



GREEN GROWTH EDUCATION FOR SUSTAINABLE DEVELOPMENT :
Comparing Students' Understanding On Greengrowth for Social Justice In Sustainable
Development¹

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Abstract

One of the important factors that has been difficult to be overcome by each country is poverty, beside unemployment and environmental degradation. To eradicate the poverty is one of the goals of each government in this planet to build a social justice. For instance, among Asian-Pacific countries, the economic growth has indicated a tremendous progress, but at the same time most people still live beyond the poverty line and the quality of our environment is still unsolvable. Therefore, the postulate "growth first, clean up later" is no longer applicable. The concept of "green growth" which was declared in Soul (2008) by Asian-Pacific countries might be more suitable in integrating sustainable development for social justice, since one of the approaches to be implemented in green growth is how to involve the poor people in developing the economic sector. Involving the poor people is one of the forms of social justice. So, how students understand those concepts and are there any difference in understanding those concepts among level of study, by conducting a comparative research, is the main topic of this paper. An ex post facto method used and involving students who are now at the undergraduate, master and doctorate programs, at the State University of Jakarta. Around 25 undergraduate students (for batch 2 is 39 & 21), 22 master batch 2 is 20 students), and 22 doctorate (24 for batch 2) students have been selected randomly. The instrument for measuring students understanding green growth has been developed based on (1) Sustainable Consumption and Production (Demand-side), (2) green business, (3) sustainable infrastructure, (4) green tax and Budget Reform, (5) Investment in Natural Capital, and (6) Eco-efficiency Indicators. By applying one-way ANOVA, this research reveals that there is significant and very highly significant (batch 2) difference exist among groups being compared, means that green growth education has an impact on students' understanding about green growth for social justice, especially in sustainable development. Finally, it will be easier for them to socialize and improve the implementation of sustainable development. Therefore, intentionally, it is a basic way for eradicating the poverty by accomplishing social justice in sustainable development through education.

INTRODUCTION

Most of the countries have been more focusing its development on the economic sectors. In reality, however, it is often found that there is unbalance occurred due to the impact of development. Let us take an example where

The increasing of poor people, unemployment and unconsciously its environmental degradation, equally happens in most of developing countries, even though they have been focusing on the economic sectors which indicating by the economic growth.

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This is rather controversial while most people are still live beyond the poverty line and some of the environmental problems unsolvable as well. Moreover, concept of sustainable development is too strong just merely to be unreal concept due to its implementation uncontrollable. The evidence of this is our planet is getting warmer from year to year, since this concept introduced for the first time in 1987/1988 in a perspective book entitled "our common future."

In related to get the solutions toward on environmentl problems, many countries have tried several ways and negotiation among industrial and developing countries since Stockholm conference (1972) until a few month ago at the Cancun meeting (2010) by producing some declarations, one of them is Kyoto Protocol, which until now the result is still questionable.

Therefore, it might be hypothesized that there is a strong link happens between irrational development which would have an impact not to decrease number of poor people, with environmental degradation, so this unequal impact of development on society would have an impact on social justice, then those poor people would affect on environmental degradation. It is a kind of "devil cycle."

It should be glad to be welcomed is new approach declared in Soul (2008) by Asia-Pacific countries which is called "Green Growth." This new concept might be promising for eradicating poor people and protecting from environmental destructions, while the economic development is still progressing (sustainable development).

So, what is green growth? Green Growth is a policy focus for the Asia and Pacific region that emphasizes environmenttally sustainable economic progress to foster low-carbon, socially inclusive development. Green Growth is a globally relevant approach to sustainable economic growth that was developed in Asia (www.greengrowth.org).

It is imperative that countries in the Asia and Pacific region continue their economicgrowth to eradicate poverty and to achieve social progress. Increasing of environmental degradation, climate change and diminishing natural resources require an unconventional approach to support the export-driven economic activities of the region.

