ISSN: 2288-2766 © 2021 KODISA & EABEA.
http://eajbe.jams.or.kr
doi: http://dx.doi.org/10.20498/eajbe.2021.9.3.1

Exploring Effects of Perceived Justice and Motivation on Satisfaction in Higher Education

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Received: May 13, 2021. Revised: June 02, 2021. Accepted: June 10, 2021.

Abstract

Purpose – For many Vietnamese students, the national high school graduation examination is one of the most important exams in their lives, transitioning from high school to tertiary education. Considering that the national examination is exceptionally important for admission of higher education, failure of management system and educational inequalities lead to serious academic concerns. By using the concept of justice and motivation, the current study aimed to explore the effects of justice dimensions and motivation on student satisfaction in the context of education, specifically focusing on the national examination for higher education.

Research design, data and methodology – In this regard, this study proposed a conceptual model and conducted an online survey to test relevant hypotheses.

Result – The empirical findings of the study found that procedural, distributive justice, and intrinsic motivation affected the level of student satisfaction. The results found that distributive and procedural justice and intrinsic motivation showed significant on satisfaction.

Conclusion – The results of this study would be useful for policymakers to make more informed choices and also suggest further programs and projects of the Vietnamese government, aiming to develop the system of university admissions in the future. This study suggests that adoption of better management system and policies will significantly affect academic satisfaction and higher education environment.

Keywords : Justice, Motivation, Satisfaction, Higher Education, Management Policy

JEL Classification Code: I21, I23, I28

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1. Introduction

With numerous government reforms, entrance exams for higher education remain a matter of perennial debate in the Vietnamese society. Students are often passive in preparing for these exams because relevant policies are re-stated and updated by the Ministry of Education and Training (MOET) of Vietnam every year (Nguyen, 2020). For two decades prior to 2015, all high school students were required to take the high school graduation exam after completing their 12 years of schooling, and if eligible, they would take the university entrance exam to further study at higher education institutions (Pham, 2015). The purpose of the high school graduation exam aimed to assess important domains in the high school curriculum, while the university entrance exam aims to select potential students for the higher education system (Tran, 2014). Since 2015, the MOET has made several major changes by merging the two distinct exams into a single national high school graduation examination (hereinafter referred to as the national examination) and the results of this exam are considered for both high school graduation and university admissions (Pham, 2015). Policies regarding the national examination has been often changed by MOET in terms of selection, numbers, and other options of majors and selection and numbers of universities. For example, in 2015, students were allowed to register four majors within a university while the options expanded in 2016, allowing students to select two universities as their first choices. In 2017, candidates had unlimited options of major and university before taking the exam. In the year 2020, the MOET has adjusted the organization of the exam and exam structures while still keeping the exam as a make-or-break opportunity. Student-centered approaches have been emphasized in substantive and structural education reforms, while such continuous changes evidently raise an important question, "To what extent does the national examination affect student satisfaction as the results of such reforms?"

This paper pinpoints several factors concerning the question. First, this study raises concerns about management failure of grading system that are often mistakenly graded due to lack of technology adoption. Another concern is related to failure and less transparency of operation system that is managed by local government. Instead of being organized by universities and colleges, provincial authorities take responsibility for the national examination, from organizing and marking the students' exam papers to publicizing the results without the presence of independent monitoring agencies. Lack of independent monitoring agencies causes unethical behavior such as cheating, that remains prominent in the field of education and takes place every year from a small number of students. The national examination scandal was found out after some mountainous provinces had abnormally high percentages of students with higher scores in the exam. Third concern is related to performance of national exam and psychological burden of students. Much attention is given to the performance of the exam each year as students seek to qualify for both high school graduation and university admissions. Even though the enrollment rate in higher education has gradually increased from 9.47 % in 2000 to 22.82 % in 2010, and 28.55% in 2016 (Linh & Anh, 2018), such rates are relatively lower compared to other neighboring Asian countries, such as Thailand or the Philippines. Further, because high school ranking and provincial ranking are assessed in accordance with the results of the national examination, local governments and schools are also forced to allocate more time to senior high school students, putting more workload on both teachers and students. As a result, students are under a high level of academic pressure and have to spend relatively large amounts of time for studying. A 2019 survey by the Ministry of Health revealed that 15% of Vietnamese suffer from mental illness caused by stress, particularly among the young (Nga, 2019).

