

# Correlation Analysis of the General Weighted Average and On-The - Job Training Grades of the Computer Engineering of the University of Mindanao

Stephen Paul L. Alagao., Marianne G. Wata

Computer Engineering Program, College of Engineering Education, University of Mindanao, Philippines

DOI: <https://doi.org/10.47772/IJRISS.2026.100300244>

Received: 11 March 2026; Accepted: 16 March 2026; Published: 02 April 2026

## ABSTRACT

For years, the preparedness of students to enter the employment world has been affected due to the misalignment of academic skills and industry-related skills. This study explores the correlation between the general weighted average (GWA) and the on-the-job training (OJT) grades of the Computer Engineering graduates of the University of Mindanao from the Academic Year 2017-2018 to 2021-2022. The GWA and OJT grades of ninety-eight student records, representing the total number of graduates from 2018 to 2022, were logically adopted for analysis in this study to establish the relationship between academic achievement and practical skills performance. The GWA of the students shows a fair rating, with an average of 82.10%, while their OJT grades average 92.33%, indicating a very good rating. Additionally, the test for a significant relationship between the two variables yielded a correlation coefficient ( $r$ ) of 0.255, indicating a weak but positive relationship. With a  $p$ -value of 0.011, the result suggests that the observed correlation is statistically significant and unlikely to occur due to chance. It can be inferred that there is a weak positive correlation between Academic Performance and students' OJT grades, suggesting that other factors likely contribute more significantly to Academic Performance. To correlate students' academic performance (GWA) with their OJT grades, it is recommended that the OJT evaluation parameters be reviewed to include the specific skills applied that are directly relevant to students' subjects, such as programming, hardware design, networking, and basic cybersecurity.

**Keywords:** Computer Engineering, On-the-Job Training, General Weighted Average, Descriptive Statistics

## INTRODUCTION

The University of Mindanao aims to make a meaningful impact on society through the achievements of its graduates. Within the College of Engineering Education, one of the key program objectives is for engineering graduates, specifically Computer Engineering students, to showcase professional success through innovative collaborations and demonstrate a commendable attitude and behavior in their engineering practice. These objectives align closely with the University's core values of Excellence, Honesty and Integrity, Innovation, and Teamwork, which should be ingrained in the students' performance during their On-the-Job Training (OJT).

The implementation of Outcomes-Based Education (OBE) at the University, a practice that has been in place for a decade now, focuses on enhancing the students' learning outcomes. The OJT serves as a vital bridge between theoretical knowledge and practical application (Mina et al., 2020), allowing students to develop the essential skills, knowledge, and competencies required for a successful professional career. A study at the University of the East in Manila explored the correlation between academic performance and OJT course performance, revealing a significant, albeit weak, positive relationship between the two factors (Raga et al., 2019).

The OJT Evaluation comprises the evaluation of students by the OJT Coordinator, the evaluation of students by the industry supervisor, and the evaluation of the industry by the students. To determine the performance of the students in the industry, they are evaluated based on the program competencies (Musid & Kamal, 2019), which include learning independently, showing leadership skills in a multidisciplinary group, showing respect and

courtesy with peers and superiors, learning and listening from peers or co-workers, and lastly the dedication and commitment to assigned tasks. They are also evaluated in their professional development, which involves professionalism, job maturity, communication skills, productivity, and leadership. Embedded in the professional development are the core values of the University, which are excellence, honesty and integrity, innovation, and teamwork.

The institution not only prepares the students intellectually but also their skills for employment. In the computer engineering program, a much higher number of hours is required, equivalent to 480 hours from 240 hours (Rapatan & Juevesa, 2020). With this, the students have higher exposure time to the industry. The problem between academia and industry is the alignment of courses offered and the needed skills in the industry. The skills learned by the students in the academe are slightly not aligned with industry skills.

The misalignment between academic and industry-relevant skills affects the preparedness of the students for employability. The technology trend in the academe should align with that in the industry so students can develop the skills needed. Some industries nowadays prefer hiring graduates who have completed their OJT in their company, as these graduates are already trained in what to do (Tummala & Premkumar, 2018).

