Survey on Students' Satisfaction with the Quality of Scientific Research Activities at Quang Nam University

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ABSTRACT

Surveying the satisfaction of stakeholders to improve the quality of university activities is a content that needs to be carried out periodically every year. However, Quang Nam University has never conducted an in-depth survey on the satisfaction of students with scientific research activities at the university. This study aims to identify factors affecting the satisfaction and quality of scientific research activities of students, thereby proposing appropriate improvement solutions. The study was conducted on 770 students from first to fourth year at Quang Nam University through a questionnaire consisting of 28 questions in 6 fields. The survey data was processed using SPSS 20.0 software to assess the reliability of the questionnaire through Cronbach's Alpha coefficient, find the hidden factor structure through EFA factor analysis and identify factors affecting satisfaction through multiple linear regression analysis. The research results show that research environment and lecturer support are the two factors that have the strongest impact on student satisfaction.

Keywords: Student, Scientific Research, Satisfaction Assessment, Quang Nam University.

Introduction

One of the core missions of higher education institutions is scientific research, which not only plays a crucial role in enhancing the quality of human resource training but also affirms the university's reputation and contributes to broader societal development. Scientific research is inherently linked to the improvement of teaching quality, serving as a vital bridge between theoretical knowledge and practical application. For students, engaging in research activities offers numerous significant benefits, including the development of critical thinking, problem-solving skills, and exposure to new knowledge. Moreover, it provides opportunities for students to build

professional competencies and establish a solid foundation for their future careers (Baker & DeDonno, 2020).

In the context of fierce competition between universities, the effectiveness of recruiting and retaining students depends on their satisfaction with the quality of activities at the university. Therefore, surveying the satisfaction of stakeholders in the fields of activities, including scientific research activities of students, is the content that the university is currently interested in. Through the survey to evaluate the quality of scientific research activities at the university, analyze the factors affecting satisfaction, identify the difficulties that students encounter and the needs that students want to be met when participating in scientific research. From there, propose appropriate solutions, amendments and supplements.

Research Objectives

This study aims to examine the level of student satisfaction with scientific research activities, identify factors affecting satisfaction and key challenges that students often encounter when participating in scientific research. From there, propose solutions to improve research quality and support academic development at Quang Nam University.

Literature Review

Many studies in Vietnam and around the world have shown the benefits of students participating in scientific research and analyzed the factors that affect student satisfaction. According to study of Baker and DeDonno (2020), students who participate in undergraduate research activities have higher research self-efficacy than their peers who have not participated in such activities. Through research, students learn countless valuable research skills, have increased research self-efficacy, and develop critical thinking skills. Educational policies need to be created to support research activities for undergraduates in order to increase participants' research self-efficacy. Martínez-Roget et al. (2020) conducted a study on students' satisfaction with Undergraduate Dissertation at the Faculty of Economics of the University of Santiago de Compostela (Spain), and the results showed that the perception of the skills acquired play a crucial role in students' satisfaction with Undergraduate Dissertation, conditioned by their perceived future usefulness and backed by personality and motivation elements that encourage their acquisition. The results also confirm the significant role played by the tutor, who emerges as an element that boosts the central relations of the model. Faced with perceptions of equal skill, students who had more personal contact with their mentors expressed greater satisfaction. The results of the study by Than & Khaing (2023) on factors affecting university student satisfaction in Myanmar showed that

among five latent variables, social factor, outcome-related factor and instructional factor had direct significant effects on student satisfaction when all variables were included. The personal and university factors had significant indirect effect on student satisfaction through the mediator of social factor. Specifically, consistent partial mediation was found between university factor and student satisfaction by social factor.

Nguyen et al. (2021)'s study on educational quality and student satisfaction in private university in Vietnam - FPT University Danang found that there are five components affecting student satisfaction, namely tuition, lecturers, serviceability, education program and infrastructure respectively.

Pham et al. (2018) conducted a field survey at University of Transport Ho Chi Minh City, Vietnam and identified five main factors affecting students' motivation for scientific research: 1) School policy; 2) Students; 3) Facilities; 4) Internship agency - enterprise; 5) Lecturers. Scientific research: 1) School policy; 2) Students; 3) Facilities; 4) Internship agency - enterprise; 5) Lecturers.

