Table 3.

**Table 3.** Summary of the Multiple Regression Analysis Results

Variables	Expected direction	Beta Coefficient	Significant value of t-test	Decision
Constant		85.120	0.000	
Educational background	+	0.238	0.363	H1 rejected
Motivation	+	0.378	0.027	H2 accepted
Gender	+/-	-0.477	0.049	H3 accepted
Significant value of F test: 0.009				
F (statistic): 4.121				
Adjusted R <sup>2</sup> : 0.095				

Source: Authors (2022)

The results of the multiple linear regression, which are summarized in Table 3, show the F test's significance value of 0.009. Because the value of 0.009 (0.9%) was below the significance value of  $\alpha$  (1%), it could be concluded that, at the 99% confidence level, at least one of the three independent variables (gender, educational background, or learning motivation) could affect students' performance in Introductory Accounting class. It implied that the regression model fitted the goodness of fit criteria. Additionally, the table also shows the adjusted R<sup>2</sup> value of 0.095. It means that 9.5% variation in students' performance in Introductory Accounting classes was affected by gender, learning motivation, and educational background. The remaining 90.5% was influenced by other variables that were not examined in this study.

Table 3 also reports the results of partial analysis using the t-test. It is shown in the table that two of the three research hypotheses proposed in this study were accepted. However, this study failed to support the first hypothesis. The educational background variable had a t-test significant value of 0.363. The value was higher than 5% value of  $\alpha$ , indicating that the educational background did not significantly affect students' performance in Introductory Accounting class.

Table 3 illustrates that the motivation variables had a t-test significant value of less than 5%. Additionally, the coefficient beta of the variable had a similar sign as expected in the second hypothesis. Thus, the second hypothesis was accepted, confirming that learning motivation positively affected students' performance in Introductory Accounting class.

It is also clear from Table 3 that the gender variable had a t-test significant value lower than 5%. Furthermore, the negative sign of the coefficient beta indicated that female students measured using dummy variable 0 had a better performance than male students.

Based on the regression analysis results summarized in Table 3, the current study proposed a final regression model that can be used to explain factors influencing students' performance in Introductory Accounting classes. The model is presented in Equation 2.

$$Score = 85.120 + 0.378Mot - 0.477Gen \quad (\text{Equation 2})$$

### Qualitative Analysis Results

The qualitative analysis was used to achieve the second research objective to identify other possible factors affecting students' performance in Introductory Accounting class. It could also strengthen the quantitative analysis findings that reported the low ability of educational background, gender, and motivation in determining students' performance (9.5% only).

As previously explained, to ensure the validity of the qualitative analysis, the researchers conducted several tests. The test consisted of a credibility test, transferability test, dependability test, and conformability test. The credibility test was carried out through triangulation of data collection methods in interviews, observations, and documentation. The data obtained through interviews, observations, and documentation did not contradict one another. For the transferability test, the researchers that were also the Introductory Accounting lecturers applied

the findings from interviews and observations in the following academic year (2019/2020). In addition, the interview and observation results were understood and implemented by other lecturers of the Introductory Accounting course.

Furthermore, all data collection processes were documented in interview transcripts, observation field notes, and data tabulations. The documentation allowed the reviewer appointed by the research fund donor to track the research process, thus, ensuring dependability and conformity of the qualitative analysis. Finally, the researchers could guarantee the qualitative analysis's credibility, transferability, dependability, and conformity.

As mentioned earlier, qualitative data analysis was carried out using thematic analysis. Referring to Miles *et al.* (2014), the analysis was conducted in three steps, which were data reduction, data display, and conclusion drawing. The data reduction process to produce phrases related to the factors that affect students' performance in Introductory Accounting class was carried out with the assistance of Nvivo.10 software. There were nine phrases identified from the data reduction process. Of the ten phrases, two phrases were considered the most important. These two phrases were presented in the following discussion.

The first factor determining students' performance in Introductory Accounting was an exciting learning method. Almost all students (95%) agreed that Introductory Accounting that did not only relate to cognitive (knowledge) but also psychomotor (skills) should be implemented using a combined method of tutorial, discussion, and independent work. Almost half of the students said that if the learning method was only conducted based on tutorials, students found difficulties in achieving the learning objectives. Therefore, the researchers divided the Introductory Accounting class into three sessions for each meeting. The first session was a tutorial; the second session was a small group discussion; the third session was independent work. In the second session, the researchers observed each student by identifying their level of understanding. If there were students who seemed to be passive or confused, the lecturer came to the small group and gave a more detailed explanation in the small group. Then, each student was asked to do their practice for the independent work session to test their respective abilities.

The second factor influencing students' performance in Introductory Accounting was professional and caring lecturers. Most of the students (80%) said that professional and caring lecturers helped them achieve the learning objective of the Introductory Accounting class. According to them, experienced lecturers could thoroughly explain accounting. Therefore, Introductory Accounting should not be taught by junior lecturers. The interview results also showed that, on average, students with educational backgrounds from public schools (non-accounting) have never heard of the terms debit and credit. Therefore, professional and caring lecturers were needed. The results of the researcher's observations suggested that accounting with a mathematical approach was a relatively easy way to explain the concept of debit and credit to non-accounting students. As previously stated, the division of classes into small groups also requires lecturers with a high level of patience.

In addition to the two factors mentioned earlier, the results of interviews supported by observations found seven other factors that could affect students' performance in Introductory Accounting class. All of the factors identified from the interview and observation are displayed in Table 4.