There are some reasons why green growth is more important than other programs in Asia-Pacific countries;

- The Asia and Pacific region has been at the forefront of the 21st century surge in economic growth
- This has significantly compounded the environmental carrying capacity pressures of many countries in the region.
- ... these impacts are driving changes in consumption patterns in these countries and policies are needed to ensure that these developments will be environmentally sustainable.
- The past axiom of "grow first, clean up later", cannot apply in a region that has such a limited natural resource base and a rapidly growing population directly dependent on natural resources. In light of the recent fuel, food and financial crisis is now imperative for countries in the region to reassess their development paths (www.greengrowth.org).



In this case, however, the problems arise when countries begin to implement this concept, that is how to achieve it. There are two ways to answer this question, first, in order to achieve Green Growth it is crucial to change development approaches from 'grow first, clean up later' to a more responsible *long-term attitude*; secondly, governments can promote this by encouraging economic growth with an emphasis on environmental and social concerns.

One of the logical approaches might be good to be considered is what has been proposed by UNESCAP which called Sustainable Livelihood Approach (SLA). This approach is social link of green growth. UNESCAP's Green Growth Program has evolved to emphasize the Sustainable Livelihoods Approach (SLA), a rights-based approach that recognizes *the poor as a key stakeholder in the development process* (greengrowth.org). This is what is actually called green growth for social justice.

Green Growth encourages the use of participatory assessments which identify the main constraints, opportunities and concerns faced by the poor and to include them into the policy planning and implementation cycle. The SLA supports vulnerable communities by *providing pro-poor social services and by creating an enabling environment for sustainable development*.

This is a new in term of the economic growth is not merely felt by the have groups in a society, but for some of them which still live beyond the poverty line as well. So, green growth will link to the poor people as an indication of social for justice.

Adopting this approach allows Green Growth to work towards win-win solutions: addressing the environment in ways which enhance opportunities for the poor to participate more fully in society and thus improving their quality of life (greengrowth.org).

To assist the capacity development of policy and decision makers, UNESCAP is focusing on the following paths as the most important policy measures to enhance Green Growth:

- Sustainable Consumption and Production (Demand-side Management)
- Greening Business and Markets
- Sustainable Infrastructure
- Green Tax and Budget Reform
- Investment in Natural Capital
- Eco-efficiency Indicators

Fortunately, some of Asian countries have been ratified the Kyoto Protocol by planning to cut the emissions which could be used as an indicator that green growth, implicitly, has been program-med. It is part of countries' efforts to try to eradicate poor people and at the same time the only one our planet could be saved.

Some of those programs which could be said Asian nations steps forward and have been planned by those countries are (Kanie, 2010);

- Indonesia established the first midterm emissions targets for 2020 (cutting emissions by up to 41%)
- Singapore, pledges to be carbon neutral by 2019.
- South Korea, announced a 30% emission reduction target for 2020 from what is called the business-as-usual scenario (BAU), which represents a 4% reduction from 2005 levels.
- China, and its target is to reduce emissions as a per cent of GDP by 40-45% from 2005 levels by 2030.



- India, announced a 20-25% reduction of emissions as a per cent of GDP by 2020, and a 37% cut by 2030.
- Japan will try to cut greenhouse gas emissions by 25% from 1990 levels as its midterm target for 2020 (Ohgaki, 2009).

Some strategies for Asia Pacific countries which might be useful are (Santucci, 2009):

- Adopted as the strategy for Asia-Pacific at the 5th Ministerial Conference on Environment and Development (MCED 5, March 2005, Seoul)
- Achieving rapid growth without compromising environmental sustainability
- Attaining MDG 1 (poverty reduction) & MDG 7 (environmental sustainability) at the same time
- Achieving “low-carbon” development
- Focusing on Environmental Sustainability & Ecological Efficiency (Eco-efficiency)

Related to Measuring eco-efficiency, this formula can be applied and some indicators identified for being easier to measure this concept.

$$Eco_efficiency = \frac{Environmental_cost}{Economic_output}$$

Environmental costs can be:

- Pollution emissions (CO₂ or Sox emissions, B O D, etc.)
- Resource-used (energy or water used)
- Cost associated with an environmental burden (traffic congestion costs)

Economic output can be:

- Value added of benefit (GDP per capita)
- Unit of product or service (per km, per m²)

- Cost associated with an environmental burden (traffic congestion costs)

Nevertheless, actually this green growth concept, especially when it is linked with social justice which indicated by to what extend this concept has been implemented to be nations strategy/planning to involve poor people in developing the economic sectors, has not been socialized yet among our students at the University level.

