# A Case Study on Educational Level and Gender Differences on Academic Self-Concept of Student

**Ma. Janice J. Gumasing**
School of Industrial Engineering and Engineering Management
Mapua University
Intramuros, Manila, Philippines
mjjgumasing@mapua.edu.ph

**Rocelle S. Calandria, Ella D. Delizo, Ellaine Genesis S. Lera, John Aldrin C. Selda, Karl Christian B. Toledo and David Brian B. Vizmanos**
Bachelor of Science in Industrial Engineering
Malayan Colleges Laguna under Mapua Institute Technology at Laguna
Pulo-Diezmo Road, Cabuyao, 4025 Laguna
rocelle.calandria@gmail.com, ellaxxi61@gmail.com, ellainegenesis.lera@gmail.com, drinselda@gmail.com, dbvizmanos@gmail.com, karltoledo06@gmail.com

## Abstract

Academic self-concept (ASC) is characterized as one's academic self-views or perceptions of one's overall aptitude in school in a broad sense. The purpose of this study was to determine the relationship of educational level and gender differences on the academic self-concept of students. The academic self-concept was adopted through the academic scale of Liu & Wang (2005). It consists of two sub-scales: academic confidence and academic effort. There were randomly selected 200 Filipino students which consisted of 100 high school students and 100 college students. Two sample t-test and Analysis of Variance (ANOVA) were utilized for the collected data. The results showed that high school students perceive a higher level of academic confidence than college students. On the contrary, it also revealed that college students perceive a higher level of academic effort than high school students. The results also indicate that female students perceive a higher level of academic effort than male students. Surprisingly, the data also revealed that there is a significant difference in the perceived academic effort of students based on age. It is also recommended that there can be seminars, counseling, and programs be conducted that would enhance students' academic self-concept.

## Keywords
Self-concept, academic self-concept, academic confidence, academic effort

## 1. Introduction

Every individual's self-concept has captured the interest of researchers of social personality and psychology. Individuals are diverse, thus, they have various feelings and have the capability to interpret these in their different ways (Bandura, 1997).

The term 'self-concept' refers to one's knowledge and perception of oneself. It is based on self-awareness and evaluation of the qualities and attributes gained through participation in one's circumstances (Eccles, 2005). Every person has a distinct and unique perspective about themselves. They can figure out what characteristics and talents they have and how to use them to their kids' advantage. These skewed perceptions of oneself play an important role in their development and maturity (Bong & Skaalvik, 2003). Self-concept is a popular and important construct in psychological perspective and education. Self-concept refers to a multi-dimensional construct establishing an individual's perception of the self (Marsh, 1990). Similarly, Joyce & Yates cited Byrne (2007) stated that self-concept is a multi-dimensional construct consisting of one general facet and various specific facets, including *academic self-concept.* Moreover, it is assumed as an evaluative character and used interchangeably with self-esteem. In the context of this study, the term *academic self-concept* was adopted.

Academic self-concept refers to a student's self-assessment of his scholastic abilities and potential (Trautwein et al., 2006). In connection to that, it can also be characterized based on how an individual views himself as a student in the context of academics (Guay, Marsh & Boivin, 2003). According to the findings of the study entitled "Academic self-concept and academic achievement: Relations and causal ordering" by Marsh & Martin (2011), positive development of academic self-concept leads to higher academic success and other favorable educational outcomes in the future. Academic self-concept is not only significant when it comes to educational outcomes, but it also plays a key role in modulating the impacts of other desired outcomes. It is recognized as a critical and powerful component that is linked to people's actions as well as a variety of emotional and cognitive consequences such as anxiety, academic success, contentment, depression, low self-esteem, and others. With that being said, it is essential to conduct this study to help students improve their long-term welfare and education to achieve academic success.

### 1.1 Objectives

Collectively, these related literature and studies have provided substantial information regarding the current study**.** It can also be understood that past studies have been conducted in different geographical and cultural conditions. There seems to be a significant lack of documented research studies in academic self-concept across differences in both gender and educational level of students, specifically in the Philippines context. In this regard, this paper aims to determine the significant difference in the perceived self-concept of students based on educational level and gender.

## 2. Literature Review

### Self-Concept and Its Development

Self-concept is defined by personal attitude to life and is expressed and shown through self-confidence, self-respect, self-esteem, self-acceptance, self-esteem. It is one of the key factors for achieving psychological well-being (Viktorovna et al., 2019), and preparedness of adolescents in terms of self-identity (Khairutdinova & Fedorova, 2016). It also allows a person to know more about himself and his abilities on what he can do or not. Davis-Kean & Sandler (2001) said that a person's self-concept is built based on the perceptions that he has accumulated throughout his life. According to Adler (1930), self-concept brings new meaning and ways of living and assists individuals in building various goals into fulfilling those. It improves one's understanding of the world and gives aid in creating a better vision.