Table 4. Qualitative Analysis Results

Factors determining the performance of students in Introductory Accounting	Number of students
Interesting learning method	82
Professional and caring lecturers	72
The availability of reference and exercise book	70
Individual task and homework	69
Additional class by tutor	65
Study in group	60
The use of simple words in the classroom	50
Comfortable classroom	35
Family support	10

Source: Authors (2022)

## Discussion of the Results

### *The effect of educational background on students' performance*

The current study failed to support the first hypothesis (H1), stating that educational background positively affected students' performance in Introductory Accounting class. It reflected that educational background did not significantly affect students' performance in Introductory Accounting.

The finding was different from the results of previous studies (Tan *et al.*, 1988, Keef and Hoper, 1991; Ayeung and Sands, 1993; Rohde and Kavanagh, 1996; Suk and Lee, 1999; Eskew and Faley, 1988; Thoo, 1999; Everaet *et al.*, 2017). However, this finding supported the findings reported by Keef (1992). In investigating the



factor influencing students' performance in Introductory Accounting class in New Zealand, Keef (1992) did not find educational background as a significant variable either.

As the educational background was insignificant in influencing students' performance in Introductory Accounting, the researchers conducted additional analysis to compare the score of Introductory Accounting between students with accounting and non-accounting educational backgrounds. Table 5 compares students' performance with accounting and non-accounting backgrounds.

**Table 5.** Group Statistics Results

	<b>Educational Background</b>	<b>n</b>	<b>Means</b>	<b>Standard Deviation</b>	<b>Std. Error Mean</b>
Score	Non-accounting	30	80.20	10.893	1.989
	Accounting	60	83.78	12.380	1.598

Source: Authors (2022)

Table 5 shows that, on average, students with an accounting education background have better performance in Introductory Accounting than students with non-accounting backgrounds. Furthermore, the researchers conducted the Mann-Whitney U test to determine whether the difference was statistically significant. The results of the test showed a significance value of 0.123. As the significance value of  $z$  was higher than 5%, it can be concluded that there was no significant difference between the students' performance with accounting and non-accounting educational backgrounds was statistically insignificant. So, although the average score of students with an accounting education background was higher than that of non-accounting students, the difference between both subgroups was not significant. This finding strengthened and clarified why the researchers could not support the third hypothesis of this study.

The current researchers identified a possible explanation for the insignificant effect of educational background on students' performance. At the beginning of the semester, the researchers, who were also the lecturers of the Introductory Accounting classes, identified students who had no accounting educational background in their high school. One third of the students had no accounting educational background and did not even hear debit and credit concepts. Since all of them came from natural sciences classes, who were usually good in Mathematics, the researchers applied a Mathematical approach to teaching the Introductory Accounting course. The use of the Mathematical approach seemed helpful for the students without accounting backgrounds so that their performances did not significantly differ from the students with accounting educational backgrounds. This explanation was in line with the qualitative findings confirming that students with non-accounting educational backgrounds found it easier to understand the debit and credit concept through a Mathematical approach.

#### ***The effect of learning motivation on students' performance***

The result of the regression analysis suggested that this study managed to support the second hypothesis. It was evidenced from the analysis that learning motivation positively affects students' performance in Introductory Accounting course. As students' motivation got higher, their performance in Introductory classes would improve. In the context of the current study, the higher the number of days students attended in the class, the better their final score in the Introductory Accounting course they would get. The results of the second hypothesis testing supported the findings of Thoo (1999) and Everaert *et al.* (2017),

#### ***The effect of gender on students' performance***

The third hypothesis testing using multiple regression confirmed that the hypothesis was accepted. It means that gender affects students' performance in Introductory Accounting. Furthermore, the beta coefficient of the gender variable had a negative sign, indicating that gender negatively affected students' performance in Introductory classes. Since the gender variable in this study was measured using dummy variables 1 for male students and 0 for female students, the current researcher further concluded that those female students had better performance in Introductory Accounting than their male counterparts. The results of the third hypothesis testing supported the results of prior research conducted by Rankin *et al.* (2003), Jansen & Villiers (2016), Everaert *et al.* (2017), and Sari & Suryani (2021).

#### ***The other factors influencing students' performance***

Apart from the quantitative analysis results confirming that learning motivation and gender could determine students' performance in Introductory Accounting classes, the qualitative analysis in this study noted nine other factors that might also help determine students' performance. Factors associated with learning methods, lecturers, book references, tutors, discussion groups, assignments, classroom facility, and family were among the other factors determining students' performance in Introductory Accounting classes identified by the researchers from interviewing the students.

The qualitative analysis findings could be further analyzed to overcome the limitation of this study's quantitative analysis result. As stated earlier, the regression model resulting from the quantitative analysis only explained a 9.5% variation of the students' performance in Introductory Accounting classes. The 90.5% remaining could be explained by other factors, including factors identified from the qualitative analysis.

### Conclusion, Limitation, and Suggestion

This study supported the hypotheses on the effect of gender and learning motivation on students' performance in Introductory Accounting class. It was evidenced that female students had better performance in Introductory Accounting class than the male students. This study also provided evidence that learning motivation positively affected students' performance in Introductory Accounting classes. Contrary to what was expected, this study failed to support the effect of educational background on students' performance in Introductory Accounting class. It was reported that students with accounting educational backgrounds had performed better than those without an accounting background. However, the difference was not statistically significant. This study also found that there were nine other factors considered by students that could affect their performance in Introductory Accounting class. Those factors included interesting learning methods, professional and patient lecturers, reference books and exercises, homework and assignments, additional class by a tutor, simple language, study groups, comfortable classrooms, and parents' or families' support.

The current study had limitations related to the research model that could not explain the studied phenomenon. Therefore, it was recommended that further researchers add other factors that have not been studied in the quantitative analysis of this study. The results of the qualitative analysis could be taken into consideration in selecting any independent variables to be included. Additionally, this study only involved 90 students from one university. Therefore, the researchers suggested that future researchers should involve more students, not only students from one batch and one university.

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