

## RINGKASAN BUKTI KORESPONDENSI

- Judul artikel : Achievement Motivation and Learning Behavior of Students During COVID-19 Pandemic: Gender Differences
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- Jurnal : Pegem Journal of Education and Instruction Vol. 14 No. 4 2022
1. Lampiran 1 : Dilaksanakan submission artikel pada 15 Maret 2022 pada Pegem Journal of Education and Instruction.
  2. Lampiran 2 : Pada tanggal 17 Maret 2022, penulis mendapatkan umpan balik dari dewan editor, bahwa artikel layak untuk diteruskan ke reviewer dan membutuhkan jasa proofread artikel.
  3. Lampiran 3 : Pada tanggal 3 Juni, penulis mendapatkan pemberitahuan bahwa naskah diterima dengan catatan revisi minor, yaitu proses penulisan metode dan interpretasi sajian data analisis data penelitian menggunakan SPSS. Selanjutnya pada tanggal 6 Juni 2022, artikel telah selesai direvisi dan dinyatakan diterima untuk diterbitkan.
  4. Lampiran 4 : Dokumen artikel yang sudah diperbaiki dan siap untuk dipublikasikan
  5. Lampiran 5 : Data artikel yang sudah terbit pada Pegem Journal of Education and Instruction Vol. 12 No. 4 Tahun 2022.

# Lampiran 1

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## 2 **Achievement motivation and learning behavior of students during COVID-19** 3 **pandemic: gender differences**

4

### 5 **Abstract**

6 This study aimed to describe and compare the achievement motivation and learning  
7 behavior based on male and female students in Indonesia. Respondents have involved 1052  
8 female high school students and 637 male high school students using the cluster random  
9 sampling technique. Data were collected using a scale of achievement motivation and  
10 learning behavior with item validity of 0.3, and each had Cronbach's alpha reliability of 0.811  
11 and 0.866 and analyzed with descriptive and Mann-Whitney tests. The results showed  
12 significant differences in the level of achievement motivation and learning behavior of male  
13 and female students. Female students showed better achievement motivation and learning  
14 behavior than male students. This study recommends the need for guidance and counseling  
15 services to increase achievement motivation and student learning behavior based on gender  
16 differences.

17

18 **Keywords:** *achievement motivation, learning behavior, gender differences, COVID-19.*

19

20

## Introduction

The whole world is experiencing the problem of COVID-19. The outbreak that started in Wuhan, China, in December 2019 gave rise to various new phenomena such as the loss of many lives, economic impact, and poverty (Ciotti et al., 2020; Susskind & Vines, 2020). The COVID-19 pandemic also seems to have degraded the mental health of the international community (Cullen et al., 2020; Pfefferbaum & North, 2020). Several mental illnesses in communities affected by the COVID-19 pandemic include anxiety, post-traumatic stress disorder, psychological distress, and stress (Xiong et al., 2020). Even the results of the study recommend improving mental health services for the community during the COVID-19 pandemic (Moreno et al., 2020).

The COVID-19 pandemic is a big challenge for the world of education today. This situation has many negative impacts on various aspects, one of which is the world of education (Daniel, 2020). The COVID-19 pandemic requires the world of education to take steps to learn from home or online learning to avoid the negative impacts of this disease (Yulia, 2020). Various countries are conducting learning from home during the COVID-19 pandemic, both synchronously and asynchronously (Daniel, 2020; Mairing et al., 2021; Rehman & Fatima, 2021). Online learning has not been able to provide maximum results in student development, especially in developing countries (Adnan & Anwar, 2020). Students do not want this step of learning from home for various reasons, such as the difficulty of internet access and expensive devices that are still far from the reach of students (Phelps & Sperry, 2020; Purwadi et al., 2021).

Indonesia is also one of the countries that must bear the impact of the COVID-19 pandemic, especially in education (Giatman et al., 2020). Indonesia has tried to prepare virtual infrastructure well, but the readiness factor for teachers and schools still needs to understand the essence of distance learning better. The low self-regulated learning of students supports Indonesia's unpreparedness to carry out online learning (Churiyah et al., 2020). Student facilities and infrastructure are also factors that are not ready to implement online learning during the COVID-19 pandemic in Indonesia (Rulandari, 2020).

The impact of the COVID-19 pandemic on the education sector can also be in terms of motivation, achievement and learning behavior. This study specifically describes the

1 description of the relationship and differences in achievement motivation and learning  
2 behavior based on gender. The results of this study can be used as a basis for providing  
3 guidance and counseling services to develop achievement motivation and learning behavior  
4 by taking into account gender differences.

5 Achievement motivation is an encouragement to achieve success with a measure of  
6 excellence in high learning achievement in learning. The results of the study show that  
7 students' motivation in participating in school activities tends to decrease (Kulikowski et al.,  
8 2021; Rahiem, 2021). Especially during the COVID-19 pandemic, which requires online  
9 learning, teachers cannot provide maximum assistance to students in studying at school.  
10 When students have a terrible perception of social support from their teachers, it triggers  
11 low academic motivation (Emadpoor et al., 2016; Song et al., 2015). Academic motivation  
12 itself is one of the variables that determine the high or low academic achievement of  
13 students (Gupta & Mili, 2017; Topçu & Leana-Taşçılar, 2018).

14 Learning behavior is also one aspect that has dynamic changes during the COVID-19  
15 pandemic in Indonesia (Kang & Kim, 2021). Learning behavior is the level of student activities  
16 that meet expectations (on-task behavior) in learning. An immature online learning system  
17 encourages the development of optimal learning behavior in students. Some research  
18 results show that online learning behavior can determine the high or low academic  
19 achievement of students (Jo et al., 2015; You, 2016).

20 The aspect of gender differences is still a hot topic in Indonesia, especially in learning at  
21 school and in the world of work. Based on the research results in Indonesia, it shows that  
22 women have 30% lower salaries than men, and women have lower career opportunities  
23 than men (Sohn, 2015). In comparison, the study results show that female students have  
24 better academic abilities than male students (Erdiana et al., 2019). In fact, during the COVID-  
25 19 pandemic, female students had better self-regulated learning than male students (Wijaya  
26 et al., 2020). Indonesia is very concerned about aspects of gender equality, both in the  
27 educational process and post-education or the world of work. These conditions become one  
28 of the backgrounds to identify differences in achievement motivation and learning behavior  
29 of male and female students in Indonesia. This study aimed to describe and compare the  
30 achievement motivation and learning behavior base on male and female students.

1 **Method**

2 **Research Design**

3 This study aims to identify the relationship between achievement motivation and learning  
4 behavior of male and female students In Indonesia. So, this research is a comparative design  
5 to compare the differences in achievement motivation and learning behavior between male  
6 and female. The results of the research can be used as the basis for conducting a tutoring  
7 service to support maximum learning outcomes, for both men and women.

8 **Participants**

9 Participants were 1539 high school students in Indonesia, consisting of 1052 female and 637  
10 male. They come from various provinces in Indonesia. Table 1 presents the participants in  
11 this research.

12 Table 1. Distribution of research participants

No	Province	f	%
1	Central Java	209	13.58
2	West Java	306	19.88
3	East Java	351	22.81
4	East Nusa Tenggara	203	13.19
5	Central Sulawesi	106	6.89
6	Riau	107	6.95
7	Lampung	110	7.15
8	West Sumatra	147	9.55

13

14 **Data Collection Tools**

15 This study uses two instruments (1) the achievement motivation scale has a validity  
16 coefficient of items in the range of 0.362 to 0.719, and has a reliability coefficient of 0.811 (a  
17 high category); (2) the learning behavior scale has a coefficient of item validity in the range  
18 of 0.402 to 0.724, and has a reliability coefficient of 0.866 (a high category).

19

1 Tables 2 and 3 describe the lattice of the achievement motivation and learning behavior  
2 scale instrument.

3 Table 2. Achievement motivation scale

Variable	Indicator	Statement items
Achievement motivation	Learning achievement indicators	1, 8
	Actions for learning achievement	2
	Completion of assignments for learning achievement	3, 10
	Use of feedback for performance	4, 11
	Failure/ difficulty	5
	Act according to ability	6
	Use of learning achievement opportunities	7,12

4

5 Tabel 3. Learning behavior scale

Variable	Indicator	Statement items
Learning behavior	Learning achievement	1, 6
	Actions for learning achievement	2, 7
	Completion of assignments for learning achievement	3, 8
	Use of feedback for performance	4, 9
	Failure/ difficulty	5, 10

6

## 7 Data Collection

8 This research through five stages. First, examine the research problem, namely whether the  
9 achievement motivation variable is related to learning behavior during the COVID-19  
10 pandemic. Second, determine the group that has specific characteristics, namely 1052  
11 female students. Third, select the comparison group, namely 637 male students. Fourth,  
12 collect data using a scale of achievement motivation and learning behavior. Fifth, perform  
13 data analysis to determine the relationship between achievement and learning behavior  
14 based on gender differences during the COVID-19 pandemic. In addition, the results of the

1 study also describe differences in the level of learning motivation and learning behavior of  
 2 male and female students during the COVID-19 pandemic. We collected data using google  
 3 forms, in collaboration with teachers in the sample schools, students filled out the scale  
 4 using their mobile phones from their respective homes.