Considering that the national examination is exceptionally important for admission of higher education, failure of management system and educational inequalities lead to serious academic concerns. In particular, previous studies rarely examined failure management of education system in developing countries. This study is to explore failure management system by applying perceived justice and motivation in the context of developing county. Therefore, it becomes crucial to explore the effect of perceived justices and motivation on satisfaction in the national exam. According to Castillo and Fernández (2017), the dimensions of justice in the context of education could be viewed as the same as in the workplaces. Consequently, by using the concept of organizational justice and motivation, the purpose of this study is to examine the effect of justice perceptions (distributive, procedural, and interactional) and motivation (intrinsic and extrinsic) on satisfaction in the academic context. Accordingly, this study proposes the following research questions regarding the national examination; i) how do student perceptions of distributive, procedural, and interactional justice affect student satisfaction? and ii) how do intrinsic and extrinsic motivation affect student satisfaction?

2. Literature Review

2.1. Entrance Exams in Higher Education

Examinations play an increasingly important role in many parts of the world because of their functions in assessing the competence of students, certifying students' achievement levels based on agreed-upon standards, and selecting students for higher levels of education, from primary to secondary and from secondary to tertiary education (Kellaghan & Greaney, 2019). In the case of the United States, admission standards for higher education programs are integrated and comprehensive (Zhu, 2014). Accordingly, universities in United States require all applicants to take one or more standardized tests, such as American College Testing (ACT) or the Scholastic Assessment Test (SAT) in addition to supporting documents. These tests are designed to measure beyond learning level from the school such as potential capability. Students can take equal opportunities to take the SAT or ACT each year until they achieve expected scores. University autonomy has facilitated in higher education institutions to make admission decisions without interfere of the government.

In contrast, test-oriented education has a history of thousands of years in Asian countries. In many countries in Asia, students ought to spend sufficient time studying for national exams by putting too much burden (Allen, 2016). In the case of China, taking the GaoKao exam (National College Entrance Examination), which is held once a year, is considered as the way for many Chinese students to get admitted to public higher education institutions. Managing by the Chinese Ministry of Education, Chinese students are allowed to take the exam after completing all high school courses. The GaoKao exam, therefore, results in giving greater weight to assessing student's academic outcomes through rote learning instead of developing students' abilities and skills (Zhu, 2014). When a student gets selected by one university, they cannot accept other offers from other universities in the same year. This procedure differs from the admission process in the United States, where one applicant is allowed to accept numerous offers from different universities. Vietnam also attaches great importance to test-oriented education. There is lack of studies that have focused on the national examination and relevant policies in Vietnam (Nguyen, 2020), compared to the importance of the entrance exam that reflects getting degrees and stable jobs in the future.

