SCIENCE COMPETENCY ASSESSMENT TOOL FOR ON-THE-JOB TRAINING STUDENTS OF THE COLLEGE OF INDUSTRIAL TECHNOLOGY BATANGAS STATE UNIVERSITY

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ABSTRACT

The science curriculum in the College of Industrial Technology (CIT) program is a significant component of the academic requirement of the students and is believed to be vital for the development of skills and potentials of students. The objective of the study was to develop a science competency assessment tool for the OJT students of the CIT, Batangas State University, Batangas City, Philippines. The different science competencies were classified as technical, behavioral, communicative and managerial competencies. The descriptive method of research was utilized in this study with the questionnaire as the data gathering instrument. The data were analyzed and tested using weighted mean and T-test. The faculty and OJT students very strongly agreed that these science competencies were offered and developed in the department. The science competencies were developed in the objectives in Physics to a very great extent as assessed by both faculty and OJT students. Likewise, to a great extent, the science competencies were developed in the objectives in chemistry. With regards to the instructional strategies' science competencies were developed to a great extent. Based on the development of science competencies relative to the learning infrastructures, science competencies were developed to a very great extent as assessed by faculty, while the students' assessments revealed that they were developed to a great extent. Further, as to the evaluative measures, for faculty science competencies were developed to a very great extent, while student respondents revealed that to a great extent. It was recommended that the objectives of the science subjects, instructional strategies, learning the infrastructure, and evaluative measures must be made congruent with the competencies of the students; discussion of the relevance of science and other academic subjects in the regular conduct of the industry advisory committee meeting. Moreover, the proposed science competency assessment tool must be evaluated, and pilot tested before it can be administered to OJT students.

Keywords: Science Competency, On-the-Job Training, Assessment Tool, Descriptive Method, College of Teacher Education, Philippines

INTRODUCTION

The science education in the College of Industrial Technology (CIT) program is a significant component of the academic requirement of the students. It covers subjects such as chemistry 1, and 2, physics 1 and 2 respectively for the first year and second year students taking any of the major fields of specialization. Science education is believed to be vital for the development of skills and potentials of students thus influences the On-the-Job Training (OJT) of students. The OJT of the students employed the training in participating industries where student trainees were exposed to actual job experiences. While on training development of quality skills, personal discipline and work values critical to the company's

productivity and competitiveness is assured. The OJT experience of the students would require them to apply laws and principles gained from science subjects that are useful in dealing with materials, equipment and many other instances where students should manifest scientific attitude, skills, knowledge. Science subjects need to be relevant to the world of students. Students experience science in a number of different contexts as it relates to self, home, leisure, work, and environment. The science includes a lot of information and a number of skills and attitudes that can be used in everyday life. This situation is changing as discussed in PAFTE's Journal of Education (2012) about vision and change. It was explained that science educators were charged with embedding some of these skills into the curriculum. The Commission on Higher Education (CHED) memorandum orders No.23, series of 2009 explain about guidelines for students' internship in the Philippines for all programs with practicum subject mandated to develop and promote policies, systems, procedures and programs that address globalization, changing policies, and liberation of trade of goods and services. The CHED shall require student exchange and establishments by Higher Education Institutions (HEI) of string academic linkages with business and industry to promote and provide students with competitive skills and attitudes for employment. The commission aims to provide tertiary students enrolled in HEI in the Philippines for the opportunity to acquire practical knowledge, skills, and desirable attitudes, and values in reputable establishments or industries in the country. It also aims to enhance the students work competencies and discipline as they relate to people in the workplace; promote competitiveness of students through their training; strengthen and enrich the degree programs in HEI; provide opportunities to learn from the network with experienced professionals; handle new challenges and complex tasks or problems; and identify for future career directions and become candidates for future job opening. The need for globally competitive graduates in this age of modern technology poses a great challenge to the educational institutions to continue exploring measures to answer the demands of this highly becoming industrialized world. This is made possible to science subjects which are useful in dealing with materials, equipment and many other instances where through a significant connection that will be made between science education and the on - the- job training of the students. It is along this line that this current study aimed to assess the science competencies that may be associated with the practical and academic attributes of CIT students as they engaged themselves to their On-the-Job training. It is this study's concern to show that scientific principles and theories most specifically in chemistry and physics may be realized and applied in the On-the-Job training of the CIT-students. Significantly, a science competency assessment tool is developed to match the science competencies that are relevant to the functions of the industry, and are in vital impacts for student's holistic development as technologists.

