

An Instrument for Assessing the Performance of University Research With a Gesi-Perspective

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ABSTRACT

GESI (*Gender Equality and Social Inclusion*) is one of the important issues of the world's concern. For instance, based on UN data, it is estimated that 70% of women are the poorest group in the world. In addition, family head women (the backbone of the family), poor women, the elderly people, people with disabilities, children, minority groups, indigenous peoples, laborers, domestic servants, disaster victims, and other marginalized groups in the frontier, outermost, and isolated regions are still excluded from many university research programs in Indonesia. Therefore, universities need to be encouraged to focus their research activities on GESI. This research was aimed at developing an *outcome*-based instrument for assessing the performance of university research with a GESI perspective. To achieve this objective, the research method used was instrument development, including three stages, namely preliminary stage (theoretical review), product development stage (theoretical test), and product implementation stage (instrument test). *Expert judgment* (Borg & Gall, 2003) was employed for the content validity test and *Principal Component Analysis* (Rigner, 2008) was adopted for the data analysis. The outcome of the research was an *Outcome*-based Instrument for Assessing the Performance of University Research with a GESI perspective. The result of the research has an implication for the need to improve the quality of research focusing on GESI for lecturers.

Keyword: *GESI, gender equality, social inclusion; assessment instrument; research product*

INTRODUCTION

The Government of Indonesia makes efforts to improve the quality of the Indonesian human resources (HR) so as to be in line with development progress. The Government of Indonesia needs to cooperate with various parties in developing its human resources, projected to reach approximately 268 million people in 2019. As educational organizers, universities have the obligations to carry out three pillars of universities. One of them is to conduct research aimed at achieving community welfare, including the marginalized groups. However, universities have not so far focused their research on them.

Based on this, the Government of Indonesia has taken an initiative to encourage university research to be more applicable, especially to assist the parties/groups often undergoing discrimination, subordination, marginalization and injustice. To raise the welfare of the groups, universities need to pay attention to research with a GESI (*gender equality & social inclusion*) perspective. With GESI-based research, the marginalized groups are expected to enhance their awareness in order to cope with the gaps from the aspects of access, participation, benefits, and control in the development.

There are several legal bases that support the GESI perspective, including the 1945 Constitution regarding the guarantee of equal rights and position of every citizen as stipulated in Article 27 paragraphs 1 and 2 (the *1945 Constitution of the Republic of Indonesia*); GBHN (*the Broad Line of State Policy*) 1999 which mandates the need for institutions capable of carrying out national policies to realize gender equality and equity, as well as Gender Mainstreaming (PUG); Presidential Instruction No. 9 / 2000 regarding Gender Mainstreaming in the National Development (*Presidential Instruction No. 9 / 2000 Regarding Gender Mainstreaming*).

In the framework of enhancing the awareness of the GESI perspective, the Directorate General of Higher Education needs to make research performance assessment parameters with a GESI perspective. In general, GESI research has characteristics such as : (a) being equity-oriented; (b) pondering to side with the weakened groups; (c) making efforts to eliminate discriminatory practices of parties including the GESI groups: family head women (the backbone of the family), poor women, the elderly people, people with disabilities, children, minority groups, indigenous peoples, laborers, domestic workers, disaster victims, and other marginalized groups in the frontier, outermost, and isolated regions.

In general, this research was aimed at developing a valid, reliable, *usable*, and *practical* instrument for assessing the performance of university research with a GESI perspective that can be used by universities in Indonesia. The output of this research is an Instrument for Assessing the Performance of University Research with a GESI perspective seen from four elements, including *input*, *process*, *output*, and *outcome*. Each element has indicators described in an assessment rubric using a scale or gradation from 0 to 4. The Technology Readiness Level is a social, humanity and educational type up to level 6.

The importance of the instrument for assessing the performance of university research with a GESI-Perspective is to facilitate the Directorate of Research and Community Services, Directorate General of Higher Education, Ministry of Education and Culture to rank university research with a

GESI perspective. This instrument comprises four dimensions, including input, process, output, and outcome. The largest proportion of the assessment is on the outcome and then output, by pondering that the most important thing of this study is its benefits for the GESI groups to improve their welfare (*human wellbeing*).

