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RESEARCH ARTICLE

PERFORMANCE IN ON-THE-JOB TRAINING (OJT) OF COMPUTER ENGINEERING STUDENTS FROM HOST TRAINING ESTABLISHMENTS (HTES), SUMMER 2022

Ronnie B. Santelices[1,2]

1. Research Director, College of Engineering and Architecture, Catanduanes State University.
2. Associate Professor III, College of Engineering and Architecture, Catanduanes State University.

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Abstract

Background: In higher education institutions, industrial internships or on-the-job training are an important component of the academic curriculum. Participating in internships allows students to apply classroom knowledge and skills in professional settings, increasing their employability through practical experience.

Objectives: The study sought to ascertain BSCpE students' performance in OJT in terms of personal attitudes, work-related skills, and human relations skills.

Material and Methods: Incorporating evidence from reviews, the research methodology, and the data gathered from 76 BSCpE students who engaged in on-the-job training during the summer of 2022.

Conclusion: The study proves that students' performance in personal attitudes received an exceptional rating, while in the areas of work-related and interpersonal skills, the students received a very good rating. Personal attitudes, work-related skills, and human-relations skills have no relationship with student performance in OJT. Having an excellent rating in personal attitudes does not guarantee having the same rating in work-related and human-relations skills as perceived by supervisors.

Introduction:-

Computer engineering is a dynamic and continuously changing profession that combines computer science and electrical engineering. The demand for highly qualified computer engineering personnel continues to rise as technology advances. To meet this demand, the Philippines' State Universities and Colleges (SUCs) have incorporated on-the-job training (OJT) programs into their curricula. The curriculum is based on the 2017 CHED Memo Order No. 87 series, which includes the Policy, Standards, and Guidelines for the Bachelor of Science in Computer Engineering (BSCpE) Program. This course is intended to give students real-world experience, allowing them to use their theoretical knowledge, acquire necessary skills, and obtain insights into the professional scene. Likewise, OJT bridges the gap between classroom learning and the professional world by allowing students to apply theoretical knowledge in real-life circumstances. Industrial internships or on-the-job training are an important component of the academic curriculum in higher education institutions (Jamil, Shariff, & Abu, 2013). Several studies have found that on-the-job training boosts confidence and preparedness while also strengthening technological skills prior to entering the real world. Students from the countryside. On the other hand, have far less exposure to the business world than students from the mainland.

Corresponding Author:- Ronnie B.Santelices
Address:- Catanduanes State University, College of Engineering and Architecture, Calatagan, Virac, Catanduanes.

This study intends to explore the intricacies of On-the-Job Training (OJT) offered to computer engineering students in the summer of 2022, with a particular emphasis on the Host Training Establishments (HTEs) where they acquire practical experience. The primary objective is to assess the quality of internship, its impact on skill development, and the overall performance of students during this pivotal stage of their education. The research aims to yield valuable insights that can be used by educational institutions, HTEs, and policymakers to improve training programs and ensure that computer engineering students are well-prepared to confront the changing challenges and opportunities in the field.

By investigating the experiences of students, the effectiveness of training, and the role of HTEs, this study will contribute to the ongoing efforts to align computer engineering education with the requirements of industry and technology, ultimately fostering a new generation of highly skilled and adaptable professionals prepared to address the complex challenges of the digital age.

Material and Methods:-

Figure 1, presents the schematic representation of the performance in On-the-Job training of students from respective HTEs. The conceptual paradigm shows the independent and dependent variables of the study.