5 **Data Analysis**

6 The data analysis technique used Mann-Whitney U test because the data does not show a  
 7 normal distribution and is not homogeneous. The data analysis technique was to identify  
 8 differences in the level of learning motivation and learning behavior of male and female  
 9 students during the COVID-19 pandemic. This analysis of the data using the SPSS for  
 10 Windows Release 20 program. Table 4 describes the analysis of the assumption test, which  
 11 shows that the data in this study does not offer a normal distribution.

12 Table 4 Test the research data assumptions

No	Data	Coefficient
1	Sig. Kolmogorov-Smirnova	0,000
2	Sig. Shapiro-Wilk	0,000

13  
 14 Shapiro-Wilk analysis in table 4 shows the value of Sig. of 0.000, meaning that the data is not  
 15 normally distributed because of the value of Sig. > 0.05. Similarly, the results of the analysis  
 16 of lilliefors in table 3 show the value of Sig. in the kolmogorov-smirnov column of 0.000. It  
 17 means that the data is not normally distributed because the value is of Sig. > 0.05.

18  
 19 **Findings**

20 The results showed a significant difference in achievement motivation and learning behavior  
 21 in male and female students during the COVID-19 pandemic in Indonesia. Female students  
 22 have better achievement motivation and learning behavior than male students. The  
 23 following section will identify differences in achievement motivation and learning behavior  
 24 based on gender differences.

25 Table 5 shows the analysis results that describe the differences in achievement motivation  
 26 by gender using the Mann-Whitney U test.

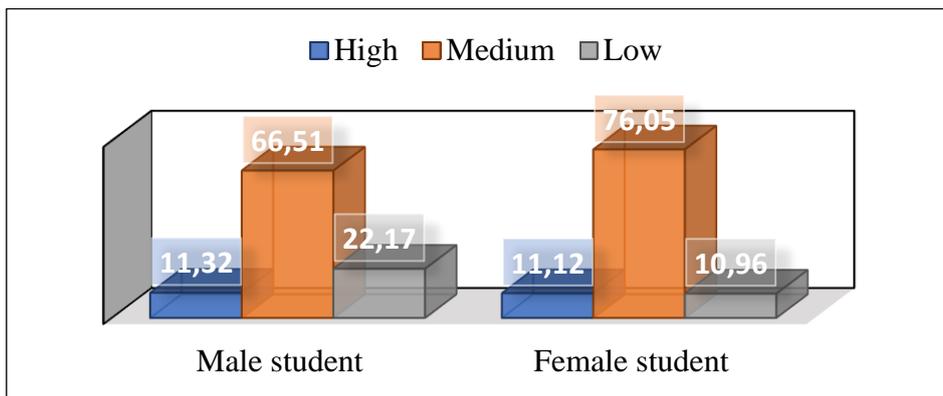
27

1 *Table 5. Comparative test of achievement motivation based on gender differences*

Uji Homogenitas		Mann-Whitney U test		
F	Sig.	Asymp. Sig.	Mean male students	Mean female students
0,035	0,851	0,000	33,623	36,405

2  
3 In table 5, F is 0.035 with a significance of 0.851, meaning greater than 0.05 ( $0.851 > 0.05$ ).  
4 This result means that the variance of the population group is homogeneous. However, the  
5 achievement motivation data is not normal. Thus the requirements for normality and  
6 homogeneity for comparative analysis are not met. So the comparative analysis uses the  
7 Mann-Whitney U test. Data analysis using the Mann-Whitney U test showed that Asymp. Sig.  
8 of 0.000 is smaller than 0.05 ( $0.000 < 0.05$ ). This result means that there are differences in  
9 student achievement motivation in terms of gender.

10 The results of data analysis showed that the level of achievement motivation of female  
11 students was higher than that of male students. The mean value of achievement motivation  
12 of female students is 36.405, while the level of achievement motivation of male students is  
13 33.623. The mean level of achievement motivation of female students is greater than that of  
14 male students. Graph 1 shows the differences in the level of achievement motivation by  
15 gender.

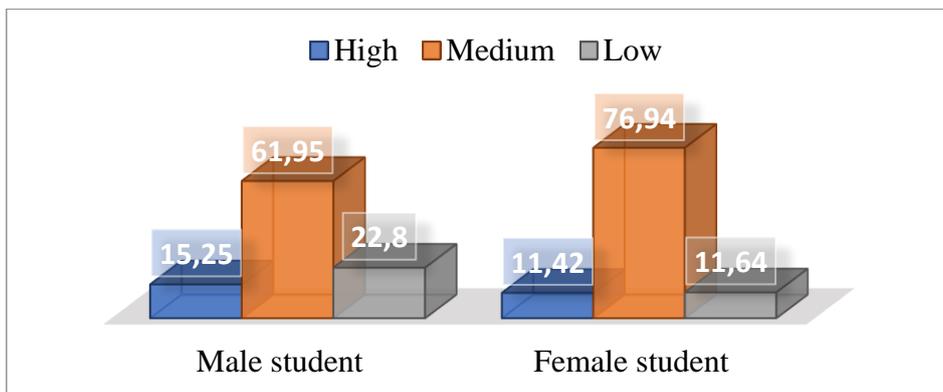


16  
17 Graph 1. Description of the level of achievement motivation based on gender differences  
18 The following analysis is to identify differences in the level of learning behavior between  
19 male and female students. Table 6 shows the analysis results that describe the differences in  
20 learning behavior by gender using the Mann-Whitney U test.

1 *Table 6. A comparative test of learning behavior by gender differences*

Uji Homogenitas		Mann-Whitney U test		
F	Sig.	Asymp. Sig.	Mean male students	Mean female students
5.459	0,020	0,000	26,3931	28,2617

2  
3 In table 6, F is 5.459 with a significance of 0.020, meaning less than 0.05 ( $0.020 < 0.05$ ). This  
4 result means that the variance of the population group is not homogeneous. Thus the  
5 requirements for normality and homogeneity for comparative analysis are not met. So the  
6 comparative analysis uses the Mann-Whitney U test. Data analysis using the Mann-Whitney  
7 U test showed that Asymp. Sig. of 0.000 is smaller than 0.05 ( $0.000 < 0.05$ ). This result means  
8 that there are differences in student achievement motivation in terms of gender differences.  
9 The results of data analysis showed that the level of learning behavior of female students  
10 was higher than that of male students. The mean value of female students' learning behavior  
11 is 28.2617, while the male student's level of learning behavior is 26.3931. The mean level of  
12 learning behavior of female students is greater than that of male students. Graph 2 shows  
13 the difference in the level of learning behavior by gender.



14  
15 Graph 2. Description of the level of learning behavior based on gender differences.

16  
17 **Discussion**

18 During the pandemic, various dynamics of student learning activities emerged. Various  
19 learning patterns that had not appeared before finally occurred during the COVID-19  
20 pandemic. The results show that the design of learning from home during the COVID-19

1 pandemic has changed many aspects of student learning activities (Agu et al., 2021; Khattar  
2 et al., 2020). Students need more effort to adapt to new online learning habits (Giatman et  
3 al., 2020; Purwadi et al., 2021). Meanwhile, students in Indonesia before the COVID-19  
4 pandemic did not have the opportunity to do online learning. In addition, many students in  
5 Indonesia have not prepared themselves for online learning, especially if you look at it from  
6 facilities and infrastructure (Afrianti & Aditia, 2020; Churiyah et al., 2020). So that teachers  
7 need to develop mature strategies so that the online learning process can run optimally.  
8 The rules regarding preventing the spread of COVID-19 forced them from face-to-face  
9 meetings to face-to-face meetings (Mpungose, 2020). Attractive conditions to be a research  
10 topic. Moreover, online learning activities themselves are a challenge and an opportunity in  
11 the field of education (Simamora, 2020). Based on the various learning dynamics that arise in  
12 students in the era of the COVID-19 pandemic, this study wants to explore achievement  
13 motivation and learning behavior based on gender differences. The findings of this study  
14 indicate that there are significant differences between male and female students in aspects  
15 of achievement motivation and learning behavior.

16 Further analysis found that female students were superior in three aspects to male students,  
17 namely achievement motivation and learning behavior. The aspect of gender differences  
18 turned out to be one of the determinants of the tendency of student learning activities  
19 (Choudhary et al., 2011; Kulturel-Konak et al., 2011; Samuelsson & Samuelsson, 2016). Ini  
20 This research finding can be the basis for carrying out certain follow-up actions and  
21 interventions to increase achievement motivation and learning behavior in schools amidst  
22 the COVID-19 pandemic.

23 There is no concept of gender inequality in implementing learning activities in schools or  
24 even in other fields. Even the government and educational institutions in Indonesia  
25 guarantee gender equality for every citizen in carrying out activities (Syamsul, 2018). Like  
26 male students, female students can get education and opportunities in various fields  
27 according to their abilities and characteristics as a woman to actualize themselves. However,  
28 in almost all countries, including Indonesia, gender equality in learning per year yields  
29 minimal gains because, once in school, girls learn practically the same as boys (Kaffenberger  
30 & Pritchett, 2020). As a result, female students have fewer opportunities to work after

1 graduating from school, even though their incomes tend to be small (Sohn, 2015). The  
2 rationale above becomes the basis for examining the dynamics between male and female  
3 students in the variance of achievement motivation and learning behavior.