THEORETICAL BACKGROUND

This research aimed to measure the performance of university research with a GESI perspective from four aspects, including *input*, *process*, *output*, and *outcome*. The output of this research is a product in the form of an instrument for assessing the performance of university research with a GESI perspective, based on the theory of gender equality and social inclusion; theory of measurement and assessment principles; theory of instrument development; theory of research performance; theory of research performance assessment; theory of elements of *input*, *process*, *output*, and *outcome* in research performance.

Gender Equality and Social Inclusion

The first concept to know is gender, that can be understood as the attributes, roles and responsibilities attached to women and men based on social construction (Fakih, 2016). According to the United Nations (UN), gender equality refers to equal rights, responsibilities, and opportunities between women and men (Walby, 2004). Gender equality is more substantive in nature, in the sense that gender equality can be realized if equal access and space for participation between women and men are opened.

The above definition does not mean that men and women are the same. However, they have equal opportunities in every field of life. Furthermore, gender inclusion can generally be understood as views and practices that women are actually different from men, and this difference needs to be paid attention so that women's needs or interests can also be satisfied. The difference does not cause women to be discriminated and forced to adjust to a more dominant group, so that they eventually become second-class citizens. Gender inequality is principally the result of unequal distribution of power between men and women due to discrimination, weak laws and policies, and social interactions that consider injustice to be normal (Rich-Edwards, Kaiser, Chen, Manson & Goldstein 2018). Based on the *2018 Global Gender Gap Index*, Indonesia is ranked the 85th out of 144 countries. The value of Indonesia's index in the fields of health and survival, educational attainment, economic participation, and the opportunity index is above the global average. However, in the field of political empowerment, it is below the global average. In general, based on the *2018 Global Gender Gap Index* report, issues that still need to be developed include the level of women's participation in politics. This has resulted in many regulations or policies lacking a perspective on women's needs. The other problem is the relatively constant growth of women in the labor market. This is partly due to the existence of social expectations of the community concerning women's responsibilities for managing families. As a result, many women refuse to work far from home, reject positions or higher responsibilities at work and tend to take jobs in informal sectors, so as not to be recorded. In addition, gender inequality is also found in the issue of wages (World Economic Forum, 2018).

According to the United Nations, social inclusion is involvement in the form of full participation of the marginalized groups as the prioritized party in an activity. The marginalized groups include family head women (backbone of the family), poor women, the elderly people, people with

disabilities, children, minority groups, indigenous peoples, laborers, domestic servants, disaster victims, and other marginalized groups in the frontier, outermost, and isolated regions. Thereby, it can be said that *Social Inclusion* is a view of diversity in our society. Therefore, services provided by the Government of Indonesia need to be able to accommodate the needs of these different groups.

Instrument Development

According to Suryabrata, steps for the development of an instrument on noncognitive attributes consist of developing instrument specifications, writing statements or questions, reviewing statements or questions, assembling statements or questions, testing, analyzing test results, selecting and assembling instruments, administering instruments for the final form of the quantification process (Suryabrata, 2005). According to Suryabrata, the steps for developing an instrument are composed of several stages. In the first stage, in the specification of a noncognitive attribute measurement tool, the things that must be developed need to be formulated specifically, such as subjects, objectives, scale models, grids, and time. In the second stage, the formulation of questions or statements for the assessment of these noncognitive attributes varies depending on the scale models used (Saifuddin, 2020). There are three things that must be taken into account in formulating statements or questions, including the idea of the substance (the underlying theory and suitability of the statements or questions with the grids), the format of the formulation that must be able to prompt the desired responses, and the discussion (suitability of the language used with the language rules and the subject to be assessed). In the third stage, the subject group to be tested must be in accordance with what is formulated in the specifications. Similarly, the assessment conditions must be close to natural conditions, so that the subjects can display responses that reflect the actual situations. The fourth stage is the analysis of the test result that will depend on the scale model used. The fifth stage is the result and conclusion obtained with validity limited to the subject group involved in using the instrument.