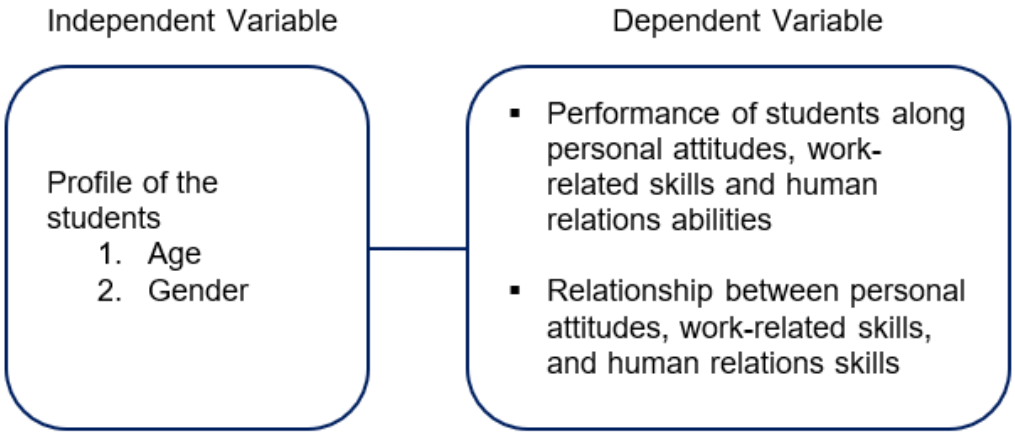

Figure 1:- Conceptual Paradigm of the Study.

The study was conducted at the Catanduanes State University (CatSU), College of Engineering and Architecture, where computer engineering students participate in their On-the-Job Training (OJT) program. CatSU is a higher education institution situated in Catanduanes, a province in the Bicol Region of the Philippines.

The purpose of this study's research design is to offer a methodical examination of how computer engineering students performed throughout their on-the-job training during the designated summer of 2022. It evaluates the students' performance in terms of their interpersonal skills, work-related competencies, and personal attitudes.

This research adopted a quantitative research approach, aiming to gather empirical data and draw conclusions via statistical analysis. The study incorporated 76 BSCpE (Bachelor of Science in Computer Engineering) students who participated in OJT during the summer of 2022 across different (HTEs). These participants were selected for the study using a simple random sampling method. Additionally, the entire population was categorized into subgroups based on age and gender, and stratified sampling was employed to ensure representation from these demographic segments.

In the process of collecting pertinent data to evaluate student performance, this study employed surveys and questionnaires. The questionnaire used for this purpose was the Student Internship Program rating sheet, which was supplied by the Academic Affairs Office. This questionnaire encompasses essential information about the students, along with three significant performance criteria: personal attitude, work-related skills, and human relations abilities.

The questionnaire was structured using a 5-point Likert scale to facilitate the analysis and interpretation of the appraisal report data. The scale's rating categories were as follows:

- 4.50 - 5.00: Excellent (E)
- 3.50 - 4.49: Very Good (VG)
- 2.50 - 3.49: Good (G)
- 1.50 - 2.49: Fair (F)
- 1.00 - 1.49: Poor (P)

To enrich the data, information pertaining to the students' profiles, specifically their gender and age, was provided by the Office of Admission and Registration Services. Additionally, the immediate supervisors from various HTEs contributed their ratings on the three specified criteria.

Result:-

Table 1 below shows the age and gender breakdown of the students enrolled in the On-the-Job training program. Out of seventy-six (76) BSCpE students, almost forty-nine (49) or (64.5%) were male and only twenty-seven (27) or (35.5%) were female. According to student age statistics, approximately more than half (60.5%) of the students were twenty-two (22) years old, approximately a third (27.6%) were twenty-one (21) years old, 9.2%, are in twenty-three (23) years old, and at least (1.3%), respectively are in twenty-six (26), and twenty-seven (27) years old.

Table 1:- Profile of Students (n=76).

Variable	Frequency	Percentage
Gender		
Male	49	64.5
Female	27	35.5
Age		
21	21	27.6
22	46	60.5
23	7	9.2
26	1	1.3
27	1	1.3

Table 2 shows individual student performance in terms of personal attitudes as determined by the SIP rating sheet findings for the On-the-Job Training course.

Table 2:- Performance of students in OJT in terms of Personal Attitudes.