CONCEPTUAL FRAMEWORK

This present study is largely anchored on the Constructivist Theory of Bruner and the Topological and Vector Theory by Kurt Levin. According to Bruner (2012), learning is an active process in which the learners construct new ideas or concepts based on their current or past knowledge. Bruner stated that a theory of instruction should address four significant aspects such as predisposition towards learning, the ways in which a body of knowledge can be structured so that it can be most readily grasped by the learner, the most effective sequences in which to present material, and the nature and pacing of rewards and punishments. Good methods for structuring knowledge should result in simplifying, generating new propositions and increasing the manipulation of information. The theory of Levin (2012) refers to life's space of an individual. The basic author premise is that every object exists in a field of forces that move it, change it, define it, or give it a degree of stability and substance. The behavior of an individual at a given moment is the resulting forces operating

simultaneously in the living space. The author also added that ideas, expectations, feelings, attitudes, needs of an individual constitute the internal forces while everything in the physical world including other human beings, with which the internal forces interact at a given moment constitute the external forces of his life. Changes in any of these forces are likely to result in changes in behavior. The conceptual framework of the study presents the input which includes the science competencies of CIT students which are classified as technical, behavioral and managerial and communicative competencies. It also involves the extent through which the science competencies of students may be developed considering the objectives of chemistry and physics courses, teaching strategies, learning infrastructure and the use of evaluative measures. It also includes the expected science competencies of students by the industry personnel. The process box presents the assessment and evaluation of the science competencies of the OJT students CIT program. The process was made significant through the different data gathering instruments such as the questionnaires, interviews and focus group discussion. The third box includes the output which is the proposed school safety activity