The study by Huynh et al. (2024) on factors influences scientific research activities of engineering students at An Giang University - Vietnam pointed out seven crucial factors influencing the motivation for scientific research among students in the technical disciplines. These factors include financial support, guidance from instructors, infrastructure and research equipment, student research activities, academic achievements, personal capacity, and interests. Notably, interest and research equipment are rated the highest in terms of their impact on students' research motivation. Furthermore, the research findings indicate that the majority of students in the technical disciplines are satisfied with the quality of education and support provided by the university, especially with regard to mentorship. Similarly, a survey of 600 students at the University of Electricity, Vietnam by Pham (2023) found that there are 5 factors affecting students' awareness of scientific research: student capacity, research purpose, instructor, research environment and university's attention.

Research Methodology

1. Population and Sample

We chose stratified random sampling to ensure the representativeness of the sample. The number of students participating in the survey was 770, of which 643 samples were retained for analysis, 127 samples were removed because they did not complete all the requirements or had the same choice for all items. The sample statistics results are shown in Table 1.

Table 1. General Information about survey participants.

	Variable	Frequency	Percentagee
1. Gender	Male	68	8.83%
	Female	702	91.17%
2. Field of study	Physics Education	14	1.82%
	Biology Education	12	1.56%
	Mathematics Education	17	2.21%
	Preuniversity Education	250	32.47%
	Primary Education	318	41.3%
	Literature Education	28	3.64%
	English Education	1	0.13%
	Information Technology	21	2.73%
	English Language	4	0.52%
	Plant Protection	3	0.39%
	Vietnamese Studies	13	1.69%
	History	89	11.56%
3. Current academic year	Year 1	255	33.12%
	Year 2	261	33.9%
	Year 3	126	16.36%
	Year 4	128	16.62%
4. Participation in research activities	Yes	253	32.86%
	No	517	67.14%

2. Research instrument

The research instrument was a 5-point Likert scale questionnaire with three sections:

- Section 1: Personal information of students (Gender, Field of study, Current academic year, etc.);

- Section 2: The fundamental part of the questionnaire consists of 28 observable variables belonging to six factors, namely (1) Facilities (F), (2) Lecturer support (LS), (3) Opportunities for research participation (ORP), (4) Incentive and financial support policies (IFSP), (5) Research communication and organization (RCO) and (6) Student satisfaction (SS) (Table 2).

All variables were measured using a 5-point Likert scale:

1-Strongly Disagree, 2-Disagree, 3-Undecided , 4-Agree, 5-Strongly Agree.

Table 2. Indicators measuring the quality of students' scientific research activities.

No.	Component	Observable variables	Symbol
1		The scientific research facilities are fully equipped and modern.	F1
2		Classrooms and laboratories are convenient for conducting scientific research projects.	F2
3	Facilities (F)	Reference materials, books, and scientific articles are easily accessible in the library.	F3
4		Research equipment supporting supporting technology (computers, software) is fully equipped.	F4
5		The learning environment (wifi, good lighting, space) is convenient for research.	F5
6		Teachers enthusiastically guide students during the research process.	LS1
7		Teachers promptly respond and give advice to students when they encounter difficulties.	LS2
8	Lecturer support (LS)	Teachers have experience and good professional qualifications in the field of scientific research.	LS3
9		Students can easily contact teachers when they need to discuss scientific research.	LS4
10		Teachers encourage students to participate in scientific activities.	LS5
11		Students are given the opportunity to register to participate in scientific research topics.	ORP1
12		The university regularly organizes seminars and scientific conferences for students.	ORP2
13	Opportunities for research participation (ORP)	Students have the opportunity to publish research results at scientific seminars/journals.	ORP3
14		Information about opportunities to participate in scientific research topics is public and clear.	ORP4
15		Students can freely propose research ideas and receive support for implementation.	ORP5
16	Incentive and financial support policies (IFSP)	Reasonable funding for scientific research support for students.	IFSP1
17		Reward policies for high-achieving topics are reasonable.	IFSP2

No.	Component	Observable variables	Symbol
18		The university has a policy to encourage students to participate in long-term scientific research.	IFSP3
19		Rewards for students doing scientific research have motivational value.	IFSP4
20		The university supports students in publishing research works in specialized journals.	IFSP5
21		Information on scientific research activities is always updated and disseminated promptly to students.	RCO1
22		The process of registering and approving scientific research topics is clear and transparent.	RCO2
23	Research communication and	The university has an effective communication channel to promote student scientific research activities.	RCO3
24	organization (RCO)	The summary and reward activities for scientific research are organized solemnly and recognized appropriately.	RCO4
25		The university's scientific research management department supports students quickly and professionally.	RCO5
26		I am satisfied with the quality of scientific research activities at the university	SS1
27	Student satisfaction (SS)	I find scientific research to be an important and practical activity	SS2
28		I wish to continue participating in scientific research activities in the future	SS3

3. Data collection

Online questionnaires are sent to all students of different faculties, and this process has lasted for 3 days, from April 17 to April 19. Data collected is determined up to 9:00 p.m. on April 19, 2025.