The development of one's self-concept occurs in phases it refines with increased age and experience, like all other cognitive concepts. In the second year of life, infants begin to establish a sense of self by learning to separate themselves from others (Harter, 1985). Self-recognition is the initial phase in the formation of self-concept, as indicated by young children's obsession with staring in the mirror. "Hey, I know who you are; you're me!" (Eggen and Kauchak, 1997). In the study conducted by Kumari & Chamundeswari (2013), self-concept is one of the psychological factors that contribute to the achievement of students, which also identifies the level of competence among the potential of students. They also discovered that self-awareness influences how students act in an academic context. Individuals' character towards their latent abilities and potentials boost their self-esteem and they get high grades in school.

### Academic Self-Concept and Its Role

Positive academic self-concept and negative academic self-concept are the two most common forms of academic self-concept. In terms of a positive academic self-concept, this individual is confident and sure of himself, has good interests, is objective, and is not overly sensitive. This person is capable of accepting criticism from others and expressing their thoughts and ideas. Individuals with a bad academic self-concept, on the other hand, have a very subjective character. "The outcome of education is academic accomplishment or academic success." (Strage & Brandt, 1999; Hughes & Kwok 2007).

According to the study conducted by Ghazvini (2011), there is a strong and close relationship between academic self-concept and the measures of performance academically. The academic self-concept has a powerful prediction in the general performance of high school students in mathematics and literature. As mentioned by Barker et al. (2005), academic self-concept and academic achievement are correlated which makes it an important factor. Matovu (2012)

also revealed that gender and courses (e.g., arts and science) of students affect their academic self-concept. Students' achievement might be paralleled by changes in the academic self-concept. He also revealed that male and female students have diverse academic self-concepts, hence, academic abilities. Moreover, aside from influences of academic self-concept with regards to the student's academic performance, it also affects a student's effort, engagement, and perseverance in activities; intrinsic motivation; energetically seeking help behavior; and course selection (Bong & Skaalvik, 2003).

### Gender Differences in Self Esteem and Academe

"Positive regard for the self has long been viewed as an essential component of mental health" (Jahoda, 1958; Rogers, 1961; Taylor & Brown, 1988). Their 20-year observation from 1972 - 1992 showed a higher self-esteem score for males compared to females aged 17-23. Factoring in age, ethnicity, country, and the cohort effect. Consequences caused by self-esteem, or lack thereof, even the smallest can greatly influence a person's occupational choice and socioeconomic attainment. The results say that males have higher self-esteem and that implies males do not have self-esteem problems. The implications can hold males to a higher standard therefore it gives men a gender-role strain perspective that pressures males to a masculine stereotype that causes psychological stress (Kling, et al, 1999).

In the study conducted by Marsh (1987) and Arens et al. (2011), they mentioned that gender and age are major predictors of academic self-concept since, research shows that male and female students have different academic self-concepts, and academic self-concept fluctuates with age. Marsh (1989) stated that based on gender differences, males have higher global ACS scores than females even if they are both performing equally well or females do much better academically. Males have greater ASC in academic areas like science and math, whereas females have greater ASC in verbal domains like reading and writing.

On the other hand, according to the works of Hay et. al. (1998), in the study entitled "The Influence of Gender, Academic Achievement and Non-school Factors Upon Pre-Adolescent Self-concept", in comparison to girls, boys have a more sophisticated intellectual self-concept. Boys had a stronger intellectual self-perception of scientific courses than girls. Reading and general school dimensions influenced boys' general self-concept, whereas the absence of school-related dimensions in the formation of pre-adolescent girls' general self-concept is discussed in terms of gender stereotyping, achievement motivation, and striving for success. Academic self-concept begins in elementary school and continues till adulthood.

### Students' Level of Self-Confidence and Performance Tasks

Self-esteem influences academic performance (Nematollahi, et al. 2017). Higher levels of self-confidence lead to increased motivation and effort to improve cognitive abilities and concentration (Şar et al., 2010). The study shows that students with higher self-confidence had a more positive attitude towards their performance tasks compared to students with low self-confidence. In parallel, students with low self-confidence are the ones who are hesitant to perform the required tasks (Moneva & Tribunalo, 2020). Students tend to react more positively and learn better when they participate in academic activities that boost their self-confidence. Implying that students better react to the kinesthetic type of learning. It better stimulates all parts of the body, not just the frontal lobe of the brain that controls problem-solving.