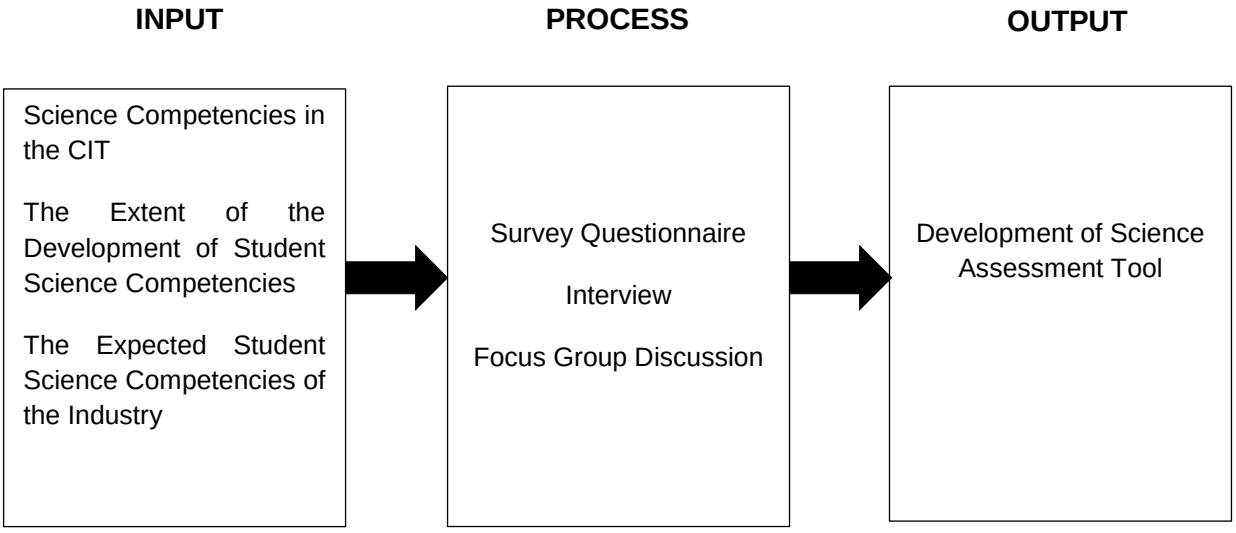

Figure 1. Research Paradigm in Science Competencies Assessment Tool

OBJECTIVES OF THE STUDY

The main objective of this study was to assess the science competencies which may be associated to the practical and academic attributes of College of Industrial Technology (CIT) students of Batangas State University, Batangas City, Philippines as they engaged themselves to their On-the-Job training with the purpose of preparing a science competency assessment tool to address the needs of the industry. Specifically, it is guided by the following objectives: (1) to assess the science competencies required of the OJT students with regards to technical, behavioral, communicative and managerial competencies. (2) to analyze the extent of science competencies required of OJT students with refers to the objectives, instructional strategies, learning infrastructure and evaluative measures. (3) to determine if there are significant differences in the assessment made by the faculty and OJT students. (4) to unveil how the industry personnel assesses the science competencies of OJT students. (5) to

develop a science competency assessment tool to address the needs of the industry.

METHODOLOGY

The descriptive method of research was utilized in this study to describe, analyze and interpret data in the development of science competency assessment tool for On-The-Job-Training students of the College of Industrial Technology in Batangas State University, Batangas City, Philippines. Likewise, this study used a qualitative research approach. The researcher-made questionnaire was the main data gathering instrument used. Interviews and focus group discussion were utilized to consolidate all information needed in this study. The respondents of the study were student trainees under the course program Bachelor of Industrial Technology (BIT) of the CIT BatStateU-Main Campus II. From the total number of 320 third-year student trainees from the CIT who underwent OJT training in different cooperating industries, 164 were identified through stratified proportionate sampling. Also involved in the study as respondents were eight science instructors and 18 industry personnel. The respondents were the faculty, industry supervisors and OJT students of Batangas State University. Batangas City, Philippines. The data were analyzed and tested using statistical tools such as weighted mean and two-tailed test or T-test for a clear interpretation of the data gathered in the study.

RESULTS AND DISCUSSION

1. The Science Competencies Required of OJT Students

1.1 Technical Competencies

It was revealed in the study that the respondents very strongly agreed that the students could manipulate equipment and machine effectively; and collect, analyze, and evaluate gathered data in an orderly manner; and distinguish between relevant and irrelevant data. These obtained the highest weighted mean of 4.0 and with the verbal interpretation of very strongly agreed. These data indicated that the OJT students acquired those technical skills that were applied in the industry or agency in which they were assigned. Furthermore, the instructors and professors in the college saw to it that they taught and shared those skills for students to acquire it. These findings were clear indications that science instructors emphasized the accurate way of measuring chemicals using appropriate equipment in the laboratory. The student should conform to the procedure indicated in the laboratory manual. The item, comply with the occupational safety and health standards also obtained the highest weighted mean. This supports the idea of Delos Reyes (2012) in her study about safety concerns. The author discussed that safety is everyone's business and precautions in different safety concerns such as policy, comprehensive safety plan, building, grounds, emergency communications, and others should be appropriately monitored and implemented. The respondents least rated designing systems and procedures relative to the observed situation or condition with a weighted mean of 3.52; this was interpreted as very strongly agreed. Presumably, the respondents especially the instructors taught the students how to be a keen observer during laboratory activities to be able to explain and draw how such activity has ever done. The science instructors also informed students that such science process would be applicable once the students are able to work in an industry or company. This supports the conclusion of Kamis, et al. (2014) in their study on technical skills, knowledge competencies and expected changes in the clothing industry. The authors concluded that continuous effort towards building relationships between educational institutions and in the industry should be established to enhance and to develop the competencies. The composite means of 3.85 indicated that the respondents very strongly agreed that in science subject in the CIT, the technical competencies developed the students to collect analyze and evaluate data as well as in troubleshooting on identified operational failures. It was supported by the study of Mathelitsch (2013) on competencies in science teaching that

the teachers are the most important key players with the students' desired competencies at the center of the educational system. The focus is directed more on how the students learn and understand, and how they apply the knowledge for their purpose.