4 First, this study examines the level of achievement motivation between male and female  
5 students in Indonesia. The COVID-19 pandemic in Indonesia influences student achievement  
6 motivation. The results of previous studies showed that students lost their achievement  
7 motivation and learning performance using online learning methods during the COVID-19  
8 pandemic period (Tan, 2021). Other studies also show that student achievement motivation  
9 during the COVID-19 pandemic is lower than before the COVID-19 pandemic (Klootwijk et  
10 al., 2021). However, the results of other studies also show that an attractive and  
11 systematically structured learning design with cooperative learning can trigger an increase in  
12 achievement motivation (Haftador et al., 2021).

13 Gender is also one of the determinants of the dynamics of student achievement motivation  
14 during the COVID-19 pandemic. Based on this study's results, the achievement motivation of  
15 female students is better than male students. Research in Australia shows the same results,  
16 and girls have higher achievement motivation scores than male students (Pašková &  
17 McGeown, 2012). In addition, research in England also shows that the intrinsic motivation of  
18 female students is better than that of male students (McGeown et al., 2012). Based on the  
19 research results above, achievement motivation is more critical for female students than  
20 male students.

21 The results of other studies show other results, where differences in achievement  
22 motivation appear in the form and setting. In Iran, male students tend to have strong  
23 achievement motivation at night, while female students tend to be in the morning (Dehkordi  
24 et al., 2019). In addition, differences in children's achievement motivation also lie in their  
25 subjects. Boys report more potent abilities and interests in math and science, while girls are  
26 more confident and interested in the arts of language and writing (Meece et al., 2006). This  
27 difference in achievement motivation certainly has implications for the learning process or  
28 intervention to develop gender-based student achievement motivation.

29 The difference in achievement motivation of male and female students certainly has a  
30 reason. One reason is those female students tend to experience stress more quickly, so they

1 apply a coping strategy to develop achievement motivation to achieve their academic goals  
2 (Bonneville-Roussy et al., 2017). Especially in the pandemic season, it is possible to appear  
3 various activities and situations that are beyond the plans and predictions. In contrast to  
4 male students, who tend to be a little worried about the impact that will arise when their  
5 academic assignments have not been completed, they do not tend to be easily stressed due  
6 to the pressure of educational activities. In addition, female students also have an  
7 orientation to mastery of the material than male students who are performance-oriented  
8 (D'Lima et al., 2014). These conditions can trigger higher achievement motivation of female  
9 students than male students.

10 In the second part, this study seeks to examine the differences in the level of learning  
11 behavior of male and female students. Adopting new habits in the new normal era triggers  
12 the emergence of complex dynamics of learning behavior. Students shift their traditional  
13 learning behavior to online and blended learning (Kamal et al., 2020). The results showed  
14 that students were dissatisfied with the implementation of online learning (Almusharraf &  
15 Khahro, 2020; Sharma et al., 2020). They considered the system not ready to implement  
16 massive online learning (Purwadi et al., 2021). This situation impacts decreasing the level of  
17 student learning behavior, even though learning behavior is one of the predictors of high or  
18 low student academic achievement (Macher et al., 2012).

19 Gender is one aspect that distinguishes the level of student learning behavior. The results  
20 showed that the learning behavior of female students was better than that of male students.  
21 The research results in Australia show similar results, the level of learning behavior of female  
22 students in writing is better than male students (Lee, 2013). In line with the results of  
23 previous studies, the results of research in the United States show that female students have  
24 an advantage in learning behavior in the language aspect over male students (Kaushanskaya  
25 et al., 2013). Differences in the level of learning behavior of male and female students have  
26 implications for the learning strategies of teachers.

27 The results of other studies show different results. Research in India shows that the learning  
28 behavior of male students is higher than that of female students (Mokhlesi & Patil, 2018).  
29 Long before the COVID-19 pandemic, male students had higher self-efficacy in the use of e-  
30 learning than female students (Ong & Lai, 2006). Male students have better ability in terms

1 of technology than female students. Even male students have a higher confidence level in  
2 using technology than female students (Goswami & Dutta, 2015; Yau & Cheng, 2012). This  
3 condition triggers male students to be more optimal and have better learning behavior in  
4 technology-based learning behavior.

5 The difference in the level of learning behavior during the COVID-19 pandemic between  
6 male and female students in Indonesia has certain causative factors. One of the things that  
7 trigger the learning behavior of female students is better than male students during the  
8 COVID-19 pandemic is the learning process that has not been optimal using technology in  
9 the pandemic era. During a pandemic, teachers are not ready for online learning policies  
10 (Andarwulan et al., 2021; Sulisworo et al., 2021). There is still much online learning in  
11 Indonesia that does not follow what should be, such as increasing assignments and self-  
12 study. So that students need to independently prepare various things about the topic of  
13 learning from the teacher. Female students have an advantage in this regard, where female  
14 students have more accuracy and patience than male students (Rundgren et al., 2019).

15 Various situations that arise as a result of the implementation of online learning have  
16 become interesting studies recently. Due to the COVID-19 pandemic, the new normal has  
17 created a new habit for students to carry out learning activities, namely using online  
18 platforms. Although basically, not all students are ready and able to adapt to the online  
19 learning process (Zhang et al., 2020). Student learning using blended learning models and  
20 bases is a recommendation to increase students' enthusiasm for learning. Thus, schools can  
21 still achieve Indonesia's educational goals during the COVID-19 pandemic.

22 The results of this study also have implications for the provision of tutoring services by  
23 counselors. Counselors can collaborate with classroom teachers in conducting tutoring (Atici,  
24 2014; Rock et al., 2017; Syriopoulou-Delli et al., 2016). Counselors and teachers provide  
25 more intensive tutoring for male students than female students. The important thing that  
26 became the basis for this thought was that male students had lower levels of achievement  
27 motivation and learning behavior than girls. This statement is supported by the results of  
28 research which states that the self-regulated learning of male students is lower than female  
29 students (Alhadi et al., 2018; Saputra et al., 2018, 2021). These conditions are certainly  
30 correlated with student learning behavior.

1 The achievement motivation variable has a relationship with learning behavior, both in male  
2 and female students. These results explain that the higher the achievement motivation, the  
3 higher the student's learning behavior during the COVID-19 pandemic. Students' motivation  
4 to achieve achievement spurs them to display constructive behaviors such as being involved  
5 in the learning process (Bempechat & Shernoff, 2012) and academic performance (Turner et  
6 al., 2009). Based on research results, achievement motivation that can trigger the  
7 development of good learning behavior will encourage maximum student academic  
8 achievement (Johnson et al., 2014; Lemos & Veríssimo, 2014).

9 Adolescents experience the dynamics of changing achievement motivation during the  
10 COVID-19 pandemic (Gonzalez-Ramirez et al., 2021). Moreover, the learning process of  
11 students who switch to online learning is a new method for them (Hermanto & Srimulyani,  
12 2021; Simamora, 2020). Students experience a decrease in their involvement in the learning  
13 process and a decrease in motivation in learning (Oosterhoff et al., 2020). Students begin to  
14 view the actual learning process negatively. These things have an impact on learning  
15 behavior that is not constructive in achieving optimal learning achievement. However, the  
16 results of other studies show that individuals have more online platforms than face-to-face  
17 when taking specific courses (Lin et al., 2021). This condition arises because they feel more  
18 comfortable and flexible when they have to do learning through online platforms.

19

20

### Conclusion

21 During the COVID-19 pandemic, students experienced various obstacles in their learning  
22 activities. Moreover, the Indonesian government regulations that require the  
23 implementation of online learning, students are less than optimal in developing various  
24 positive characters such as achievement motivation and learning behavior in both male and  
25 female students. The results of this study found that female students had better abilities  
26 than male students, such as achievement motivation and learning behavior.

27

28

### Suggestion

29 This study recommends developing a learning strategy and even counseling to respond to  
30 the description of the level of achievement motivation and learning behavior in the gender-

1 based COVID-19 pandemic era. Counselors as practitioners can also use the results of this  
2 study as an alternative reference to intervene in student problems regarding achievement  
3 motivation and learning behavior.

#### 5 **Limitation**

6 This study has limitations in taking samples that are not evenly distributed in all provinces in  
7 Indonesia. Sampling evenly throughout Indonesia can increase the reliability of research data  
8 as a basis for interpreting research results.

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28

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1 **Lampiran 4**

2 **Achievement motivation and learning behavior of students during COVID-19**  
3 **pandemic: gender differences**

4

5

6 Adi Atmoko<sup>\*</sup>, Wahyu Nanda Eka Saputra<sup>2</sup>, IM Hambali<sup>3</sup>, Eny Tri Wahyuni<sup>4</sup>

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16

17 **Abstract**

18 This study aimed to describe and compare the achievement motivation and learning  
19 behavior based on male and female students in Indonesia. Respondents have involved 1052  
20 female high school students and 637 male high school students using the cluster random  
21 sampling technique. Data were collected using a scale of achievement motivation and  
22 learning behavior with item validity of 0.3, and each had Cronbach's alpha reliability of 0.811  
23 and 0.866 and analyzed with descriptive and Mann-Whitney tests. The results showed  
24 significant differences in the level of achievement motivation and learning behavior of male  
25 and female students. Female students showed better achievement motivation and learning  
26 behavior than male students. This study recommends the need for guidance and counseling  
27 services to increase achievement motivation and student learning behavior based on gender  
28 differences.