An industry forum, which is called the “Panag-Ambit,” is conducted annually during OJT Culmination, where selected industries are invited by the academe, together with the students, senior faculty, and alumni, to discuss how to improve the curriculum so that the skills required by the industry are taught in the academe.

The preparedness of the students for employment can be assessed through the exposure of the students to the industry through On-the-Job Training (OJT). To continually improve the skills acquired by the students in the academe, it is important to conduct this study to know and address the gap between the academe and the industry regarding skills and qualifications.

In a study conducted by Dawaton (2021), the common problems encountered by the student trainees were the mismatch of tasks with the course program, limited time for OJT, and lack of proper orientation about the work. A study about the relationship between OJT Course Performance and academic performance determines the attributes incorporated in the study that will serve as the key predictors of the performance level in OJT (Raga, 2019). A study conducted about OJT practices of selected colleges and universities in Quezon City revealed a verbal comment that the university should have more updated and appropriate equipment (Hebron, 2020).

The significance of this study is to identify the relationship between the academic performance and the industry performance of the students. This study will help the alignment of academic requirements to obtain better opportunities in real-world practices.

The study aims to determine the correlation between the general weighted average (GWA) and the on-the-job training (OJT) performance of the students. Specifically, the study sought (1) to determine the academic performance of Computer Engineering graduates for the period of 2018-2022, (2) to determine the internship performance of the graduates for the same period, and (3) to analyze how the students’ performance in OJT relate to their academic performance by using Linear Regression.

## **METHOD**

This study utilized a descriptive-correlational research method to purposely discover connections and describe the relationship between the students’ OJT grades and the General Weighted Average (GWA). Descriptive research helped in providing the foundation of this study by presenting a clear picture of the academic and practical performance of the students. Additionally, correlational research measured the strength and direction of the relationship between GWA and the OJT Grades of the students.

### **Data Source**

The datasets used in this study were from the records of the Bachelor of Computer Engineering graduates of the University of Mindanao who successfully completed their on-the-job training program from the academic year

2017-2018 to 2021-2022. From the mentioned school year, the total number of respondents involved in this study is ninety-eight (98). These records showed the students' GWA and OJT Grades. The OJT grades of the students were calculated based on their submitted OJT journals (25%), Oral Examination (25%), and individual practicum evaluation (50%).

The individual practicum evaluation scores of the students were attached to their portfolios upon completing the internship program. The individual practicum evaluation scores were assessments of the students from the company supervisor, which were completed after the students fulfilled the required number of hours for their training program. The basis of the evaluation is the program competencies and professional development. The professional development includes the core values of the University, which are excellence, honesty and integrity, innovation, and teamwork.

This study utilizes descriptive and quantitative types of research. The statistical tools used in this study are the following: mean and standard deviation to identify the relationship between the GWA and OJT grades of the graduates. Table 1 shows the ranges for the means of the GWA and OJT grades which were suggested by Dr. Exequiel Gono and used also across other programs of the college of engineering education.

Table 1. Interpretation of Mean Results for GWA and OJT Grades

Ranges of Mean	Interpretation
95 - 100	Outstanding
90 – 94.99	Very Good
85 – 89.99	Good
80 – 84.99	Fair
75 – 79.99	Poor
<75	Very Poor

**Design and Procedure**

To effectively analyze the relationship between the General Weighted Average (GWA) and the On-the-Job Training (OJT) grades, a structured design and procedure were established. First, descriptive statistics were first used to summarize and present the general trends in the dataset, including the mean and standard deviation of both GWA and OJT grades. These descriptive measures not only provided a quick overview of central tendency and variability but also allowed classification of performance levels. As illustrated in Table 1, the interpretation of the mean results for GWA and OJT grades is categorized into six levels. The rating of the mean result between 95 and 100 is “Outstanding”, 90 to 94.99 is “Very Good”, 85 to 89.99 is “Good”, 80 to 84.99 is “Fair”, 75 to 79.99 is “Poor”, and “Very Poor” for results below 75. This classification supported the initial assumption that academic and practical performance could be grouped meaningfully for comparison.

