



The Assessment of Employers' satisfaction for graduates of Bachelor program in Fisheries and Aquaculture from Thai Nguyen University of Agriculture and Forestry, Nha Trang University and Nong Lam University Ho Chi Minh City, Vietnam

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Abstract

Employers' satisfaction on the performance of graduates is a crucial piece of information that universities must consider to determine the relevance and responsiveness of their curriculum, training programs, and services. This study aims to investigate the satisfaction of employers on the performance of graduates who studied fisheries or aquaculture programs at Thai Nguyen University of Agriculture and Forestry, Nha Trang University and Nong Lam University Ho Chi Minh City, Vietnam. The 44 participants were purposely chosen who were directors, managers and personnel in-charge of government, private sectors, institutions state enterprise and others in the North and South of Vietnam. The online survey and phone interview was conducted from 9th September to 25th October 2018. Results showed that almost all the performance of graduates in morals/ ethics, subject knowledge, cognitive skills, Interpersonal skills and responsibilities and Numerical analysis, communication and information technology skills received highly satisfactory rating. However, the attitude toward team-work and knowledge of environmental protection guidelines/ legislation and understanding of socio-economic risks driven by aquaculture/ fisheries activities were graded as poor. The employees were required to improve professional, language, team-work, leadership and IT skills. The results also revealed that there are highly demands of industries on fisheries labor. The implication of the study on the continuous improvement in the curriculum, programs, and services are discussed.

Keywords: Employers' satisfaction, performance, graduates, Fisheries, Aquaculture

1. Introduction

The fishery sector in Vietnam has grown rapidly in both quantity and quality. Since 1990s, it has positively shifted from small scale to large farms and industry. Many modern industrial farms have been established across the country which are strigger the requirement of a well-trained labor force (Chi et al., 2017; Hong et al., 2017)

To meet the requirements of industry/ employers in the field of fishery and aquaculture, Thai Nguyen University of Agriculture and Forestry (TUAF), Nha Trang university (NTU) and Nong Lam University Ho Chi Minh city have implemented many solutions such as updating the content of training programs, renovation of teaching methods, investment in facilities for practice and connection with businesses/ companies/ industry and farms in improving practical/ professional/ internship skills for students in that dynamic field.

Annually, the number of students enroll and graduate in fishery and aquaculture majors at TUAF, NTU and NLU are around 200 students/ each institution. More than 90% of graduates of

fishery and aquaculture have been recruited by the industries and government departments. However, the results of the survey shows that the graduates are required to be retrained up to 6 months to meet the job requirement. This is what employers/ industry/ company and the Universities do not expect.

To find the solutions for an improvement or meeting employer's expectation, it is necessary to understand the real/ current status of practical skills and quality internship, identify the problems and causes (Adams, 2013; Andrews & Russell, 2012; Azevedo et al., 2000; Bennett et al., 2012; Tudy, 2017).

General aims of the study were to improve the quality of the existing fisheries and aquaculture training program of TAAF, NTU and NLU and to satisfy employer's need. The specific aims were to understand employers' evaluation on graduated student's performances; to identify the knowledge and skills that the employers need from graduates; to know the current and future demand on the jobs/positions; to get the advices from industries to adjust the curriculum; and to strengthen the relationship with industries.

2. Methods

The online survey and phone interview was conducted from 9th September to 25th October 2018. Forty-four participants in the North and South of Vietnam were selected for data collection. Types of surveyed organizations were government, private sector, state enterprise and others. The outputs of this analysis would be a real picture on the needs of improvement of the existing curricula in the Universities to meet the industrial requirements in the fields of aquaculture and fisheries. This study used excel software to analyse data and descriptive statistic were applied including percentages, means, standard deviation, score ranking, sum etc.

3. Results and discussion

3.1. Employer's background and job demand

Among of 44 surveyed organisations, 57.0% came from private sector, following by government organization (23.0%). Institution, university accounted for smallest proportion at 7.0% (Figure 1).