2.2. Justice Perceptions and Student Satisfaction in the Context of Education

Although justice perception has received relatively little attention in the academic context, some research studies have attempted to explore the effects of justice on student satisfaction levels (Castillo & Fernández, 2017; Waqas, Ali, & Khan, 2014), student motivation and learning (Chory-Assad, 2002; Kazemi, 2016; Molinari, Speltini, & Passini, 2013), teachers' evaluation and grades allocation (Burger, 2017; Resh, 2009), instructor competence (Chory, 2007), and classroom policies (Duplaga & Astani, 2010). In particular, Castillo and Fernández (2017) examined that distributive justice and interactional justice have a great impact on student satisfaction, while there is no effect of procedural justice on the satisfaction level. Besides, Waqas Ali, and Khan (2014) identified the effects of perceived justice on student satisfaction in university contexts and confirmed that all three justice dimensions have a positive impact on student satisfaction regarding service recovery. A study by Chory-Assad (2002) examined the relationship between student motivation and their awareness of distributive and procedural justice about courses and confirmed that the academic outcomes of students depend on justice perceptions in the classroom. It was supported by the study of Molinari Speltini, and Passini (2013) that students' perception is important as to the extent of fairness they feel when being treated by instructors as well as school outcomes including academic achievement and learning motivation. In this regard, Kazemi (2016) emphasized the important role of teachers in terms of student motivation and achievement when conducting a study on the relationships among students' perceptions, academic motivation, and teachers' justice. When it comes to the fairness of the evaluation process, Burger (2017) explored how school environment influenced students' perceptions of the fairness and affirmed that the grading process and grading procedures are significantly affected by different assessment methods, such as essays or examinations. While teachers tend to focus on performance, students are more concerned with their efforts, and therefore, this difference may become one source of sense of unfairness between students (Resh, 2009). Besides, Duplaga and Astani (2010) found that no policies are considered to be fair by all students, but only fairest by most students. Meanwhile, Chory (2007) examined the awareness of university students about their instructors and classroom justice including all dimensions of organizational justice and revealed that there is a positive relationship between student perceptions of instructor credibility and classroom justice.

2.3. Motivation in the Context of Education

Regarding motivation factors, an increasing number of studies have confirmed that motivation should be considered as one of the most important factors in ensuring the continuous achievement of students. A study of Çirak (2016) found that studying in a college or university is a crucial step to prepare for future careers although it creates stress, pressure, and anxiety for students. Munshi, Javed, and Hussain (2012) conducted a study on the awareness of students and teachers about the university entrance exam and found that despite some positive attitude towards this exam, most students' feelings are negative

mainly because of the subjectivity in evaluation. Previous studies (Li, Zhong, & Suen, 2012; Putwain, Woods, & Symes, 2010) also discovered that students felt more pressure and anxiety when preparing for exams, and this can influence their academic outcomes. According to Oketch-Oboth and Okunya (2018), negative emotions result in poor academic performance at school. Some research findings (Bayram & Bilgel, 2008) indicated that stress may be caused by highly demanding courses that students have to study at school.

3. Theoretical Foundation

3.1. Distributive Justice

The first dimension of organizational justice is traditionally built on the "equity" theory when Adams (1965) began to establish the definition of equity and indicated that individuals, in the workplace context, would make a comparison between their inputs and outcomes and relevant others' inputs and outcomes. Deutsch (1975) expanded further support for empirical research in this field by introducing the "equality" theory which is related to resource allocation. Deutsch (1975) also claimed that the main goal of an exchange is to promote the solidarity and harmony of a group instead of the advancement of individual productivity. With respect to the distribution of outcomes, Homans (1982) significantly expanded the scope of distributive justice when adding the "need" theory based on the requirement of individuals regardless of the inputs.

3.2. Procedural Justice

The concept of justice (Blodgett, Hill, & Tax, 1997) was expanded when Thibaut and Walker (1975) introduced a new aspect of organizational justice, labeled "procedural justice," which puts an emphasis on the process that is used to determine certain outcomes. In the subsequent theory of procedural justice, Thibaut and Walker (1978) made two distinct types of control; i) decision control which determines the outcome of a dispute, and ii) process control which determines the development, selection, and presentation of evidence. Besides, Leventhal (1980) further pointed out that procedural justice could be enhanced by six rules, including i) accuracy of information, ii) consistency in applying procedures, iii) representativeness, iv) avoiding bias in decision making process, v) ethicality of procedures, and vi) ability to correct mistakes.

