

Exploring the Influence of Undergraduate Students' Sense of Educational equity on Academic performance

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Abstract. This study randomly selected 550 undergraduate students from Heze University for a questionnaire survey, aiming to examine whether their perception of educational equity has an impact on their academic performance. The results of this survey indicate that more than half of the students reported having experienced educational inequality in their academic careers, and the overall sense of equity among the tested students was relatively high (average score of 4.055, total score of 5). The results of this study indicate that the three dimensions of the survey questionnaire, namely the sense of educational opportunity equity, the sense of equity in the educational process, and the sense of equity in educational outcomes, were subjected to descriptive statistical analysis and regression analysis on the average scores of 19 questions and the academic performance of students. The results were all at the 0.01 level (two tailed), indicating a significant correlation. This indicates that the sense of educational equity among college students will have a certain impact on their academic performance. Similarly, compared to similar studies on junior high school students in the past, the same results have been obtained, indicating that a sense of educational equity will have a certain degree of impact on students' academic performance.

1 Introduction

Equity in education has always been a hot topic in China's education sector. In recent years, in accordance with the requirements of "Educational Equity" in the context of educational reform, various sectors in the field of education have responded positively to the National policies, such as vigorously promoting educational equity, rationally allocating educational resources, and allowing every student to enjoy a fair and high-quality education, among other things.

Academic performance, as an important factor in examining learners' success in education, signifies the level of learning ability achieved by learners. Based on the micro-level of educational equity, this study selected a non-intellectual factor related to learners' academic performance, and the sense of educational equity, and explored the impact of the variable of sense of educational equity on learners' academic performance. Thus, it broadens the research perspective of a sense of equity and academic performance in education, which is of practical significance to the field of education, school education, and educational practice.

2 Literature review

Scholars Fuentes and Emma took junior high school students as the object of study, when students are treated unfairly by education, they will show anxiety and

agitation. Also, the study found that middle school students perceived it as unfair when they could not get attention from teachers[1]. Researchers conducted a questionnaire survey with 401 students in Germany and found that the fairer the teacher treats the students, the better the classroom climate, and that beliefs in a just world (BJW) were positively correlated with student experiences. Therefore, this study suggests that teachers' fair behavior demonstrated during the educational process and students' perceptions of equity affect students' learning status[2]. Through individual case studies, it was found that students who have educational unfair treatment in the classroom developed a sense of unequity and provoke appropriate self-protective mechanisms to resist teacher management[3]. A study from the perspective of teachers' expectations found that teachers would treat students differently by dividing them into various levels according to their own expectations of students. Teachers give more attention to students with high expectations in their teaching activities, while students with lower expectations may be discriminated against. The phenomenon of treating students differently to a certain extent leads to differences in students' sense of equity in education, which in turn has an impact on students' academic performance[4].

Chinese scholars Lyu, Xiaojun and Liu Gangcheng pointed out in the study of college students' equity psychology and behavior that the sense of educational

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equity was a subjective experience of judging the existence of educational facts. Educational equity is influenced by the personal characteristics of the subject of the judgement, such as values, cognition, and emotion, making the sense of educational equity show distinctive individual or group differences[5]. Nie Youyan, Li Xiaodong, and Yuan Donghua used interview and questionnaire methods to study the equity perception and concept of teaching regulation strategies among 141 middle and primary school students. The results indicated that there were differences in the perceived equity of teaching adjustment strategies among students, and students would resist when faced with unfair treatment. For example, adopting a non learning attitude leads to a decrease in the teaching effectiveness of teachers and a decrease in student learning enthusiasm[6]. Jia et al., took teachers as the object of their study and found that there was a negative correlation between teachers' burnout and academic performance, and that the sense of organizational equity in schools was positively correlated with students' academic performance[7]. Wu Haiyan explored from the student's point of view that when students study hard but do not receive fair treatment and feedback from teachers, students lost their motivation and lower their trust in teachers and schools, which in turn affected their learning status and academic performance[8]. Tian et al., found that from kindergarten to high school level, the higher the students' sense of equity in education, the more motivated they are to learn[9]. Wei found that when first secondary school students suffer from unfair treatment in education, they will seek help to solve these problems through escape and emotional catharsis. The process of problem-solving, not only affected students' psychology but also caused a decline in academic performance. Wei's survey found that junior high school students currently have a high sense of overall educational equity, specifically the lowest sense of equity in the interpersonal interaction equity dimension, and the highest sense of equity in the quality of competence[10]. Gao Ya explored high school students' sense of educational equity and educational strategies based on previous research. Research had found that schools should transform their management concepts, and create a fair educational environment for students, and teachers should also create a fair atmosphere for students. Moreover, the study also found that high school students with different grades have varying levels of educational equity. The average total score of educational equity among high school students with excellent grades is the highest, followed by high school students with average grades. High school students with lower than average grades have the lowest average total score of educational equity. There is a significant difference in the overall score of educational equity among high school students[11].