29

30 **Keywords:** *achievement motivation, learning behavior, gender differences, COVID-19.*

## Introduction

The whole world is experiencing the problem of COVID-19. The outbreak that started in Wuhan, China, in December 2019 gave rise to various new phenomena such as the loss of many lives, economic impact, and poverty (Ciotti et al., 2020; Susskind & Vines, 2020). The COVID-19 pandemic also seems to have degraded the mental health of the international community (Cullen et al., 2020; Pfefferbaum & North, 2020). Several mental illnesses in communities affected by the COVID-19 pandemic include anxiety, post-traumatic stress disorder, psychological distress, and stress (Xiong et al., 2020). Even the results of the study recommend improving mental health services for the community during the COVID-19 pandemic (Moreno et al., 2020).

The COVID-19 pandemic is a big challenge for the world of education today. This situation has many negative impacts on various aspects, one of which is the world of education (Daniel, 2020). The COVID-19 pandemic requires the world of education to take steps to learn from home or online learning to avoid the negative impacts of this disease (Yulia, 2020). Various countries are conducting learning from home during the COVID-19 pandemic, both synchronously and asynchronously (Daniel, 2020; Mairing et al., 2021; Rehman & Fatima, 2021). Online learning has not been able to provide maximum results in student development, especially in developing countries (Adnan & Anwar, 2020). Students do not want this step of learning from home for various reasons, such as the difficulty of internet access and expensive devices that are still far from the reach of students (Phelps & Sperry, 2020; Purwadi et al., 2021).

Indonesia is also one of the countries that must bear the impact of the COVID-19 pandemic, especially in education (Giatman et al., 2020). Indonesia has tried to prepare virtual infrastructure well, but the readiness factor for teachers and schools still needs to understand the essence of distance learning better. The low self-regulated learning of students supports Indonesia's unpreparedness to carry out online learning (Churiyah et al., 2020). Student facilities and infrastructure are also factors that are not ready to implement online learning during the COVID-19 pandemic in Indonesia (Rulandari, 2020).

The impact of the COVID-19 pandemic on the education sector can also be in terms of motivation, achievement and learning behavior. This study specifically describes the

1 description of the relationship and differences in achievement motivation and learning  
2 behavior based on gender. The results of this study can be used as a basis for providing  
3 guidance and counseling services to develop achievement motivation and learning behavior  
4 by taking into account gender differences.

5 Achievement motivation is an encouragement to achieve success with a measure of  
6 excellence in high learning achievement in learning. The results of the study show that  
7 students' motivation in participating in school activities tends to decrease (Kulikowski et al.,  
8 2021; Rahiem, 2021). Especially during the COVID-19 pandemic, which requires online  
9 learning, teachers cannot provide maximum assistance to students in studying at school.  
10 When students have a terrible perception of social support from their teachers, it triggers  
11 low academic motivation (Emadpoor et al., 2016; Song et al., 2015). Academic motivation  
12 itself is one of the variables that determine the high or low academic achievement of  
13 students (Gupta & Mili, 2017; Topçu & Leana-Taşçılar, 2018).

14 Learning behavior is also one aspect that has dynamic changes during the COVID-19  
15 pandemic in Indonesia (Kang & Kim, 2021). Learning behavior is the level of student activities  
16 that meet expectations (on-task behavior) in learning. An immature online learning system  
17 encourages the development of optimal learning behavior in students. Some research  
18 results show that online learning behavior can determine the high or low academic  
19 achievement of students (Jo et al., 2015; You, 2016).

20 The aspect of gender differences is still a hot topic in Indonesia, especially in learning at  
21 school and in the world of work. Based on the research results in Indonesia, it shows that  
22 women have 30% lower salaries than men, and women have lower career opportunities  
23 than men (Sohn, 2015). In comparison, the study results show that female students have  
24 better academic abilities than male students (Erdiana et al., 2019). In fact, during the COVID-  
25 19 pandemic, female students had better self-regulated learning than male students (Wijaya  
26 et al., 2020). Indonesia is very concerned about aspects of gender equality, both in the  
27 educational process and post-education or the world of work. These conditions become one  
28 of the backgrounds to identify differences in achievement motivation and learning behavior  
29 of male and female students in Indonesia. This study aimed to describe and compare the  
30 achievement motivation and learning behavior base on male and female students.

1 **Method**

2 **Research Design**

3 This study aims to identify the relationship between achievement motivation and learning  
4 behavior of male and female students In Indonesia. So, this research is a comparative design  
5 to compare the differences in achievement motivation and learning behavior between male  
6 and female. The results of the research can be used as the basis for conducting a tutoring  
7 service to support maximum learning outcomes, for both men and women.

8 **Participants**

9 Participants were 1539 high school students in Indonesia, consisting of 1052 female and 637  
10 male. They come from various provinces in Indonesia. Table 1 presents the participants in  
11 this research.

12 Table 1. Distribution of research participants

No	Province	f	%
1	Central Java	209	13.58
2	West Java	306	19.88
3	East Java	351	22.81
4	East Nusa Tenggara	203	13.19
5	Central Sulawesi	106	6.89
6	Riau	107	6.95
7	Lampung	110	7.15
8	West Sumatra	147	9.55

13  
14 **Data Collection Tools**

15 This study uses two instruments (1) the achievement motivation scale has a validity  
16 coefficient of items in the range of 0.362 to 0.719, and has a reliability coefficient of 0.811 (a  
17 high category); (2) the learning behavior scale has a coefficient of item validity in the range  
18 of 0.402 to 0.724, and has a reliability coefficient of 0.866 (a high category).

19

1 Tables 2 and 3 describe the lattice of the achievement motivation and learning behavior  
 2 scale instrument.

3 Table 2. Achievement motivation scale

Variable	Indicator	Statement items
Achievement motivation	Learning achievement indicators	1, 8
	Actions for learning achievement	2
	Completion of assignments for learning achievement	3, 10
	Use of feedback for performance	4, 11
	Failure/ difficulty	5
	Act according to ability	6
	Use of learning achievement opportunities	7,12

4

5 Tabel 3. Learning behavior scale

Variable	Indicator	Statement items
Learning behavior	Learning plant	1, 6
	Following face-to-face/ online activities with teachers	2, 7
	Activities individual and group tasks	3, 8
	Enrichment activities	4, 9
	Prepare for exam	5, 10

6

7 **Data Collection**

8 This research through five stages. First, examine the research problem, namely whether the  
 9 achievement motivation variable is related to learning behavior during the COVID-19  
 10 pandemic. Second, determine the group that has specific characteristics, namely 1052  
 11 female students. Third, select the comparison group, namely 637 male students. Fourth,  
 12 collect data using a scale of achievement motivation and learning behavior. Fifth, perform  
 13 data analysis to determine the relationship between achievement and learning behavior  
 14 based on gender differences during the COVID-19 pandemic. In addition, the results of the

1 study also describe differences in the level of learning motivation and learning behavior of  
 2 male and female students during the COVID-19 pandemic. We collected data using google  
 3 forms, in collaboration with teachers in the sample schools, students filled out the scale  
 4 using their mobile phones from their respective homes.

5 **Data Analysis**

6 The data analysis technique used Mann-Whitney U test because the data does not show a  
 7 normal distribution and is not homogeneous. The data analysis technique was to identify  
 8 differences in the level of learning motivation and learning behavior of male and female  
 9 students during the COVID-19 pandemic. This analysis of the data using the SPSS for  
 10 Windows Release 20 program. Table 4 describes the analysis of the assumption test, which  
 11 shows that the data in this study does not offer a normal distribution.

12 Table 4 Test the research data assumptions

No	Data	Coefficient
1	Sig. Kolmogorov-Smirnova	0,000
2	Sig. Shapiro-Wilk	0,000

13  
 14 Shapiro-Wilk analysis in table 4 shows the value of Sig. of 0.000, meaning that the data is not  
 15 normally distributed because of the value of Sig. > 0.05. Similarly, the results of the analysis  
 16 of lilliefors in table 3 show the value of Sig. in the kolmogorov-smirnov column of 0.000. It  
 17 means that the data is not normally distributed because the value is of Sig. > 0.05.

18  
 19 **Findings**

20 The results showed a significant difference in achievement motivation and learning behavior  
 21 in male and female students during the COVID-19 pandemic in Indonesia. Female students  
 22 have better achievement motivation and learning behavior than male students. The  
 23 following section will identify differences in achievement motivation and learning behavior  
 24 based on gender differences.

25 Table 5 shows the analysis results that describe the differences in achievement motivation  
 26 by gender using the Mann-Whitney U test.