3.3. Interactional Justice

Apart from the two above-mentioned dimensions, interactional justice was developed and expanded by Bies and Moag (1986). According to Bies and Moag (1986), interactional justice, the third dimension of organizational justice, is fostered when relevant organizations communicate through procedural details in a respectful and proper manner. In that sense, as stated by Bies and Moag (1986), interactional justice is comprised of four components, including i) truthfulness which is related to the openness and honesty of managers when discussing procedures and outcomes, ii) justification which focuses on how managers provide an explanation of outcomes, iii) respect which mentions how managers treat their employees, and iv) propriety which is related to improper questions or comments of managers. Although these interactional rules are derived in the recruitment context, it can be relevant to any decision-making settings (Greenberg & Colquitt, 2013).

3.4. Motivation Theory

In this study, key factors are covered in the concept of motivation, including intrinsic and extrinsic motivation. Legault (2016) argues that intrinsic motivation is related to engagement in behavior that is inherently satisfying or enjoyable, and caused by the innate psychological needs of competence and self-determination (Deci & Ryan, 1985). Meanwhile, extrinsic motivation concerns behaviors motivated to perform activities to earn a reward or avoid punishment (Legault, 2016). Also, Karadağ (2017) addressed that if individuals' behaviors are not dependent on themselves, then this is extrinsic motivation. Apart from intrinsic and extrinsic motivation, Reeve (2014) explained that there exists no motivation if individuals become unable to connect actions with outcomes of these actions. In this case, individuals would not have either intrinsic or extrinsic motivation; therefore, people experience amotivation. Tahiroğlu and Aktepe (2015) added that for those who believe that their actions will not provide any benefits, people fall into the state of amotivation.

3.5. Satisfaction Theory

Howard and Sheth (1969) explained satisfaction as to a cognitive status of sacrifices when customers experience compensation issues (Howard & Sheth, 1969). Churchill and Surprenant (1982) further added that satisfaction comes from the outcome of purchase and use of buyers as they compare the rewards and costs of a certain purchase with expected consequences. Hunt (1977) viewed satisfaction as a rendered assessment that the consumption experience is at least better than supposed. Therefore, if one realizes that their actual experience turns out to be worse than prior expectations, they will feel dissatisfied. (Churchill & Surprenant, 1982). Letcher and Neves (2010) summarized that student satisfaction is the perspectives of students about their educational experiences. The greater level of satisfaction experienced by students has led to a positive impact on their knowledge and skills (Malik, Danish, & Usman, 2010).

4. Hypothesis Development

The hypotheses of this study are developed through the observations of the previous studies (Blodgett, Hill, & Tax, 1997; Thibaut & Walker, 1975) on justice perceptions, motivation, and satisfaction. Based on the theoretical framework, this study analyzes relationships of three dimensions of justice, motivation, and student satisfaction.

4.1. Effects of Distributive Justice on Student Satisfaction

The first hypothesis focuses on the relationship between distributive justice and student satisfaction concerning the national examination. As a comparative tool in workplaces, distributive justice is used to predict levels of employees' satisfaction (Clay-Warner, Reynolds, & Roman, 2005). In the context of education research, distributive justice can also be interpreted as equitable access to resources and accountability functions through the rule of equality (Tamghe, 2019). When students receive their results or scores, they may think that they deserve more or less based on their efforts and expectations compared themselves to others (Leventhal, 1976). Additionally, students are pleased when they believe that evaluation results obtained in examinations are proportionate to their efforts and correctly reflect their academic performance. Thus, this study hypothesizes that student satisfaction regarding the national examination would be related to distributive justice.

Hypothesis 1: Distributive justice affects student satisfaction regarding the national examination.

4.2. Effects of Procedural Justice on Student Satisfaction

Previous studies (Fan, Wu, & Wu, 2010; Writz & Mattila, 2004) have discovered significant relationships between procedural justice and customer satisfaction. As to the examination, this study posits the importance of procedures including appropriate exam time, fairness of cross the regions, well controlled by supervisors, and other management issues for the justice. This study also considered that appropriate procedures will help increase exam scores and reduce inequality. When students evaluate the fairness of how a decision-making process is constructed, they then proceed to make judgments of procedural justice (Chory-Assad, 2002). By considering the significance of procedural justice in the exam, this study hypothesizes that the higher expectation of perceived procedural justice will significantly affect student satisfaction regarding the national examination.

