Advances in Biological Sciences Research, volume 16
6th International Conference of Food, Agriculture, and Natural Resource (IC-FANRES 2021)

Aquaculture Employment and Economic Diversification:
Digital Technology, Training and Sector Development Options in Brunei

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ABSTRACT
Facing the question of economic diversification for income and employment enhancement, the answer to the question of whether incorporation of modern digital technology and sectoral training facilities may replace imported labour for local youth, the study taking up the case study of the aquaculture sector in fisheries industry. Aquaculture is of high importance in Brunei because of its pristine tropical water and good current flows. The study is focused on the manpower training and development facilities as an effort to give ways to the local youth for employment in the sector which is dominated by imported labour at present. Primary data has been collected from 154 respondents through Google survey forms which has been analysed using SPSS and have applied descriptive analysis, Kruskal Wallis test, Cronbach Alpha, Spearman Correlation, ANOVA, logistic regression and multiple linear regression related econometric analysis. Findings show that education, manpower training and development, through the increase in work productivity, is vital in the aquaculture sector and is a valid option for employment for local youth. The interesting results demonstrate that e-training and instructor-led classroom training are significant when tested for whether and what form of training is needed, for interest to join the training program and for willingness to accept an internship employment while on-site and audio video training are not significant. Familiarity with the fishing industry and age has not changed the results while education has come up as significant for all except for the need of and forms of trainings' choice. In short, application of digital technology may have the potential to enhance the employment attractiveness for educated youth because of the efforts of diversification of job space and activities by the sector.

Keywords: *Aquaculture, Digital technology, E-learning, SPSS, Training and development.*

1. INTRODUCTION

This Aquaculture has an immense commitment to overall food creation, being one of the quickest developing food divisions and a critical monetary movement for some nations [1]. In 2012, aquaculture contributed 42.2% to add up to fish production. Brunei Darussalam is one of South-east Asia's top customers of fish with the per capita utilization of 40 kg/annum. It is practically identical with that of most ASEAN nations. Brunei Darussalam is a quiet and sovereign state with just 5,765 km^2 of land and an expected populace of 433,285 out of 2019. The nation is honored with bountiful biodiversity from its widely varied vegetation, adequate access to water and power, and constant money related help towards training and medicinal services [2]. The country has four major rivers. It consists of 161km of coastline as well as 8600 km of continental shelf and 36,600km^2 of offshore economic zone. The climate of Brunei is generally hot and humid throughout the year. Hence, the potential of the aquaculture sector is considerably high.

In any case, insights have indicated that the fisheries department only contributes 0.4% to Brunei's GDP. Around 60% of the nation's GDP is from oil and gas. The high dependence on this sector squeezes Brunei's monetary solidness and security. Therefore, by broadening the improvement of different parts will assist the economy with ensuring future monetary security. As indicated by [3], the fishing industry in Brunei is one of the biggest supporters of the nation's income, which led to the Government's initiative to create employment

opportunities and increase the GDP of the country by launching a 5-year strategy plan, Strategic Plan 2016-2020 in 2017. The Ministry of Primary Resources and Tourism (MPRT) aims to create employment for locals, particularly in other sectors such as forestry, agricultural and aquaculture among the youth by the launching of the Strategic Plan. It also predicts to generate 2,500 new jobs to meet the desired target.

In the present current innovation, e-Learning or e-Training makes a quicker route in spreading logical data and information on agribusiness and aquaculture to ranchers and different partners [4]. As per [3] advanced innovation is probably the quickest method of correspondence mechanical developments that prompted e-Learning modules that can be conveyed through cell phones, short video movies, databases and web-based interfaces. Instruction assists with improving and incrementing aquaculture commercial centre's work profitability, utilizing the abilities of aquaculture staff. E-Learning is a suitable technique that can be made open to anybody as it permits them to work and study simultaneously [5-6].

2. DATA DESCRIPTION AND METHODOLOGY

The primary data was collected between April and May 2020 and obtained from a comprehensive questionnaire to gather quantitative data related to aquaculture as per the subject matter, primarily focusing on training methods, and farm-specific information such as activities, local engagement, training methods and improvements. A 6-points Likert scale (6-LS) has been used in the survey which measured each index ranging from strongly agree to strongly disagree (1-6, respectively) [7]. Asian ethnic tend to choose the middle score or non-partisan for their responses. Hence, the choice of the 6-points Likert scale was sensible. A sample size of 154 had been gathered and collected from Google Form and the results have been converted to MS Excel file. The questionnaire is then evaluated by using SPSS to compute the data and analyse their significance. The target group for this data research is mostly students (youth).