1.2 Behavioral Competencies

On the assessments done on behavioral competencies the respondents are very strongly agreed that they balanced decision based on available information and prepared to review if circumstances change; maintained positive attitudes towards challenging and complicated laboratory works, and exercises; and maintaining integrity in solving as well as presenting results and findings for a given task. These were assessed having the same weighted mean of 3.94 and ranked the topmost. The different activities being given to the students enable them to develop these characteristics for they are being exposed to situations where they are challenged to accomplish a specific task, and they are likely to exhibit resilience. Significantly, the respondents very strongly agreed that they project a realistic belief in one's findings and results relative to the accomplished work it obtained a weighted mean value of 3.74, was ranked the least and was very strongly agreed. On the basis of the behavioral characteristics being strengthened among students as they engaged in scientific undertakings, it can be said that science as a field of knowledge does not merely direct the students to be competent in scientific inquiries and the application of theories and principles; it leads the students towards establishing a positive attitude towards others. Allowing the graduating students to apply what they have learned from books in a work environment through On-the-Job Training would develop their work values and attitude necessary to achieve the ultimate goal of producing efficient and effective leaders and professionals in cross-cultural and multidisciplinary undertakings. This supports the study of Pitafi (2012) about the measurement of scientific attitude. The author recommended that the learning experiences of the students must be selected based on knowledge, skills, and attitudes to be learned.

1.3 Communicative and Managerial Competencies

Along with communicative managerial competencies, it was found out that the respondents very strongly agreed that they build trust among co-trainees, supervisors and other employees as it obtained a weighted mean value of 3.91, and was ranked the first. Science Instructors are confident that in every activity being given to students in a science discussion the value of trust and sense of respect is integrated. Students as they engage themselves in various laboratory activities and as they get to work with other members are likely to extend their thoughts and opinions. They are entrusting their ideas to have them validated, accepted or rejected; in this sense, they are also building a harmonious relationship with others when communicated perceptions expand and enrich with diverse concepts. These are instrumental for an effective OJT performance when students are in their chosen industry or company already. On the other hand, it was also noted that the respondents very strongly agreed that they choose an approach that simplifies observed difficulties in a laboratory experiment as it obtained a weighted mean value of 3.25 and was ranked the least. The results are parallel with Pacencia's (2009) findings which asserted that communication competence of student trainees significantly affects the technical competence and the performance in off-campus training. Students, as they inquire and ask a question regarding a certain task in the industry, are more likely to develop critical thinking skills and they become more aware and articulate of their knowledge on applying their skills. Collectively, science competencies required of OJT students as to communicative and managerial competencies revealed a composite mean of 3.71 and was very strongly agreed by the respondent.

2. The Extent of the Development of Science Competencies

2.1 Objectives

The assessments are done the extent of the science competencies developed along with the

course objectives, faculty assessed to a very great extent operating machine with knowledge in electric motors, generators and machine transformers which had a weighted mean of 3.88 and obtained the highest rank. These findings accentuated the important component of physics subjects such as electricity and magnetism wherein students are exposed to various problem-solving activities and experiments related to electric motors, generators and machine transformers. Meanwhile, ranked the least was the item explaining the relationship of kinetic energy and potential energy to work. It was observed to a great extent and had a weighted mean of 3.25. In general, the composite mean of 3.54 revealed that science competencies were developed to a very great extent in the physics objectives. The findings indicated that science competencies are greatly developed when students operate machine with knowledge on electric motors, generators and machine transformers, differentiate between vector and scalar quantity, and illustrate the difference among open circuit, closed circuit and short circuit, describe and analyze the phenomenon of waves, sound, light, electromagnetic radiation, take into application. In Newton's law of universal gravitation, solve a problem involving the real-world application of heat, temperature, calorimetry, thermodynamics, and pressure, calculate the power dissipated in a simple electric circuit. The development of science competencies, through these objectives, would create scientifically literate students who are braced with knowledge and skills instrumental as they venture industrial firms. The assessment done by the OJT students revealed that the item, illustrate the difference among open circuit, closed circuit and the short circuit was rated great extent that had the highest rank and obtained a weighted mean of 3.41. The item, utilize the concept of buoyant force, and Archimedes' principle ranked last. It was observed to a great extent and had a weighted mean of 2.87. In general, the composite mean of 3.16 indicated that science competencies as assessed by students are developed to a great extent in the objectives of physics. This also proved that physics as a subject being offered in the CIT bears significance for the development of the competencies of students which can be applied in their OJT. In a broader perspective, the development of scientific competencies may also lead students towards becoming effective industrial technician and technologists. In the item, the use of appropriate equations in quantifying outcomes of chemical reactions garnered a weighted mean of 3.38 and was observed to a great extent as assessed by the faculty. These findings indicated that science instructors are confident that when students are fired with different word problems. Students are challenged to solve problems in line with chemical reactions. The members of the faculty are aware of the competencies being manifested and developed in such a particular lesson. The item, calculate for the amount and concentration of acids and bases got the lowest weighted mean of 2.38 and was observed to a great extent. Overall the composite mean of 2.90 indicated that science instructors believed that science competencies are developed to a great extent in the objectives of chemistry. This further implied that chemistry subjects being part of the curriculum of each field of specialization offered in CIT are of great relevance for the development of the student's scientific attitudes and capacities. Holistically, these scientific attributes are turned into a collection of competencies which are essentially being applied in the OJT of students leading them towards achieving effective learning experiences. With regards to the assessment done by the OJT students, it can be noted from the study that the item, recognize the behavior and properties of gas obtained a weighted mean of 3.15 and was observed to a great extent. The findings justified that students, when they solve problems related to gases, become more aware of the techniques and approaches in using equations to prove that they are applied in various activities of man. In this manner, they learned that certain processes could be well understood with in-depth analysis. Least ranked was the item, utilized different test for the acid-base and salt it obtained a weighted mean of 2.81 but was still observed to a great extent by the OJT students. These results meant to imply that students always look into the most interesting activities or