The second tool was to calculate the Pearson Product-Moment Correlation coefficient (r) to determine the presence and strength of the linear relationship between the two variables. This tool was chosen because it quantifies both the direction and strength of a linear relationship, addressing the assumption that changes in one variable may correspond proportionally to changes in the other.

Lastly, a simple Linear Regression analysis was conducted to develop a predictive model and evaluate whether OJT grades could significantly estimate GWA outcomes. Regression was applied to test the assumption of predictive influence while examining whether the observed correlation was statistically meaningful. The approach will allow the study to go beyond mere association by providing insight into how variations in OJT performance may translate into changes in overall academic standing.

## RESULTS AND DISCUSSION

The integration of classroom learning with industry exposure is a crucial component in developing competent graduates. The application of what the students learned and how they apply it is highlighted during the on-the-job training of the students in the companies identified by the institution. On-the-Job Training (OJT) serves as a bridge between theoretical knowledge and practical application, allowing students to experience real-world work environments. Students experience first-hand the work they will encounter when they graduate (Samala, 2020). This experiential learning process is aligned with Kolb’s Experiential Learning Theory, which posits that knowledge is created through the transformation of experience making OJT a vital contributor to student development. Monitoring student performance during internships is essential to evaluate not only technical competencies but also the core values upheld by the institution. Musid et al. (2020) emphasized that graduates with high technical proficiency are in demand, reinforcing the need to assess both academic and practical outcomes. The descriptive analysis of the General Weighted Average (GWA), the On-the-Job Training (OJT), and the relationship between GWA and OJT are presented in tables. A total of 98 computer engineering student data points over a five-year period (2018-2022) were analyzed. Tables 2 and 3 present the descriptive results for the General Weighted Average (GWA) and OJT grades of the Computer Engineering graduates.

As shown in Table 2, graduates from 2018 to 2021, on average achieved “Fair” academic standing which means that majority of the students have a GWA between 80 to 84.99, while the 2022 cohort achieved a “Good” rating which means that the GWA of students is between 85 to 89.99, as reference to Table I - Interpretation of Mean Results for GWA and OJT Grades. The results suggested a positive shift in academic performance from fair to good rating. The low standard deviation indicates consistency in academic outcomes. However, the overall five-year mean GWA interpretation for the past 5 years is 82.10% which is a Fair academic rating, which means that the academic performance of the graduates is above the passing rate of 75.00%. The distribution of data, as shown in the standard deviation, indicates that the data are clustered tightly around the mean.

Table 2. Descriptive Results of the General Weighted Average

	<b>Year Graduated</b>	<b>N</b>	<b>Mean</b>	<b>Description</b>	<b>SD</b>
GWA	2018	16	83.13	Fair	3.52
GWA	2019	29	82.30	Fair	3.97
GWA	2020	17	81.92	Fair	3.38
GWA	2021	31	80.29	Fair	2.89
GWA	2022	5	89.43	Good	1.97
<b>TOTAL</b>		<b>98</b>	<b>82.10</b>	<b>Fair</b>	<b>3.89</b>

Table 3 shows the descriptive analysis of the on-the-job training grades of the CpE graduates. The average OJT grades of graduates from 2018 and 2022 are Outstanding, with a rate of 95.44% and 95.00%, respectively. Graduates from 2019 to 2021 performed very well in their internships as they had average grades of 92.34% for 2019, 93.65% for 2020, and 92.71% for 2021 which has a description of Very Good. The overall performance across all cohorts is notably stronger than academic performance, with overall mean of 93.33%, which got a Very Good rating. This supports the notion that students excel in practical environments, possibly due to the contextual and hands-on nature of learning during OJT. The result shows that students perform well in their respective industries, satisfying their respective supervisors. This can also be seen in the study of Mina, et. al, (2020), where the supervisors were impressed with their performance of the students, which gives them an overall weighted mean of 4.25 which is equivalent to excellent. The distribution of data, as shown in the standard deviation, indicates that the data are clustered tightly around the mean. The narrow standard deviation again indicates performance consistency.

Table 3. Descriptive Results of On-the-Job Training (OJT) Grades.