Therefore, the research problem can be formulated “is there any difference of students’ understanding on green growth for social justice between undergraduate, master and doctorate students? This problem might be solved by implementing a comparative analysis.

RESEARCH METHODOLOGY

This research is aim at obtaining information on comparative of students understanding about green growth for social justice derived from different students’ level of study, undergraduate, master and doctorate programs.

It has been conducted since October 2010 and took place at State University of Jakarta, Faculty of Math & Sciences and Postgraduate Studies. Sample has been selected randomly and sample size for undergraduate students is 25 for master program is 22 and finally for doctorate program is 22 students. Undergraduate students are from department of Biology, master and doctorate students are from environmental studies.

For the second batch, May to July 2011, it was also conducted the same



research which covered four groups of students. They are students from Undergraduate which consist of 39 students from department of biology education and 21 from department of biological sciences.

Another group comes from master program at postgraduate studies which consist of 20 students and 24 students from doctorate program, both are from department of environmental education.

Therefore, all samples have similar background because they have studied Ecology, environmental sciences, environmental education and policy, and sustainable development concepts.

Instrument for measuring students' understanding on green growth has been developed in True-False type, based on its dimensions which consist of six green growth path namely Green growth dimensions :

- (1) Sustainable Consumption and Production(Demand-sideManagement)
- (2) Greening Business and Markets,
- (3) Sustainable Infrastructure,
- (4) Green Tax and Budget Reform,
- (5) Investment in Natural Capital, and

The total number of items are 35 and has been validated and found all items are valid (range of validity item is 0.22 till 0.49) with reliability coefficient is 0.663 (0.613 with 37 items on batch 2) after computed by Alpha Cronbach Formula. Data analyzed by SPSS PC ver. 18, especially one-way ANOVA at 0.05 (0.01 for second batch) of level of significant.

Research Findings and Discussion

Based on data analysis, it is found that all three groups have understanding score distributions indicating positive skew-ness (see histogram respectively below). This means that most of the students got the scores of understanding green growth for social justice above the average (mean).

For undergraduate students (group A), around 83 % got the scores above mean (28.76), around 84 % above mean (30.41) for master students (B) and around 76 % above mean (28.91) for doctorate students (C). The theoretical range score is from 0 until 35, so it could be stated that students understanding green growth for social justice is high for all three groups.

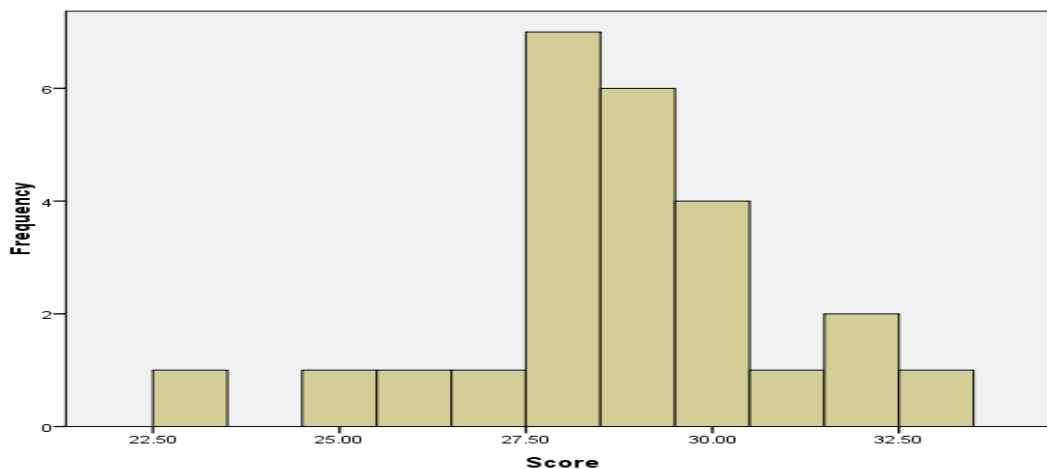


Figure1. Histogram of Undergraduate Students (n = 25)

