

## GAUGING THE COMPETENCIES DEVELOPED BY THE AQUACULTURE STUDENTS

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### **Abstract**

Numerous components are necessary for the functioning of an effective educational system. It is imperative that one of these considerations be compliance with the existing educational and training regulations that are mandated by the "trifocalized" educational system that our nation employs. The inquiry was carried out using the descriptive research technique as the research approach. The descriptive method of research is a fact-finding study that incorporates appropriate and precise interpretation of the findings, due to the fact that it shows what the research subject actually is. According to the findings, a significant number of women now hold instructional faculty positions at educational institutions such as the DepEd. Women have a distinct and profound sense of fulfillment from their job as educators. The respondents provide evidence that they majored in the same field by demonstrating that they already have a comprehensive understanding of the subject matter, that they take pleasure in the activities and responsibilities associated with it, and that they do not have to spend the exorbitant sums of money that are typically required of those majoring in food and other fields in order to acquire the necessary supplies. According to the criteria laid forth by the independent body that reviews the program from the outside, the establishment that teaches Aquaculture NC II does not have appropriate tools and equipment. Schools and other stakeholders need to provide the appropriate intervention in order for the school to realize its goals and achieve its objectives in order to produce children who are capable of performing well academically.

**Keyword:** competencies, Aquaculture, compliance, characteristic,

### **Introduction**

There are several foundations upon which a robust educational system might be constructed. The country's educational system is described as being "trifocalized," therefore one of these considerations must be conformity with the educational and training rules that are already in place. The Department of Education (DepEd) is in charge of establishing general educational standards and mandating standardized testing for the K-12 basic education system. These responsibilities fall within the purview of the Department of Education. On the other hand, the Commission on Higher Education (CHED) is in charge of monitoring and regulating the activities of colleges and universities at the level of higher education. In the meanwhile, the Technical Education and Skills Development Authority (TESDA) is in charge of regulating and accrediting programs and institutions throughout the country that provide technical and vocational education. Schools in the Philippines, both public and private, as well as colleges, universities, and technical and vocational institutes (TVIs), are responsible for the delivery of education to students throughout the country. There are two types of schools that fall under the category of secondary education. These are known as general high schools and technical vocational schools. In the Junior and Senior High School, students at these TECH VOC schools can choose to study Trade, Agriculture, or Fisheries.

Competency-based teaching and learning strategies are utilized in educational settings that

provide technical and vocational disciplines. These kinds of training are frequently referred to as competency-based training (CBT) or competency-based learning (CBL). The required Competency Standards are industry-determined specifications of performance that describe the skills, knowledge, and attitudes required by a worker in the performance of a particular role in the workplace. These standards must be met before a worker can be certified as meeting the Competency Standards. They serve as the foundation for all of the activities that are included in a system for competency-based training and certification.

Kindergarten, Primary schooling, Junior high school, and Senior high school make up the Philippines' obligatory education system, which spans a total of 12 years.

In the beginning of junior high school (Grades 7 to 10), students are prepared gearing up for the future (Senior high school) wherein the seven learning areas and three tracks for students to choose from, prepare them for senior high school, the two years of specialized upper secondary education; and during their senior high school, the program for them will be nurturing the holistically developed Filipino (College and Livelihood Readiness, 21st Century Skills), so that every graduate will have the skills necessary to be successful in their (DepEd, 2014).

### **Statement of the Problem**

This study aimed to assess the competencies developed by the Aquaculture students of Sta. Ana Fishery National High School for School Year 2019-2020.

Specifically, the study sought to answer the following questions:

1. What is the profile of the grades 10 and 12 students who are major in Aquaculture for the School year 2019-2020, as to:
  - 1.1 Age
  - 1.2 Sex
  - 1.3 Grade level
2. What is the profile/characteristics of teachers assigned to teach Aquaculture subjects under the Tech-Voc Curriculum of the Dep Ed, as to:
  - 2.1 Age
  - 2.2 Sex
  - 2.3 Current teaching position
  - 2.4 Degree earned
  - 2.5 Professional Teacher License
  - 2.6 Employment status
  - 2.7 Years of teaching in the Tech-Voc Fisheries program
3. What are the extent of competence in Aquaculture NC II, as perceived by the students and observed by the teachers?