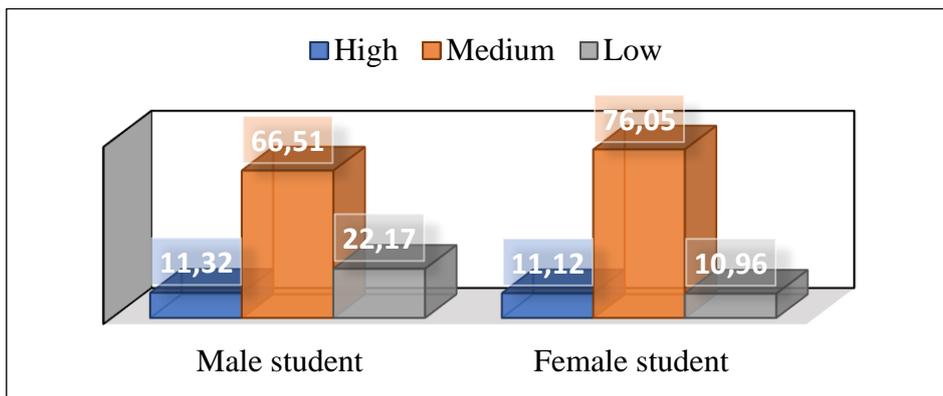
27

1 *Table 5. Comparative test of achievement motivation based on gender differences*

Homogeneity Test		Mann-Whitney U test		
F	Sig.	Asymp. Sig.	Mean male students	Mean female students
0,035	0,851	0,000	33,623	36,405

2  
3 In table 5, F is 0.035 with a significance of 0.851, meaning greater than 0.05 ( $0.851 > 0.05$ ).  
4 This result means that the variance of the population group is homogeneous. However, the  
5 achievement motivation data is not normal. Thus the requirements for normality and  
6 homogeneity for comparative analysis are not met. So the comparative analysis uses the  
7 Mann-Whitney U test. Data analysis using the Mann-Whitney U test showed that Asymp. Sig.  
8 of 0.000 is smaller than 0.05 ( $0.000 < 0.05$ ). This result means that there are differences in  
9 student achievement motivation in terms of gender.

10 The results of data analysis showed that the level of achievement motivation of female  
11 students was higher than that of male students. The mean value of achievement motivation  
12 of female students is 36.405, while the level of achievement motivation of male students is  
13 33.623. The mean level of achievement motivation of female students is greater than that of  
14 male students. Graph 1 shows the differences in the level of achievement motivation by  
15 gender.

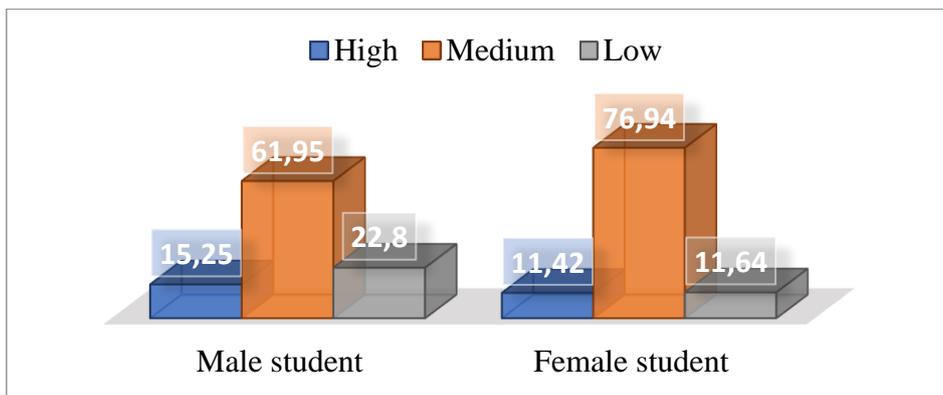


16  
17 Graph 1. Description of the level of achievement motivation based on gender differences  
18 The following analysis is to identify differences in the level of learning behavior between  
19 male and female students. Table 6 shows the analysis results that describe the differences in  
20 learning behavior by gender using the Mann-Whitney U test.

1 *Table 6. A comparative test of learning behavior by gender differences*

Homogeneity Test		Mann-Whitney U test		
F	Sig.	Asymp. Sig.	Mean male students	Mean female students
5.459	0,020	0,000	26,3931	28,2617

2  
3 In table 6, F is 5.459 with a significance of 0.020, meaning less than 0.05 ( $0.020 < 0.05$ ). This  
4 result means that the variance of the population group is not homogeneous. Thus the  
5 requirements for normality and homogeneity for comparative analysis are not met. So the  
6 comparative analysis uses the Mann-Whitney U test. Data analysis using the Mann-Whitney  
7 U test showed that Asymp. Sig. of 0.000 is smaller than 0.05 ( $0.000 < 0.05$ ). This result means  
8 that there are differences in student achievement motivation in terms of gender differences.  
9 The results of data analysis showed that the level of learning behavior of female students  
10 was higher than that of male students. The mean value of female students' learning behavior  
11 is 28.2617, while the male student's level of learning behavior is 26.3931. The mean level of  
12 learning behavior of female students is greater than that of male students. Graph 2 shows  
13 the difference in the level of learning behavior by gender.



14  
15 Graph 2. Description of the level of learning behavior based on gender differences.

16  
17 **Discussion**

18 During the pandemic, various dynamics of student learning activities emerged. Various  
19 learning patterns that had not appeared before finally occurred during the COVID-19  
20 pandemic. The results show that the design of learning from home during the COVID-19

1 pandemic has changed many aspects of student learning activities (Agu et al., 2021; Khattar  
2 et al., 2020). Students need more effort to adapt to new online learning habits (Giatman et  
3 al., 2020; Purwadi et al., 2021). Meanwhile, students in Indonesia before the COVID-19  
4 pandemic did not have the opportunity to do online learning. In addition, many students in  
5 Indonesia have not prepared themselves for online learning, especially if you look at it from  
6 facilities and infrastructure (Afrianti & Aditia, 2020; Churiyah et al., 2020). So that teachers  
7 need to develop mature strategies so that the online learning process can run optimally.  
8 The rules regarding preventing the spread of COVID-19 forced them from face-to-face  
9 meetings to face-to-face meetings (Mpungose, 2020). Attractive conditions to be a research  
10 topic. Moreover, online learning activities themselves are a challenge and an opportunity in  
11 the field of education (Simamora, 2020). Based on the various learning dynamics that arise in  
12 students in the era of the COVID-19 pandemic, this study wants to explore achievement  
13 motivation and learning behavior based on gender differences. The findings of this study  
14 indicate that there are significant differences between male and female students in aspects  
15 of achievement motivation and learning behavior.

16 Further analysis found that female students were superior in three aspects to male students,  
17 namely achievement motivation and learning behavior. The aspect of gender differences  
18 turned out to be one of the determinants of the tendency of student learning activities  
19 (Choudhary et al., 2011; Kulturel-Konak et al., 2011; Samuelsson & Samuelsson, 2016). Ini  
20 This research finding can be the basis for carrying out certain follow-up actions and  
21 interventions to increase achievement motivation and learning behavior in schools amidst  
22 the COVID-19 pandemic.

23 There is no concept of gender inequality in implementing learning activities in schools or  
24 even in other fields. Even the government and educational institutions in Indonesia  
25 guarantee gender equality for every citizen in carrying out activities (Syamsul, 2018). Like  
26 male students, female students can get education and opportunities in various fields  
27 according to their abilities and characteristics as a woman to actualize themselves. However,  
28 in almost all countries, including Indonesia, gender equality in learning per year yields  
29 minimal gains because, once in school, girls learn practically the same as boys (Kaffenberger  
30 & Pritchett, 2020). As a result, female students have fewer opportunities to work after

1 graduating from school, even though their incomes tend to be small (Sohn, 2015). The  
2 rationale above becomes the basis for examining the dynamics between male and female  
3 students in the variance of achievement motivation and learning behavior.

4 First, this study examines the level of achievement motivation between male and female  
5 students in Indonesia. The COVID-19 pandemic in Indonesia influences student achievement  
6 motivation. The results of previous studies showed that students lost their achievement  
7 motivation and learning performance using online learning methods during the COVID-19  
8 pandemic period (Tan, 2021). Other studies also show that student achievement motivation  
9 during the COVID-19 pandemic is lower than before the COVID-19 pandemic (Klootwijk et  
10 al., 2021). However, the results of other studies also show that an attractive and  
11 systematically structured learning design with cooperative learning can trigger an increase in  
12 achievement motivation (Haftador et al., 2021).

13 Gender is also one of the determinants of the dynamics of student achievement motivation  
14 during the COVID-19 pandemic. Based on this study's results, the achievement motivation of  
15 female students is better than male students. Research in Australia shows the same results,  
16 and girls have higher achievement motivation scores than male students (Pašková &  
17 McGeown, 2012). In addition, research in England also shows that the intrinsic motivation of  
18 female students is better than that of male students (McGeown et al., 2012). Based on the  
19 research results above, achievement motivation is more critical for female students than  
20 male students.

21 The results of other studies show other results, where differences in achievement  
22 motivation appear in the form and setting. In Iran, male students tend to have strong  
23 achievement motivation at night, while female students tend to be in the morning (Dehkordi  
24 et al., 2019). In addition, differences in children's achievement motivation also lie in their  
25 subjects. Boys report more potent abilities and interests in math and science, while girls are  
26 more confident and interested in the arts of language and writing (Meece et al., 2006). This  
27 difference in achievement motivation certainly has implications for the learning process or  
28 intervention to develop gender-based student achievement motivation.

29 The difference in achievement motivation of male and female students certainly has a  
30 reason. One reason is those female students tend to experience stress more quickly, so they

1 apply a coping strategy to develop achievement motivation to achieve their academic goals  
2 (Bonneville-Roussy et al., 2017). Especially in the pandemic season, it is possible to appear  
3 various activities and situations that are beyond the plans and predictions. In contrast to  
4 male students, who tend to be a little worried about the impact that will arise when their  
5 academic assignments have not been completed, they do not tend to be easily stressed due  
6 to the pressure of educational activities. In addition, female students also have an  
7 orientation to mastery of the material than male students who are performance-oriented  
8 (D'Lima et al., 2014). These conditions can trigger higher achievement motivation of female  
9 students than male students.