2.1. Demographics

The questionnaire has a demographic section consisting of questions about gender (GEN), age (AGE) and highest level of education (EDU). There is a checkbox type question, with yes and no option, related to 10 different categories of activities involved in production methods of Aquaculture and fishing industry named as Activities (ACTi) which are feeding and fertilizing (A1), harvesting (A2), processing and marketing (A3), farm preparation (A4), maintenance (A5), fish stocking (A6), security (A7), experimental breeding (A8), technician (A9) and fish grading (A10).

2.2. Descriptive Analysis

Three categories from the survey have been selected to run the descriptive analysis, named as 'preferred training methods' (TMi), 'preferred working hours' (WRKi) and 'preferred organizational aspects' (ORGi). TMi has 4 sub-categorical variables, which are interactive method hands on training (TM1), instructor led classroom training (TM2), computer based and e-learning training (TM3) and visual audio training (TM4). WRKi has 5 sub-categorical variables, namely, full time work schedule (WRK1), part time work schedule (WRK2), fixed work schedule (WRK3), flexible work schedule (WRK4) and rotating shift work schedule (WRK5). Lastly, ORGi has 7-sub categorical variables and they are quality (ORG1), appearance (ORG2), management (ORG3), commute distance (ORG4), salary (ORG5), flexibility (ORG6) and career stability (ORG7). All these sub-categorical variables are obtained by 6-point Likert scale (6-LS) which range from strongly agree, moderately agree, slightly agree, slightly disagree, moderately disagree to strongly disagree.

2.3. Methods of Data Analysis

This study has employed two types of data analysis have been applied in this study, namely statistical analysis and econometric analysis using SPSS version 22. The tests that have been carried out in the statistical analysis include Cronbach's Alpha, ANOVA, Kruskal-Wallis, logistic regression, and Kolmogorov Smirnov and Shapiro Wilk. Whereas, for the econometric analysis, multiple linear regression models has been used to analyse the data. The selection of these techniques have been made after reviewing vast variety of techniques from literature including stepwise linear function technique [5], logistic regression [8-9], variables ranking methodologies [10-13], mathematical rationale for regulatory variables [14], multi-criteria decision making methodologies [15], advanced econometric analysis [6, 16] data mining based logic [17-18] and fuzzy based multi-criteria decision making methodologies [15, 19]

Cronbach's alpha is used to measure reliability. A reliability coefficient of .70 or higher is considered acceptable and a high level for alpha means that items in the test are highly correlated [20]. The result of Cronbach's alpha in this study is 0.747. The value is considered to be a good reliability value. Normality test is an important factor when executing a data. Kolmogorov-Smirnov and Shapiro Wilk are used to test normality. The result was analysed using a descriptive analysis and the observation of significant values for all p-values are $p<0.01$. A p - value less than 0.01 ($p<0.01$)

signifies a non-normal distribution (J, 2005). Hence, a non-parametric test is being used in this study.

2.3.1. ANOVA and Kruskal Wallis

In this study, ANOVA and Kruskal Wallis have been tested to compare their significance. However, in cases where these pre-test criteria are not fulfilled for the ANOVA, the Kruskal Wallis test is the better alternative. The Kruskal–Wallis is used as a nonparametric to compare the means of multiple groups. Four main questions, they are as follows; I am interested to join a training program in the fishing industry? (ENG1); I am willing to accept an internship employment? (ENG2); I am familiar with the fishing industry in Brunei (FAM); and I think training is needed in the fishing industry (TR1) have been chosen to run and compare both test with selected variables such as AGE, GEN, TMi, WRKi and ORGi. Respondents have been asked to answer each index from strongly agree to strongly disagree (1-6, respectively).