4. Data Analysis

Scan QR code to view data:

The survey data was processed using SPSS 20.0 software to assess the reliability of the questionnaire through Cronbach's Alpha coefficient, find the hidden factor structure through EFA factor analysis and identify factors affecting satisfaction through multiple linear regression analysis. From the regression equation we determine the factors affecting students' satisfaction with the quality of scientific research activities.

Research Results

1. Scale reliability test (Cronbach's Alpha)

The research model consists of five independent variables: 1) Facilities (F), 2) Faculty Support (LS), 3) Research Participation Opportunities (ORP), 4) Financial Support and Promotion Policy (IFSP), and 5) Research Communication and Organization (RCO) and one dependent variable: Student satisfaction (SS).

The general regression model between the dependent variable and the five independent variables is specified as follows:

$$SS = f (F, LS, ORP, IFSP, RCO) \tag{1}$$

Based on the research objectives and the proposed model, the following hypotheses are formulated:

- Hypothesis H1: There is a linear relationship between facilities and student satisfaction.

- Hypothesis H2: There is a linear relationship between lecturer support and student satisfaction.

- Hypothesis H3: There is a linear relationship between opportunities for research participation and student satisfaction.

- Hypothesis H4: There is a linear relationship between incentive and financial support policies and student satisfaction.

- Hypothesis H5: There is a linear relationship between research communication and organization and student satisfaction.

The Cronbach's Alpha coefficients of the independent and dependent variables all have values greater than 0.8 and are mostly close to 0.9 (> 0.6), reaching a very good threshold (Table 3).

Table 3. Overall Cronbach's Alpha reliability of the measurement scales for independent and dependent variables.

No.	Variables	Cronbach's Alpha
1	Facilities (F)	0.831
2	Lecturer support (LS)	0.901
3	Opportunities for research participation (ORP)	0.898
4	Incentive and financial support policies (IFSP)	0.892
5	Research communication and organization (RCO)	0.887
6	Student satisfaction (SS)	0.861

Besides, all observed variables exhibit item-total correlations ranging from 0.604 to 0.793 (> 0.3), as shown in Table 4. The results show that the scales for both independent and dependent variables have good reliability. Therefore, all variables were retained and continued to EFA factor analysis.

Table 4. Results of corrected item-total correlation analysis for observed variables.

No.	Observed Variables	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	F1–F5	0.604 – 0.676	0.783 – 0.806
2	LS1–LS5	0.719 – 0.791	0.871 – 0.886
3	ORP1–ORP5	0.713 – 0.793	0.867 – 0.884
4	IFSP1–IFSP5	0.712 – 0.768	0.862 – 0.875
5	RCO1–RCO5	0.695 – 0.753	0.857 – 0.870
6	SS1-SS3	0.724 – 0.753	0.790 – 0.817

2. EFA factor analysis

a. EFA factor analysis for dependent variable

The results of EFA analysis for the dependent variable SS showed that the observed variables were all correlated with the EFA factor analysis through Bartlett's test with sig = 0 (< 0.05) and KMO = 0.735 (> 0.5) (Table 5). The results showed that one factor was extracted with an Eigenvalue of 2.349 and the total extracted variance was 78.287%. The factor loading coefficients of observed variables all met the requirement of being greater than 0.5.

Table 5. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.735
Bartlett's Test of Sphericity	Approx. Chi-Square	892.644
	Df	3
	Sig.	.000

b. EFA factor analysis for independent variables

The KMO value =0,971, reaches a very high threshold compared to the scale, while Bartlett's Test test is 11479.684 with sig = 0.000 < 0.05 (Table 6), which proves that the observed variables are correlated with each other and the data used for EFA factor analysis is completely suitable.

Table 6. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.971
Bartlett's Test of Sphericity	Approx. Chi-Square	11479.684
	Df	300
	Sig.	0.000

As shown in Table 7, 25 observable variables are extracted into three factors with the total value of variance extracted of 63.568% (> 50%), which is satisfactory, and these three factors can explain 63.568% of the variation of the observable variables.

