

Understanding of Principal Accounting Subject Based on Gender and Mathematics Ability:

Empirical evidence from Indonesia

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Abstract—Student accounting capabilities begins with an understanding of principal accounting courses. This has been the main focus to note in the accounting students before learning attended the advanced courses in accounting. Therefore, this study aims to explore the difference between gender and mathematics ability to support understanding of principal accounting courses. This research was conducted at the accounting level 1 all students who take the principal accounting courses 1 and mathematical economics with 272 samples of students. This study uses an independent sample test to analyze the difference between the student's understanding of principal accounting courses based on gender and economic mathematics ability. The research results show that there is a difference in ability in principal accounting course 1 based on gender and performance of mathematical economics subject. These results indicate that the average student women have a higher value compared with the men's student, thus demonstrating a better understanding of principal accounting courses 1.

Keywords—gender; math ability; understanding of accounting

I. INTRODUCTION

The ability of accounting students in the principal accounting course is an important factor that plays a role in reaching an understanding of the other accounting courses. Level of understanding possessed by students of accounting can also be associated with gender. This is in accordance with the opinion of Marks and Marks [1] that gender differences also influence performance in reading skills as well as mathematics. In analyzing the ability level of students in principal accounting course can also be attributed to the ability of its performance on economic mathematics courses.

A phenomenon related to the comprehension of the students against the principal accounting course is the important things that need to be examined further. Considering there are still students who lack an understanding of accounting principles courses, so will hinder the understanding of accounting courses at the other. In this case, gender is considered related to the student's level of understanding in accounting courses. In addition to gender, the accounting student performance is reflected in the results of the evaluation of the economic mathematics course can also support student

comprehension in courses generally accepted accounting principles.

A variety of research that examines the role of gender in understanding certain has done. Byrne and Marks [2] indicates there is no significant relationship between gender and understanding in the field of accounting. Similar research by Uyar and Güngörmüş [3], who found no evidence of a significant relationship between gender with student performance. Similarly, research conducted Okafor and Egbon [4] that concluded there was no significant difference in academic performance between students of both men and women, although male students have on average a higher value compared to women students. Guney [5] also concluded can't detect relationships between gender with performance.

On the other hand, Gracia and Jenkins [6] concludes there is a positive relationship with gender performance. Gammie et al. [7] stated that a system of distance learning (distance learning), female student higher performance than his men on the subject of accounting and auditing in the first year, while in the last years there is no the difference in performance between students of both men and women. Instead, Koh [8] who found evidence that male students better test performance than his female students. Similar with Koh [8], Masasi [9] concluded that male students better performance compared to his freshman women.

Other research linking emotional intelligence with an understanding of accounting. This means that people who understand accounting is a clever person and understand correctly about accounting. In this understanding of accounting will be measured by the value of several accounting courses, namely introduction to accounting, financial accounting, financial accounting, management accounting, auditing, and accounting.

Other opinions delivered Fadila and Listiadi [10] indicating that the results of the study are obtained good Introductory Accounting courses and mathematics Economy was already good. But in fact, students who colonized the basic concepts of accounting and good math skills have not necessarily had a high level of understanding in the absence of interest in learning and confidence. Based on the observation that

researchers do point to some students who are less interested in following the learning process accounting. This is proven by there are some students who do not pay attention to the explanation lecturer during the learning process takes place, they would instead prefer to chat with a friend or play mobile.

Assessment or evaluation is basically given consideration or price or value based on certain criteria. So, it can be assumed that the results obtained by economic mathematics learning through the giving of value will become the benchmark in ease calculations in accounting. In addition, the existence of mathematical ability is a very supported level of understanding of accounting because it will help students to think logically and easily perform calculations in accounting. In addition to mathematical economics courses are becoming scarce results learn intermediate financial accounting 1 on accounting education student. The next level of understanding of introductory accounting, in the first half, introduction to accounting is a mandatory subject that should be pursued by the accounting student. It is expected students can understand the basic concepts of accounting properly due to the introduction of accounting can support the understanding of courses of intermediate financial accounting 1. An introductory understanding of accounting can be expressed in the form of value. The value of the principal accounting course is in good enough. But students still often have difficulty in attended courses of intermediate financial accounting 1.

