Model Development of the National Examination System

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Abstract. In the years following the regulation change for National Examination (NE) in 2015, there has been a steady decline of the results. This is due to several factors related to the implementation of the test itself, and also due to the change in its function as no longer graduation criteria but only for mapping education quality. Thus, it is necessary to study how to further develop and perfect the national level of assessment in order to ensure the best education quality. This study aims to evaluate the existing national examination and to develop a model of the national examination system. Data were collected through focus group discussion, in-depth interviews, and questionnaires. Informants involved in this study were local government, educational experts from universities, and school principals. The result shows NE needs to be considered as graduation criteria with a proportionate percentage no more than 50%. This is to ensure a completion of graduates’ competency standard. It is also concluded that: 1) form will be in a certificate; 2) the mode of administration is CBT; 3) national examination is administrated by BSNP and Center for Educational Assessment in collaboration with the Ministry of Higher Education to link between NE and universities; 4) NE implemented for grade 9 and 12; 5) NE should cover all student population as it measures student competencies, but could also be taken individually for students who want to find out their competencies, and 6) subject tested include basic literacy and 21st century skills.

Keywords: National Examination, Assessment, Graduation criteria
INTRODUCTION

It is explicit in the MOE Strategic Planning, that the weakness of the education assessment system is one of the main factors of low quality of the learning process in Indonesia. This weakness, among others due to the lack of 1) validity and reliability of the national examination (ujiian nasional/UN), 2) effort to strengthen the educational assessment institution, 3) utilization of assessment results for improving learning process, and 4) capacity of teachers in providing qualified formative assessment (Pendidikan & Kebudayaan, 2015). In accordance with this, a study conducted in 2016 showed that the results of the national examination (NE) have not been fully utilized for improving learning process (Mahdiansyah, 2016).

When Government Regulation Number 13 Year 2015 was enacted, there was a major shift related to the NE, the previous provision stating that NE as one of the requirements for graduation was no longer valid. Since 2015, NE is no longer considered as one of the graduation requirements. The current NE goal is only to map the quality of national education, and as an entry selection consideration for the next level of education, but the latter has reduced with the current zoning policy.

In 2015, not only NE function has changed but its implementation process also changes; the government started a new form of testing, namely computer-based test/ CBT (ujiian nasional berbasis computer/ UNBK). In 2015, schools participated in CBT are 42 junior high schools, 135 high schools, and 379 vocational schools (Center for Educational Assessment, 2018a). With the new CBT, government also creates an integrity index of national examination (indeks integritas ujian nasional/ IIUN). This index measures the integrity in the process of NE implementation in all regions, whether or not there is fallacy during the process. IIUN is the percentage rate of students answers which do not show any pattern of cheating (Alawiyah, 2015).

Figure 1 described the trends of NE results of Junior High School students from year 2014 until 2018. We can conclude that NE results continuously declining for every subject, every year.

![Figure 1](image1.png)

**Figure 1.** Comparison of Junior High School NE Results from year 2014-2018
(Source: Center for Educational Assessment, 2018b)

Similarly, the trends of NE results for High School Students majoring Science, from year 2016 to 2018 are also declining (Figure 2).

![Figure 2](image2.png)

**Figure 2.** Comparison of NE Results from year 2015-2018 for High School Majoring Science
(Source: Center for Educational Assessment, 2018b)

It is argued that NE scores decline due to: 1) the change in the process of examination, from paper based test (PBT) to computer-based test (CBT), 2) change in NE function from one of the graduation determinant to only tool for mapping education quality. Different mechanism of NE results in lower score because in some part of Indonesia students are not used to CBT, another factor is computer-based examination minimize fallacy thus raised the integrity, that is why the score after CBT are lower than PBT. However, there is also an assumption that as NE function changed; students seem to put less effort in preparing for NE.

Alhadza (2017) argued, whether the current national examination can really measure the quality of education system, because similar policy once implemented in 1972-1979 where there was no national examination and graduation completely on the hand of the school. Back then, the policy was not successful as students did not meet the national standard because they only tested at the school level (Alhadza & Zulkifli, 2017).