Based on the perspective of the sense of educational equity, most of the previous domestic and international studies have directed their attention to the impact of the sense of educational equity on the academic performance of junior high school students, high school students, and higher vocational students, or centered on the feeling of

unequity in the classroom and teachers. Therefore, there are fewer studies on the impact of college students' sense of educational equity on academic performance. This study will analyze and discuss the factors affecting college students' sense of educational equity on academic performance and ultimately put forward some solutions and suggestions that can be used for reference.

3 Methodology

3.1 Research process

In this experiment, 550 undergraduate students were selected as survey subjects through quantitative research method by random sampling within Heze University in Shandong Province. A total of 550 questionnaires were distributed and 515 valid questionnaires were recovered, with an effective recovery rate of 93.63%. (Among them, 250 were male students, accounting for 48.54 %, and 265 were female students, accounting for 51.45 %, which can be seen in Table 1 and Table 2.)

Table 1 Composition of Grade Distribution Sample

Grade	Frequency (persons)	Effective Percentage
Freshman year	211	41%
Sophomore	158	30.7%
Junior	70	13.6%
Senior	76	14.8%
Total	515	100%

Table 2 Gender distribution

Gender	Frequency (persons)	Effective Percentage
male	250	48.5%
female	265	51.5%
Total	515	100%

3.2 Research tools

3.2.1 Questionnaire

The questionnaire was selected from the article "The structure of college students' sense of Equity in education and the development of questionnaire" published by Jiang Yanju and Chen Xin in CSSCI[12]. The questionnaire consists of 19 questions and is divided into three dimensions: a sense of Equity in educational opportunities; a sense of Equity in the educational process; and a sense of Equity in educational outcomes. The questionnaire is based on a five-point Likert scale, which corresponds to completely disagree=1, basically disagree=2, neutral=3, basically agree=4, and completely agree=5, and the higher the score, the higher the corresponding sense of Equity in Education. The Cronbach's coefficients of the three dimensions of this

questionnaire were greater than 0.7, which meets the measurement requirements.

3.2.2 Academic performance assessment methods

This experiment will use the method of assessing students' academic performance published on the official website of the university's Registrar's Office. A grade point average (GPA) with its corresponding grading interval will be used to examine the impact of a sense of educational equity on academic performance. The ranges are as follows: A.92-100 with a GPA of 3.9-4.0, B.87-91 with a GPA of 3.7-3.8, C.80-86 points, GPA 3.3-3.6, D.73-79 points, GPA 2.6-3.2, E.68-72, GPA 2.5-2.9, F. 60-67 points, GPA 1.0-2.0, G. Below 60, GPA 0.

4 Result

This experiment used SPSS 29 to analyse the data. Firstly, Cronbach's coefficient was used to test the structure of college students' sense of equity in education and the consistent reliability of each variable in the questionnaire. The Cronbach's coefficient is shown in Table 3, which indicates that this survey has good reliability.

Table 3 Reliability Statistics

Reliability Statistics	
Cronbach Alpha	Number of topic items
0.932	19

The results of KMO and Bartlett's Sphericity test on the overall data obtained from the subject sample using SPSS 29 are presented in Table 4 yielding that the sample data has good validity.

Table 4 KMO and Bartlett's test

KMO and Bartlett's test		
KMO Sampling Suitability Measure		0.950
Bartlett's test of sphericity	Approximate chi-square	5843.720
	Degree of freedom	171
	Significance	<.001

4.1 Descriptive statistical analysis

In this study, descriptive statistics were used to analyse the situation of sense of equity in education and mean scores were calculated for 19 questions, with higher mean scores representing a greater sense of equity in education among students.

Table 5 (two-tailed) Mean, standard deviation

	Mean	Standard deviation	Sample size
Students' academic grade point average (GPA)	2.62	1.173	515
Mean score on topics	4.055	0.786	515

Table 6 Correlation

		Students' academic grade point average (GPA)	Subject Mean Score
Students' academic grade point average (GPA)	Pearson's correlation coefficient	1	-.144**
	Significance (two-tailed)		0.001
	Sample size	515	515
Mean score of the questions	Pearson's correlation coefficient	-.144**	1
	Significance (two-tailed)	0.001	
	Sample size	515	515

Tab. 6. **. At the 0.01 level (two-tailed), significant correlation

Tables 5 and 6 show that the subjects' college students' mean score for the 19 questions is above 4.055, indicating that their overall sense of equity and equity in education is high, and that the students have a supportive attitude towards educational equity. The correlation between the 19 questions and the students' grades, with the two at the 0.01 level, indicates that significant correlation is present, and that the students' sense of equity in education affects their academic performance.

4.2 Correlation analysis of the mean score of the questions on the sense of educational equity and academic performance

As can be seen from Table 7, the mean scores of students' educational equity perception questions are significantly correlated with their academic performance at the 0.01 level. This indicates that students' sense of equity in education affects the level of academic performance.

Table 8 shows that the students who have experienced educational inequity have a lower sense of equity. The significant correlation between the feeling of inequity and academic performance indicates that students who have experienced the experience of

educational inequity will have an impact on their academic performance.