	Year Graduated	N	Mean	Description	SD
OJT Grade	2018	16	95.44	Outstanding	2.10
OJT Grade	2019	29	92.34	Very Good	2.35
OJT Grade	2020	17	93.65	Very Good	2.94
OJT Grade	2021	31	92.71	Very Good	3.34
OJT Grade	2022	5	95.00	Outstanding	1.00
<b>TOTAL</b>		<b>98</b>	<b>93.33</b>	<b>Very Good</b>	<b>2.91</b>

The relationship between the GWA and the OJT is shown in Table 4. The Pearson correlation coefficient  $r=0.255$ ,  $p=0.011$  suggests a weak but statistically significant positive correlation between GWA and OJT grades. This indicates that while academic performance is somewhat associated with internship success, the correlation is limited. The finding aligns with findings by Samala et. al, (2020), who noted that OJT enhances learning retention and workplace adaptability. In addition, it also supports prior research suggesting that technical and practical skills are influenced not solely by theoretical academic preparation but also by problem-solving abilities, adaptability, and workplace learning contexts (Tummala & Premkumar, 2018). Although the GWA of the students is high, the gap between the GWA and OJT indicates that students are technically better than theoretical. From the theoretical standpoint, Vygotsky Sociocultural Theory supports relationships by emphasizing the role of social interaction and contextual learning in cognitive development. OJT provides such environments, allowing students to internalize professional norms and skills that may not be fully captured by academic metrics.

Table 4. Test of the significant relationship between GWA and OJT Grades

Predictor	R	p value	Interpretation
GWA	0.255	0.011	Weak Correlation

Table 5 illustrates the linear regression model, which further explores the predictive relationship between the OJT grades and GWA. The analysis shows that for every one-unit increase of OJT grade, GWA increases by approximately 0.341 points ( $p=0.011 < 0.05$ ). However, the scattered data points in Figure 1 indicate that other factors such as motivation, communication skills and institutional support may also influence academic success. While the relationship is statistically significant, the relatively small slope indicates that OJT grades are not a strong predictor of academic performance. This means that excelling in industry-based tasks contributes modestly to academic outcomes, while they are related but it captures different aspects of student learning. This supports the human capital theory, which posits that investments in education, training and skills enhance productivity and performance which means that the knowledge and discipline a student accumulates in school measured by GWA act as a foundation that makes subsequent training (OJT) more effective and easier to absorb. The  $H_0$ , or the null model, only includes the intercept, yielding a constant value of 82.095. On the other  $H_1$  model, if the OJT grade is zero, the intercept is 50.302. The relationship between the two variables is statistically significant, given the t-statistic for the hypothesis is 2.588 and  $p=0.011$ , which is less than 0.05.

Table 5. Coefficients of the Linear Regression Model Predicting GWA from OJT Grades

Model		Unstandardized	Standard Error	Standardized	t	p
$H_0$	(Intercept)	82.095	0.393		209.067	< .001

H <sub>1</sub>	(Intercept)	50.302	12.292		4.092	< .001
	OJT	0.341	0.132	0.255	2.588	0.011

Table 6 presents the model summary of a linear regression analysis examining the extent to which OJT grades predict the General Weighted Average (GWA). The correlation coefficient ( $R = 0.255$ ) indicates a weak positive relationship between OJT grades and GWA. This means that as OJT grades improve, GWA tends to improve as well, although the strength of this relationship is relatively small. The coefficient of determination ( $R^2 = 0.065$ ) shows that 6.5% of the variance in GWA is explained by OJT grades. While this suggests that OJT performance contributes to academic performance, the majority of the variation in GWA is influenced by other factors not included in the model. The F-value ( $F = 6.705$ ) assesses the overall significance of the regression model. This value indicates that the model explains a statistically meaningful amount of variance in GWA compared to a model with no predictors. Finally, the p-value ( $p = 0.011$ ) is below the commonly accepted significance level of 0.05, indicating that the regression model is statistically significant. This means that OJT grades are a significant predictor of GWA, despite the relationship being weak. The initial row with  $R = 0.000$  and  $R^2 = 0.000$  represents the null (baseline) model, where no predictor is included. The improvement seen in the second row demonstrates that adding OJT grades enhances the model's explanatory power.