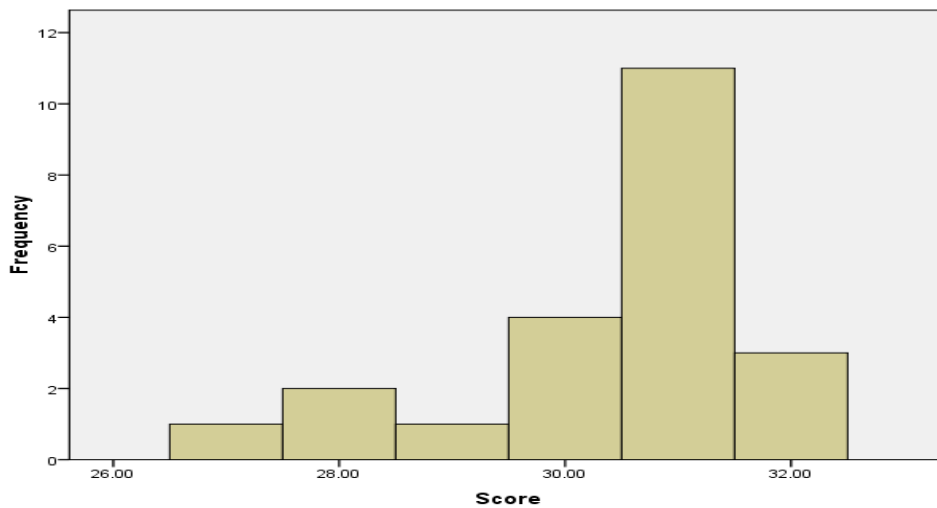


Figure 2. Histogram of Master Students (n = 22)

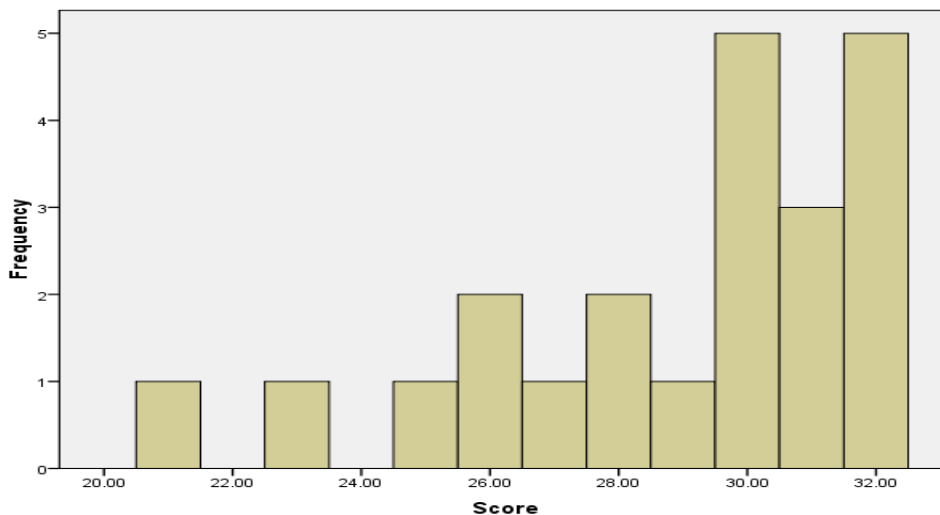


Figure 3. Histogram of Doctorate Students (n = 22)

If it is analyzed further, it is found also that the mean different among three groups is not too big (A=28.76; B = 30.41; and C = 28.91). Therefore, it could be said that the average of students' understanding on green growth for social justice is almost the same across the level of their education.