Table 7. Total Variance Explained.

Com-ponent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulat-ive %
1	13.679	54.717	54.717	13.679	54.717	54.717	7.465	29.861	29.861
2	1.165	4.658	59.376	1.165	4.658	59.376	4.601	18.402	48.263
3	1.048	4.192	63.568	1.048	4.192	63.568	3.826	15.305	63.568
4	.789	3.154	66.722						
5	.696	2.784	69.505						

Extraction Method: Principal Component Analysis.

Table 8 indicates that all variables have factor loadings greater than 0.5, acceptable level. No variables were eliminated. Three extracted factors were renamed as follows: (1) Scientific research environment (SRE) comprising three original groups: Opportunities for participation in research, Policies on incentives and financial support, and Organization and communication of scientific research activities; and the two groups that remain unchanged are (2) Lecturer support (LS) and (3) Facilities (F).

These three factors are further analyzed in the next step, regression analysis.

Table 8. Rotated Component Matrix.

	Component		
	(1) SRE	(2) LS	(3) F
RCO4	.713		
IFSP5	.711		
RCO2	.690		
RCO3	.666		
ORP3	.665		
RCO5	.665		
IFSP3	.664		
IFSP2	.654		
RCO1	.647		
IFSP4	.642		
ORP5	.639		
IFSP1	.623		
ORP4	.621		
ORP2	.620		
ORP1	.600		
LS1		.751	
LS2		.750	
LS3		.749	
LS5		.694	
LS4		.689	
F2			.750
F1			.711
F5			.674
F4			.613
F3			.592

3. Regression analysis

Based on the ANOVA table (Table 9), the F value of 550.641 and the Sig. value of 0.000 (< 0.01) indicate that the multiple linear regression model is statistically significant. The R² value of 0.721 suggests that the model explains 72.1% of the variation in the dependent variable through the three independent variables.

Table 9. ANOVA.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	328.102	3	109.367	550.641	.000b
	Residual	126.917	639	.199		
	Total	455.019	642			

a. Dependent Variable: SS

b. Predictors: (Constant), F, LS, SRE

According to the results of regression coefficient analysis (Table 10), the scientific research environment (SRE) has the strongest impact on student satisfaction with a standardized Beta coefficient of 0.747 and a Sig. value of 0.000. Next is the positive impact of the tutor support factor with a standardized Beta coefficient of 0.143 and a Sig. value of 0.000. Facilities (F) does not have a significant impact on satisfaction with a Beta coefficient of -0.021 and a Sig. value of 0.516 (> 0.05), so the Facilities factor needs to be removed from the model. The Variance Inflation Factors (VIF) for the independent variables are all below 5 (SRE = 3.613; LS = 2.771; F = 2.398), indicating no severe multicollinearity issues within the model. After removing the F variable, the revised research model is as follows:

$$SS = f (SRE, LS) \tag{2}$$

Table 10. Coefficients.

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	.140	.096		1.453	.147		
	SRE	.835	.044	.747	18.810	.000	.277	3.613
	LS	.145	.035	.143	4.119	.000	.361	2.771
	F	-.024	.037	-.021	-.650	.516	.417	2.398

a. Dependent Variable: SS

The second regression analysis gives standardized Beta coefficients of SRE = .734 and LS = .140 with sig. = .000. (<0.005), the VIF indices are all less than 5 indicating that no multicollinearity occurs (Table 11), which proves that the regression model is suitable and statistically significant.

Table 11. Coefficients.

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	.121	.092		1.320	.187		
	SRE	.821	.038	.734	21.398	.000	.371	2.698
	LS	.141	.035	.140	4.069	.000	.371	2.698

a. Dependent Variable: SS

Based on the results of regression analysis, the standardized regression equation is written as follows:

$$SS = 0.734.SRE + 0.140.LS \qquad (3)$$

Discussion

The results of regression analysis show that there is a linear relationship between Scientific Research Environment and Lecturer Support with student satisfaction, the factor Facilities does not have a clear impact on student satisfaction in this model.

1. SRE Impact Positively on SS

According to equation (3), the scientific research environment factor has the highest standardized Beta coefficient (Beta of SRE = 0.734), and the Scientific Research Environment includes the factors Opportunities for participation in research (ORP), Policies on incentives and financial support (IFSP), and Organization and communication of scientific research activities (RCO). This means that the Scientific Research Environment or all factors ORP, IFSP, and RCO have the strongest impact on student satisfaction (SS). Our results are consistent with the studies of Huynh et al. (2024), Pham (2023) and Pham et al. (2018). These studies also showed that the research environment, university support, and financial policies are factors affecting student satisfaction.