10 In the second part, this study seeks to examine the differences in the level of learning  
11 behavior of male and female students. Adopting new habits in the new normal era triggers  
12 the emergence of complex dynamics of learning behavior. Students shift their traditional  
13 learning behavior to online and blended learning (Kamal et al., 2020). The results showed  
14 that students were dissatisfied with the implementation of online learning (Almusharraf &  
15 Khahro, 2020; Sharma et al., 2020). They considered the system not ready to implement  
16 massive online learning (Purwadi et al., 2021). This situation impacts decreasing the level of  
17 student learning behavior, even though learning behavior is one of the predictors of high or  
18 low student academic achievement (Macher et al., 2012).

19 Gender is one aspect that distinguishes the level of student learning behavior. The results  
20 showed that the learning behavior of female students was better than that of male students.  
21 The research results in Australia show similar results, the level of learning behavior of female  
22 students in writing is better than male students (Lee, 2013). In line with the results of  
23 previous studies, the results of research in the United States show that female students have  
24 an advantage in learning behavior in the language aspect over male students (Kaushanskaya  
25 et al., 2013). Differences in the level of learning behavior of male and female students have  
26 implications for the learning strategies of teachers.

27 The results of other studies show different results. Research in India shows that the learning  
28 behavior of male students is higher than that of female students (Mokhlesi & Patil, 2018).  
29 Long before the COVID-19 pandemic, male students had higher self-efficacy in the use of e-  
30 learning than female students (Ong & Lai, 2006). Male students have better ability in terms

1 of technology than female students. Even male students have a higher confidence level in  
2 using technology than female students (Goswami & Dutta, 2015; Yau & Cheng, 2012). This  
3 condition triggers male students to be more optimal and have better learning behavior in  
4 technology-based learning behavior.

5 The difference in the level of learning behavior during the COVID-19 pandemic between  
6 male and female students in Indonesia has certain causative factors. One of the things that  
7 trigger the learning behavior of female students is better than male students during the  
8 COVID-19 pandemic is the learning process that has not been optimal using technology in  
9 the pandemic era. During a pandemic, teachers are not ready for online learning policies  
10 (Andarwulan et al., 2021; Sulisworo et al., 2021). There is still much online learning in  
11 Indonesia that does not follow what should be, such as increasing assignments and self-  
12 study. So that students need to independently prepare various things about the topic of  
13 learning from the teacher. Female students have an advantage in this regard, where female  
14 students have more accuracy and patience than male students (Rundgren et al., 2019).

15 Various situations that arise as a result of the implementation of online learning have  
16 become interesting studies recently. Due to the COVID-19 pandemic, the new normal has  
17 created a new habit for students to carry out learning activities, namely using online  
18 platforms. Although basically, not all students are ready and able to adapt to the online  
19 learning process (Zhang et al., 2020). Student learning using blended learning models and  
20 bases is a recommendation to increase students' enthusiasm for learning. Thus, schools can  
21 still achieve Indonesia's educational goals during the COVID-19 pandemic.

22 The results of this study also have implications for the provision of tutoring services by  
23 counselors. Counselors can collaborate with classroom teachers in conducting tutoring (Atici,  
24 2014; Rock et al., 2017; Syriopoulou-Delli et al., 2016). Counselors and teachers provide  
25 more intensive tutoring for male students than female students. The important thing that  
26 became the basis for this thought was that male students had lower levels of achievement  
27 motivation and learning behavior than girls. This statement is supported by the results of  
28 research which states that the self-regulated learning of male students is lower than female  
29 students (Alhadi et al., 2018; Saputra et al., 2018, 2021). These conditions are certainly  
30 correlated with student learning behavior.

1 The achievement motivation variable has a relationship with learning behavior, both in male  
2 and female students. These results explain that the higher the achievement motivation, the  
3 higher the student's learning behavior during the COVID-19 pandemic. Students' motivation  
4 to achieve achievement spurs them to display constructive behaviors such as being involved  
5 in the learning process (Bempechat & Shernoff, 2012) and academic performance (Turner et  
6 al., 2009). Based on research results, achievement motivation that can trigger the  
7 development of good learning behavior will encourage maximum student academic  
8 achievement (Johnson et al., 2014; Lemos & Veríssimo, 2014).

9 Adolescents experience the dynamics of changing achievement motivation during the  
10 COVID-19 pandemic (Gonzalez-Ramirez et al., 2021). Moreover, the learning process of  
11 students who switch to online learning is a new method for them (Hermanto & Srimulyani,  
12 2021; Simamora, 2020). Students experience a decrease in their involvement in the learning  
13 process and a decrease in motivation in learning (Oosterhoff et al., 2020). Students begin to  
14 view the actual learning process negatively. These things have an impact on learning  
15 behavior that is not constructive in achieving optimal learning achievement. However, the  
16 results of other studies show that individuals have more online platforms than face-to-face  
17 when taking specific courses (Lin et al., 2021). This condition arises because they feel more  
18 comfortable and flexible when they have to do learning through online platforms.

19

20

### **Conclusion**

21 During the COVID-19 pandemic, students experienced various obstacles in their learning  
22 activities. Moreover, the Indonesian government regulations that require the  
23 implementation of online learning, students are less than optimal in developing various  
24 positive characters such as achievement motivation and learning behavior in both male and  
25 female students. The results of this study found that female students had better abilities  
26 than male students, such as achievement motivation and learning behavior.

27

28

### **Suggestion**

29 This study recommends developing a learning strategy and even counseling to respond to  
30 the description of the level of achievement motivation and learning behavior in the gender-

1 based COVID-19 pandemic era. Counselors as practitioners can also use the results of this  
2 study as an alternative reference to intervene in student problems regarding achievement  
3 motivation and learning behavior.

#### 5 **Limitation**

6 This study has limitations in taking samples that are not evenly distributed in all provinces in  
7 Indonesia. Sampling evenly throughout Indonesia can increase the reliability of research data  
8 as a basis for interpreting research results.

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# Achievement Motivation and Learning Behavior of Students During COVID-19 Pandemic: Gender Differences

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## ABSTRACT

This study aimed to describe and compare the achievement motivation and learning behavior based on male and female students in Indonesia. Respondents have involved 902 female high school students and 637 male high school students using the cluster random sampling technique. Data were collected using a scale of achievement motivation and learning behavior with has a validity coefficient of items in the range of 0.362 to 0.724, and each had Cronbach's alpha reliability of 0.811 and 0.866; data analyzed by descriptive and Mann-Whitney tests. The results showed significant differences in the level of achievement motivation and learning behavior of male and female students. Female students showed better achievement motivation and learning behavior than male students. This study discussed by compare between several countries and recommends the need for guidance and counseling services to increase achievement motivation and student learning behavior based on gender differences.

**Keywords:** Achievement motivation, Learning behavior, Gender differences, COVID-19.

## INTRODUCTION

The whole world is experiencing the problem of COVID-19. The outbreak that started in Wuhan, China, in December 2019 gave rise to various new phenomena such as the loss of many lives, economic impact, and poverty (Ciotti et al., 2020; Susskind & Vines, 2020; Karani & Mary, 2022). The COVID-19 pandemic also seems to have degraded the mental health of the international community (Cullen et al., 2020; Pfefferbaum & North, 2020). Several mental illnesses in communities affected by the COVID-19 pandemic include anxiety, post-traumatic stress disorder, psychological distress, and stress (Xiong et al., 2020). Even the results of the study recommend improving mental health services for the community during the COVID-19 pandemic (Moreno et al., 2020).

The COVID-19 pandemic is a big challenge for the world of education today. This situation has many negative impacts on various aspects, one of which is the world of education (Daniel, 2020; Korkmaz & Mirici, 2021). The COVID-19 pandemic requires the world of education to take steps to learn from home or online learning to avoid the negative impacts of this disease (Yulia, 2020). Various countries are conducting learning from home during the COVID-19 pandemic, both synchronously and asynchronously (Daniel, 2020; Mairing et al., 2021; Rehman & Fatima, 2021). Online learning has not been able to provide maximum results in student development, especially in developing countries (Adnan & Anwar, 2020). Students do not want this step of learning from home for various reasons, such as the difficulty of internet access and expensive devices that are still far from the reach of students (Phelps & Sperry, 2020; Purwadi et al., 2021; Mirici, 2022).

Indonesia is also one of the countries that must bear the impact of the COVID-19 pandemic, especially in education

(Giatman et al., 2020). Indonesia has tried to prepare virtual infrastructure well, but the readiness factor for teachers and schools still needs to understand the essence of distance learning better. The low self-regulated learning of students supports Indonesia's unpreparedness to carry out online learning (Churiyah et al., 2020). Student facilities and infrastructure are also factors that are not ready to implement online learning during the COVID-19 pandemic in Indonesia (Rulandari, 2020).

The impact of the COVID-19 pandemic on the education sector can also be in terms of motivation, achievement and learning behavior. This study specifically describes the description of the relationship and differences in achievement motivation and learning behavior based on gender. The results of this study can be used as a basis for providing guidance and counseling services to develop achievement motivation and learning behavior by taking into account gender differences.