Table 6. Model Summary of the Linear Regression Predicting GWA from OJT Grades

Model	R	R <sup>2</sup>	F	p
H <sub>0</sub>	0.000	0.000		
H <sub>1</sub>	0.255	0.065	6.705	0.011

## CONCLUSION AND RECOMMENDATIONS

The correlation between the general weighted average and on-the-job training grade is found to be weak, this indicates that the OJT performance does not strongly influence a student's overall academic standing. While Both GWA and OJT grades exceeds the passing benchmark of 75.00%, the notably high OJT grades reflect strong practical performance in the industry setting.

Using linear regression analysis, a positive relationship was identified between OJT grades and GWA with a slope of approximately 0.341. This indicates that an increase in OJT performance tends to correspond with an increase in GWA. The two variables are statistically significant to one another, given the t-statistic for the hypothesis is 2.588 and  $p=0.011$ , which is less than 0.05. This means that the OJT grade contributes meaningfully to predicting the GWA. The data also suggests that the students are good or excel more in technical/practical competencies compared to the theoretical aspects.

To strengthen the alignment between academic and practical performance, it is recommended that the evaluation criteria or parameters of the OJT be reviewed to include the specific technical skills applied that are directly relevant to the core academic subjects of the students. On the other hand, the assessment design for theoretical subjects should align with the specific skills or expected learning outcomes of each student in a particular subject area, such as programming, hardware design, networking, basic cybersecurity, and many more skills.

## REFERENCES

1. Dawaton, G. (2021). Assessment of the On-the-Job Training Program of Business Administration Students of Kalinga State University. *Universal Journal of Management*, 13-19.
2. Mina, J., Garcia, M., & Reyes, E. J. (2020). Industry Partners' feedback on the OJT performance of Bachelor of Science in Information Technology (BSIT) Students. *International Journal of Advanced Engineering, Management and Science* Vol. 6, 177-182.

3. Musid, N., Affanda, H., Sohimi, N., & Kamal, M. (2020). On the Job Training (OJT) Assessment for Diploma in Construction Technology. *Built Environment Journal* Vol. 17, 29-36.
4. Musid, N., Affandi, H., Abas, N., & Kamal, M. (2019). The Soft Skill Elements in an On-Job Training (OJT) (Organisation) Assessment Rubric for Construction Technology Students in Malaysian Vocational Colleges. *Journal of Technical Education and Training* Vol. 11, 84-93.
5. Musid, N., & Kamal, M. (2019). Exploring the Issues in 'On the Job Training' (OJT) Assessment Rubric for Construction Technology Diploma in Malaysian Vocational College. Pedagogical concerns and market demands in VET. (pp. 182-186). Valencia, Spain: Proceedings of the 3rd Crossing Boundaries in VET conference Vocational Education and Training Network.
6. Raga, R., Borebor, M. T., & Merida, R. (2019). Exploring the Relationship between OJT Course Performance and Academic Performance of Computer Science Students in Selected Programming Courses. *International Conference on Mathematics, Science and Technology Teaching and Learning*, 29-33.
7. Rapatan, G., & Juevesa, R. (2020). Instructional Practices, Students' Readiness and Industry Needs: Bases for an OJT ABSTRACT Program Framework. *International Journal of Science and Management Studies* Vol. 3, 103-121.
8. Samala, H., Goyenechea, M., & Samala, J. E. (2020). On-the-Job Training and Academic Performance Among High School Students in Abstract the Philippines. *International Journal of Psychosocial Rehabilitation* Vol. 24, 741-747.
9. Tummala, M., & Premkumar, E. (2018). A Study on Students' Performance on OJT With Reference to Nizwa College of Technology. *Journal of Contemporary Trends in Business and Information Technology* Vol. 5, 32-43.
10. Serrano, E., Cabalza, M., Bitera, M. (2017). Academic and On the Job Training Performance among business administration students AY 2015-16. *International Review of Management and Business Research*, Vol. 6, Issue 2.