The existence of previous research results as well as the difference of the phenomenon is still lack of ability of accounting students on an introductory accounting course 1, so this research is done by testing the return gender differences and the ability of mathematics in support understanding of Introductory Accounting courses 1.

A. *Research Question*

- Is there a difference in performance in Introductory Accounting course 1 based on gender?
- Is there a difference in performance in Introductory Accounting course 1 based on economy mathematic ability?

B. *Research Objectives*

- To test empirically the difference in performance on the course Introduction to Accounting 1 based on gender.
- To test empirically the difference in performance on the course Introduction to Accounting 1 based on the ability of mathematical economics.

C. *Students Performance*

Students Performance is used to measure the success of the students attended courses of accounting which are usually measured to a degree value (grade) good test scores, as well as the final value, achieved students are concerned. In some research, students' performance is used to measure the success of a study of college students in the first, second, third, and overall achievement after finishing studies in accounting program. These studies measure a student's performance based

on the final value of introductory accounting courses that the student earned.

D. *Gender*

Gender is a variable that is widely researched and the results are not always consistent. The use of the variable gender is to predict whether the gender (sex) have a relationship or influence on its success in accounting. Gender is distinguished in the male (male) and female (woman) to show the characteristics of what is the nature of masculinity may be more successful (outperform) in the field of accounting than femininity, or vice versa.

Gender has been investigated by Byrne and Flood [2] its effects on academic performance in students of accounting with the results of the first year there was no significant relationship.

Some results of research on gender relationship with student performance on the above conclusion that the results of the study found contradictive evidence and inconclusive (unable to be concluded).

E. *The Mathematics Ability*

Yunker et al. [11] says that the accounting disciplines associated with the measurement accurate figures of measurement concepts that are defined appropriately. This means that the accounting practitioner should feel comfortable with math in the sense of general or figures in a special sense. Most educators believe that the accounting field arithmetic ability is important for students to understand the accounting system and the analysis of the financial statements. It appears clear that successful academics and professional accounting supported by mathematical ability is high.

Furthermore according to Yunker et al. [11], most business schools have implemented the terms of Mathematics (basic matrix algebra and calculus), but still applied to a limited extent, as a result, many students put off following the lecture Mathematics until their late in finishing college. The results of his research towards 535 students in the Midwestern United States State University concluded the math skills of a high and influential positive correlated significantly to accounting performance.

These findings support previous research by Wong and Chia [12] with significant conclusions on a higher level. Similar to that High school level grades in Mathematics certificate, by Gul et al. [13] found influential significantly to student performance. The results also found support by Uyar and Güngörmüş [3], found evidence of a significant relationship exists between the mathematics grade with student performance. Student success in mathematics will be successful also in college accounting because accounting is part of the lesson as well as numerical mathematics.

Contradictory results obtained Masasi [9] that concluded the math skills associated with insignificant negative student performance. Koh [8] conclude that the mathematics background affects performance, Koh [8] assess if the program requires quantitative ability and accounting calculations, then a student who has a good mathematical background, of course,

would be better on research results, but this is not consistent with the expected.

The accounting framework of thought is one of the many courses of interest by prospective students in determining the choice of College. Many accounting students who come from a background that doesn't match with the knowledge required in the following range of courses in accounting courses. However, the math skills to become one of the important factors taken into consideration in determining the capability in the field of accounting. On the basis of gender, male students and female students have a difference in motivation, empathy or social skill, so that may give rise to different evaluation results. The existence of gender differences as well as the ability in terms of mathematics was considered as a factor that can affect the ability of the students in the generally accepted accounting principles.

Therefore, this study was conducted to examine gender differences, math skills and understanding in accounting principles courses on accounting level 1 student. The following research framework in this study:

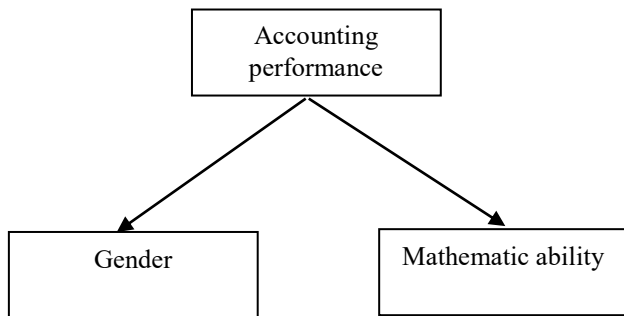


Fig. 1. Research framework.