lessons in science where they can make a test by themselves, or subject some condition in tests and experiments. They get interested and attentive when they are concentrated on finding facts about a certain matter, with these important competencies are likely to be strengthened and applied. Generally, the science process skills are being established among students. As a whole, the composite mean of 2.96 indicated that students developed science competencies through the objectives of chemistry to a great extent. The CIT students who had already taken chemistry subjects affirmed that chemistry had offered a lot of engaging components and lessons which are anabolic for their competencies.

2.2 Instructional Strategies

It can be noted that both faculty and students assessed the item, utilize lecture and discussion to put emphasis on important concepts and assess the students' interest and willingness to learn to a very great extent which obtained the highest rank with a weighted mean of 3.50 and 3.52 respectively. These findings meant that the use of discussion as a teaching strategy is still an effective way of teaching science concepts to students. Science instructors believed that discussion base class induces learners to focus and find interest in the topic being discussed as more emphasis is given to the concepts, principles, and theories involved. Competencies expected to be manifested by students are more likely to be addressed and strengthened such as those that include student's ability to explain, judge, analyze and participate. On the other hand, both the faculty and OJT students assessed item engage students in film viewing activities to further reflect on the scientific and realistic process to a great extent and obtained a weighted mean of 2.50 and 3.12 respectively. These findings put forward on the modern trends in science teaching. Science instructors are confident that through the aid of multimedia and audio-visual presentation students can become more interested in listening and participating in the class. Collectively, the science competencies developed as manifested in the instructional strategies was observed to a great extent by both the faculty and OJT students with the composite mean of 2.97 and 3.30 respectively. It was revealed in the result that using the different instructional strategies such as demonstration, laboratory experiments, problem-solving activities, simulation activities, conduction of research, film viewing, plant visits, and field trips gave the students opportunities to apply in real-life the theories and principles in science subjects. The results support the idea of Manurung (2012) that the teaching-learning process is contextual and the emphasis is to fulfill learners' needs. This teaching mode requires the active participation of learners. The active learning mode requires creative teacher and effective teaching strategies to transform knowledge into effective learning tasks and activities.