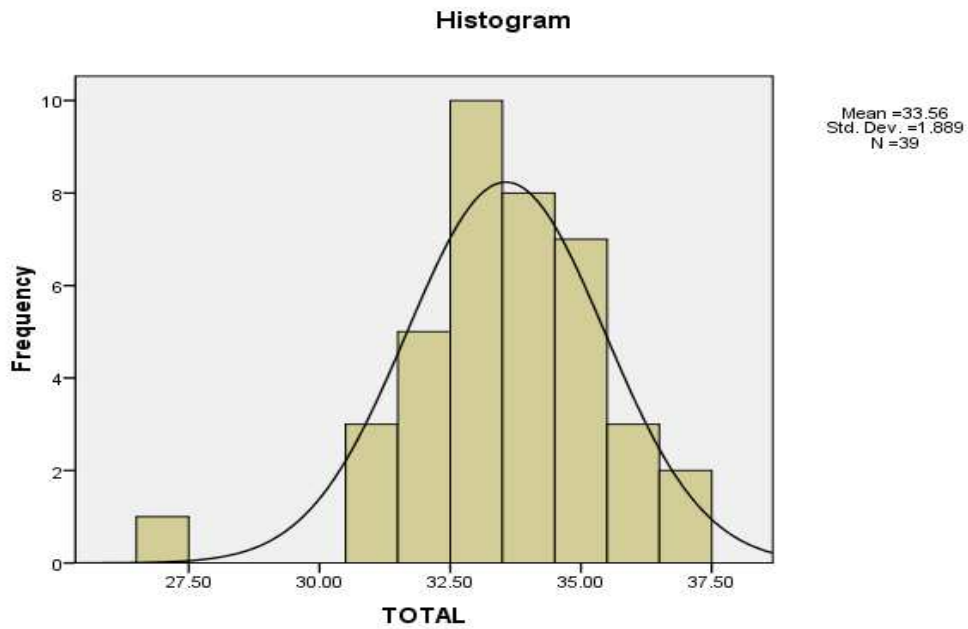
The same result also shows that for the second batch among four groups, the

difference average is not too big, the mean score for undergraduate students from biology education (group A, n 39) 33.56, from biology department (B, n = 21) 30.09, from master students (C, n =20) 33.75, and from doctorate program (D, n = 24) 31.04. The range score is 37 - 74, so those average are high for each group.

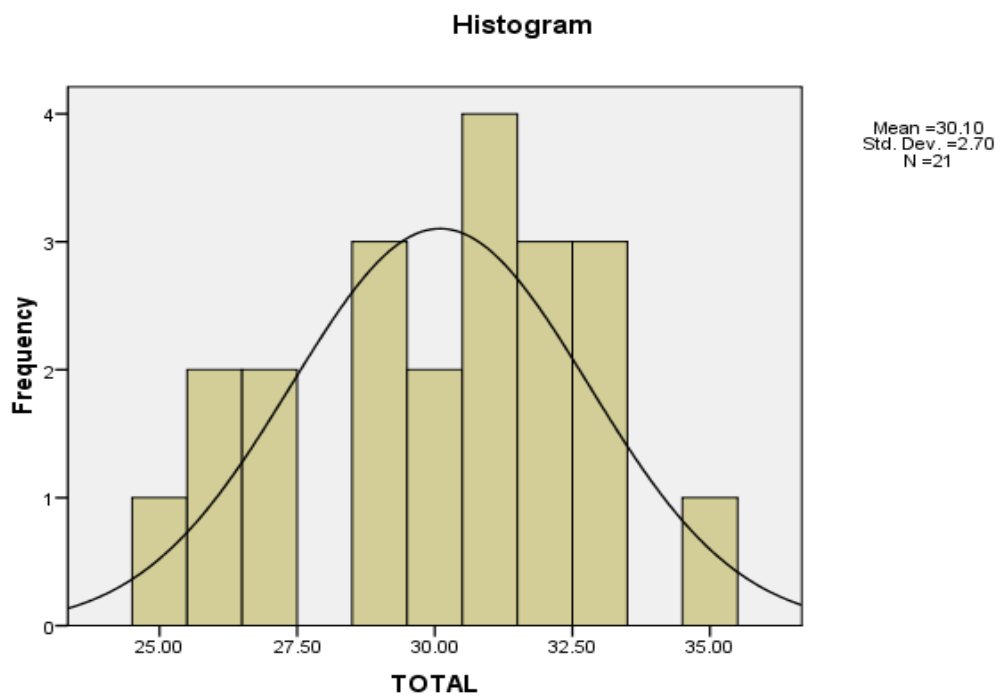
Distribution of those score can be seen at histogram respectively below.