Flowchart of instrument development can be seen in the following chart:

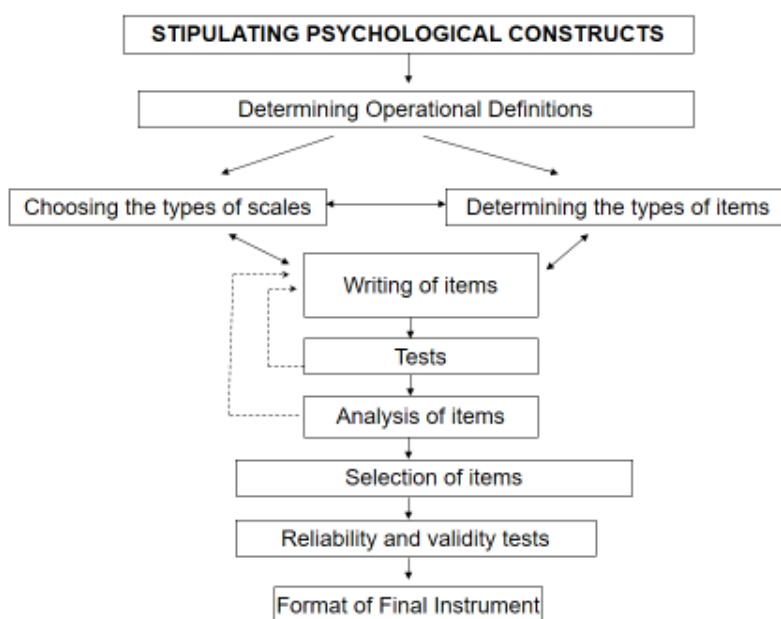


Chart 1. Flowchart of Instrument Development

RESEARCH METHOD

This research is Research and Development (R & D) based on the design of Borg and Gall model (Borg & Gall, 2003). Borg and Gall define development research as the process used to develop and validate a product. The steps of this process are usually referred to as R&D cycle, consisting of (1) exploring research findings related to the product to be developed; (2) developing a product based on the findings; and (3) conducting product tests to determine its credibility (Lederman & Maloney, 2003). In tighter programs, the above cycle can be repeated until the test data fields show that the product meets the research objectives. Seals, Barbara, and Richey (1994) define development research as a systematic assessment of the design, development and evaluation of programs, processes and products that must meet the criteria of validity, practicality, and effectiveness. Van den Akker, Branch, Gustafon, Nieveen, & Plomp (1999) define development research based on two objectives, namely as the development of product prototypes and the formulation of methodological suggestions for designing and evaluating the product prototypes. Rita, Richey, and Nelson (2009) distinguish development research into two types. First is research focused on the design and evaluation of a particular product or program with the aim of obtaining an overview of the development process and investigating the conditions that support the implementation of the program. Second is research focused on assessing the development programs carried out previously. The purpose of this second type is to obtain an overview of effective design and evaluation procedures. Based on the above definitions, a conclusion can be drawn that R&D research is a process used to develop and validate products. The products produced include training materials, teaching materials, media, test and non-test instrument, assessment instrument, and so forth. This research was focused on the development of an instrument for assessing the performance of university research with a GESI perspective.

Steps and Flow of Research and Development (R & D)

According to Borg and Gall, steps for research and development (R & D) consist of a) data research and collection, b) planning, c) initial product development, d) initial product test, e) initial product improvement, f) field test, g) improvement of product from field test, h) final product test, i) revisions or improvements of the final product, j) dissemination and implementation (Gall, 1983). The steps are shown in flowchart 2 below:

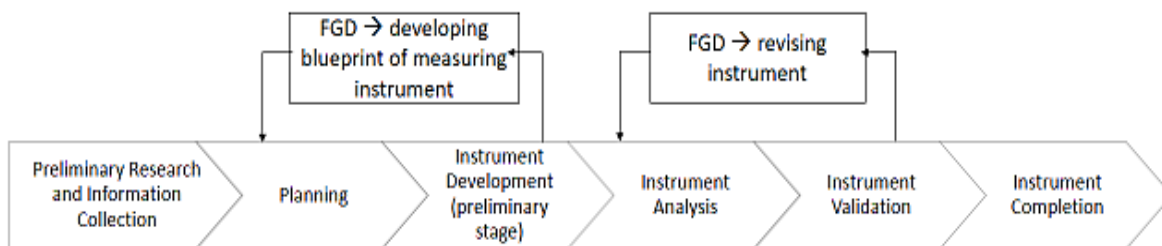


Chart 2. Flowchart of Research

Roadmap of Instrument Development

The Instrument for Assessing the Performance of University Research with a GESI Perspective was developed in stages, as illustrated in Figure 2.

- a. Development of draft instrument based on theoretical studies on instrument development, theory of research performance, theory of research performance assessment, theory of elements of *input*, *process*, *output*, and *outcome* in research performance, and theory of GESI. At this stage, the subject assessed, the purpose of assessment, the scale or gradation developed are formulated. Based on theoretical studies, constructs are formulated and dimensions/elements and indicators, weight of each element and indicator, and the number of indicators for each dimension/element are determined. Further, every thing is put in the instrument grids in the form of a specification table.
- b. Validation of instrument, that is using *interrater* method, including *rater* of experts and *rater* of GESI practitioners. At the stage of theoretical validation, it involves 2 (two) experts, consisting of 1 (one) GESI theorist and 1 (one) GESI practitioner. In addition, this instrument is also validated by a psychometric expert in the field of educational research and evaluation competent in the field of assessment (Lodico, Spaulding & Voegtle, 2010). Furthermore, the instrument is assessed by an Indonesian linguist.
- c. Expert examination begins with reviewing conceptual and operational definitions. Experts examine how far the dimensions as a description of the constructs and the indicators as a description of the dimensions of the instrument items properly measure the indicators. The discussion result and expert analysis show that the conceptual and operational definitions of the Instrument for Assessing the Performance of University Research twith a GESI Perspective are appropriate and suitable as well as reflecting the GESI theory. Further, the result of expert's assessment also suggests that the dimensions developed are an accurate description of the constructs and the indicators made are an accurate description of each dimension. Furthermore, the experts assess the indicators and rubrics of the instrument. Experts assess the observation items or instrument items based on the result of the expert's qualitative analysis and it is revealed that 26 indicators and their respective rubric are correct in terms of language and do not need to be revised, except only improvements in terms of language used in order to be suitable with proper and correct instrument.
- d. After validation by experts, revisions are made to the draft instrument, in the form of adding indicator items and changing the weight of each indicator.
- e. This latest instrument is the one that has been revised based on suggestions/inputs from the experts. Thereby, this instrument is ready to use.

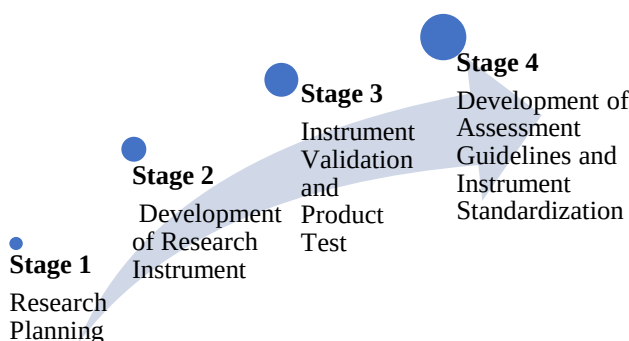


Chart 3. Roadmap of Instrument Development

Assessment Basis

The assessment of research performance is based on four aspects, including *input*, *process*, *output*, and *outcome*.