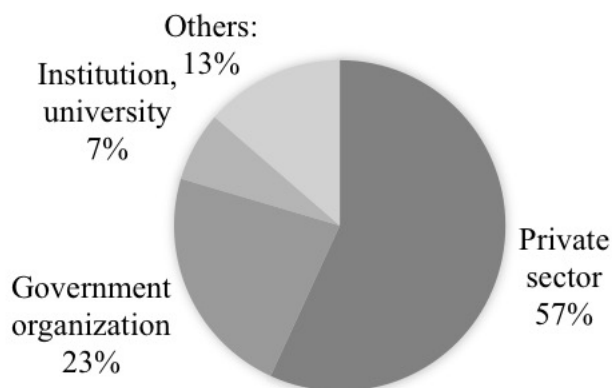


Figure 1: Types of organization business

Majority of participating organizations (86%) in this survey was recognized as fishery and aquaculture sector, only 2% in tourism area while others accounted for 12% (Figure 2).

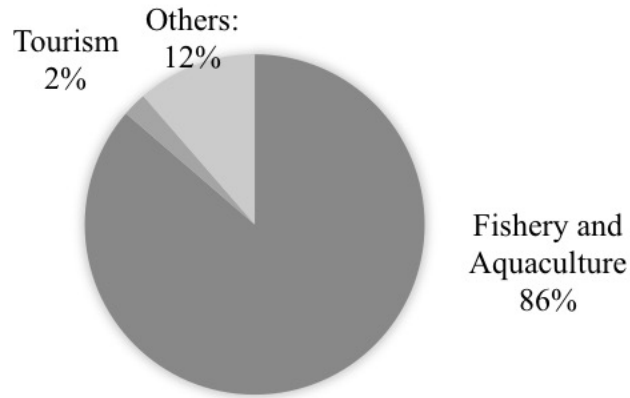


Figure 2: Types of surveyed organization

According to the results of survey, aquaculture was the most in-demand jobs of industry at 79.5%, technical support and marketing were also popular with 47.7% and 43.2%, respectively. While processing and others job were available at less than 10%, more positions were offered in management and fisheries groups with 27.3% and 11.4%, respectively (Table 1).

Table 1. The type of jobs demanded in industry

Position	Percentage (%)
Fisheries	11.4
Processing	9.1
Aquaculture	79.5
Management	27.3
Technical support	47.7
Marketing	43.2
Others	4.5

In the next five years (from 2019 to 2023), more than 50% of surveyed organizations agreed that up to five job positions will be available annually and few companies offered more than 10 positions (less than 10.0%), whereas, less than 20% organizations did not offer any job for this period (Figure 4).

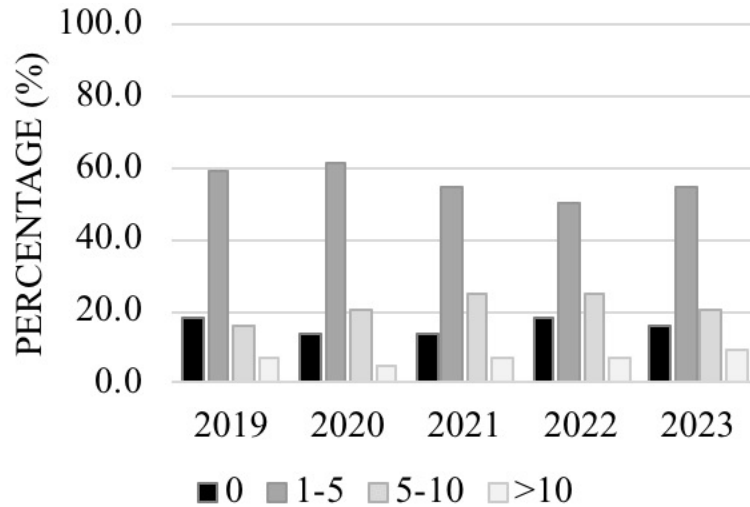


Figure 4. Available annual positions offered by industry

The results show that 81.8% employers required the graduates to take the training before they could fulfil their job fully. Besides, 53.0% of employers agreed that the retraining should be less than six months, while 37.0% of industry required a training from six months to a year. The training of more than a year was preferred by only 10.0% of organizations (Figure 5).