UNDERGRADUATE STUDENTS (A)

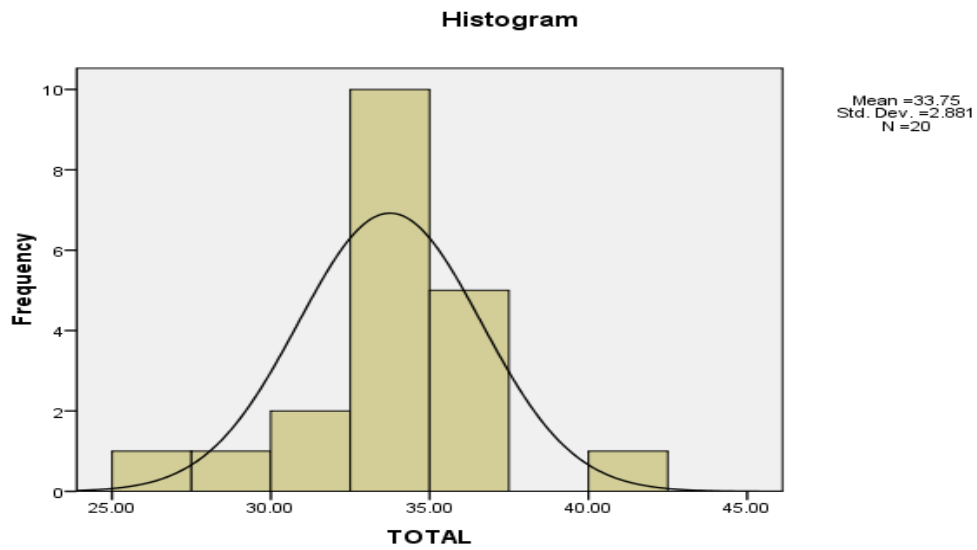


UNDERGRADUATE STUDENTS (B)