## **RESEARCH METHODOLOGY**

### **Research Design**

The descriptive technique of research was used to carry out the investigation for this study. A fact-finding study that provides an adequate and accurate interpretation of the findings is an example of the descriptive method of research. This method of research describes what it is. It gives a prominent description of things that truly exist, such as the present state of affairs, practices, circumstances, or any phenomenon. Because this study is focused with the evaluation

of competences, the descriptive technique of research is the one that is most suited to characterize the profile features of respondents, including both students and teachers. This technique was also used to define the extent of the abilities developed in the Core competencies under Aquaculture NC II that were issued in the Training Regulations for Aquaculture NC II that were published by the Technical Education and Skills Development Authority.

#### **Locale of the Study**

The study was conducted at the Sta. Ana Fishery National High School, located at Centro, Sta. Ana, Cagayan. It is a TECH-VOC school of the Department of Education offering Fisheries Curriculum in the Junior and Senior High School. Its graduates of the Junior and Senior High School of the Fisheries curriculum subject them for assessment to an accredited assessment center for Aquaculture in the region, either for full competency or certificate of completion. For this study, the participants from Grade 10 were subjected to external assessment for full competency at the Cagayan State University at Aparri. The Grade 12 were subjected to internal assessment only, as they were restricted to travel to CSU-Aparri for the external assessment due to COVID-19 restrictions, on March 15, 2020. Though they applied for external assessment, it did not push through because of the IATF and DepEd's restrictions on travels during the date allotted to them by the assessment center.

#### **Participants of the Study**

Students in grades 10 and 12 at Santa Ana Fishery National High School participated in the study as student-participants. These students are majoring in Aquaculture as part of the Fisheries program at the school. There were 78 students who participated from the Junior High School, and there were 12 students who participated from the Senior High School.

The teachers who participated in this study were those at the Junior and Senior High Schools who were responsible for teaching aquaculture-related topics. There were a total of three different teachers that took part in the research.

#### **Research Instrument/Sources of Data**

##### **Chapter 4**

In order to collect data, the researcher relied on questionnaires, and the findings of observations were recorded on a checklist. Some of the questions in the questionnaire were devised by the researchers themselves, while others were taken directly from the Training Regulation for Aquaculture NC II that was mandated by TESDA.

The questionnaire given to the pupils consists of two sections. It elicited data on the personal backgrounds of the students, as well as their self-assessments on the level of their abilities in the basic competencies of Aquaculture, which were based on the Training Regulations from TESDA. The survey for the instructors elicits profile traits as well as the scope of training that has been delivered.

### **DISCUSSION OF FINDINGS**

#### **Profile of Student-Participants**

##### **1. Age**

The student participants in the research are profiled in the following tables, which you may use to pick a specific profile to view. The ages of the responders are broken out in the table that can be seen here. Participants' ages range anywhere from 16 to 20 years old. The students

that took part in the study had an average age of 17.18 years old, with a standard deviation of 0.89 years. The age group 16 has the most replies, with 33.33 percent, followed by age 17, which has a frequency of 29, or 32.22 percent, age 18 has 17.77 percent, age 19 has 10 percent, and age 20 has 6.66 percent. The statistics showed that the majority of people are either 16 or 17 years old, and this can be accounted for by the fact that the bulk of the student participants belong to the junior high school grade level. Lifelong learners make up a portion of people who have just graduated from senior high school; their ages 19 and 20 are represented in this group.

*Table 2. Distribution of respondents in terms of age.*

Age	Frequency (N=78)	Percentage
20	6	6.66
19	9	10.00
18	16	17.77
17	29	32.22
16	30	33.33

Mean Age = 17.18

Standard deviation= 0.89

## 2. Sex

The gender distribution of the participants is presented in Table 3, and it can be seen that the vast majority of them are men. This amount accounted for 72.22 percent, whereas females make up only 27.78 percent of the total. It is clear from looking at the data that the majority of students who choose Aquaculture NC II as their major are male. This is especially true for the Aquaculture NC II concentration. This gender disparity can be attributable to the prevalence of physical labor in agricultural settings. The duties required in Aquaculture NC II were mostly comprised of demanding manual work; nonetheless, this did not discourage female students from pursuing a career in this area of concentration.