## 3. Methods

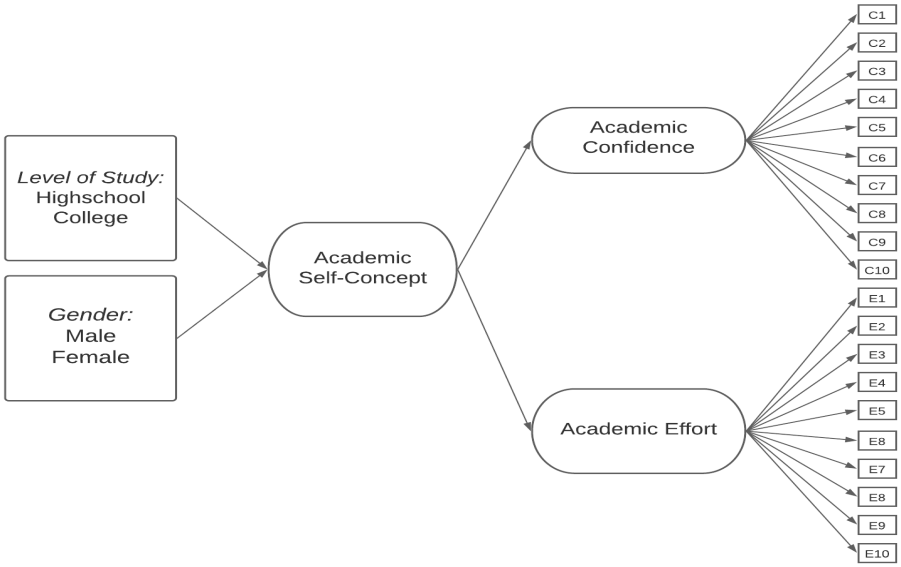


Figure 1. Conceptual Framework

Figure 1 demonstrates the conceptual framework of this study. The study determines the relationship between the academic self-concept difference based on gender and level of study among high school students and college students in the Philippines. In the current situation of the study, academic self-concept is composed of two sub-scales, namely, academic confidence (C) and academic effort (E). Based on the model, academic confidence and academic effort are endogenous variables to the academic self-concept.

Gender in academic self-concept has different perceived notions about their capability in academic abilities (Ireson & Hallam, 2012). According to Marsh et al. (1989), males possess a higher academic self-concept in sciences programs while females in non-sciences programs. Further, Jacob et al. (2002) has claimed that gender differences in academic self-concept become steady in adolescence and adulthood. However, Matovu (2014) found that gender difference, level of study, and faculty do not influence academic achievement. Despite the availability of different studies about academic self-concept among students, there seems to be a significant lack of academic research that validates academic self-concept across gender and educational level. This study aimed to evaluate the academic self-concept among the students across the factors gender, educational level, and age. Thus, the researchers hypothesized the following:

**H01:** *There is no significant difference in the perceived academic confidence of students based on gender.*
**H02:** *There is no significant difference in the perceived academic confidence of students based on educational level.*
**H03:** *There is no significant difference in the perceived academic confidence of students based on age.*
**H04:** *There is no significant difference in the perceived academic effort of students based on gender.*
**H05**: *There is no significant difference in the perceived academic effort of students based on educational level.*
**H06:** *There is no significant difference in the perceived academic effort of students based on age.*

## 4. Data Collection

The study utilized an Academic Self-Concept Questionnaire (ASCQ) that was distributed through an electronic platform. A total of 200 Filipino students answered the online questionnaire, which comprised 100 high school students, 100 college students. The study is in a quantitative approach and convenience sampling is the method for data collection.

The academic self-concept questionnaire (ASCQ) was the main data collection instrument deployed in this study. ASCQ was developed by Liu & Wang (2005) which measured two sub-scales of the academic self-concept of the

students, namely, academic confidence and academic effort. The questionnaire contained 20 questions which were formatted in a five-point Likert scale to assess the variables shown in the conceptual framework where 1 is 'strongly disagree' and 5 is 'strongly agree'. The 20 questions are composed of 10 questions each for academic confidence and academic effort sub-scales. Items from the odd numbers (i.e., 1, 3, 5, 7, 9, 11, 13, 15, 17, 19) are for the academic confidence sub-scale while items from the even numbers (i.e., 2, 4, 6, 8, 10, 12, 14, 16, 18, 20) are for the academic effort sub-scale.

### 4.1. Statistical Treatment of Data

For the reliability of the scale, Cronbach's alpha was calculated through Minitab Software. A value greater than 0.7 indicates a reliable scale. For the significance of the academic self-concept questionnaire, the average scores for the measurement of variables of the hypothesized model were calculated to obtain the mean scores to test its significance. A mean score value of at least 2.5 would determine if it is significant. Moreover, the study applied a two-sample t-test and analysis of variance (ANOVA) using the MINITAB to test the hypotheses. For the two-sample t-test, the samples are selected from a population with a normal distribution. The data are gathered randomly and independently of one another within each sample. This statistical tool was used for the educational level and gender differences on the academic confidence and academic effort of students. ANOVA was also applied to determine the significant difference between academic confidence and academic effort of students based on age. The hypotheses are set to a 95% confidence level. A null hypothesis would be rejected if the p-value is less than the alpha of 0.05.