1. Input element, that is about Research Resources consisting of (a) implementation standard; (b) content standard; (c) funding and financing standard; and (d) facility and infrastructure standard. The indicators are as follows:
 - a. Topic/title of the research reflects the elements of GESI.
 - b. Objective of the research reflects the elements of GESI.
 - c. Benefit of the research reflects the element of GESI.
 - d. Percentage of female research lecturers with doctoral degrees.
 - e. Percentage of male research lecturers with doctoral degrees.
 - f. Percentage of female research lecturers with master degrees.
 - g. Percentage of male research lecturers with master degrees.
 - h. Percentage of female research lecturers by academic positions.
 - i. Percentage of male research lecturers by academic positions.
 - j. The existence of GESI support unit.
 - k. Source of funds.
2. Process element, that is about management consisting of (a) process standard; (b) assessment standard; and (c) management standard. The indicators are as follows:
 - a. Involvement of GESI subjects in research by using various research methods such as: FGD, interviews, surveys, questionnaires, and the like.
 - b. Adoption of a multi-disciplinary scientific approach.
3. Output element, that is about output, namely result standard. The indicators are as follows:
 - a. Scientific publication of the research result of GESI.
 - b. The research result of GESI in proceedings.
 - c. Intellectual Property Rights (IPR) on GESI.
 - d. Book on GESI.
 - e. Other science and technology outputs on GESI.
 - f. GESI-assisted groups
4. Outcome element, that is about (a) the standard of research benefits in improving welfare, equality and equity for the marginalized groups; (b) GESI-perspective policies, and (c) Revenue Generating (funds generated by the Study Center/ Research Center/Laboratory originating from non-research activities or by business units of research result). The indicators are as follows:
 - a. The output of science and technology has been utilized by the GESI groups.
 - b. International scientific publication has been cited.
 - c. National scientific publication has been cited.
 - d. Book has been cited.
 - e. The research result serves as a reference for the Government of Indonesia to make policies.
 - f. Serving as an empowerment training material.
 - g. Revenue generating (generating income from GESI products or services).

RESULT AND DISCUSSION

This section presents the result and discussion on the result and outcome achieved, divided into two parts, consisting of : (a) instrument for assessing the performance of university research with a GESI perspective; (b) description of the instrument for assessing the performance of university research with a GESI perspective; (c) description of the guidelines for assessing the performance of university research with a GESI perspective.

Assessment Intrument

The instrument for assessing the performance of university research with a GESI perspective, as stated in the attachment to this article, comprises four dimensions, including *input*, *process*, *output*, and *outcome*.

Description of Instrument

The instrument for assessing the performance of university research with a GESI perspective is primarily intended to be used by universities in order to evaluate the research results generated by researchers whether they reflect a GESI perspective and give benefits to the GESI groups. This instrument is designed to be operated by one administrator in assessing the result of research in universities. Therefore, the instrument is designed in a simple form so as to be easily used. The characteristics of the instrument for assessing the performance of university research with a GESI perspective are as follows.

1. GESI (Gender Equality and Social Inclusion) includes; gender, women, children, poor people, vulnerable people, children with disabilities (children with special needs, blind, deaf, other disabilities), minority groups, elderly people, caste/ethnicity, underdeveloped, marginalized, and isolated communities, indigenous people, laborers, domestic servants, LGBT, and refugees & disaster victims.
2. The highest value/maximum score of this instrument is 400. The total weight of all elements is 100. The highest gradation of each indicator is 4 and the lowest is 0, so that the highest value/maximum score is 400 obtained from the highest gradation (4) multiplied by the total number of weights of all elements (100), that is $4 \times 100 = 400$.
3. Categorization of the assessment results consists of:
 - a) Total score of 301 – 400 = Very Good
 - b) Total score of 201 – 300 = Good
 - c) Total score of 101 – 200 = Poor
 - d) Total score of 0 – 100 = Very Poor
4. Input (15%), consisting of 11 indicators with 15 weight ratings, as follows.
 - a) Topic/title of the research suggests the element of GESI; weight = 0.5,
 - b) Research objective suggests the element of GESI; weight = 0.5,
 - c) Research benefit suggests the element of GESI; weight = 1,
 - d) Percentage of female research lecturers with doctoral degrees; weight = 1,
 - e) Percentage of male research lecturers with doctoral degrees; weight = 1,
 - f) Percentage of female research lecturers with master degrees; weight = 0.5,
 - g) Percentage of male research lecturers with master degrees; weight = 0.5
 - h) Percentage of female research lecturers by academic positions; weight = 1,
 - i) Percentage of male research lecturers by academic positions; weight = 1,