*Table 3. Distribution of respondents in terms of sex.*

Sex	Frequency (N=90)	Percentage
Male	65	72.22
Female	25	27.78

Mean = 16.89

Standard deviation= 0.86

## 3. Grade Level

Table 4 displays the pupils' ages along with their respective grade levels. There are 78 students who are participating, 12 of them are from the senior high school where the competition is being held. According to the observations made by the author, a few of the students who are currently enrolled in senior high school also participated in the same area of concentration when they were junior high school students. According to the responses that they gave to the author's interview, the reason that they have all chosen to work in the same field is that they are already very familiar

with the subject matter, they take pleasure in the activities and tasks that are associated with the subject, and they do not have to spend the staggering amount of money that is typically required of those who major in foods and other fields in order to purchase the necessary requirements.

*Table 4. Distribution of student-participants in terms of grade level..*

<b>Variable</b>	<b>Frequency (N=90)</b>	<b>Percentage</b>
JHS	78	72.22
SHS	12	27.78

**Profile of Teacher-Participants**

**1. Age**

The following is a profile of the teacher-participants of the current study who have been assigned to teach Aquaculture topics at Sta. Ana Fishery National High School as part of the Tech-Voc Curriculum for the 2019-2020 academic year. There are three people taking part, and their ages range from 24 to 32 to 45 accordingly.

*Table 5. Distribution of teacher-participants in terms of age.*

<b>Age</b>	<b>Frequency (N=3)</b>	<b>Percentage</b>
24	1	33.33
32	1	33.33
45	1	33.33

**2. Sex**

There is one man and two females among the participants serving as teachers in this study. Although most of the students are female, the majority of the teachers in the Aquaculture NC II field of study are males. This is contrary to the demographics of the student body. It would appear that the majority of the teaching staff at many educational institutions are comprised of females; the Department of Education (DepEd) is not an exception to this trend. Being a teacher comes with a natural sense of fulfillment, which is why so many women choose this career path. The current study is no exception to this rule.

*Table 6. Distribution of teacher-participants in terms of sex.*

<b>Sex</b>	<b>Frequency (N=3)</b>	<b>Percentage</b>
Male	1	73.08
Female	2	26.92

**3. Current teaching position**

Two of the teacher-participants currently hold the post of Teacher II at their respective schools; however, one is stationed at the Senior High School and the other is at the Junior High School. Even if the other person has been promoted to the position of Teacher II, she does not have the privilege of tenure; rather, she is on probation for a period of five years. This means that the

teacher is not guaranteed a job. It is not an ideal situation for the teacher who has been assigned the position of Teacher II at the Senior High School, as she may be removed from the post when the Principal says so, and because she or he may be at the mercy of the authority that is responsible for appointing or recommending teachers. The second member of the faculty who holds the Teacher II position has a lengthy history of service. She was promoted to that position after undergoing reeducation to become an aquaculture educator, and she was finally accepted into the school as a regular member of the faculty.

Because the participant who now occupies the post of Teacher I is going to be moved to another school very soon, there is going to be a severe shortage of Aquaculture instructors at the Tech-Voc schools that provide fisheries as a main field of study. Even though many graduates of BS fisheries had aspirations of entering the teaching profession, they are unable to take the LET because they do not have the required number of units. This is due to the fact that only licensed teachers are allowed to teach in DepEd schools.

*Table 7. Distribution of teacher-participants in terms of current teaching position.*

Teaching Position	Frequency (N=3)	Percentage
Instructor II	2	66.66
Teacher I	1	33.33

#### 4. Degree earned

Two of the participants hold a Bachelor of Science degree in Fisheries, while the other participant is a member of staff who has undergone further training. She has a degree in MAPE and, in order to obtain a permanent post in SAFNHS, she underwent retraining by enrolling in extra units in fisheries-related courses. This opened the door for her to do so. Because they all did well on the LET, each one of them now possesses the professional license that they need.