Criteria	WM	VI	Rank
1. General appearance, poise, neatness, bearing and proper attire	4.64	E	2
2. Attendance, regularity & punctuality	4.55	E	5
3. Honesty, being trustworthy, loyal, fair and sincere	4.71	E	1
4. Cooperation, collaborates with others to achieve common goal	4.56	E	4
5. Initiative, ability to assess and initiate things independently	4.57	E	3
6. Dependability, reliable in performing job-related task, meeting deadlines	4.40	VG	7
7. Tact, attitude towards suggestions	4.41	VG	6
8. Accuracy, ensure results/outcomes correct and valid	4.38	VG	8
Composite Mean	**4.53**	**E**	

The students received excellent performance ratings for their honesty, loyalty, trustworthiness, fairness, and sincerity, as shown by a composite mean score of 4.71, followed by their general appearance, poise, neatness, bearing, and appropriate attire, initiative, ability to assess and initiate things independently, cooperation, collaborates with others to achieve common goal attendance, and attendance, regularity, and punctuality, as shown by weighted mean scores. Meanwhile, as evidenced by the computed weighted mean scores of 4.41, 4.40, and 4.38, respectively, they received a very good performance rating in tact, attitude toward suggestions, dependability, reliable in

performing job-related tasks, meeting deadlines, and accuracy, ensuring results/outcomes correct and valid. The students' combined average score of 4.53 indicates that they performed exceptionally well in terms of personal attitudes during their on-the-job training.

Table 3 shows individual student performance in terms of work-related skills as determined by the SIP rating sheet findings for the On-the-Job Training course.

Table 3:- Performance of students in OJT in terms of Work-related Skills.

Criteria	WM	VI	Rank
1. Maintaining cleanliness/orderliness of the workplace	4.49	VG	3
2. Applying safety rules and regulations	4.37	VG	4
3. Applying knowledge in:			
a. Data/file management	4.58	E	1
b. Software development	4.26	VG	7
c. Computer networking operations	4.34	VG	6
d. PC hardware/software maintenance	4.36	VG	5
e. Any computer-related jobs	4.52	E	2
Composite Mean	**4.42**	**VG**	

By keeping the workplace neat and orderly and following safety procedures, the students received a very good performance evaluation from their supervisor, as shown by the weighted mean score of 4.49 and 4.37 on ranks 3 and 4, respectively. Students excelled in data/file management and any computer-related tasks when applying knowledge criteria, as indicated by the weighted means of 4.58 and 4.52, respectively. On the other hand, as indicated by the weighted means of 4.36, 4.34, and 4.26, correspondingly, obtained a very good performance rating in PC hardware/software maintenance, computer networking operations, and software development. According to assessments made by their OJT supervisors, students who are undergoing on-the-job training exhibit very good application of work-related abilities with a composite average score of 4.42.

Table 4:- Performance of students in OJT in terms of Human-relations Abilities.

Criteria	WM	VI	Rank
1. Skills in maintaining harmonious relationships with:			
a. Immediate Supervisor	4.16	VG	3
b. Other employees in the company/agency	4.69	E	1
c. Fellow trainees	4.62	E	2
Composite Mean	**4.49**	**VG**	

According to Table 4, students received a high rating for their capacity to maintain cordial relationships with other employees of the company/agency, fellow trainees, and their immediate supervisor, as demonstrated by weighted averages of 4.69, 4.62, and 4.16, respectively. They achieved a very good performance of students in OJT in terms of human-relations competencies with a weighted mean of 4.49.

Table 5 presents the overall performance of the students in OJT in terms of personal attitudes, work-related skills and human-relations skills.

Table 5:- Overall Performance of the students in OJT in terms of Personal attitudes, Work-related skills, and Human-relations Skills.

Criteria	WM	VI	Rank
1. Personal attitudes	4.53	E	1
2. Work-related skills	4.42	VG	3
3. Human-relations Skills	4.49	VG	2
Composite Mean	**4.48**	**VG**	

Personal attitudes are people's predispositions toward other people and the current situation that they have before deciding how to act. Fundamentally, a person's values and beliefs determine their attitudes. The talents that enable us to engage with others are known as interpersonal skills. Among these are abilities in communication, empathy, active listening, and other areas. All facets of life, including interpersonal relationships in both the personal and professional spheres, require interpersonal skills. Human interactions are crucial for establishing and maintaining a pleasant workplace culture, keeping employees, and boosting productivity. Your ability to successfully build a workplace culture where your employees can thrive depends on how human relations are prioritized in your management strategy.