Hypothesis 2: Procedural justice affects student satisfaction regarding the national examination.

4.3. Effects of Interactional Justice on Student Satisfaction

According to Wubbels and Brekelmans (2005), school environment such as the interaction between instructors and students influences the learning environment as well as the behavior and motivation of students. In this aspect, if a student expects proper treatment by their teachers when preparing for the national examination, interactional justice can be applied to the level of satisfaction. That is, when students are motivated in school, they need certain level of interactions with their teachers (Frymier

& Houser, 2000). This suggests that depending on the instructors' treatment, students can have either a sense of respect or isolation (Lizzio, Wilson, & Hadaway, 2007). This study considered that appropriate explanation, information, and clarification by teachers will affect satisfaction level on the national examination. Therefore, this study hypothesizes that the higher expectation of perceived interactional justice significantly affects student satisfaction regarding the national examination.

Hypothesis 3: Interactional justice affects student satisfaction regarding the national examination.

4.4. Effects of Intrinsic Motivation on Student Satisfaction

Examinations tend to generate strong motivation when performance leads to important outcomes. (Kellaghan & Greaney, 2019). As they include the selection for tertiary education institutions, motivation has been regarded as one of the key elements of student learning (Gilman & Anderman, 2006). In this sense, intrinsic motivation is emphasized as a natural wellspring of learning and achievement. On one hand, intrinsic motivation or the origin of actions exists within individuals, on the other hand, intrinsic motivation can exist in the relationship between individuals and activities (Edward, Edward, Deci, Pelletier, & Ryan, 1991). In the context of education, intrinsic motivation is directly related to student's learning, such as academic achievement (e.g., Areepattamannil, Freeman, & Klinger, 2011), creativity (e.g., Eisenberger & Shanock, 2003), psychological well-being (e.g., Burton, Lydon, D'Alessandro, & Koestner, 2006), and less extrinsic motivation (Gottfried, Cook, Gottfried, & Morris, 2005) and essential to measure effects on student satisfaction. In this study, intrinsic motivation is an inner drive that propels students to get high scores in the exam. Therefore, this study hypothesizes that intrinsic motivation affects student satisfaction regarding the national examination.

Hypothesis 4: Intrinsic motivation affects student satisfaction regarding the national examination.

4.5. Effects of Extrinsic Motivation on Student Satisfaction

In spite of the fact that intrinsic motivation plays an important role, external activities amongst people are not intrinsically motivated (Deci & Ryan, 2000; Ryan & Deci, 2000). Social relationships play a pivotal role in fulfilling students' needs for belonging, affiliation, and identity (e.g., Juvonen & Wentzel, 1996). By contrast with intrinsically motivated behaviors, people are often performed for and managed by rewards, such as a gold star, promotion, or certification (Kellaghan, Madaus, & Raczek, 1996). Additionally, students who find the relationship with their teacher important and supportive not only show higher motivation and commitment to school and better cooperation and performance, they also consider external schoolwork as a crucial part of their lives (Heather, 2006). In this study, students are assumed to be extrinsically motivated by their teachers, families, friends, and other external factors. Therefore, this study hypothesizes that extrinsic motivation affects student satisfaction regarding the national examination:

Hypothesis 5: Extrinsic motivation affects student satisfaction regarding the national examination.