*Table 8. Distribution of teacher-participants in terms of degree earned.*

Sex	Frequency (N=3)	Percentage
BS Fisheries	2	73.08
Non BS-Fisheries	1	26.92

#### 5. Fisheries Technologist license

In order to be in possession of a fisheries technologist license, one must have completed the examination required for licensure. The other two individuals do not possess this license, but all of them have successfully completed NC II, making them eligible to instruct Aquaculture NC II.

*Table 9. Distribution of teacher-participants in terms of fisheries technologist license..*

Sex	Frequency (N=3)	Percentage
With LEFT	2	73.08
Without LEFT	1	26.92

#### 6. Employment status

Table 9 provides information on the work situation of the teacher. It demonstrates that two of them possess permanent positions, while the other is on probationary status. This is the case as

a result of the fact that she is tasked with teaching at the senior high school. In contrast to teachers whose starting point is the junior high school, individuals who enter the teaching profession at a senior high school are not immediately offered a permanent regular post.

*Table 10. Distribution of teacher-participants in terms of employment status.*

<b>Employment Status</b>	<b>Frequency (N=3)</b>	<b>Percentage</b>
Permanent	2	73.08
Probationary	1	26.92

### **7. Years of teaching in the Tech-Voc Fisheries program**

Table 10 indicates the total number of years spent in the teaching profession. One of them has been teaching for a total of 30 years, while the other two have only been doing so for a combined total of seven years. The third one has only been in the service for a short period—just two years.

*Table 11. Distribution of respondents in terms of number of years in teaching.*

<b>No. of Years of teaching</b>	<b>Frequency (N=3)</b>	<b>Percentage</b>
7	1	33.33
2	1	33.33
30	1	33.33

### **Extent of Competence on the Core Competencies in Aquaculture NC II**

The self-evaluations of the students who took part in Aquaculture NC II are included in the following table, together with the instructors' impressions of the students' levels of competency in the subject as expressed by the students themselves. In Aquaculture NC II, there are a total of four essential competencies, with a variety of subtasks falling under each major competency.

The students gave themselves an average rating of 2.84, which is equivalent to "to a great extent," for core competency I, which is to conduct pre-operational aquaculture activities. The teachers also gave the students an average rating of 2.88, with the descriptive rating "to a great extent," for this same competency. Both of the raters agreed that a perfect score should be given for the sub-task "Prepare tools and simple equipment." Therefore, this demonstrates that the students are capable of properly preparing the instruments and equipment necessary for aquaculture.

The students awarded themselves a mean rating of 2.43 and a descriptive rating of "to some extent" for Core Competency II, which is "Prepare and maintain aquaculture facilities," whereas the professors provided a mean rating of 2.09 and a descriptive rating of "to a limited extent." This specific competence was ranked the lowest out of the four primary competencies that were evaluated. The grade was based on the subtask, which consisted of evaluating the location for the pens, drawing the layout for the pens, and "mobilizing resources and carrying out installation of facilities." The last task received the lowest rating because these amenities do not already exist on the campus. The pupils are only given vicarious experiences on the jobs that use this facility as part of their education. A downloadable audio-visual presentation is created for this purpose so that the students can understand the concepts covered in the classes associated with this topic. However, the practical tasks associated with this aquaculture facility are not carried out since the

educational institution does not have a laboratory for the students to use. The students and the instructors gave the third significant ability, which was "run a fish nursery," a mean score of 2.83 and a descriptive grade of "to a considerable extent."

The last competency “perform fish or shrimp grow-out operations” got a mean rating of 2.77, and 2.76, having a descriptive rating of “to a great extent”, respectively.