2.3 Learning Infrastructure

As assessed by the faculty, it can be noted that the items, expose the students to extensive laboratory activities to become proficient in handling tools and equipment; and involve them in project plan activity allowing them to seek out knowledge of others and formulate best solutions for the problem encountered had the same weighted mean of 3.75 and was observed to a very great extent by the faculty. Least rated but still to a great extent was the item, provide simulator of equipment, machines, and others to enable the students to make an in-depth association of concepts and their application. It had a weighted mean of 3.13 and was observed to a great extent. Generally, the composite mean of 3.52 indicated that science instructors in CIT are using different learning infrastructures which resulted in the development of the science competencies acquired by the students. As assessed by the students in this item, expose the students to extensive laboratory activities to become proficient in handling tools obtained a weighted mean of 3.45 and was observed to a great extent. This indicated that students believed that laboratory activities enable them to understand the lessons in chemistry and physics

clearly. Garnered a weighted mean of 3.21 and was observed to a great extent was the item provide mock simulator of equipment, machines, and others to enable the students to make an in-depth association of concepts and their application. This result stressed that students are more likely to learn processes and procedure through simulations that engaged them in the first-hand experience of handling and manipulating equipment. Summing up the composite mean of 3.27 stressed those science competencies are developed to a great extent in the different learning infrastructure used to facilitate science lessons in the CIT. Significantly the development of science competencies is heightened, and the possibility of developing them to higher standards may be achieved during OJT of the students. This supports the idea of Levin (2012) that laboratory activities and classes provide students hands-on experiences with course concepts and significant opportunities to achieve the desired outcomes.

2.4 The Extent of Science Competencies Developed as Manifested in the Evaluative Measures

Table 1. Extent of Science Competencies Developed as Manifested in the Evaluative Measures

	Items	Faculty		OJT Students	
		WM	VI	WM	VI
1.	Utilize paper and pencil test to assess the students learning on a certain topic	3.88	VGE	3.19	GE
2.	Engage students in actual laboratory examinations to test their conceptual and technical capacities	3.38	GE	3.23	GE
3.	Device sets of rubrics to effectively measure the learning standards of the students	2.50	GE	3.12	GE
4.	Integrate recitation in the discussion to make students demonstrate active interest and ability on a particular topic	3.13	GE	3.10	GE
5.	Involve students in group dynamics to develop student's responsibility and accountability in accomplishing	3.88	VGE	3.27	GE
6.	Assess students' progress by enabling them to document their learning outcomes through the use of portfolio	3.88	VGE	3.22	GE
7.	Enable the students to take part in the presentation of laboratory report help them sharpen skills in scientific inquiry, the scientific method, and scientific communication	3.75	VGE	3.54	VGE
Composite Mean		**3.49**	**VGE**	**3.23**	**GE**

Based on the table, the faculty assessed the items such as utilize paper and pencil test to assess the students learning on a certain topic; involve students in group dynamics to develop students' responsibility and accountability in accomplishing; and assess students to take part in the presentation of laboratory report, help them sharpen skills in scientific inquiry, the scientific method and, scientific communication had the highest weighted mean of 3.88 and were observed to a very great extent. Meanwhile, it was assessed that the item, device sets of rubrics to Effectively measure the learning standards of the students was observed to a great extent got a weighted mean of 2.50. The result meant that the faculty does not just evaluate or make an assessment without a reliable basis, an organized rubric or set of criteria was used. The composite mean of 3.49 revealed that science competencies to be developed in the evaluative measures used were assessed to a very great extent. It is an indication that science instructors in CIT are using evaluative measures that develop science

competencies of the students. These are used to determine how well the students learn lessons in chemistry and physics. It is the main purpose of evaluating learning outcomes to describe and measure the worth of students output in a qualitative and quantitative manner. Ranked first with a weighted mean of 3.54 and rated to a very great extent was the item enable the students to take part in the presentation of laboratory report to help them sharpen skills in scientific inquiry, the scientific method, and scientific communication. This indicated that when students are allowed to present laboratory reports and their performance is evaluated. They become more curious and interested to focus on making their reports well done. It increases the chance that students become more scientific as they elaborate, reason out findings, and defend the output of the experiment they performed. Least rated was integrate recitation in the discussion to make students demonstrate active interest and ability on a particular topic. It obtained a weighted mean of 3.02 and was interpreted to a great extent. These data are indicative of how fulfilling it is on the part of the students to participate in the science discussion as they recite, make a judgment, explain, share thoughts and clarify. The composite mean of 3.23 indicated that science competencies to be developed in the evaluative measures used were assessed to a great extent. This result showed that science competencies are developed when the results of the evaluation made are validated and extended to students. It pointed out that competencies manifested by students may evolve as evaluation lead them to reflect on their learning standards.