5. Methodology

To test the proposed hypotheses, a questionnaire was developed for major proposed variables including the level of satisfaction, motivation, and perceived justice. This study distributed online survey to students who have taken the 2020 national examination for higher education in Vietnam. The questionnaire was adopted a five-point Likert scale with 1 for strongly disagree and 5 for strongly agree. The hypotheses in the study were tested at the 0.05 level of significance. Prior to the analysis, each questionnaire was carefully edited and coded. Back translation was applied for survey. Quantitative methods of factor and regression analyses were applied for data analysis. Furthermore, additional findings can be found with the result of t-test and analysis of variance (ANOVA). As shown in Table 1, 2, and 3, components of distributive justice, procedural justice, and interactive equity were developed and encoded as DJ (4 observed variables), PJ (7 observed variables), and IJ (5 observed variables).

Table 1: Items of Distributive Justice (Blodgett, Hill, & Tax, 1997; Thibaut & Walker, 1975)

Factors	Scale Items
DJ1	The results of my exam are directly proportional to my efforts.
DJ2	The results of my exam correctly reflect my academic performance.
DJ3	Evaluation of essay questions subject to examiners' perspectives rather than on objective measures.
DJ4	Using computer software for the grading of multiple-choice tests would ensure the accuracy of these tests.

* DJ: Distributive Justice

Table 2: Items of Procedural Justice (Blodgett, Hill, & Tax, 1997; Thibaut & Walker, 1975)

Factors	Scale Items
PJ1	Exam time given for each subject is appropriate.
PJ2	The difficulty of the exam questions is appropriate.
PJ3	Test results should be well cross-checked by other provinces and cities.
PJ4	During the exam, exam supervisors control the exam processes well.
PJ5	An independent agency is needed to better manage the exam in addition to provincial authorities.
PJ6	Questions included in the exam are an accurate reflection of the materials that have been studied in class.
PJ7	The exam reduces inconvenient processes compared to the previous exam.

* PJ: Procedural Justice

Table 3: Items of Interactional Justice (Blodgett, Hill, & Tax, 1997; Thibaut & Walker, 1975)

Factors	Scale Items
IJ1	Teachers explain the procedures clearly and easily to everyone.
IJ2	The content of the exam is announced by teachers properly.
IJ3	Teachers inform students about how to take the exam for better results.
IJ4	It is possible to ask teachers for clarification and additional information about the exam.
IJ5	Teachers have refrained from using inappropriate comments or observations.

* IJ: Interactive Justice

As shown in Table 4, 5, and 6, components of intrinsic motivation, extrinsic motivation, and student satisfaction were developed and encoded as IM (4 observed variables), EM (3 observed variables), and SAT (4 observed variables).

Table 4: Items of Intrinsic Motivation

Factors	Scale Items
IM1	I feel proud of myself since I get results that meet my expectation.
IM2	I enjoy learning about various subjects.
IM3	I enjoy the experience of collaborative learning with my classmates.
IM4	I feel excited when finding out different ways to solve problems.

* IM: Intrinsic Motivation

Table 5: Items of Extrinsic Motivation

Factors	Scale Items
EM1	I try my best in the exam because my family and teachers expect me to get better results.
EM2	I try to get good results in the exam because it determines my future career.
EM3	I am motivated by promotional activities provided by my university.

* EM: Extrinsic Motivation

Table 6: Items of Satisfaction

Factors	Scale Items
SAT1	Overall, I am satisfied with the information that I received about the national examination.
SAT2	Overall, I am satisfied with the evaluation system applied in the national examination.
SAT3	Overall, I feel comfortable when taking the exam.
SAT4	I am satisfied with the organization of the exam by the MOET.

* SAT: Satisfaction

6. Data Analysis

6.1. Demographics

A total of 262 students was responded to the survey. Among them, 24.8 % were male, and 75.2 % were female. Regarding the age distribution of these participants, 95.4% were 18 years old, 3.8 % were 19 years old, and 0.8 % were 20 years old. Of the sample, 6.9% of the students were studying in private schools while 93.1% were studying in public schools. In terms of living area, the proportion of students from urban areas was 60.3%, while 39.7% of the students came from rural areas. In terms of reasons why those students decided to choose their universities and colleges, 73.7% of the students made up their own mind, 8.4% were impressed by university reputation, 8.0% were advised by their family and friends while 6.9% were influenced by communication information by universities and colleges (see Table 7).