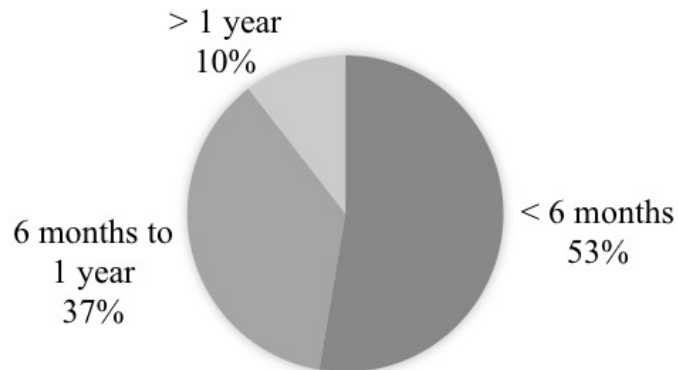


Figure 5. Training requirement and the length of training

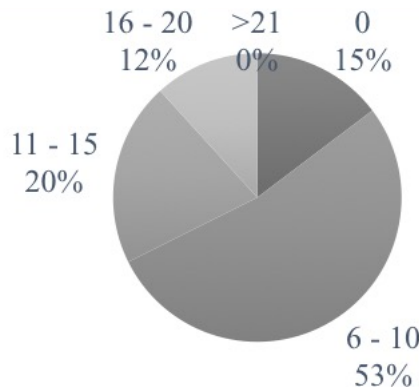


Figure 6. Potential position for graduates annually

There was 68.2% of organizations provided places for students to do internship or practical training program and about half of them (53.0%) offered 1-5 places, 20.0% offered 11-15 positions and no employers gave more than 21 places for internship/practical training (Figure 6).

3.2. Evaluation of graduate's (employee) performance

For morals/ethics group, among of seven characteristics, both characters of showed responsibility and participated in activities for society and respects other people's rights and is a good listener were graded as the highest score for excellent (13.64%). Level of satisfaction of respondents were fair and above for all characters, except for the character of can adjust to work as part of a team as both leader or team member which were considered as poor by 2.27% surveyed organisations. 61.36% respondents agreed that graduate students have good appropriate behaviour while 20.45% considered the graduates can adjust to work as part of a team as both leader or team member as fair satisfaction (Table 2).

Table 2. Evaluation of graduate's (employee) performance

Employment Characteristics	Level of satisfaction (%)				
	Excellent	Good	Average	Fair	Poor
A. Morals/Ethics					
1. Appropriate behavior	6.82	61.36	29.55	2.27	0.00
2. Self-discipline and punctuality	6.82	47.73	34.09	11.36	0.00
3. Showed responsibility and participated in activities for society	13.64	50.00	25.00	11.36	0.00
4. Has a positive attitude in professional situations and expresses their morality and ethics effectively	9.09	59.09	25.00	6.82	0.00
5. Can adjust to work as part of a team as both leader or team member	4.55	43.18	29.55	20.45	2.27
6. Respects and follows rules and regulations of the company/institution/ society	15.91	56.82	20.45	6.82	0.00
7. Respects other people's rights and is a good listener	13.64	54.55	25.00	6.82	0.00
B. Subject Knowledge					
1. Ability in planning and managing production	4.55	25.00	38.64	29.55	2.27
2. Aquaculture facilities design	2.27	20.45	40.91	29.55	6.82
3. Fisheries facilities design	2.27	13.64	40.91	40.91	2.27