2. LS Impact Positively on SS

Next is the positive impact of the Lecturer support factor on student satisfaction with a standardized Beta coefficient of 0.14. Studies of Martínez-Roget et al. (2020), Than and Khaing (2023), Nguyen et al. (2021), Huynh et al. (2024), Pham et al. (2018) and Pham (2023) have also shown that Lecturers play an important role in advising and supporting students, which is a factor that positively affects students' satisfaction and the quality of their scientific research activities.

In the studies of Huynh et al. (2024) and Nguyen et al. (2021), the Facilities factor affects student satisfaction. However, in our study, this factor did not show a clear impact on student

satisfaction. This suggests that the current facilities of the university may not be suitable or do not really meet the research needs of students.

Conclusion of the Research

The research results show that the Scientific research environment and Lecturer support are two factors that have a positive impact on student satisfaction, while the factor of Facilities has no clear relationship. In which, the Scientific research environment is a factor synthesized from 3 factors including Opportunities to participate in scientific research, Reward policies, financial support and Scientific research organization and communication. Based on the stronger influence of the scientific research environment with β = 0.734, we recommend:

* Regarding policy: The school needs to have appropriate policies to encourage and motivate students to participate in scientific research, especially financial policies. The current level of financial support of the school is not strong enough to attract students to participate in scientific research. In reality, with limited financial support, many students do not dare to think about implementing large topics and projects. Most of them only stop at school-level topics or small startup projects. When they are proposed to participate in larger-scale scientific playgrounds, they are hesitant and refuse to participate. In addition, the reward for scientific research for students is not according to a clear regulation, mainly in the form of unexpected rewards and has only received attention in recent years.

* Regarding the organization and creation of opportunities for students to conduct scientific research: The school needs to regularly organize seminars, forums, and scientific discussions so that students have the opportunity to participate and demonstrate their abilities. The more students participate in scientific research, the more opportunities they have to access new knowledge and new research methods, thereby improving their research skills and self-confidence. In addition, the school also needs to boldly invest in scientific topics and potential start-up projects of students, encourage and create conditions for them to participate in larger-scale scientific playgrounds. In addition, the school needs to regularly organize training sessions on research skills for students. In reality, many students are still vague and confused when doing research topics, writing articles, etc.

* Regarding lecturer support: Create conditions for lecturers to participate in short-term training courses to improve their scientific research skills, thereby indirectly improving their scientific research guidance skills for students; Let students participate in research groups in the school, students can work with experienced lecturers and learn research skills from them. In addition, the school also needs to have a reward and financial policy for instructors. In reality, the school does not have any funding standards for instructors when guiding students to participate in scientific research.

* Regarding the training program: When building a training program, it is necessary to pay attention to integrating the content of scientific research and entrepreneurship, and it is necessary to create for students a way of thinking, studying and working in a scientific style. It is necessary to show students that scientific research is also an effective learning method, the shortest way for them to apply theory to practice.

* Regarding facilities: The school needs to promote communication and instruct students on how to use existing facilities such as laboratories, libraries, information technology systems, etc. At the same time, the school needs to consider integrating the requirement to use research facilities into the project implementation process, from searching for documents to processing data and writing reports. Thereby, students will form a habit of systematic research, while exploiting more effectively the material conditions that the school has invested in. In addition, the school also needs to assess the current status of facilities through conducting in-depth surveys to identify existing limitations, thereby helping the school make more accurate and effective investment decisions.

In summary, with the multiple linear regression model, the study identified two main factors that positively affect student satisfaction: the scientific research environment and the support of lecturers. The results of this study are also similar to those of many other authors. However, unlike other authors, the study did not show any relationship between facilities and student satisfaction. In addition, the results showed that the three extracted factors explained 63.568% of student satisfaction with the quality of scientific research activities at the school, meaning that the remaining 36.432% was explained by other factors outside the model. In addition, the large difference in the number of students in different years, majors, and genders makes the study results not highly representative. In the coming time, the school needs to periodically organize surveys on student satisfaction to identify existing problems, thereby providing accurate solutions and recommendations to improve the effectiveness of scientific research activities at Quang Nam University.

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