## 5. Results and Discussion

### 5.1. Summary Statistics of Respondents' Profile

Table 1 presents the summary of the respondents' profiles. Among the 200 students who answered the survey questionnaire, 104 are female respondents while the remaining 96 students were male. Given the different age brackets, 64 of the respondents stated that they belong to the age group of 21-23 years old. It is then followed by 57 individuals who said that they are at the age of 16-18 years old. This indicates that most of the respondents are currently college students. Looking at the result of the educational level of the respondents, this proves that the majority of those who answered the survey are third-year college students.

Table 1. Summary Statistics of Respondents' Profile

| Respondents' Profile | Items | N | % |
|---|---|---|---|
| Gender | Male | 96 | 48.00% |
| | Female | 104 | 52.00% |
| Age | 13-15 | 32 | 16.00% |
| | 16-18 | 57 | 28.50% |
| | 19-20 | 47 | 23.50% |
| | 21-23 | 64 | 32.00% |
| Educational Level | JHS - Grade 7 | 8 | 4.00% |
| | JHS - Grade 8 | 7 | 3.50% |
| | JHS - Grade 9 | 21 | 10.50% |
| | JHS - Grade 10 | 14 | 7.00% |
| | SHS - Grade11 | 21 | 10.50% |
| | SHS - Grade 12 | 29 | 14.50% |
| | College - Year 1 | 21 | 10.50% |
| | College - Year 2 | 20 | 10.00% |
| | College - Year 3 | 53 | 26.50% |
| | College - Year 4 | 6 | 3.00% |

### 5.2. Result of Academic Self-Concept Questionnaire

The psychometric properties of the scale were identified using Minitab software. The scale reliability was determined using Cronbach's alpha (CA). A value greater than 0.7 would determine adequate reliability (Hair et al., 2014). The results revealed that the value of CA is 0.71 which indicates that the scale is significantly reliable. The items from the scale measure the same variable and are consistent.

Table 2 displays the result of the Likert scale questionnaire that has a five-point agreement scale ranging from strongly disagree (1) to strongly agree (5). Since the questionnaire is a five-point scale, those questions that will provide a mean score of 2.5 and above will be treated as significant while those questions that have a mean that is lower than 2.5 will be marked as not significant.

Table 2. Summary Results of Academic Self-Concept Questionnaire

| Factors | Items | Mean | Std. Dev. | Range | Remarks |
|---|---|---|---|---|---|
| Academic Confidence | I can follow the lectures easily. | 3.30 | 0.79 | 1-5 | Significant |
| | I am able to help my classmates in their school work | 3.69 | 0.82 | 1-5 | Significant |
| | If I work hard, I think I can get better grades. | 4.12 | 0.83 | 1-5 | Significant |
| | Most of my classmates are smarter than I am. | 2.43 | 0.87 | 1-5 | Not Significant |
| | My teachers feel that I am poor in my grades. | 3.22 | 1.02 | 1-5 | Significant |
| | I often forget what I have learned. | 2.31 | 0.90 | 1-5 | Not Significant |
| | I get frightened when I am asked a question by the teacher. | 2.48 | 0.96 | 1-5 | Not Significant |
| | I am good in most of my subjects. | 3.46 | 0.75 | 1-5 | Significant |
| | I always do poorly in course works and tests. | 3.19 | 0.90 | 1-5 | Significant |
| | I am able to do better than my friends in most courses or subjects. | 3.29 | 0.84 | 1-5 | Significant |
| Academic Effort | I daydream a lot in lectures. | 2.53 | 0.72 | 1-5 | Significant |
| | I often do my coursework without thinking. | 2.83 | 0.80 | 1-5 | Significant |
| | I pay attention to the lectures during lectures. | 3.46 | 0.75 | 1-5 | Significant |
| | I study hard for my tests. | 3.53 | 0.90 | 1-5 | Significant |
| | I am usually interested in my coursework. | 3.42 | 0.86 | 1-5 | Significant |
| | I will do my best to pass all the courses this term | 4.10 | 0.90 | 1-5 | Significant |
| | I often feel like quitting this course or subject | 2.81 | 1.04 | 1-5 | Significant |
| | I am always waiting for the lecture to end. | 2.22 | 0.90 | 1-5 | Not Significant |
| | I don’t give up easily when I am faced with a difficult question in my coursework. | 3.83 | 0.91 | 1-5 | Significant |
| | I am not willing to put in more effort in my coursework. | 3.17 | 1.12 | 1-5 | Significant |

The first of the two factors would be academic confidence. Having a mean score of 3.30 for the first item, means that most of the students can follow the lectures easily. For the second item, a mean score of 3.69 proves that the majority of the students can help their classmates with their school works. Looking at the third item, the 4.12 mean score indicates that most of the students think that they can get better grades if they work hard. A mean of 2.43 shows that the respondents do not think that most of their classmates are smarter than them. As for the fifth item, since the mean is 3.22, the respondents agree that their teachers feel that they are poor in grades. With a mean score of 2.31 and 2.48, respectively, most of the students disagree with the next two statements: "I often forget what I have learned" and "I get frightened when I am asked a question by the teacher". The last three statements under academic confidence, are all significant with a mean of 3.46, 3.19, and 3.29, respectively. The result indicates that most of the students perform well in most of their subjects. On the contrary, nearly all of the respondents also stated that they always do poorly in coursework and tests. Lastly, almost all of those who answered the questionnaire said that they do better than their friends in most courses or subjects.