II. RESEARCH METHODS

This research was conducted with methods of study documentation, that is done by way of obtaining data about performance in Introductory Accounting course 1, mathematical economics courses, as measured by the value of the final acquisition courses Introduction to Accounting and mathematical economics. Population and sample in this research are the entire accounting student at the University of Swadaya Gunung Jati level 1 who took the introductory Accounting course 1 Mathematics and Economics of 272 students.

Variable measurement in this study are:

TABLE I. VARIABLE MEASUREMENT

No.	Variable	Measurement	Scale
1.	Gender	0 = female 1 = male	Nominal
2.	Mathematics ability	Score	Ratio
3.	Accounting Principal	Score	Ratio

A. Data Analysis Techniques

1) *Descriptive statistics*: The descriptive statistics analysis is used to describe the condition of the data variable in terms of research value is minimal, maximal values, average, and standard deviation.

2) *Independent sample test*: Test different independent sample test is done to test the difference in performance on subjects generally accepted accounting principles in terms of the gender aspect as well as the ability of mathematical economics.

B. The Test of the Hypothesis

Test the hypothesis in this study was done through different independent test sample test, to test the difference 2 sample groups are not related. The results of hypothesis testing views based on the value of the acquired significance, that is, if the value of significance <0,05, it means=there is a difference, if the value of significance >0,05, it means that there is no difference.

III. RESULTS AND DISCUSSION

A. Profile of Respondents

The following table shows the profile of the respondents in this study:

TABLE II. GENDER

Gender	Amount	Percentage
Male	50	18,4%
Female	222	81,6%
Total	272	100%

Source: secondary data are processed (2018)

Based on table 2 indicate that the number of accounting students who take courses in economic mathematics courses and introductory accounting with the male gender as much as 50 students (18.4%) and women as many as 222 (81.6%).

The following table shows the description of the value data of mathematical economics and introductory accounting review of gender.

TABLE III. DESCRIPTIVE STATISTICS

Subject	Gender	Amount	Mean
Economic mathematics	Male	50	2,50
	Female	222	2,72
Accounting principal	Male	50	3,315
	Female	222	3,030

Source: secondary data are processed (2018)

Based on table 3 indicate that male students who take courses in economic mathematics courses average gain score value of 2.50 or obtain value B, while the average female students obtained a score value of 2.72 or obtaining the value of B. Male students who take the courses introductory

accounting courses average gain score value 3.030 or gain value AB, while the average female students obtained a score value of 3.315 or gain value AB. Although the value of students' acquisition of male and female in the same category of the quality score, but female student gains score higher grades compared with male students.

Following the results of hypothesis testing based on an independent sample test:

TABLE IV. HYPOTHESIS TESTING

Subject	sig 2-tailed
Score of mathematics economy	0,001
Score of principal accounting	0,002

Source: secondary data are processed (2018)

Based on the results of a test of different independent sample test, indicate that the value of significance for the economic mathematics of significance and value of 0.001 to 0.002 of the introductions to accounting. These results indicate that there is a difference in the ability of mathematical economic subjects and the ability on the course Introduction to accounting, among students by gender. That is, the hypothesis test for the difference in the ability of mathematical economics and introductory accounting student among male and female students can be accepted.

B. The Difference Between Male and Female Students of the Economic-Mathematical Ability

Based on the test results of the independent sample hypothesis test, shows that the value of significance for the economic mathematics course score of 0.001, meaning that there is a difference in ability between students with accounting gender male or female the first hypothesis, or accepted. These results are supported by the average value of mathematical economics student obtained by female gender showed better performance as compared with male students. The majority of the female students obtained a score of 2.72, while the majority of male students earn 2.50.

The results of the study are consistent with the opinion Gracia and Jenkins [6] which concluded there is a positive relationship with gender performance. Gammie et al. [7] States that women students are higher performance than his men on the subject of accounting in the first year. These results are inconsistent with research Koh [8] which found evidence that male students better test performance than his female students. Similarly, Masasi [9] concluded that male students better performance compared to his freshman women.