A study on the impact on changes in national exam function with its implication in the teaching and learning of English was conducted in 2015. The result of this study shows that the higher quality of the schools, the less they are affected by the change of the functions of the NE, but school with low level quality put less effort than before 2015. Schools admitted that before 2015, preparation for NE was started from the early semester of the first grade, while after 2015 it started from the first semester of third grade (Saukah & Cahyono, 2015). Similar research on English teachers also found that English teachers perspectives toward national exam after 2015 has an impact on the way they prepare the students for national exam (Sutari, 2017).

Discussion about NE around the function of NE, should national exam be determinant for graduation like it used to be on the past? How national examination currently implemented, what are the obstacles, how it can be improved in the future and what kind of national examination suits for Indonesian people, are some information explored in this study.
POUPE OF THE STUDY
Purpose of the study comprises two major aspects, i.e.: to evaluate the existing national examination and to develop a model of national examination system.

METHOD
This study uses a qualitative approach with data collection techniques include focus group discussions, in-depth interviews, and questionnaires. Informants involved in this study are local authorities, educational experts from universities, and schools principals. This study conducted in four districts selected based on their IINE and NE score and the availability of educational experts in universities, i.e: Bandung, Yogyakarta, Manado, and Makassar. Schools were selected based on their achievement on 2018 national examination; discussion also involved head of the principals’ working forum (musyawarah kerja kepala sekolah/ MKKS) from high school and junior high school.

In addition, secondary data obtained from the results of the NE (from year 2014 to 2018, the number of schools implementing CBT and PBT, were also analyzed.

RESULTS AND DISCUSSION
Implementation of the National Exam this Year
Based on the interviews there are several points related with the current implementation of national exam, i.e.:
1. Bandung, Yogyakarta, and Makassar districts are able to implement CBT 100% for both junior high and senior high schools. But at the provincial level, CBT are still below 100%. similarity between these districts is the effort of the local government in providing computers and server for CBT process.
2. Implementation of CBT required collaboration from all stakeholders, local authorities collaborate with provincial authorities to ensure the implementation of CBT, some schools participate in CBT by using other schools’ facilities (Figure 3)
3. Lack of capacity building for teachers in computer mastery hindered the CBT implementation. Teachers are unable to guide students how to do the CBT (case of Manado).
4. Almost all informants admit that teachers and students are less passionate in terms of NE, so much different with few years ago when NE still regarded as one of determinant for graduation. Students put fewer efforts in preparing NE because they don’t think NE is important, especially for high school students. NE is no longer used as the requirements criteria to enter university, principals complained that their students are more concern with the university testing (SMBPTN).
5. According to educational experts, the current national exam has fewer stakes than the one before 2015. They agreed that before 2015, NE still regarded as high-stakes testing, a testing that has consequences for student grade promotion or graduation, teacher accountability, and the reputation of schools or the funding of schools (Johnsons, 2008 in Ashadi and Rice, 2016). Having less stakes than before learning process does not improve.
6. According to principals’ opinion from the questionnaire, many of the respondents agree that the current NE already measure students’ knowledge but not yet measure their 21st century skills.
7. In terms of school’s capacity conducting CBT, many schools still using PBT due to the availability of the schools’ infrastructures. Acceleration for PBT hindered by limited infrastructure and human resources.

Figure 3. Percentage of Schools conducting National Examination with CBT and PBT in year 2018
(Source: Center for Educational Assessment, 2018a)

Features of the National Exam in the Future
Some of the features of national exam in the future that are discussed with all informants consist of:
1. NE function
   There were at least five functions of national examination that was discussed with the principals, i.e.: mapping the quality of education, as a consideration of selection into the next education level, as a consideration for graduation, as a consideration to enter workplace, and as a consideration for some corrective action and funding schemes to support the improvement of the quality of education at schools and district levels.
   Based on the discussion, almost all informants agreed that national examination should become one of consideration for graduation, like it used to be, but with low percentage for about 20-30% weighted, so that school still have the flexibility in terms of graduation criteria. Education experts argued that national examination should raise it stakes, because the current conditions with low stakes exam, students lost their interest in NE, they accepted NE as a routine, not
something that they need to achieve. Schools principals shared the same experience when their students and teachers lost passion and no longer interested in doing national examination. Both junior high and senior high school students are no longer taking NE seriously. As this happened, the function of NE for mapping the quality of education, could not be fulfilled. Students who lost their enthusiasm would tend to do the exam recklessly and this of course will not describe their true ability.