3. The Differences in the Assessments made by Faculty and OJT students.

Table 2. Difference between the Assessment of Faculty and OJT Students on the Extent of Manifestation of Science Competencies

Variable	Faculty		Students		t_c	p-value	Decision on H_0	Interpretation
	Mean	SD	Mean	SD				
Objectives in Physics	3.538	0.346	3.157	0.420	2.493	0.733	Accept	Not Significant
Objectives in Chemistry	2.900	0.223	2.962	0.507	0.342	0.014	Reject	Significant
Instructional Strategies	2.969	0.160	3.298	0.450	2.049	0.043	Reject	Significant
Learning Infrastructures	3.521	0.440	3.265	0.459	1.520	0.132	Accept	Not Significant
Evaluative Measures	3.482	0.314	3.226	0.505	1.407	0.162	Accept	Not Significant
			df=106		α=0.05			

Table 2 reflected the differences in the assessments the extent of manifestation of science competencies done by the faculty and OJT students. The two-tailed (t-test) test of significance was applied to test the null hypothesis. As shown in the table, the computed t-value of 0.342 and obtained a p-value of 0.014 which is less than the level of significance of 0.05 this indicated that the null hypothesis was rejected. It is worth to note that there is a significant difference between the assessment made by the faculty and OJT students on the assessment of the extent of manifestation of science competencies as relative to objectives in chemistry. In addition, the computed t-value of 2.049 had a p-value of 0.043 which is less than the level of significance of 0.05. Hence, the null hypothesis was rejected. This implies that faculty and students significantly differ on the assessment of the extent manifestation of science competencies as to instructional strategies. This was evidenced by the higher assessment of students having a mean of 3.298, the standard deviation of 0.450 as compared to

the mean assessment of 2.969 and standard deviation of 0.160. The difference lies in the fact that instructional strategies are utilized to facilitate concepts effectively in physics as affirmed by the faculty. Likewise, students thought of enjoying lessons in both chemistry and physics with a variety of appropriate and suitable instructional strategies being used by faculty. Moreover, there were no significant differences in the assessment done by the faculty and students relative to the extent of manifestation of science competencies in the objectives in physics, learning infrastructure and evaluative measures. It revealed that their computed p-value of 0.733, 0.132 and 0.162 was greater than the level of significance of 0.05 respectively. Thus, the null hypothesis is accepted.

4. A Proposed Science Competency Assessment Tool to Address the Needs of Industry

The science competency assessment tool was developed to determine what competencies are acquired and developed in sciences such as physics and chemistry which are also essential to be applied and manifested in the industry as students have their On-the-Job-Training. The tool focused on the items in which students were found to be weak. It further, gears to assess the students' competencies on the science competencies which are classified as, technical, behavioral, communicative and managerial competencies. The result, offshoots to address the needs of the industrial firms for competent technologists. Science competency assessment tool was made significantly to determine the extent of the development of science competencies applied and manifested by the students during OJT. The assessment tool was made intended to identify in which specific classification of science competency; technical, behavioral, managerial, students are more likely to manifest extent or degree of strengths and weaknesses. In this sense, science instructors and curriculum experts are given opportunities to make revision and improvement in areas such as instruction, laboratory facilities or infrastructure to address the competencies in which students are found to be weak.

CONCLUSIONS

Based on the findings of the study, the following conclusions were drawn:

1. The College of Industrial Technology offers science competencies which are classified as technical, behavioral, communicative and managerial.
2. The science competencies developed in the students are manifested to a great extent in learning outcomes in physics and chemistry, in instructional strategies, in learning infrastructure and in evaluative measures.
3. The proposed science competency assessment tool shall further enhance the responsiveness of the CIT to the needs of the industry.

RECOMMENDATIONS

In light of the findings and conclusions from this study, the following recommendations were endorsed.

1. The learning outcomes of the science courses, instructional strategies, learning infrastructure and evaluative measures being used must be made congruent with the competencies of the students.
2. Include a discussion of the relevance of science and other academic subjects in the regular conduct of the Industry Advisory Committee meeting.
3. The proposed science competency assessment tool has to be evaluated, and pilot tested prior to administration to OJT students.

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AUTHOR'S PROFILE

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