Table 7: Table of Survey Demographic Variables

Variable	Component	%
Gender	Male	24.8 %
	Female	75.2 %
Age	18	95.4 %
	19	3.8 %
	20	0.8 %
Type of school	Public school	93.1 %
	Private school	6.9 %
Living area	Rural area	39.7 %
	Urban area	60.3 %
Reasons for choosing universities and colleges	University reputation	8.4 %
	High school teachers	2.3 %
	Self determination	73.7 %
	Relatives	8.0 %
	Communication Information provided by university	6.9 %
	Others	0.8 %

6.2. Tests of Reliability

Before conducting factor analysis, Cronbach's alpha was applied for each item to test the reliability for the multi-item scale and to provide information about the relationships between individual items in the scale. Regarding justice perceptions, Cronbach's alpha values were 0.823 for distributive justice, 0.835 for procedural justice, and 0.883 for interactional justice. For intrinsic motivation, extrinsic motivation, and student satisfaction, Cronbach's alpha values were 0.890, 0.877, and 0.882

respectively. All items in the study had relatively high internal consistency.

6.3. Factor Analysis

This study applied factor analysis to check the validity of major constructs by using principal components analyses and varimax rotation method. Table 8 summarized results of factor analysis with Eigen values greater than 1.00.

Table 8: Results of Factor Analysis for Independent Variables

	Component				
	1	2	3	4	5
PJ1	.637				
PJ2	.752				
PJ3	.739				
PJ4	.686				
PJ5	.671				
PJ6	.727				
PJ7	.713				
IJ1		.791			
IJ2		.847			
IJ3		.843			
IJ4		.765			
IJ5		.843			
IM1			.802		
IM2			.771		
IM3			.826		
IM4			.833		
DJ1				.720	
DJ2				.776	
DJ3				.784	
DJ4				.779	
EM1					.835
EM2					.852
EM3					.874
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.					

This study conducted another factor analysis for dependent variable. Table 9 summarized results of factor analysis with Eigen values greater than 1.00.

Table 9: Results of Factor Analysis for Dependent Variable

Component Matrix	
	Component
	1
SAT1	.835
SAT2	.860
SAT3	.840
SAT4	.856
Extraction Method: Principal Component Analysis.	

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6.4. Regression Analysis

Regression analysis was conducted to test the hypotheses of this study. Factor scores were used for regression analysis. Table 10 shows the results of the multiple regression analysis. The results of ANOVA reveal that the models are significant at the level of 1% with $F = 80.735$ (r-square = .612). Based on the findings, H1, H2, and H4 were significantly accepted, while H3 and H5 were rejected (see Table 10).

Table 10: Effects of Justice and Motivation on Satisfaction

Variables (Independent → Dependent)	Standardized Coefficient (t-value)
Distributive Justice → Satisfaction (H1)	.460 (10.119 ***)
Procedural Justice → Satisfaction (H2)	.120 (2.986 ***)
Interactional Justice → Satisfaction (H3)	.007 (.161)
Intrinsic Motivation → Satisfaction (H4)	.447 (8.961 ***)
Extrinsic Motivation → Satisfaction (H5)	.072 (1.590)