Female student performance on economic mathematics courses is considered better, because of the results of the evaluation conducted by the professors at the time of final assessment showed a higher score as compared with male students. Components of the assessment conducted by the lecturers include various aspects, including the value of the liveliness nor the value of the test. While the process of teaching and learning, student women tend to be more active, focused and more serious in doing math problems as well as paying attention to the explanation of the lecturer concerned. While male students tend to be less focus and look serious so that the final results of the assessment of acquired lower than

women students. Capability or performance of students on the subject of mathematical economics is seen becoming key importance with regard to the understanding of the students against the accounting courses.

C. The Difference between Male and Female Students of the Accounting Principal Ability

Based on the results of a test of the hypothesis of the independent sample test, shows that the value of significance to score an introductory accounting courses of 0.002, meaning that there is a difference in ability between students with accounting gender male or the woman, or the second hypothesis is accepted. These results are supported by the average value of an introduction to accounting students earned by gender females showed better performance as compared with male students. The majority of the female students obtained a score of 3.315, while the majority of male students acquire 3.030.

IV. CONCLUSION

This result is inconsistent with research Byrne and Flood [2] and its influence on academic performance in students of accounting with the results of the first year there was no significant relationship. Similar research by Uyar and Güngörmüş [3], which found evidence there was no significant relationship between gender with student performance. So did the research done Okafor and Egbon [4] which concluded there was no significant difference in academic performance between students of both men and women, although male students have an average value higher than students female. Guney [5] also concluded cannot detect relationships between gender with performance.

REFERENCES

- [1] G. N. Marks and G. N. Marks, "Oxford Review of Education student performance in reading and countries Accounting for the gender gaps in student performance in reading and mathematics: evidence from 31 countries," pp. 37–41, December 2014, 2008.
- [2] M. Byrne and B. Flood, "Examining the relationships among background variables and academic performance of first year accounting students at an Irish University," *J. Account. Educ.*, vol. 26, no. 4, pp. 202–212, 2008.
- [3] A. Uyar and A. H. Güngörmüş, "Factors Associated with Student Performance in Financial Accounting Course," *Eur. J. Econ. Polit. Stud.*, vol. 4, no. 2, 2011.
- [4] C. A. Okafor and O. Egbon, "Academic Performance of Male versus Female Accounting Undergraduate Students: Evidence from Nigeria," *High. Educ. Stud.*, vol. 1, no. 1, 2011.
- [5] Y. Guney, "Exogenous and endogenous factors influencing students' performance in undergraduate accounting modules," *Account. Educ.*, vol. 18, no. 1, pp. 51–73, 2009.
- [6] L. Gracia and E. Jenkins, "A quantitative exploration of student performance on an undergraduate accounting programme of study," *Account. Educ.*, vol. 12, no. 1, pp. 15–32, 2003.
- [7] E. Gammie, B. Paver, B. Gammie, and F. Duncan, "Gender differences in accounting education an undergraduate exploration," Routledge, pp. 177–196, 2003.

- [8] M. Y. Koh and H. C. Koh, "The determinants of performance in an accountancy degree programme," *Account. Educ.*, vol. 8, no. 1, pp. 13–29, 1999.
- [9] N. J. Masasi, "How personal attribute affect students performance in undergraduate accounting course a case of adult learner in Tanzania," vol. 2, no. 2, pp. 201–211, 2012.
- [10] O. D. Fadila and A. Listiadi, "Kepercayaan diri sebagai variabel moderasi Dona Okta Fadila," no. 6, pp. 1–8, 2013.
- [11] P. J. Yunker, J. A. Yunker, and G. W. Krull, "The Influence of Mathematics Ability on Performance in Principles of Accounting," *Account. Educ. J.*, vol. 19, pp. 1–20, 2009.
- [12] D. S. . Wong and Y.-M. Chia, "English Language, Mathematics and First-Year Financial Accounting Performance: A Research Note," *Accounting Education*, vol. 5, no. 2, pp. 183–189, 1996.
- [13] F. A. Gul, H. Y. Teoh, and R. Shannon, "Cognitive style as a factor in accounting students' performance on multiple choice examination," *Accounting Education*, vol. 1, no. 4. pp. 311–319, 1992.