For the result of the students' perception relating to the academic effort, only the eighth item gave a not significant remark with a mean score of 2.22. The result shows that most of the students are giving their effort to listen to the discussions and that they do not just wait for the lecture to end. The remaining items provide a mean that is more than 2.5 making them significant. Finally, these findings suggest that the majority of the respondents have positive academic confidence and academic effort.

### 5.3. Result of T-Test

Table 3. Summary of T-Test Result of Perceived Academic Confidence of Students Based on Gender and Educational Level

| Factors | N | Variables | Mean | Std. Dev | SE Mean | DF | t-value | p-value | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| Gender | 96 | Male | 30.46 | 2.93 | 0.30 | 193 | -1.85 | 0.065 | Not Significant |
| | 104 | Female | 31.33 | 3.69 | 0.36 | | | | |
| Educational Level | 100 | HS | 35.55 | 4.06 | 0.41 | 197 | 8.56 | 0.000 | Significant |
| | 100 | College | 30.7 | 3.95 | 0.39 | | | | |

Table 3 shows the summary of t-test results of perceived academic confidence of students based on gender and educational level. The researchers were able to test if there is a significant difference between the mean of the gender (male and female), as well as the mean of the educational level (high school and college). The significance level is 95% for both factors.

Looking at the p-value of 0.065, the result of the t-test for the first factor means that there is no significant difference in the perceived academic confidence of respondents between males and females. To put it simply, gender does not affect the students' perception of their academic confidence. The finding is consistent with that of Liu and Wang (2005), wherein the result is not significant.

With a p-value that is less than the 0.05 significance level, the t-test result of the educational level proves that there is a significant difference in the perceived academic confidence of respondents when it comes to the students' educational level. This observation proves that high school students and college students have different perceptions of their academic confidence. Specifically, high school students (N = 100, Mean = 35.55, SD = 4.06) perceive a higher level of academic confidence than college students (N = 100, Mean = 30.7, SD = 3.95).

Table 4. Summary of ANOVA Test Result of Perceived Academic Confidence of Students Based on Age

| Factor | Variables | Mean | Std. Dev. | p-value | Remarks |
|---|---|---|---|---|---|
| Age | 13-15 | 32.438 | 4.362 | 0.127 | Not Significant |
| | 16-18 | 31.930 | 4.208 | | |
| | 19-20 | 31.468 | 3.735 | | |
| | 21-23 | 30.594 | 2.959 | | |

Table 4 displays the summary of test results of perceived academic confidence of students based on age. ANOVA test was performed for the researchers to assess if statistical evidence exists that the corresponding sample of population is significantly different. The significance level is set at 0.05. The variables would be the four age brackets specifically, those students under 13-15 years of age, 16-18 years of age, 19-20 years of age, and 21-23 years of age. A p-value of 0.127 statistically proves that the mean of the four given age brackets is equal. Therefore, the given age brackets do not affect the students' perception of their academic confidence.

Table 5. Summary of T-Test Result of Perceived Academic Effort of Students Based on Gender and Educational Level

| Factors | N | Variables | Mean | Std. Dev | SE Mean | DF | t-value | p-value | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| Gender | 96 | Male | 31.13 | 3.86 | 0.39 | 197 | -2.55 | 0.012 | Significant |
| | 104 | Female | 32.56 | 4.08 | 0.40 | | | | |
| Educational Level | 100 | HS | 30.2 | 3.53 | 0.35 | 195 | -9.56 | 0.000 | Significant |
| | 100 | College | 35.3 | 4.00 | 0.40 | | | | |

Shown in Table 6 is the summary of the t-test result of the perceived academic effort of students based on gender and educational level. The researchers computed the total academic effort of each student from the result of the survey. The gathered data were arranged considering the two factors namely gender (male or female) and educational level (high school or college) of the respondents. A 95% level of significance was used for the t-test.

Comparing the p-value 0.012 to the 0.05 significance level, the result of the first factor indicates that there is a significant difference in the perceived academic effort of respondents based on their gender. Female students (N = 104, M = 32.56, SD = 4.08) have a higher perceived academic effort than male students (N = 96, M = 31.13, SD = 3.86). It can be concluded that gender has something to do with the student's perception of their academic effort. This finding is consistent with that of Liu and Wang (2005) who found out that female students had significantly higher perceived academic effort than the male students in Singapore. The finding may be explained by the educational demographic and societal development in the Philippines. Yamauichi & Liu (2017) identifies that the Third Elementary Education Project (TEEP) promoted in the Philippines favors female students more than male students. In addition, 71.3 percent of the Filipino students enrolled in high school and college are females (World Economic Forum). On this point, females tend to have an educational advantage compared to male students in the Philippines. Considering both genders in regards to societal development, it is conceivable that there is a difference in academic self-concept based on gender.