- j) The existence of the GESI Support Unit; weight = 3,
 - k) Source of Funds; weight = 5.
5. Process (10%), consisting of 2 indicators with rating weight of 10, as follows.
 - a. Involvement of GESI subjects in research using various research methods such as: FGD, surveys, questionnaires, and the like; weight = 5
 - b. Adoption of a multi-disciplinary scientific approach; weight = 5.
 6. Output (35%), consisting of 6 indicators with rating weight of 35, as follows.
 - a. Scientific publication of the research result of GESI; weight = 6,
 - b. The research result of GESI in proceedings; weight = 5,
 - c. Intellectual Property Rights (IPR) on GESI; weight = 7,
 - d. Book on GESI; weight = 6,
 - e. Other science and technology outputs about GESI; weight = 7,
 - f. GESI-assisted groups; weight = 4.
 7. Outcome (40%), consisting of 7 indicators with rating weight of 40, as follows.
 - a. The output of science and technology has been utilized by the GESI groups; weight = 7,
 - b. International scientific publication has been cited ; weight = 6,
 - c. National scientific publication has been cited; weight = 5,
 - d. Book has been cited; weight = 5,
 - e. The research result serves as a reference for the Government of Indonesia to make policies; weight = 7,
 - f. Serving as an empowerment training material; weight = 5,
 - g. *Revenue generating* (generating income from GESI products or services); weight = 5.

Use of Instrument

The instrument for assessing the performance of university research with a GESI perspective can be used as follows.

1. First, the research report is filtered by using indicators on the input element as a preliminary assessment to assess the suitability of the title/topic, objective, and benefit of the research. If the result of the research assessed obtains a score from the gradation 0 to 1 (zero to one), the assessment of the research report is not continued. This means that the research does not reflect a GESI perspective. However, if the research report assessed by using the three indicators obtains a score of gradation 2 (two), the assessment of the research report is continued to the next indicator until the last indicator.
2. Furthermore, the assessor gives a score from the gradations 0 to 4 quantitatively based on the qualitative assessment of the assessor.
3. After completing the second step, the assessor is required to provide information/explanations/comments on the reasons for giving the score.
4. The final score is calculated from the gradation score of each indicator given by the assessor whether (0), (1), (2), (3), (4) multiplied by the weight of each indicator. After that, the multiplication result is added up.

CONCLUSION, IMPLICATIONS, AND SUGGESTIONS

Conclusion

Based on the result of the analysis and discussion, the main conclusion that can be drawn is that the instrument for assessing the performance of university research with a GESI perspective produced is an *outcome-based* instrument, that is an instrument emphasizing its assessment on the aspects of research benefits to GESI groups (gender, women, children, poor people, vulnerable people, people with disabilities (children with special needs, blind, deaf, other disabilities), minority groups, the elderly people, caste/ethnicity, underdeveloped, marginalized, isolated communities, indigenous people, laborers, domestic servants, LGBT, refugees & disaster victims).

Furthermore, this instrument has been validated through an *interrater* method including *rater* of experts and *rater* of practitioners of GESI, so that the validity and reliability level of the content can be accountable. In addition, the instrument produced can be easily used (usable), as the scoring technique is practical without using a complicated mathematical formula.

Implications

This research produces a valid, reliable, trustworthy, easy, and practical research instrument for assessing the performance of university research with a GESI perspective. Therefore, this instrument implies the need to improve the quality of GESI-focused research for university lecturers in Indonesia.

Suggestions

The instrument for assessing the performance of university research with a GESI perspective produced is an *outcome-based* instrument, which is valid and reliable with practical characteristics. However, this instrument requires a large number of personnels. Therefore, it is suggested that the same instrument be developed for further research with a small number of personnel.

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