2.3.2. Logistic Regression

Logistic regression analysis has been used in this study to find the relationship between 10 sub categories of ACTi (A1, A2, A3, A4, A5, A6, A7, A8, A9 and A10) where it has been obtained using a checkbox with a 'Yes' or 'No' option and three of independent categorical variables, name as TMi, WRKi and ORGi. Logistic regression is the right technique to be used as a predictive analysis where, given the values of independent variables, predictions of dependent variables are established through the cumulative standard logistic distribution function [21]. Moreover, logistic regression is the appropriate regression analysis when the dependent variable is dichotomous (binary) and it is used to describe data and to explain the relationship between one dependent binary variable and one or more nominal, ordinal, interval or ratio-level independent variables [22].

2.3.3. Econometric Analysis

A few investigations recommended by utilizing econometric model, the connection among dependent and independent variables have a basic method to make imperative data. There are various regression approaches which may be an option like the use of ordinary least square on survey data [23]. Bank risk scores are regressed against operating efficiency measures [16] as well as in another usage of a variant regression approach to establish the ranks of banks has been used in [12, 15]. Variables calculated using stochastic frontier approach have been used in regression in order to understand the relationship between inefficiency scores and the number of ATMs [21]. Multiple linear regression (MLR) model has been used to analyse this study. MLR is used as a tool to foresee and explain the correlation between one dependent variable and two or more independent variables. Two MLR data set have been executed, one set is the MLR full set (MLRFS) with FS representing full set of variables used in the regression. The other set is the MLR removed variables (MLRRV) where RV means that some insignificant variables have been removed from the regression. MLRFS means the regression has been tested and run using all the initial independent variables against the outcome. Once the test has been run, the results that had obtained no significant values have been eliminated. From there, the MLR is then run and tested for the second time, excluding the insignificant p-values that were obtained initially. The results of the new MLR set is called the, MLRRV which have been executed and run to obtain a better significant result. Those missing values from the MLRRV have been labelled as RV, which means the insignificant variable has been removed. The following section reports the results of the analysis which have been mentioned in this section.

3. RESULTS AND DISCUSSION

3.1. Demographic Results

The demographic variables obtained are presented in Table 1. Three dependent variables namely, GEN, AGE and EDU have been used to show the demographic results of the 154 respondents obtained from the survey. GEN came up with two categories i.e. females (F) and males (M). EDU has the categories like O-level and below (O-L), A level or National Diploma (ND), Higher National Diploma holder (HnD), Bachelor's degree (BCH), Master's degree (MST) and Ph. D. degree (PHD). AGE comprises the choices of below 18 years old (B18), 18-25 years old, 26-55 years old and above 56 years old categories.

Table 1. Descriptive Stat of respondents

Var Cats	Freq	%	Var Cats	Freq	%
Variable GEN			Variable EDU		
M	81	52.6	O-L	12	7.8
F	73	47.4	ND	22	14.3
Variable AGE			HnD	11	7.1
B18	5	3.2			
18-25	93	60.4	BCH	91	59.1
26-55	53	34.4	MST	17	11
A56	3	1.9	PhD	1	6

Note: Var Cats = Variable Categories

In table 1, the gender of the respondents for this survey have been extracted from 154 respondents. Frequency (Freq.) of females is 47.4% and of males is 52.6% of the total sample respondents. The highest average age group is between 18-25 years old with 60.4% and a total number of 93 people, followed by the age group of 26-55years old with 33.4% and a total of 53

people. This study indicates that most of the interested parties are found in the youth group. In addition to that, 59.09% of the respondents held a Bachelor's Degree. Grown-ups with more elevated levels of education are commonly bound to take an interest in the work power.

Table 2. Drop-out analysis for 'preferred training methods' (TM_i), 'preferred working hours' (WRK_i) and 'preferred organizational aspects' (ORG_i)