4. Water quality management	6.82	36.36	29.55	27.27	0.00
5. Feed and feeding strategies	6.82	25.00	40.91	25.00	2.27
6. Aquatic disease diagnosis and effective treatment	9.09	25.00	34.09	27.27	4.55
7. Ability to apply standardized quality control (GlobalGAP, ASC, VietGAP, Thai GAP, etc.)	4.55	29.55	20.45	36.36	9.09
8. Aquatic product marketing and sales skills	2.27	29.55	36.36	22.73	9.09
9. Knowledge of aquaculture sustainability	4.55	34.09	27.27	27.27	6.82
10. Knowledge of fisheries sustainability	2.27	25.00	31.82	34.09	6.82
11. Knowledge of environmental protection guidelines/legislation	9.09	29.55	22.73	27.27	11.36
12. Understanding of ecological risks driven by aquaculture/fisheries activities	9.09	29.55	36.36	20.45	4.55
13. Understanding of socio-economic risks driven by aquaculture/fisheries activities	4.55	31.82	31.82	29.55	25.00
14. Knowledge of drivers and requirements of international and domestic markets' for aquaculture/fisheries products	9.09	27.27	27.27	29.55	6.82
15. Ability to develop and improve relevant Management Practices in fisheries and aquaculture for specific aquatic environments	2.27	25.00	47.73	15.91	9.09
16. Ability to improve their academic progress and keep up to date with developing situations in the aquaculture/fisheries markets and in global society	4.55	38.64	29.55	22.73	4.55
17. Technical ability when training fish farmers	6.82	31.82	40.91	15.91	4.55
C. Cognitive skills					
1. Possesses analytical thinking abilities	6.82	36.36	6.82	27.27	2.27
2. Can apply theoretical and practical knowledge to real life situations	2.27	38.64	29.55	29.55	0.00
3. Can apply their knowledge and skills to solve problems and synthesize solutions whilst adhering to precautions	4.55	31.82	25.00	25.00	2.27
4. Possesses research design skills	4.55	20.45	47.73	27.27	0.00
D. Interpersonal skills and responsibilities					
Has taken responsibility for their assignment (individual / group)	9.09	47.73	29.55	13.64	0.00
Expresses appropriate opinions	6.82	36.36	36.36	20.45	0.00
Can adjust to work in a team both as leader or follower	6.82	31.82	40.91	15.91	4.55
Self-development of both their academic and professional career	6.82	36.36	31.82	25.00	0.00
International collaboration ability / English communication skills	2.27	18.18	29.55	31.82	18.18
Time management and planning skills	2.27	25.00	34.09	34.09	4.55
Economic and business skills	4.55	22.73	31.82	34.09	6.82
E. Numerical analysis, communication and information technology skills					
1. Can use their communication skills effectively (Listening, Speaking, Reading, and Writing) to communicate with others in group meetings, project workshops and presentations	4.55	36.36	38.64	20.45	0.00
2. Can use information technology for communication in appropriate ways	6.82	29.55	47.73	15.91	0.00
3. Possesses skills to search information from the internet	4.55	40.91	38.64	15.91	0.00
4. Possesses data collection and analysis skills	4.55	27.27	50.00	18.18	0.00

For subject knowledge group, although the level of satisfaction of all professional knowledge were graded as excellent, the percentage was low, only 10.0% of all respondents. Among seventeen professional knowledge areas, level of satisfaction of sixteen areas were evaluated as poor, only

knowledge of water quality management was considered fair and above. Especially, 25.0% and 11.36% employments considered that graduates had poor understanding of socio-economic risks driven by aquaculture/ fisheries activities and poor knowledge of environmental protection guidelines/ legislation, respectively. Additionally, 9.09% organization considered the graduate's ability to apply standardized quality control (Global GAP, ASC, VietGAP, Thai GAP, etc.), aquatic product marketing and sale skills and the ability to develop and improve relevant management practices in fisheries and aquaculture for specific aquatic environments as also poor.

For cognitive skills, the employers had high satisfaction on cognitive skills of graduates, only few organisations (2.27%) graded the skill of possesses analytical thinking abilities and the skill of apply their knowledge and skills to solve problems and synthesize solutions whilst adhering to precautions as poor. The rest of skills were considered as fair and above.

For interpersonal skills and responsibilities, there were four out of seven interpersonal skills and responsibilities were considered as poor satisfaction, including the skill of adjust to work in a team both as leader or follower (4.55%), time management and planning skills (4.45%), economic and business skills (6.82%), and especially, for international collaboration ability/ English communication skills (18.18%).

For numerical analysis, communication and information technology skills, the employers satisfied with numerical analysis skills of student with no evaluation of poor performance. All skills were graded as fair and above.