Achievement motivation is an encouragement to achieve success with a measure of excellence in high learning

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**How to cite this article:** Atmoko A, Saputra WNE, Wahyuni ET (2022). Achievement Motivation and Learning Behavior of Students During Covid-19 Pandemic: Gender Differences. Pegem Journal of Education and Instruction, Vol. 12, No. 4, 2022, 260-268

**Source of support:** Nil

**Conflict of interest:** None.

**DOI:** 10.47750/pegegog.12.04.27

**Received :** 13.03.2022

**Accepted :** 28.05 .2022

**Published:** 01.10.2022

achievement in learning. The results of the study show that students' motivation in participating in school activities tends to decrease (Kulikowski et al., 2021; Rahiem, 2021). Especially during the COVID-19 pandemic, which requires online learning, teachers cannot provide maximum assistance to students in studying at school. When students have a terrible perception of social support from their teachers, it triggers low academic motivation (Emadpoor et al., 2016; Song et al., 2015). Academic motivation itself is one of the variables that determine the high or low academic achievement of students (Gupta & Mili, 2017; Topçu & Leana-Taşçılar, 2018). Learning behavior is also one aspect that has dynamic changes during the COVID-19 pandemic in Indonesia (Kang & Kim, 2021). Learning behavior is the level of student activities that meet expectations (on-task behavior) in learning. An immature online learning system encourages the development of optimal learning behavior in students. Some research results show that online learning behavior can determine the high or low academic achievement of students (Jo et al., 2015; You, 2016).

The aspect of gender differences is still a hot topic in Indonesia, especially in learning at school and in the world of work. Based on the research results in Indonesia, it shows that women have 30% lower salaries than men, and women have lower career opportunities than men (Sohn, 2015). In comparison, the study results show that female students have better academic abilities than male students (Erdiana et al., 2019). In fact, during the COVID-19 pandemic, female students had better self-regulated learning than male students (Wijaya et al., 2020). Indonesia is very concerned about aspects of gender equality, both in the educational process and post-education or the world of work. These conditions become one of the backgrounds to identify differences in achievement motivation and learning behavior of male and female students in Indonesia. This study aimed to describe and compare the achievement motivation and learning behavior base on male and female students.

## METHOD

### Research Design

This study aims to identify the relationship between achievement motivation and learning behavior of male and female students In Indonesia. So, this research is a comparative design to compare the differences in achievement motivation and learning behavior between male and female. The results of the research can be used as the basis for conducting a tutoring service to support maximum learning outcomes, for both men and women.

### Participants

Participants were 1539 high school students in Indonesia, consisting of 902 female and 637 male. They come from various

provinces in Indonesia. Table 1 presents the participants in this research.

### Data Collection Tools

This study uses two instruments (1) the achievement motivation scale has a validity coefficient of items in the range of 0.362 to 0.719, and has a reliability coefficient of 0.811 (a high category); (2) the learning behavior scale has a coefficient of item validity in the range of 0.402 to 0.724, and has a reliability coefficient of 0.866 (a high category).

Tables 2 and 3 describe the lattice of the achievement motivation and learning behavior scale instrument.

**Table 1:** Distribution of research participants

No	Province	f	%
1	Central Java	209	13.58
2	West Java	306	19.88
3	East Java	351	22.81
4	East Nusa Tenggara	203	13.19
5	Central Sulawesi	106	6.89
6	Riau	107	6.95
7	Lampung	110	7.15
8	West Sumatra	147	9.55
	Total	1539	100

**Table 2:** Achievement motivation scale

Variable	Indicator	Statement items
Achievement motivation	Drive to learning achievement indicators	1, 8
	Actions purpose for learning achievement	2
	Responsible to completion of assignments for learning achievement	3, 9
	Using feedback for performance	4, 10
	Mood when meet failure/difficulty	5
	Act according to ability	6
	Using learning achievement opportunities	7, 11

**Table 3:** Learning behavior scale

Variable	Indicator	Statement items
Learning behavior	Learning plan	1, 6
	Face-to-face/online teaching-learning activities	2, 7
	individual and group tasks activities	3, 8
	Enrichment learning activities	4, 9
	Prepare for exam activities	5, 10

**Data Collection**

This research through five stages. First, examine the research problem, namely whether the achievement motivation variable is related to learning behavior during the COVID-19 pandemic. Second, determine the group that has specific characteristics, namely 902 female students. Third, select the comparison group, namely 637 male students. Fourth, collect data using a scale of achievement motivation and learning behavior. Fifth, perform data analysis to determine the differences between achievement and learning behavior based on gender during the COVID-19 pandemic. We collected data using google forms, in collaboration with teachers in the sample schools, students filled out the scale using their mobile phones from their respective homes.

**Data Analysis**

The data analysis technique used Mann-Whitney U test (non-parametric statistic) because the data does not show a normal distribution and is not homogeneous. This analysis of the data using the SPSS for Windows Release 20 program. Table 4 describes the analysis of the assumption test.

Shapiro-Wilk analysis in table 4 shows the value of Sig. of 0.000, meaning that the data is not normally distributed because of the value of Sig. > 0.05. Similarly, the results of the analysis of lilliefors in table 4 show the value of Sig. in the kolmogorov-smirnov column of 0.000. It means that the data is not normally distributed because the value is of Sig. > 0.05.

Table 5 describes the homogeneity assumption test.

In table 5, homogeneity test of achievement motivation data show that F is 0.035 with a significance of 0.851, meaning greater than 0.05 (0.851 > 0.05). This result means that the variance of the population group is homogeneous. While the homogeneity test of learning behavior data show that F is 5.459 with a significance of 0.020, meaning less than 0.05 (0.020 < 0.05). This result means that the variance of the population group is not homogeneous. Thus the requirements for normality and homogeneity for comparative analysis are not met. So the comparative analysis uses the Mann-Whitney U test.

**Table 4:** Normality test assumptions

No	Data	Achievement motivation	Learning behavior
1	Sig. Kolmogorov-Smirnova	0,000	0,000
2	Sig. Shapiro-Wilk	0,000	0,000

**Table 5:** Homogeneity test assumptions

Achievement motivation		Learning behavior	
F	Sig.	F	Sig.
0,035	0,851	5.459	0,020

**FINDINGS**

The results showed a significant difference in both of achievement motivation and learning behavior in male and female students during the COVID-19 pandemic in Indonesia. Female students have better achievement motivation and learning behavior than male students. The following section will identify these differences

Table 6 shows the analysis results that describe the differences in achievement motivation by gender.

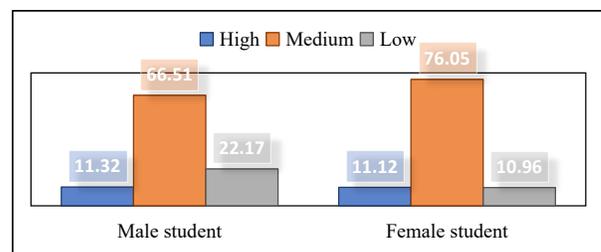
Data analysis showed that Asymp. Sig. of 0.000 is smaller than 0.05 (0.000 < 0.05). This result means that there are differences in student achievement motivation in terms of gender. The level of achievement motivation of female students was higher than that of male students (female 36.405, male 33.623, Asymp. Sig 0,000). The mean value of achievement motivation of female students is 36.405, while the level of achievement motivation of male students is 33.623. The mean level of achievement motivation of female students is greater than that of male students. Graph 1 shows the differences in the level of achievement motivation by gender.

The following analysis is to identify differences in the level of learning behavior between male and female students. Table 7 shows the analysis results that describe the differences in learning behavior by gender.

Data analysis showed that Asymp. Sig. of 0.000 is smaller than 0.05 (0.000 < 0.05). This result means that there are differences in student learning behavior in terms of gender differences. The results showed that the level of learning behavior of female students was higher than that of male students (female 28.261, male 26.393, Asymp. Sig 0,000) . The mean value of female students' learning behavior is 28.2617, while the male student's level of learning behavior is 26.3931. The mean level of learning behavior of female students is greater than that of male students. Graph 2 shows the difference in the level of learning behavior by gender.

**Table 6:** Comparative achievement motivation based on gender differences

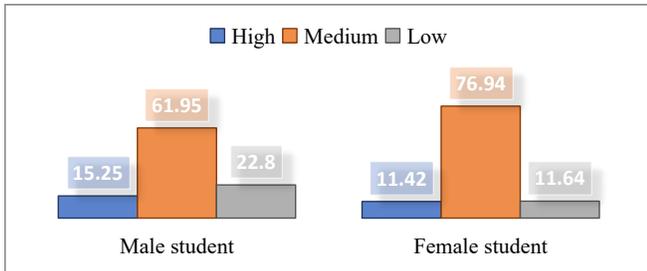
Mann-Whitney U test		
Asymp. Sig.	Mean male students	Mean female students
0,000	33,623	36,405



**Graph 1:** Description of the percent of achievement motivation based on gender

**Table 7:** A comparative learning behavior by gender differences

<i>Mann-Whitney U test</i>		
<i>Asymp. Sig.</i>	<i>Mean male students</i>	<i>Mean female students</i>
0,000	26,3931	28,2617



**Graph 2:** Description of the percent of learning behavior based on gender

## DISCUSSION

During the pandemic, various dynamics of student learning activities emerged. Various learning patterns that had not appeared before finally occurred during the COVID-19 pandemic. The results show that the design of learning from home during the COVID-19 pandemic has changed many aspects of student learning activities (Agu et al., 2021; Khattar et al., 2020). Students need more effort to adapt to new online learning habits (Giatman et al., 2020; Purwadi et al., 2021). Meanwhile, students in Indonesia before the COVID-19 pandemic did not have the opportunity to do online learning. In addition, many students in Indonesia have not prepared themselves for online learning, especially if you look at it from facilities and infrastructure (Afrianti & Aditia, 2020; Churiyah et al., 2020). So that teachers need to develop mature strategies so that the online learning process can run optimally.