Categories	Sub Categories		3-LS (%)					
			1	2	3	4	5	6
Preferred Training Methods	Hands on Training	TM1	81.9	15.5	2.6	0	0	0
	Instructor Led Classroom Training	TM2	41.3	32.3	21.9	3.2	1.3	0.0
	Computer Based and E-learning Training	TM3	12.9	23.2	43.9	11.0	3.9	5.1
	Visual Audio Training	TM4	21.3	32.9	34.2	6.5	1.9	3.2
Preferred Working Hours	Full Time Work Schedule	WRK1	29.7	24.5	27.1	9.0	5.2	3.9
	Part Time Work Schedule	WRK2	17.4	40.0	31.0	6.5	0.6	3.9
	Fixed Work Schedule	WRK3	27.1	28.4	26.5	11.0	3.9	2.6
	Flexible Work Schedule	WRK4	27.7	32.3	21.3	10.3	4.5	3.2
	Rotating Shift Work Schedule	WRK5	21.3	27.7	23.2	11.6	8.4	7.1
Preferred Organizational Aspect	Quality	ORG1	67.1	28.4	3.9	0.0	0.0	0.0
	Appearance	ORG2	65.2	29.0	5.2	0.0	0.0	0.0
	Management	ORG3	72.9	21.9	3.9	0.6	0.0	0.0
	Commute Distance	ORG4	29.7	37.4	25.8	5.8	0.6	0.0
	Salary	ORG5	45.8	36.8	13.5	2.6	0.6	0.0
	Flexibility	ORG6	51.6	30.3	14.8	2.6	0.0	0.0
	Career Stability	ORG7	59.4	31.6	7.1	1.3	0.0	0.0

The outcome is likewise being upheld by [17], who has expressed that sexual orientation and age in aquaculture have gotten expanding consideration. Since a greater part of the age group are from 18-25 years of age (youth), the outcome proposes that a professional framework and the use of innovative courses add to the capability of youngsters in fishing networks ought to be executed [26]. This will diversify the employment options for youth. Bruneians are familiar with the fishing industry in relation to the age group and highest level of education.

3.2. Statistical Descriptive Results

A descriptive analysis has been run to find the results of three sets of categories, TMi, WRKi and ORGi (Table 2). All the results from these 3 sets of categories are presented in table 2, 3 and 4 accordingly. Results from 154 respondents in regards to TMi showed that 100% of the respondents agreed to TM1, followed by TM2 with a percentage of 95.5%, then TM4 with a percentage of 88.4% and TM3 came last, with a total of 80%. The result indicates that TM1 showed the most preferred effective method of training when working in the aquaculture sector.

Larger part of the individuals despite everything incline toward up close and personal and hands-on training [24]. Notwithstanding that E-Learning or e-Training strategy is another more prominent approach to overhaul instructive frameworks in decreasing the instructive hole among provincial and urban zones, and in giving expanded and equivalent investigation open doors for country individuals and individuals with overwhelming timetable [7]. Aquaculture is said to be a global activity where e-Learning can be applied to perform a rapid and efficient result in terms of teaching, learning and training [24]. Therefore, usage of e-Learning or e-Training in the aquaculture segment can permit individuals to work and study simultaneously absent a lot of confusion.

For WRK1, all the 'agreed' responses have been summed up to make it easier to interpret the results and it showed that WRK2 has the highest percentage of 88.4%, followed by WRK3 with a total of 83%, then WRK1 and WRK4 that have the same percentage of 81.3% and lastly WRK5 with a total percentage of 72.7%. Working hours of a company or industry are considered, one of the most important factors when working.

Results of organization aspects have been obtained from 154 respondents with 7 sub-categories to choose from (ORGi) indicated that 72.9% of the respondents have strongly agreed in management of the organization (ORG3) as the most important factor to them when working in a company or industry. Followed by, OR1 with a percentage of 67.1%, 65.2% for ORG2, 59.4% ORG7 and 45.8% for ORG5 (respectively).

3.3. ANOVA and Kruskal Wallis Results

ANOVA (F-test) and Kruskal Wallis (KW) have been run in this analyse for both p-values obtained and then compared. A total sample size of 154 has been tested, and divided into 4 groups (ENG1, ENG2, FAM and TR1) respectively and 18 selected variables have been

significantly chosen to run analyse for both test and divided into three groups with 6 selected significant variables: AGE, EDU, TM1, TM2, TM3 and TM4 (Table 3). Whilst, in table 4 only TR1 has been selected with 16 significant variables (TM1-TM4, WH1-WH5 and ORG1-ORG6).