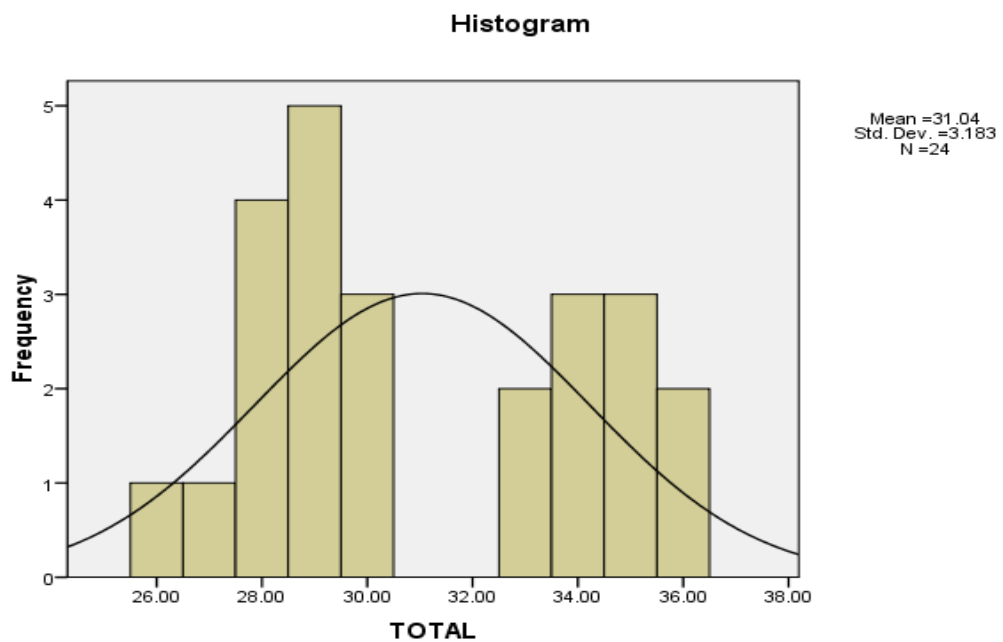




MASTER PROGRAM (C)



DOCTORATE PROGRAM (D)



However, when it is verified statistically (for batch 1 and 2), it is found that the difference among three groups is significant (batch 1, F-Cal 3.45 > F-t

3.11) and very highly significant for batch 2 (F-cal. 12.122 far higher than .001). In detail, it can be seen on ANOVA table 1 and 2 below.



Table 1. One-Way ANOVA for F-test in Comparing Students' Understanding on Green Growth for Social Justice among Group A, B, and C (nA = 25; nB=22; nC=22)

Sources of Variance	df	Sum of Square	Mean Square	F-cal	F-tab(.05)
Between Group	2	36.51	18.255	3.45*	3.11
Within Group	66	349.14	5.29		
Total	68	385.65	5.29		

*p < .05

Table 2. One-Way ANOVA for F-test on Batch 2

Source of Variance	df	Sum of Squares	Mean Square	F	Sig.
Between Groups	3	244.421	81.474	12.122***	.000
Within Groups	100	672.108	6.721		
Total	103	916.529			

*** p < .001

This finding depicts that students' understanding on green growth significantly different among students from three groups. It is logic that a new concept such as green growth concept perceived differently by students from different level of education, undergraduate, master and doctorate students.

This result is probably determined by background students' knowledge related to environment, economic, ecology, social concepts mastered by all students. For students at the undergraduate, they are very uniform in term of their entering point to be students at the University level due to they graduated from senior high school altogether.

For students at master and doctorate program, however, they came from a variety of discipline such as lawyers, teachers, army, police, or from other disciplines. If this is the case, it would be understood that at the within group itself, the variance is too high which will have an impact on F-calculation value

which finally produce only a small F-value (only significant).

Another finding reveals that since F-cal is 12.122 (see table 2 for ANOVA) which this value is much higher than F-t at .01 or .001, then it is not only significant but very highly significant (at .001 level). This is probably because of additional group, so variances among group might be higher than when it is compared only among three groups, beside the size of the sample used at the second batch is bigger.

Nevertheless, both analysis shows consistency where at batch 1 or batch 2, the findings reveal there is differences of students understanding on greengrowth for social justice among three group at batch1 and among four groups on batch 2.

After analysis be continued by applying multiple comparison i.e. Tukey test, to find out which groups has the highest mean score, it is found the same result between batch 1 and 2 that master students have the highest mean score



which significantly differ comparing with other groups. This finding support the argument that students background presumably determines the way the students perceive the surrounding or environmental issues which most of them are teachers.

CONCLUSION

The new concept of green growth for social justice is a complementary supporting concept in sustainable development. Since sustainable development is no longer useful to be utilized by all countries in preventing the worst effect of global warming or other environmental destruct-ions, green growth might be promising concept to be implemented.

Therefore, it should be seriously socialized through many ways including through educational programs, such as this preliminary research finding as one of the activities. So, from this research can be concluded that most of the students do understand what green growth is. This is because of green growth dimensions con-sist of general concepts related to environ-mental issues, economy, ecology, green business, green tax, eco efficiency, etc.

Since it is found that there is difference in students understanding on green growth for social justice, it could be implied that it would be required a variety approach in implementing green growth concepts into school or Universities curriculum. This research result is to strengthen our argument that education or put in a special term, teaching and learning process could be beneficial approach in implementing any concept to be understood by students which finally enable to be socialized to wider society more systemically.

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