Nonetheless, the finding that females have higher academic effort than males has already been proven by numerous psychologists. It was observed that female students focus on academic ability and academic performance to conform to society (Friedman & Koch, 1985, as cited in Liu & Wang, 2005). It demonstrates that female students give more effort to school work and activities that may give a tangible reward that can gain praise from the adults, e.g., high remarks.

For the second factor, the p-value on the summary of the t-test result is less than the significance level of 0.05 stating that difference does exist in the perceived academic effort of the students when it comes to their educational level. College students (N = 100, M = 35.3, SD = 4.00) have a higher level of perceived academic effort than high school students (N = 100, M = 30.2 SD = 3.53). Educational levels have an impact on how students perceive their academic effort.

Table 6. Summary of ANOVA Test Result of Perceived Academic Effort of Students Based on Age

| Factor | Variables | N | Mean | Std. Dev. | p-value | Remarks |
|---|---|---|---|---|---|---|
| Age | 13-15 | 32 | 33.063 | 3.843 | 0.04 | Significant |
| | 16-18 | 57 | 31.281 | 4.121 | | |
| | 19-20 | 47 | 33.313 | 3.524 | | |
| | 21-23 | 64 | 31.125 | 3.941 | | |

The age of the students was divided into four different age brackets and this serves as the independent variable for the ANOVA test as shown in Table 6. The researchers conducted the test to identify if there is a difference between the stated groups. The significance level is still set at 0.05. Since the p-value, 0.04 is less than the level of significance, 0.05, it can be concluded that some of the age brackets have different means. There exists a significant difference in the perceived academic effort of students based on age. Students from the age groups 13-15 (N = 32, M = 33.063, SD = 3.843) and 19-20 (N = 47, M = 33.313, SD = 3.524) have a higher level of perceived academic effort than the age

groups 16-18 (N = 57, M = 31.281, SD = 4.121) and 21-23 (N = 64, M = 31.125, SD = 3.941). These findings support the findings found in Table 5 that college students (ages 19-23) possess higher perceived academic effort than high school students (ages 13-18)

## 6. Conclusion

The present study was conducted to determine the relationship between gender and educational level differences to the academic self-concept of students. In the context of this study, the academic self-concept scale of Liu & Wang (2005) was adapted. The results of the study revealed that there exists a significant difference in the perceived academic confidence between high school and college students; high school students showed more academic confidence than college students. It also revealed that there is a significant difference in the academic effort between male and female, high school and college students, and age group of the students. Female and college students showed higher academic effort than male and high school students, respectively.

## 7. Recommendation

In light of the findings of the study, the following measures can be implemented in assisting students to better understand and improve their academic self-concept. Institutions and academicians can provide seminars and workshop sessions that would improve their students' perceptions and capability academically. Students who have low academic self-concepts must be intervened through counseling programs to further assess and enhance their academic self-concept. The scope of the personal development and values education courses can also be designed in providing lessons regarding the importance of self-concept. There could also be numerous opportunities given to students that would engage their skills and abilities in boosting their academic confidence and academic effort. These necessary steps would be very helpful to students in improving their welfare and education.

Future researchers could use this study to recognize the difference in the academic self-concept of students based on gender and educational level. Further, future researchers could attempt to integrate more variables and respondents into the study's model or apply the model in different geographic settings.

## References

Adler, A. (1930). *The Education of Children*. London: George Allen and Unwin.

Ahmed, I. (1986). Initial Development And Validation Of Academic Self-Concept Scale (pp. 43–50).

Arens, A. K., Yeung, A. S., Craven, R. G., & Hasselhorn, M. (2011). The twofold multidimensionality of academic self-concept: Domain specificity and separation between competence and affect components. *Journal of Educational Psychology*, *103*(4), 970–981. https://doi.org/10.1037/a0025047

Bandura, A. (1997). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*, 117-148.

Barker, K.L., Dowson, M., & McInery, D.M. (2005). *Effects between motivational goals, academic self -concept and academic achievement: What is the causal ordering?* Paper presented at the Australian Association of Educational Research (AARE): Sydney.

Bong, M. & Skaalvik, E.M. (2003). Academic self-concept and self efficacy. *Educational Psychology Review, 15*(1), 1-40 doi:10.1023/A:1021302408382

Byrne, B. (1984). The general/academic self-concept nomological network: A review of construct validation research. *Review of Educational Research, 54,* 427-456

Davis-Kean, P.E., & Sandler, H.M. (2001). A meta-analysis of measures of self-esteem for young children: a framework for future measures. *Child Development, 72,* 887- 906.