The rules regarding preventing the spread of COVID-19 forced them from face-to-face meetings to face-to-face meetings (Mpungose, 2020). Attractive conditions to be a research topic. Moreover, online learning activities themselves are a challenge and an opportunity in the field of education (Simamora, 2020). Based on the various learning dynamics that arise in students in the era of the COVID-19 pandemic, this study wants to explore achievement motivation and learning behavior based on gender differences. The findings of this study indicate that there are significant differences between male and female students in aspects of achievement motivation and learning behavior.

Further analysis found that female students were superior in three aspects to male students, namely achievement motivation and learning behavior. The aspect of gender differences turned out to be one of the determinants of the tendency of student learning activities (Choudhary et al., 2011; Kulturel-Konak et al., 2011; Samuelsson & Samuelsson,

2016). Ini This research finding can be the basis for carrying out certain follow-up actions and interventions to increase achievement motivation and learning behavior in schools amidst the COVID-19 pandemic.

There is no concept of gender inequality in implementing learning activities in schools or even in other fields. Even the government and educational institutions in Indonesia guarantee gender equality for every citizen in carrying out activities (Syamsul, 2018). Like male students, female students can get education and opportunities in various fields according to their abilities and characteristics as a woman to actualize themselves. However, in almost all countries, including Indonesia, gender equality in learning per year yields minimal gains because, once in school, girls learn practically the same as boys (Kaffenberger & Pritchett, 2020). As a result, female students have fewer opportunities to work after graduating from school, even though their incomes tend to be small (Sohn, 2015). The rationale above becomes the basis for examining the dynamics between male and female students in the variance of achievement motivation and learning behavior.

First, this study examines the level of achievement motivation between male and female students in Indonesia. The COVID-19 pandemic in Indonesia influences student achievement motivation. The results of previous studies showed that students lost their achievement motivation and learning performance using online learning methods during the COVID-19 pandemic period (Tan, 2021). Other studies also show that student achievement motivation during the COVID-19 pandemic is lower than before the COVID-19 pandemic (Klootwijk et al., 2021). However, the results of other studies also show that an attractive and systematically structured learning design with cooperative learning can trigger an increase in achievement motivation (Haftador et al., 2021).

Gender is also one of the determinants of the dynamics of student achievement motivation during the COVID-19 pandemic. Based on this study's results, the achievement motivation of female students is better than male students. Research in Australia shows the same results, and girls have higher achievement motivation scores than male students (Pašková & McGeown, 2012). In addition, research in England also shows that the intrinsic motivation of female students is better than that of male students (McGeown et al., 2012). Based on the research results above, achievement motivation is more critical for female students than male students.

The results of other studies show other results, where differences in achievement motivation appear in the form and setting. In Iran, male students tend to have strong achievement motivation at night, while female students tend to be in the morning (Dehkordi et al., 2019). In addition, differences in children's achievement motivation also lie in their subjects. Boys report more potent abilities and interests in math and science, while girls are more confident and interested in the arts

of language and writing (Meece et al., 2006). This difference in achievement motivation certainly has implications for the learning process or intervention to develop gender-based student achievement motivation.

The difference in achievement motivation of male and female students certainly has a reason. One reason is those female students tend to experience stress more quickly, so they apply a coping strategy to develop achievement motivation to achieve their academic goals (Bonneville-Roussy et al., 2017). Especially in the pandemic season, it is possible to appear various activities and situations that are beyond the plans and predictions. In contrast to male students, who tend to be a little worried about the impact that will arise when their academic assignments have not been completed, they do not tend to be easily stressed due to the pressure of educational activities. In addition, female students also have an orientation to mastery of the material than male students who are performance-oriented (D'Lima et al., 2014). These conditions can trigger higher achievement motivation of female students than male students.

In the second part, this study seeks to examine the differences in the level of learning behavior of male and female students. Adopting new habits in the new normal era triggers the emergence of complex dynamics of learning behavior. Students shift their traditional learning behavior to online and blended learning (Kamal et al., 2020). The results showed that students were dissatisfied with the implementation of online learning (Almusharraf & Khahro, 2020; Sharma et al., 2020). They considered the system not ready to implement massive online learning (Purwadi et al., 2021). This situation impacts decreasing the level of student learning behavior, even though learning behavior is one of the predictors of high or low student academic achievement (Macher et al., 2012).

Gender is one aspect that distinguishes the level of student learning behavior. The results showed that the learning behavior of female students was better than that of male students. The research results in Australia show similar results, the level of learning behavior of female students in writing is better than male students (Lee, 2013). In line with the results of previous studies, the results of research in the United States show that female students have an advantage in learning behavior in the language aspect over male students (Kaushanskaya et al., 2013). Differences in the level of learning behavior of male and female students have implications for the learning strategies of teachers.

The results of other studies show different results. Research in India shows that the learning behavior of male students is higher than that of female students (Mokhlesi & Patil, 2018). Long before the COVID-19 pandemic, male students had higher self-efficacy in the use of e-learning than female students (Ong & Lai, 2006). Male students have better ability in terms of technology than female students. Even male students have a higher confidence level in using technology than female

students (Goswami & Dutta, 2015; Yau & Cheng, 2012). This condition triggers male students to be more optimal and have better learning behavior in technology-based learning behavior.

The difference in the level of learning behavior during the COVID-19 pandemic between male and female students in Indonesia has certain causative factors. One of the things that trigger the learning behavior of female students is better than male students during the COVID-19 pandemic is the learning process that has not been optimal using technology in the pandemic era. During a pandemic, teachers are not ready for online learning policies (Andarwulan et al., 2021; Sulisworo et al., 2021). There is still much online learning in Indonesia that does not follow what should be, such as increasing assignments and self-study. So that students need to independently prepare various things about the topic of learning from the teacher. Female students have an advantage in this regard, where female students have more accuracy and patience than male students (Rundgren et al., 2019).

Various situations that arise as a result of the implementation of online learning have become interesting studies recently. Due to the COVID-19 pandemic, the new normal has created a new habit for students to carry out learning activities, namely using online platforms. Although basically, not all students are ready and able to adapt to the online learning process (Zhang et al., 2020). Student learning using blended learning models and bases is a recommendation to increase students' enthusiasm for learning. Thus, schools can still achieve Indonesia's educational goals during the COVID-19 pandemic.

The results of this study also have implications for the provision of tutoring services by counselors. Counselors can collaborate with classroom teachers in conducting tutoring (Atici, 2014; Rock et al., 2017; Syriopoulou-Delli et al., 2016). Counselors and teachers provide more intensive tutoring for male students than female students. The important thing that became the basis for this thought was that male students had lower levels of achievement motivation and learning behavior than girls. This statement is supported by the results of research which states that the self-regulated learning of male students is lower than female students (Alhadi et al., 2018; Saputra et al., 2018, 2021). These conditions are certainly correlated with student learning behavior.

The achievement motivation variable has a relationship with learning behavior, both in male and female students. These results explain that the higher the achievement motivation, the higher the student's learning behavior during the COVID-19 pandemic. Students' motivation to achieve achievement spurs them to display constructive behaviors such as being involved in the learning process (Bempechat & Shernoff, 2012) and academic performance (Turner et al., 2009). Based on research results, achievement motivation that can trigger the development of good learning behavior will

encourage maximum student academic achievement (Johnson et al., 2014; Lemos & Verissimo, 2014).

Adolescents experience the dynamics of changing achievement motivation during the COVID-19 pandemic (Gonzalez-Ramirez et al., 2021). Moreover, the learning process of students who switch to online learning is a new method for them (Hermanto & Srimulyani, 2021; Simamora, 2020). Students experience a decrease in their involvement in the learning process and a decrease in motivation in learning (Oosterhoff et al., 2020). Students begin to view the actual learning process negatively. These things have an impact on learning behavior that is not constructive in achieving optimal learning achievement. However, the results of other studies show that individuals have more online platforms than face-to-face when taking specific courses (Lin et al., 2021). This condition arises because they feel more comfortable and flexible when they have to do learning through online platforms.

## CONCLUSION

During the COVID-19 pandemic, students experienced various obstacles in their learning activities. Moreover, the Indonesian government regulations that require the implementation of online learning, students are less than optimal in developing various positive characters such as achievement motivation and learning behavior in both male and female students. The results of this study found that female students had better abilities than male students, such as achievement motivation and learning behavior.

## SUGGESTION

This study recommends developing a learning strategy and even counseling to respond to the description of the level of achievement motivation and learning behavior in the gender-based COVID-19 pandemic era. Counselors as practitioners can also use the results of this study as an alternative reference to intervene in student problems regarding achievement motivation and learning behavior.

## LIMITATION

This study has limitations in taking samples that are not evenly distributed in all provinces in Indonesia. Sampling evenly throughout Indonesia can increase the reliability of research data as a basis for interpreting research results.

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