Table 3. ANOVA and Krusal Wallis results for ENG1, ENG2 and FAM as dependent variable

	AGE		EDU		TM1		TM2		TM3		TM4	
	F,p	KW,p	F,p	KW,p	F,p	KW,p	F,p	KW,p	F,p	KW,p	F,p	KW,p
ENG1	0.38	0.361	.056(*)	.045(*)	0.08(*)	0.064 (*)	.027(*)	.044(*)	.041(*)	.071(*)	0.807	0.771
ENG2	0.299	0.401	(***)	(***)	.011(**)	(***)	(***)	(***)	.023(**)	.082(*)	.095(*)	.055(*)
FAM	(***)	(***)	.092(*)	0.172								

Significance: *p*-value at: *<0.1, **<0.05, ***<0.01

As can be seen from table 3, when comparing ENG1 and ENG2 with EDU, both of the outcomes showed similar level of significance in both tests. Similar results have been obtained in TM2 and TM4. However, for ENG2, the TM1 and TM3 presented differences in their level of significance. TM1 obtained a significant value of, p < 0.05** for the F-test and p<0.01*** for the KW-test. Whereas, for TM3 case, a p-value of < 0.05** has been obtained in the F-test and p- value of <0.1* in the KW-test [25].

Kruskal Wallis test showed a better significant result in the TM1. However, in TM3, a better significant value has been obtained using ANOVA test. ANOVA test has also performed better for FAM when EDU was selected as their significant variable, while KW showed no significance at all. In Table 4, 16 selected variables have been chosen to run with TR1. The outcome for KW-test has obtained better results of significance when compared to F-test. The ANOVA test only presented 2 significant results for TM3 and TM4 of which the KW test could not obtain.

Table 4. ANOVA & Kruskal Wallis Results for DV TR1

IV	F	KW
TM1	0.192	(***)
TM2	0.221	(***)
TM3	(***)	0.14
TM4	.021**	0.548
WRK1	0.426	.085**
WRK2	0.212	0.335
WRK3	0.224	0.729
WRK4	0.444	0.130
WRK5	0.313	***
ORG1	0.374	***
ORG2	0.209	***
ORG3	0.742	*
ORG4	0.745	***
ORG5	0.436	***
ORG6	0.711	.021**
ORG7	0.906	***

Significance: *p*-value at: *<0.1, **<0.05, ***<0.01

A total of 11 out of 16 variables have obtained significance using the KW test. To summarize the following, since both of the test depend on two important factors; sample size and normality. Survey questionnaire is not normally distributed. However, in theory, a sample size of more than 30 is assumed to be normally distributed data, which assumes ANOVA test is more preferred as it is more powerful than Kruskal Wallis. Kruskal Wallis is a non-parametric test as it does not meet normality, while ANOVA meets normality. In this case, a normality test has been run using Kolmogorov-Smirnov and Shapiro Wilk. The result has been analyzed and it signifies a non-normal distribution, hence a non-parametric test should be used. Therefore, the Kruskal Wallis test is the preferred in this study.

3.4. Logistic Regression Results

The ACT_i set of variables have been converted into a quantitative variable using binary transformation. activities as a dependent variable has been run against all the independent variables of each of the three categories (TM_i, WRK_i and ORG_i) separately. The results have been assessed for all 160 coefficients from a total of 30 logistic regressions and have found that unfortunately, there are only few statistically significant coefficients.

For ACTi as DV, vis-à-vis TM_i set of variables as IV, there are only 3 out of 40 coefficients that have been found as significant. Whereas, ACTi as DV, vis-à-vis WRK_i set of variables as IV, showed only 10 out of 50 coefficients have been statistically significant. For the last regression only 2 out of 70 coefficients have been significant, where ACT_i as DV, vis-à-vis ORG_i set of variables as IV. Since, the number of results for the significant values are minimal, logistic regression analysis would not be as effective and reliable to predict the outcome. Hence, multiple linear regression is then tested and used to get a better result of the analysis.

3.5. Econometric Results

Two MLR dataset have been run using this analysis, namely MLR_{FS} and MLR_{RV}. In the MLR_{RV} dataset, four

categories (FAM, TR1, ENG1 and ENG2) have been selected as the DVs, and twelve as the IVs. The complete multiple regressions have been provided in the Table 5. However, there are only few significant relationships in various multiple regressions with only few stars appearing in front of various independent variables for showing significance of variables.