The total OJT performance of the students is shown in Table 5 in terms of attitude, work-related abilities, and interpersonal skills. As evidenced by the weighted mean score of 4.53 and the weighted mean scores of 4.49 and 4.42 for human-relations skills and work-related skills respectively, the students' personal attitudes got an exceptional performance review from their supervisor. It can be therefore concluded that there are no significant relationships between personal attitudes, work-related skills, and human relations skills.

Discussion:-

This study was able to obtain results to the problem statements by drawing on data from multiple sources. In terms of the students' profile, the male dominance over female. It is consistent with the fact that almost all engineering schools in the Philippines, have more male students than female students. Numerous researches on engineering education have focused on the involvement of women in the field. (Nguyen, 2000), looked into the status and participation of women in engineering programs over the span of thirty (30) years at Monash University's Faculty of Engineering. According to the statistical information acquired, there are too few women enrolling in engineering courses at the undergraduate level et al., 2019). Meanwhile, majority of students who underwent OJT are 22 years old. It may be related to the assumed age of graduating students of 20 years old, but due to the K-12 curriculum, students in the tertiary level may graduate at the age of 22. It should also be noted that students enrolled in OJT are incoming 4th year students, but the summer of 2022 falls into this category.

It is remarkable that the following three items 6–8 from Table 2. on the performance of students in OJT in terms of personal attitudes only received very good scores. The weighted mean for students' accuracy alone is 4.38, which is the lowest in the group. The student's dependability, reliability in carrying out duty connected to their employment, meeting deadlines, and tact, attitude toward suggestions are then followed, with weighted means of 4.40 and 4.41, respectively. With the information provided, students may be reminded to work on their time management, communication, adaptability, and feeling of responsibility in order to generate trust with their employers, colleagues, and lay a solid basis for their career advancement.

On the other hand, Table 3 shows that the least weighted work-related abilities were applied knowledge in PC hardware/software repair, computer networking operations, and software development. Students are expected to perform well at PC hardware/software maintenance and computer networking, as they are primarily exposed to highly technical laboratory activities over systems development. Additionally, given that the systems development and design course is no longer included in the new CHED MEMO Order No. 87, s. 2017, it is anticipated that students will at least have a basic understanding of software development.

During OJT, students not only gain technical skills but also have the opportunity to develop their human-relations abilities. These abilities are essential for success in any field and are particularly important computer engineering

discipline, which often requires collaboration and communication with team members and clients. According to Table 4, data demonstrated that students who participate in OJT have an exceptional human-relations skill towards their colleagues and other firm employees, but only a very good towards their immediate supervisor. A few observations may support the students' attitudes about their immediate supervisors, such as a lack of proper direction, personal differences, fear of judgment, and a lack of confidence. Nonetheless, it is critical for the OJT to interact with their supervisor, seek criticism and assistance, and focus on improving their confidence and skills to perform better in their tasks or responsibilities.

Finally, the students' overall performance in OJT in terms of personal attitudes, work-related skills, and human-relations skills has been remarkable. Of the three, students' personal attitudes received an excellent outcome, while the remaining two received very good results, presenting a very beneficial impact on the students' performance.

Conclusion:-

The majority of the students who underwent OJT under the BSCpE program were male rather than female, with the majority of the total number of students being between the ages of 21 and 22. The students' performance obtained an exceptional assessment in terms of personal attitudes and was ranked first among the two other categories. The students' performance in work-related and human-relations skills, on the other hand, received only a very good rating from their OJT supervisor. There is no relationship between student performance in OJT in terms of personal attitudes, work-related skills, and human-relations skills. The findings revealed that an excellent rating in personal attitudes does not guarantee an excellent rating in work-related and human-relations skills as perceived by the supervisors. It is therefore recommended that the OJT coordinator may improve students' work-related skills prior to deployment by developing a policy to raise students' awareness of industry standards and norms. A comparison of intercollegiate student internship programs would be interesting for future research using content and/or documentary analysis. OJT students from the BS in Civil Engineering program may be included in future research because both programs use the same rating sheet instrument. The next study may also include an assessment of the HTEs' profile in relation to the students' technical qualifications/skills needed, and how they manage students' trainees.

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