Eccles, J. S. (2005). Studying the development of learning and task motivation. *Learning and Instruction,15*, 161-171.

Eggen, P. and D. Kauchak. 1997. Educational Psychology: Windows on Classrooms. Prentice-Hall, Inc, New Jersey, USA. pp. 85-86

Ghazvini, S. D. (2011). Relationships between academic self-concept and academic performance in high school students. *Procedia - Social and Behavioral Sciences*, *15*, 1034–1039. https://doi.org/10.1016/j.sbspro.2011.03.235

Guay, F., Marsh, H. W., & Boivin, M. (2003). Academic self-concept and achievement: Developmental perspective on their causal ordering. *Journal of Educational Psychology, 95*(1), 124-136. Retrieved from http://dx.doi.org/10.1037/0022-0663.95.1.124

Hair, J.F., Jr.; Black, W.C.; Babin, B.J.; Andreson, R.E. (2014). *Multivariate Data Analysis*, 7th ed.; Pearson: Edinburgh, UK.

Harter, S. 1985. *Competence as Dimension of Self-Evaluation: Toward a Comprehensive Model of Self-Worth*. The Development of the Self. Academic Press, New York, USA. pp. 76-80

Hay, I., Ashman, A. F., & Van Kraayenoord, C. E. (1998). The influence of gender, academic achievement and non-school factors upon pre-adolescent Self-concept. *International Journal of Phytoremediation*, *18*(4), 461–470. https://doi.org/10.1080/0144341980180407

Hughes, J., & Kwok, O. M. (2007). Influence of student-teacher and parent-teacher relationships on lower achieving readers' engagement and achievement in the primary grades. *Journal of Educational Psychology*, *99*(1), 39–51. https://doi.org/10.1037/0022-0663.99.1.39

Ireson, J. and Hallam, S., 2012. *Does Ability Grouping Affect Pupils' Self-Image?*. http://dx.doi.org/10.4135/9781446221020

Jacobs, J., Lanza, S., Osgood, D., Eccles, J. and Wigfield, A., 2002. Changes in Children's Self-Competence and Values: Gender and Domain Differences across Grades One through Twelve. *Child Development*, 73(2), 509-527. https://doi.org/10.1111/1467-8624.00421

Jahoda, M. (1958). *Current concepts of positive mental health*. New York: Basic Books.

Khairutdinova, R. & Fedorova, Y. (2016). Pedagogical Professional Self-Determination Support for Students under Conditions of Additional Education Program Implementation. *International Journal of Environmental and Science Education*, *11*(9), 2275–2285. https://eric.ed.gov/?id=EJ1114667

Kling, K. C., Hyde, J. S., Showers, C. J., & Buswell, B. N. (1999). Gender differences in self-esteem: A meta-analysis. *Psychological Bulletin*, *125*(4), 470–500. https://doi.org/10.1037/0033-2909.125.4.470

Kumari, A. & Chamundeswari, S. (2013). Self-Concept and Academic Achievement of Students at the Higher Secondary Level. *Journal of Sociological Research, 4*(2). doi:10.5296/jsr.v4i2.3909. Retrieved from http://dx.doi.org/10.5296/jsr.v4i2.3909

Liu, W. C., & Wang, C. K. J. (2005). Academic Self-Concept: A CrossSectional Study of Grade and Gender Differences in a Singapore Secondary School. *Asia Pacific Education Review, 6*(1), 20-27.

Marsh, H.W. (1990). *The causal ordering of academic self-concept and academic achievement: A multiwave longitudinal panel analysis.*

Marsh, H. W. (1987). The Big-Fish-Little-Pond Effect on Academic Self-Concept. *Journal of Educational Psychology, 79*(3), 280-295. PUBMED ID: 12971085

Marsh, H. W., Byrne, B. M. & Shavelson, R. J. (1988). A multifaceted self-concept: Its hierarchical structure and its relation to academic achievement. *Journal of Educational Psychology, 80*, 366-380.

Marsh, H. W., & Martin, A. J. (2011). Academic self-concept and academic achievement: Relations and causal ordering. *British Journal of Educational Psychology, 81, 59-77.*

Matovu, M. (2012). Academic self-concept and academic achievement among university students. *International Online Journal of Educational Sciences, 4*(1), 107-116.

Matovu, M. (2014). A Structural Equation Modelling of the Academic Self-Concept Scale*. International Electronic Journal of Elementary Education.* 6. 185-197.

Moneva J. and Tribunalo S. (2020). Students' Level of Self-confidence and Performance Tasks. *Asia Pacific Journal of Academic Research in Social Sciences Vol. 5*, No. 1, 42-48 ISSN 2545-904X (Print) ISSN 2704-4157 (Online) www.apjarss.org

Nematollahi, A., Tavakoli, P., and Akbarzadeh, M., (2017).The relationship between self-esteem and students‟ academic achievement and some parental demographic factors.Scholars *Journal of Applied Medical Sciences, 5* (5).