Table 5. The complete results of multiple regressions

Multiple regressions a results for TR1, ENG1 & ENG2

DV (Cols) / IV (Rows)	TR1	ENG1	ENG2
AGE	-0.085	-0.149	-0.208
EDU	-0.013	0.196***	0.161*
TM1	0.241**	0.035	-0.253
TM2	0.19***	0.165	0.257**
TM3	0.035	0.317***	0.285**
TM4	-0.074	-0.134	-0.138
ENG1	0.025		
ENG2	0.008		
CONST.	1.026***	1.653**	2.064***
R2 / F	0.378***	0.111***	0.120***

Multiple regression b results for TR1, FAM & ENG2

DV (Cols) / IV (Rows)	TR1	FAM	ENG2
AGE	-0.038	-0.736***	-0.228
EDU	-0.036	0.205**	0.210**
ENG1	0.043	0.09	
ENG2	0.009	0.135	
WRK1	-0.022		-0.019
WRK2	-0.043		-0.123
WRK3	0.032		0.052
WRK4	0.079		0.026
WRK5	0.704***		-0.018
CONST.	1.604***	3.898***	2.796***
R2 / F	0.094	0.144	0.38

Multiple regression c results for TR1, ENG1 & ENG2

DV (Cols) / IV (Rows)	TR1	ENG1	ENG2
AGE	-0.078	-0.17	-0.194
EDU	-0.001	0.2*	0.202*
ENG1	0.056		
ENG2	-0.002		
ORG1	0.196*	-0.268	-0.076
ORG2	0.345***	-0.077	-0.266
ORG3	-0.184	0.196	0.442
ORG4	0.108*	0.144	0.089
ORG5	-0.055	-0.093	0.03
ORG6	0.165**	-0.003	0.028
ORG7	0.189**	0.177	0.182
CONST.	0.827***	2.431***	1.876***
R2 / F	0.478***	0.048	0.77

Multiple regression d results for TM1 – TM4

DV (Cols) / IV (Rows)	TM1	TM2	TM3	TM4
ENG1	0.039	0.032	0.156	0.07
ENG2	0.071*	0.113	0.1	0.02
CONST.	1.279***	1.48***	2.094***	2.163***
R2 / F	0.022	0.043**	0.072***	0.01

Significance: *p*-value at: *<0.1, **<0.05, ***<0.01

Therefore, selected independent variables in the MLRRV dataset i.e. AGE, EDU, TM_i, $ENG1_i$, $ENG2_i$, WRK_i, and ORG_i have been chosen for final regressions which have been described in Tables 6 and 7.

Table 6. Multiple Regression 1 results for TR1

DV	TR1	TR1
MLR	FS	RV
IV (Below)		
AGE	-0.085	RV
EDU	-0.013	RV
TM1	0.241	0.134
TM2	0.190 (***)	0.137 (***)
TM3	0.035	RV
WRK4	0.079 (**)	0.060 (*)
WRK5	0.704 (***)	-0.055 (*)
ORG1	0.196 (*)	0.134
ORG4	0.108 (*)	0.074
ORG6	0.165 (**)	-0.183 (***)
ORG7	0.189 (**)	0.162 (**)
Const	1.604 (***)	0.758 (***)
R^2 / F	0.094	0.233 / (***)

Significance: *p*-value at: *<0.1, **<0.05, ***<0.01

It is seen that none of the correlations coefficients are higher than .80 in these tables 8a and 8b. In the FAM category, there are 4 selected independent variables named AGE, EDU, ENG1 and ENG2. ENG1 and ENG2 have been removed in the MLRRV column because of their insignificant values. The result can be interpreted in such a way, 1% change in AGE will bring in 0.79% decrease in FAM and a 1% change in EDU will give 0.25% increase in FAM. Out of the twenty variables, two of them such as: AGE and EDU significantly affect the FAM in this study.