*Table 12. The self-assessment of the student-participants and the teachers’ ratings of the students based on their observations*

<b>CORE COMPETENCIES</b>	<b>Students’ self-assessment N=90</b>	<b>Descriptive rating</b>	<b>Teachers’ assessment / observations N=3</b>	<b>Descriptive rating</b>
<b>I. Conduct pre-operational aquaculture activities</b>				
1.1. Prepare tools and simple equipment	3.0	TGE	3.0	TGE
1.2. Change water of aquaculture facility	2.77	TGE	2.87	TGE
1.3. Monitor and collect mortalities	2.71	TGE	2.81	TGE
1.4. Prepare aquaculture facilities	2.76	TGE	2.76	TGE
1.5. Secure facilities	2.97	TGE	2.97	TGE
<b>Mean</b>	<b>2.84</b>	<b>TGE</b>	<b>2.88</b>	<b>TGE</b>
<b>II. Prepare and maintain aquaculture facilities</b>				
2.1 Evaluate site for ponds	3.00	TGE	3.00	TGE
2.2 Evaluate site for pens and cages	2.03	TSE	2.02	TSE
2.3 Evaluate site for tanks	3.00	TGE	3.00	TGE
2.4 Draw the lay out plan for ponds	3.00	TGE	3.00	TGE
2.5 Draw the lay out plan for tanks	2.13	TSE	2.50	TSE
2.6 Draw the lay out plan for pens	2.11	TSE	2.12	TSE
2.7 Draw the lay out plan for cages	2.13	TSE	2.12	TSE



2.8 Mobilize resources and carry-out installation of facilities	2.00	TSE	2.00	TSE
<b>Mean</b>	<b>2.43</b>	<b>TSE</b>	<b>2.09</b>	<b>TSE</b>
III. Operate fish nursery				
3.1 Prepare nursery ponds	3.00	TGE	3.00	TGE
3.2 Stock fish in nursery pond	3.00	TGE	3.00	TGE
3.3. Perform feeding operations	2.93	TGE	3.00	TGE
3.4 Monitor good water quality	2.90	TGE	3.00	TGE
3.5 Perform common disease monitoring and implement treatment	2.12	TSE	2.00	TSE
3.6 Harvest and post harvest handling	3.00	TGE	3.00	TGE
<b>Mean</b>	<b>2.83</b>	<b>TGE</b>	<b>2.83</b>	<b>TGE</b>
IV. Perform fish or shrimp grow-out operations				
4.1 Prepare grow-out facilities	2.79	TGE	2.68	TGE
4.2 Stocking of fingerlings	2.76	TGE	2.87	TGE
4.3 Stock sampling	2.73	TGE	2.71	TGE
4.4 Perform feeding operations	2.71	TGE	2.78	TGE
4.5 Maintain good water quality	2.80	TGE	2.78	TGE
<b>Mean</b>	<b>2.77</b>	<b>TGE</b>	<b>2.76</b>	<b>TGE</b>

## Discussion

Students have the potential to benefit from the knowledge and experience of their professors. Therefore, in order for a teacher to provide the greatest possible experience for her or his pupils, she or he has to be equipped with the most effective teaching tactics, abilities, and methodologies. It is necessary for there to be facilities in schools so that instructors may perform to the best of their abilities. It is definitely one of the most fundamental tasks of the school to give the children with an efficient method of instruction as well as a pleasant and well-organized atmosphere within the school. As a part of their education, the students in the study are only provided vicarious experiences on the occupations that employ this facility. This is done so that the study can be valid. For this aim, an audio-visual presentation that can be downloaded will be developed so that students may comprehend the ideas that will be discussed in the classes that are linked with this subject matter. The educational establishment does not have a laboratory that the students may utilize, thus the practical activities that are related with the aquaculture facility are not carried out.

## Conclusion

Based from the foregoing findings, the researcher hereby concludes that aquaculture students have acquired a degree of proficiency in Aquaculture NC II. The younger ones have higher competence in Aquaculture NC II.

The school offering the qualification- Aquaculture NC II have insufficient equipment and tools as required by the external body that offers external assessment of their program.

Students and teachers alike have comparable assessments in the performance of tasks required in the qualification.

## Recommendation

Based on the conclusions made, the following are recommended:

1. Schools should procure the needed equipment, tools and materials needed in the qualification.
2. Administrators should look into the adequacy of the needs of the students in their training programs.
3. Teachers hired to teach the qualification should be full-fledged graduates of the BS Fisheries program.

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