Rogers, C. R. (1961). *On becoming a person*. Boston: Houghton Mifflin.

Şar, A. H., Avcu, R., & Işıklar, A. (2010). Analyzing undergraduate students' self confidence levels in terms of some variables. *Procedia - Social and Behavioral Sciences*, *5*, 1205–1209. https://doi.org/10.1016/j.sbspro.2010.07.262

Strage, A., & Brandt, T. S. (1999). Authoritative parenting and college students' academic adjustment and success. *Journal of Educational Psychology, 91*(1), 146–156. https://doi.org/10.1037/0022-0663.91.1.146

Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin, 103*,193-210.

Trautwein, U., Lüdtke, O., Köller, O., & Baumert, J. (2006). Self-esteem, academic self-concept, and achievement: How the learning environment moderates the dynamics of self-concept. *Journal of Personality and Social Psychology*, *90*(2), 334–349. https://doi.org/10.1037/0022-3514.90.2.334

Viktorovna, K. V., Pavlovich, Z. K., Borisovna, G. E., & Anatolyevna, B. T. (2019). Self-Concept and Social Networking of Students at Polytechnic College. *2019 12th International Conference on Developments in ESystems Engineering (DeSE)*. https://doi.org/10.1109/dese.2019.00154

World Economic Forum. 2021. *Global Gender Gap Report 2020*. http://www3.weforum.org/ [Accessed 8 June 2021].
Yamauchi, F., & Liu, Y. (2017). *Gender asymmetries: Impacts of an early-stage school intervention in the Philippines. Review of Development Economics, 22(1), 220–241.* doi:10.1111/rode.12337

## Biographies

**Ma. Janice J. Gumasing** is a Professor of the School of Industrial Engineering and Engineering Management at Mapua University, Philippines. She has earned her B.S. degree in Industrial Engineering and a Master of Engineering degree from Mapua University. She is a Professional Industrial Engineer (PIE) with over 15 years of experience. She is also a professional consultant of Kaizen Management Systems, Inc. She has taught courses in Ergonomics and Human Factors, Cognitive Engineering, Methods Engineering, Occupational Safety and Health, and Lean Manufacturing. She has numerous international research publications in Human Factors and Ergonomics.

**Rocelle S. Calandria** is a 3rd year Bachelor of Science in Industrial Engineering student at Malayan Colleges Laguna under Mapua Institute of Technology at Laguna. Although her dream school is located far from her home, she persists in pursuing her ambitions. She is currently the Assistant Vice President for Marketing and Procurement of Philippine Institute of Industrial Engineers – MCL Chapter and an active member of Operations Research Society of the Philippines – MCL Chapter. With strong motivation and dedication, she believes that after graduating she will be able to have a career aligned with her college degree where she can make a significant contribution and continue to grow professionally.

**Ella Mae D. Delizo** is a 3rd year Industrial Engineering student at Malayan Colleges Laguna under Mapua Institute of Technology at Laguna (MITL). She was born on November 4, 1999 and is currently residing at Cabuyao, Laguna. She is an active member of the Philippine Institute of Industrial Engineers. She is also a member of a dance group of Malayan Colleges Laguna called Malayan Dance Crew.

**Ellaine Genesis S. Lera** is a 3rd year Industrial Engineering student at Malayan Colleges Laguna under Mapua Institute of Technology at Laguna (MITL). She is an active member of the Philippine Institute of Industrial Engineers and is currently holding the position of Vice President for External Affairs of MCL Chapter. She is an enthusiastic person who is interested in learning new things while sharing her skills and knowledge.

**John Aldrin C. Selda** is a 3rd year Industrial Engineering student at Malayan Colleges Laguna under Mapua Institute of Technology at Laguna (MITL). He is also an active member of the Philippine Institute of Industrial Engineers, and is currently holding a position of Assistant Vice President for Internal Affairs of MCL Chapter. His experience in the organization improved his time management skills and has contributed to his work ethic.

**Karl Christian B. Toledo** is a 3rd year Industrial Engineer at Malayan Colleges Laguna under Mapúa Institute of Technology at Laguna (MITL). He is the Vice President of Membership and Publicity for Philippine Institute of Industrial Engineers-Operations Research Society of the Philippines – MCL Chapter. He is also an athletic scholar for the Malayan Colleges of Laguna Men's Basketball Team.

**David Brian B. Vizmanos** is a 3rd year Industrial Engineering student at Malayan Colleges Laguna under Mapua Institute of Technology at Laguna (MITL). He spends his free time reading books, listening to music, and playing musical instruments (flute and guitar). Industrial Engineering was never in his career options during junior and senior high school, but he learned to love and appreciate the program.