Table 7. Multiple Regression results for 4 sets of categories on selected significant variables from Respondents

DV	ENG1		ENG2		FAM	
MR	FS	RV	FS	RV	FS	RV
IV						
AGE	-0.17	RV	-0.208	RV	-0.788 (***)	-.79 (***)
EDU	0.2 (*)	0.181 (*)	0.161	0.16 (*)	0.250 (**)	0.25 (**)
TM1	0.035	RV	-0.253	RV		
TM2	0.165	RV	0.257 (**)	0.20 (*)		
TM3	0.317	0.288 (***)	0.285 (**)	0.24 (*)		
Const	1.65 (**)	1.468 (***)	2.064 (***)	1.17 (*)	3.898 (***)	4.16 (***)

R^2 / F	0.11 (***)	0.092 (***)	0.120 (***)	0.1 (***)	0.144	0.09 (***)

Significance: *p*-value at: *<0.1, **<0.05, ***<0.01

The R2 value in FAM represents how much percentage is explained by the equation. The regression in this study showed that only 7.7% of FAM (DV) is explained in the 2 IVs (AGE and EDU). Hence, the specification of the hypothesized model is not very good. However, both AGE and EDU significantly contributed to the model. As for TR1, 11 selected IVs (AGE, EDU, TM1, TM2, TM3, WRK4, WRK5, ORG1, ORG4, ORG6, and ORG7) have been run in this regression model and it resulted in removing 3 IVs (AGE, EDU and TM3) because of their insignificant values. TM2, WRK4, WRK5, ORG6 and ORG7 significantly contributed to the model. However, TM1, ORG1 and ORG4 did not.

Eight variables have been run with TR1 as their DV. One of the results from the TR1 suggested that 1% change in TM2 will provide 0.14% increase in TR1 and the R2 value is 0.190. The representation of this result showed that only 19% of the relationship of TR1 has been explained by those 8 IVs. Looking at these coefficients, it may be said that the model did not predict the dependent variable very well. Kwiatkowski–Phillips–Schmidt–Shin (KPSS) is based on linear regression. The regression equation has been obtained as it is shown below:

KPSS=0.758+0.134TM1 + 0.137TM2 + 0.060WRK4 - 0.055WRK5 + 0.134ORG4 + 0.074ORG4 - 0.183ORG6 + 0.162ORG7

A multiple regression has been carried out to investigate whether the five independent variables (AGE, EDU, TM1, TM2 and TM3) could significantly predict ENG1 and ENG2 results. The results in ENG1 and ENG2 indicated that the model explained 9.2% and 9.7%, respectively of the variance and that both models have been significant predictors with $p < 0.01$***. In other words, 1% change in EDU will provide 0.16% increase in ENG2, whilst in ENG1, will only give 0.18% increase. The differences between these two are very small. However, the coefficient results determined that the model did not predict the dependent variable very well.

3.6. Discussion

The industry presently has not taken care of the issues that are discovered, for example, absence of sufficient field offices, experienced educators, and very much planned educational plans for training. Appropriate labour is desperately expected to oversee and continue that development. The fundamental issue in the aquaculture segment is that local people are moderately less talented to perform pertinent undertakings because of deficient information and training. One approach to improve is to utilize inventive education with e-Learning, since 94.87% of Bruneians approach the web [26].

Local young people must be energized and proactive in the aquaculture sector as Brunei is honoured with immaculate tropical water and a great momentum stream. Not exclusively will this decrease the effectively high unemployment rate in Brunei, it can likewise add to the expansion in personal satisfaction and number of exceptionally gifted educated local people. The example of overcoming adversity of most aquaculture improvement generally relies upon exceptionally very much prepared experts [26]. Henceforth, the outcomes proposed that aquaculture in Brunei ought to be featured by executing training programs, aquaculture courses made accessible in school or higher institutions to improve Brunei's aquaculture sector.

4. CONCLUSION

This study has empirically examined whether local manpower training and development using digital technology (e-learning) in the aquaculture sector can help to diversify the employment options for youth in Brunei. It is concluded that manpower training and development is important to improve the quality of the industry. Using a sample of 154 respondents, the study finds about 93 youths (60.4% of the sample observations) are interested to perform a rapid and efficient result in terms of teaching, learning and training in the aquaculture sector. In spite of the fact that Brunei Darussalam marine fish aquaculture is still small-scale, it however showed a bright promising trend towards expansion and progress. This sector will enable the nation to broaden its economy and decrease its unemployment rate and dependence on importation of food, while giving food security affirmation for Brunei. In this manner, aquaculture is supposed to be a worldwide movement where e-Learning can be applied to improve financial enhancement of Brunei.

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