3.3. Required characteristics of graduates (employees)

The required characteristics of graduates was shown in table 3

Table 3. Required characteristics of graduates (employees)

Characteristics	Requirement level (%)				
	Absolutely necessary	Necessary	Useful	Neither useful nor not useful	Not required
A. Morals/Ethics					
1. Appropriate behavior	79.55	20.45	0.00	0.00	0.00
2. Self-discipline and punctuality	86.36	13.64	0.00	0.00	0.00
3. Showed responsibility and participated in activities for society	95.45	4.55	0.00	0.00	0.00
4. Has a positive attitude in professional situations and expresses their morality and ethics effectively	75.00	25.00	0.00	0.00	0.00
5. Can adjust to work as part of a team as both leader or team member	56.82	43.18	0.00	0.00	0.00
6. Respects and follows rules and regulations of the company/institution/ society	81.82	18.18	0.00	0.00	0.00
7. Respects other people's rights and is a good listener	75.00	25.00	0.00	0.00	0.00
B. Subject Knowledge					
1. Ability in planning and managing production	61.36	36.36	2.27	0.00	0.00
2. Aquaculture facilities design	38.64	54.55	6.82	0.00	0.00
3. Fisheries facilities design	22.73	54.55	22.73	0.00	0.00
4. Water quality management	79.55	20.45	0.00	0.00	0.00
5. Feed and feeding strategies	65.91	34.09	0.00	0.00	0.00
6. Aquatic disease diagnosis and effective treatment	81.82	18.18	0.00	0.00	0.00

7. Ability to apply standardized quality control (GlobalGAP, ASC, Viet GAP, Thai GAP, etc.)	36.36	59.09	4.55	0.00	0.00
8. Aquatic product marketing and sales skills	50.00	47.73	2.27	0.00	0.00
9. Knowledge of aquaculture sustainability	45.45	52.27	2.27	0.00	0.00
10. Knowledge of fisheries sustainability	34.09	54.55	11.36	0.00	0.00
11. Knowledge of environmental protection guidelines/legislation	47.73	47.73	4.55	0.00	0.00
12. Understanding of ecological risks driven by aquaculture /fisheries activities	40.91	56.82	2.27	0.00	0.00
13. Understanding of socio-economic risks driven by aquaculture/fisheries activities	43.18	54.55	2.27	0.00	0.00
14. Knowledge of drivers and requirements of international and domestic markets' for aquaculture/fisheries products	45.45	52.27	2.27	0.00	0.00
15. Ability to develop and improve relevant Management Practices in fisheries and aquaculture for specific aquatic environments	52.27	45.45	2.27	0.00	0.00
16. Ability to improve their academic progress and keep up to date with developing situations in the aquaculture/fisheries markets and in global society	59.09	40.91	0.00	0.00	0.00
17. Technical ability when training fish farmers	65.91	34.09	0.00	0.00	0.00
C. Cognitive skills					
1. Possesses analytical thinking abilities	77.27	22.73	0.00	0.00	0.00
2. Can apply theoretical and practical knowledge to real life situations	68.18	31.82	0.00	0.00	0.00
3. Can apply their knowledge and skills to solve problems and synthesize solutions whilst adhering to precautions	79.55	20.45	0.00	0.00	0.00
4. Possesses research design skills	54.55	43.18	2.27	0.00	0.00
D. Interpersonal skills and responsibilities					
1. Has taken responsibility for their assignment (individual / group)	88.64	11.36	0.00	0.00	0.00
2. Expresses appropriate opinions	65.91	34.09	0.00	0.00	0.00
3. Can adjust to work in a team both as leader or follower	54.55	45.45	0.00	0.00	0.00
4. Self-development of both their academic and professional career	61.36	38.64	0.00	0.00	0.00
5. International collaboration ability / English communication skills	45.45	50.00	4.55	0.00	0.00
6. Time management and planning skills	59.09	40.91	0.00	0.00	0.00
7. Economic and business skills	40.91	59.09	0.00	0.00	0.00
E. Numerical analysis, communication and information technology skills					
1. Can use their communication skills effectively (Listening, Speaking, Reading, and Writing) to communicate with others in group meetings, project workshops and presentations	68.18	31.82	0.00	0.00	0.00
2. Can use information technology for communication in appropriate ways	59.09	40.91	0.00	0.00	0.00
3. Possesses skills to search information from the internet	50.00	50.00	0.00	0.00	0.00
4. Possesses data collection and analysis skills	63.64	34.09	2.27	0.00	0.00

All employers reported that all the characteristics regarding morals or ethics are necessary, especially, 95.45% and 86.36% respondents agreed that it is absolute necessary for graduates to showed responsibility and participated in activities for society and self-discipline and punctuality.