***Significant at 1%

7. Conclusions

7.1. Summary

By applying the concepts of justice and motivation, the primary objectives of the present study were to investigate i) the effect of distributive justice, procedural justice, and interactional justice on student satisfaction and ii) the effect of intrinsic motivation and extrinsic motivation on student satisfaction. First, the study discovered that procedural and distributive justice, but not interactional justice, had significant effects on student satisfaction. Effects of distributive justice on student satisfaction were stronger than those of procedural justice. This can be explained since students perceive that evaluation results and academic performance assessed fairly based on their efforts. The results also imply that national exam was equitable access to resources and accountability functions through the rule of equality as Tamghe (2019) addressed. The results also confirmed the fair procedures including appropriate exam time, fairness of cross the regions, degree of control by supervisors, and other management issues related to procedural justice. The results also confirmed that intrinsic motivation had a considerable impact on the level of student satisfaction. The insignificant effects of interactional justice and extrinsic motivation on satisfaction could be explained due to the neutral feelings related to the questions items on interactional justice as students do not express their feelings positive nor negative. Additionally, the results of ANOVA showed that there was no variation among different groups on the basis of demographics regarding the effects of justice dimensions and motivation on student satisfaction.

7.2. Managerial and Policy Implication

As Kazemi (2016) stated, justice studies in the academic context have become increasingly essential for both research purposes and practical reasons. By understanding the effects of justice perceptions and motivation on student satisfaction, the results suggest better education environment to find effective ways to improve the academic performance. This study also suggests the following recommendations.

First, it is recommended for policymakers to ensure the accuracy of students' scores in the exam. Although using advanced technologies for the grading of multiple-choice tests has correctly reflected their academic performance, the evaluation of essay questions is still depended on examiners' perspective. To address this issue, it is essential to establish specialized and professional institutions for evaluation and quality assurance instead of letting local high school teachers examine the exam. This study suggests that adoption of better management system and policies will significantly affect academic satisfaction and higher education environment. How to effectively interact with students and educators could be also considered and implemented. In addition, managerially, improvement of quality through better education system could be adopted. The current higher education fails to provide incentives, so, the system could not encourage skilled labor force. Improvement of highly educated and experienced workers will consequently affect labor market demand and economic development.

Second, the national examination aims to maintain the quality of education nationwide and to set up the national standard for students. Therefore, policy makers and managers in that area should organize the education system in an objective and fair

way. Hence, it is recommended that an independent agency is established to better manage the exam in addition to provincial authorities. The government should also diversify higher education entrance exams by reducing the government's centralized authority. It can create more space and opportunities for universities to assess and select potential students based on better learning programs and through a fair assessment of other aspects such as personal characteristics and social activities. This could further ensure that higher education institutions are vital sources for knowledge discovery and important forces for advanced learning environment. Universities and colleges should devise the most appropriate admission plan to closely collaborate with high schools and to ensure admission and training quality. The next step for the Government of Vietnam and school leaders is to provide better schooling and opportunities that foster cognitive capacities and behavioral skills of young generation.

Third, education itself should center on human values in order to enhance the self-motivation and living standard of students rather than achieving only academic knowledge. One of the important issues is the clarity and transparency in the content and implementation of the exam that will encourage higher education. Besides, a sense of responsibility among key stakeholders, including teachers and educators, will be required for contribution to the implementation of educational activities. Further, overall improvement of education system will support greater socio-economic development and improve Vietnam's position in the international market. The well-defined strategies and acting power of all stakeholders will be keys to improve higher education quality as well as steps to an advanced society.

Further, academically, this study provides contributions. While motivation theory was widely applied in the field of education, justice theory was rarely employed. By adopting justice theory in the field of education, this study contributes to academic field. Application in the context of developing country's education system also provides insights in academics.

7.3. Limitation and Future Research

The current study is the first to explore the effect of perceived justice and motivation on student satisfaction in the national examination. This study contains some limitations. First, it was limited by the small sample with 262 respondents, the inferences derived from the analysis and interpretation could be better generalized to increase sample size. Also, the number of students among universities responding to the survey was different. Future study might consider equal number of respondents from diverse universities. Second, this study utilized a quantitative research method to identify the effects of perceived justice and motivation on student satisfaction. Future study could apply qualitative methods to acquire both comprehensive and in-depth results. For future exploration of the topic, a comparative analysis of the satisfaction level of students from different education systems will be meaningful to evaluate the effectiveness of exams.

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