Table 7 Correlation between mean scores of 19 questions and academic performance

		Students' academic grade point average (GPA)	Mean score of the questions
Students' academic grade point average (GPA)	Pearson Correlation	1	-.144**
	Significance (two-tailed)		0.001
	Sample size	515	1
Mean score of the questions	Pearson Correlation	-.144**	
	Significance (two-tailed)	0.001	
	Sample size	515	515

Tab. 7. **. At the 0.01 level (two-tailed), significant correlation Student's academic grade point average (GPA) for the semester under test

Table 8 Correlation between experiencing educational inequity and academic performance

		Students' academic grade point average (GPA)	Whether students experience feelings of educational inequity
Students' academic grade point average (GPA)	Pearson Correlation	1	-.209**
	Significance (two-tailed)		<.001
	Sample size	515	1
Whether students experience feelings of Educational inequity	Pearson Correlation	-.209**	
	Significance (two-tailed)	<.001	
	Sample size	515	115

As can be seen from Table 7, the mean scores of students' educational equity perception questions are significantly correlated with their academic performance at the 0.01 level. This indicates that students' sense of equity in education affects the level of academic performance.

Table 8 shows that the students who have experienced educational inequity have a lower sense of equity. The significant correlation between the feeling of inequity and academic performance indicates that students who have experienced the experience of educational inequity will have an impact on their academic performance.

4.3 Simple linear regression analysis

Table 9 Simple linear regression analysis ANOVA^a

ANOVA ^a					
modelling	sum of squares	degrees of freedom	mean square	F	Significance
1 Regression	14.604	1	14.604	10.818	.001b
Residuals	692.561	513	1.350		
Totals	707.165	514			

a. Dependent Variable: 3. Your subject's semester academic GPA/GPA is.

b. Predictor variable: (Constant), 19 question means

The mean scores of the 19 educational equity feeling test questions were taken as independent variables, and students' academic performance was taken as dependent

variable, and simple regression analysis was done between them. The results in Table 9 and 10 show that the significance between the two is <.001, which indicates that there is a causal relationship between the sense of educational equity and students' performance, i.e., the students' sense of educational equity in learning will have a certain impact on their academic performance.

Table 10 Coefficients^a

Coefficients ^a					
modelling	Unstandardised coefficient		Standardised coefficient		Significance
	B	Standard Error	Beta	t	
1 (Constant)	3.491	.269		12.962	<.001
Means	-.214	.065	-.144	-3.289	.001

a. Dependent Variable: 3. Your subject's academic GPA/GPA for the semester was.

5 Discussion

This study tested three dimensions of educational equity perceptions, namely, perceptions of equity in educational opportunities, perceptions of equity in the educational process, and perceptions of equity in educational outcomes. The results of the study showed that all the above three dimensions of educational equity perception have an impact on students' academic performance. In

the previous study, the paper on the impact of junior high school students' sense of equity in education on their academic performance is taken as an example, and the findings of that paper are the same as those of this study. Compared with previous studies, this study is more objective in the selection of research subjects, because college students are an adult group, they have a more correct ability to distinguish right from wrong, and their feelings of educational equity are more correctly judged than those of junior high school students.

The theoretical analyses of this study also have limitations. For example, the limitation of the research method, this study only used the questionnaire survey method, if we add qualitative research, such as semi-structured interviews, face-to-face with the respondents to ask them in detail about their feelings of educational equity, and psychological mechanisms, we will get more rigorous and reliable research results. Secondly, due to limited human and material resources, the scope and number of samples were not large enough, the distribution of respondents in this study was uneven, and the representativeness of the conclusions as well as their generalisability were limited. Most of the respondents in this study were in their first and second year of university and they had idealized ideas about education. Whereas third-year university and fourth-year university students have already experienced a more complete university learning experience and life experience, their feelings about educational equity will be more realistic and credible. Moreover, this study found that the sense of educational equity affects academic performance, but how does this effect occur, what exactly are the factors that affect it, whether there is a mediating variable, and how strong the effect is, all of these questions deserve more in-depth research. Therefore, the shortcomings of this study can be improved by increasing the qualitative research method, equalizing the proportion of grade distribution, expanding the scope of the study, and increasing the number of samples in order to obtain more accurate research results.

The results of this study indicate that there is an impact of students' perception of educational equity on their academic performance, and the same results have been obtained in previous studies of the same with junior high school students. Therefore, this deserves the attention of the education sector, which is to pay more attention to the students' experience and feelings of educational equity in the course of their academic career. At the school level, schools can develop policies related to feelings of educational equity to ensure that every student receives an equitable experience within the school and that inequities are reduced. At the teacher and classroom level, teachers should treat students equally and according to their abilities to ensure that students receive fair treatment in the process of education and enhance their feelings of educational equity. In obtaining educational equity, students' motivation to learn is enhanced in order to get better academic performance. The results of this study can be applied and generalized

to real education, which is of practical significance in providing more guidance to educators on practical aspects.

6 Conclusion

The present study examines the influence of sense of educational equity on academic performance. The findings reveals that sense of educational equity is closely related with academic performance which is in lien with prior studies' findings. The results indicate that apart from intelligence and learning skills, other factors associated with beliefs could also impact students' learning achievement. Based on that, suggestions are also discussed.

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