For subject/ professional knowledge, all seventeen professional knowledge areas were considered as useful and necessary for graduate. The most important knowledge which were required

by employers were aquatic disease diagnosis and effective treatment (81.82%), following by water quality management (79.55%), feed and feeding strategies and technical ability when training fish farmers (65.91%).

Similarly, all for areas of cognitive skills were identified as (absolute) necessary, few employers (2.27%) considered the possesses research design skills as useful.

For seven areas of interpersonal skills and responsibilities, only the international collaboration ability/ English communication skills was evaluated as useful by few organizations (4.55%), and the rest areas were considered as necessary and absolutely necessary.

For numerical analysis, communication and information technology (IT) skills, according to employers, all four areas of this part were necessary for graduate students and only 2.27% of respondents reported that the possesses data collection and analysis skills were useful.

3.4. Pros and Cons of graduates (employees)

The assessment of industries about strengthen and weakness of employees were shown in table 4.

Table 4. Pros and Cons of graduates (employees)

Skills	Strengthen	Weakness
Knowledge of theory	72.73	27.27
Professional skills	45.45	54.55
Foreign language skills	6.82	93.18
Information technology skills	45.45	54.55
Continual improvement ability	38.64	61.36
Working with others in a team as both leader and team member	40.91	59.09
Knowledge of environmental management and problem solving skills	52.27	47.73
5 virtues (hard-working, patience, be economical, sincerity, gratefulness)	68.18	31.82

Part four were designed to survey the employer's evaluation on strengthen and weakness of employees/ graduates. 72.73% of companies agreed that the graduated students have good theory knowledge while 93.18% organizations considered that English skills of students are limited. Similarly, professional, IT, team-work skills, continual improvement ability were graduate's weaknesses and needed an improvement.

4. Discussion

This survey was a part of Tuning environmental competences in Asian fishery education for sustainable development (TUNASIA) project from 2018 - 2019, which has been involved by numbers of European and Asian Institutions. The aim of this part was to investigate the employers' satisfaction for bachelor graduates in fisheries and aquaculture from TUAU, NLU and NTU in Vietnam in order to improve quality of fisheries and aquaculture training program and to satisfy employer's need.

The survey was conducted to understand employers' evaluation on graduated student's performances as well as to identify the knowledge and skills that the employers need from graduates and to predict the current and future demand on the jobs/positions.

Based on the results of survey, aquaculture was still on the high demand on the jobs market in the future and up to five available places were given per organizations. This information will be served as important reference for institution to continue offering aquaculture program.

The results show that majority employers required graduates to take additional training before hiring them. In additional, based on the results of the evaluation of graduate's (employee) performance and the required characteristics of graduates (employees), numbers of skills and knowledge of graduates were required to improve in order to satisfy employer's need. Thus, it is suggested that the Universities should work closely with industry for filling out those gaps.

It is the fact that graduates from the three Universities have strong knowledge of theory, but remain problems with professional skills, information technology skills, foreign language skills and working with others in a team as both leader and team member. It is strongly recommended that all universities should review and adjust the curriculums to improve those skills for students. For example, adding soft skill subjects, designing some subjects in English, developing student exchange programs, applying technology in teaching and learning and collaborating with industry in research and improve practical skills and training quality.

5. Conclusion

This survey was designed in several sections, which aimed to understand employer's evaluation and requirement on graduate's performance. The results show that for morals/ethics section, all characteristics were considered as good, but attitude toward team-work were graded as poor. In the subject knowledge section, knowledge of environmental protection guidelines/legislation and understanding of socio-economic risks driven by aquaculture/fisheries activities were not adequate. Students were required to improve professional, language, team-work, leadership and IT skills. In the future, there will be less job demand from government while higher demand come from private sectors. Most employers offer up to 5 positions annually and aquaculture attracts the most demand of industry.

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