Currently, the result of national examination in some part can be used as one of entry consideration at the high school level, but not for the university level. However, the first one is underrated with the zoning policy, if previously the NE score weighted for about 60% of the selection process, now the zoning policy put 90% weighted based on students’ National examination can only be a ticket for university entry if several criteria below are fulfilled, including: a) national examination should be valid and reliable; b) the questions of NE should meet the university standard, c) there’s an agreement between MOEC and Ministry of Higher Education that NE result can and will be used for entrance in university. According to Prof. Nizam and Prof. Djemari, Ministry of Higher Education will establish a Testing Centre to conduct entry test for university, thus they wish that national examination can be inserted, they’re hoping that there is only one test and national exam is the test, and the current Center for Educational Assessment (pusat penilaian pendidikan/ Puspendik) could be strengthen and become part of the Testing Center for university. Prof. Nizam argued that if national examination already fulfilled the criteria mention above, in form of certificate, the result of NE can be used as a ticket to enter university. For example, students with Mathematic Score above 80 can enter Engineering Faculty; those with Biology above 85 can enter Medical Faculty, etc.

The idea of national examination as an entry selection for industry/ work field is not accepted by all principals. The opponent of the idea argue that the current condition is not yet established, except the industry are willing to accept the national examination score and the national examination also test what are needed in the work field, i.e. the questions also measure skills that are required in the work field.

2. Administrator of NE (authorized body)
Who should administer national examination also discussed with the informants, whether it remains like the current condition or should NE be administered by other authorized body.
There is a consensus among principals that the current bodies, i.e. Standard Agency for National Education (BSNP) together with Center for Educational Assessment (Puspendik) are the one that should administer the national examination; they argue that if national exam should be administered by other agency, it would cost a burden for the state. Similarly, the education experts also think that the best is to strengthen the current administrator (BSNP and Puspendik), BSNP should provide more concise graduation standard competencies that could be measured since the current graduation standard competencies are too broad and not operational.

3. Mode of administration
Whether the national exam should be in CBT online mode, CBT offline and online, or PBT are also discussed. Almost all principals, local authorities, and education experts prefer the mode of administration is in CBT offline and online. They argue that using CBT the process become a lot easier, they don’t have to worry about fallacy and human resources involved are not as much as PBT exam. One argument about CBT is that CBT can improve the efficiency of national examination because it is more secure, efficient and flexible, CBT assessment process is also faster (Alawiyah, 2015).

There are prerequisite for CBT, i.e.: government should ensure schools are ready, including the infrastructure, and human resources. Right now, in some part of Indonesia, especially in remote areas, both infrastructure and human resources are still lacking, even in Manado district, there are many schools could not implement CBT in 2018, especially those in the island. In Kendari, high school students prefer to do the national examination on paper based test (PBT) rather than computer-based test (CBT) due to technology gap of using CBT and simplicity of PBT (Jamiludin, Darnawati, & Uke, 2017).

![Figure 4. Percentage of Schools conducting National Examination with CBT and PBT](Source: Center for Educational Assessment, 2018a)
can conclude that the progress of CBT acceleration in Indonesia already in a good pace (especially for big cities), but we still need about five more years to achieve 100% of implementation if all requirements are fulfilled.

Prof. Mansyur from UNM said that one of alternatives is to use Computer Adaptive Test (CAT), same thing also expressed by Rachmawati from Center for Educational Assessment (Puspendik) that in the future it would be better to use CAT because this kind of mode of assessment could adjust according to the students ability, questions will be given based on their ability. However, Prof Nizam argued that this kind of testing is not right to implement rather than to implement using true score. True score means that difficult or analytical type of questions will be given higher score than the easy ones (or only measuring knowledge). If public already used with true score than CAT could be implemented in Indonesia.

4. Class being tested

Discussion about which class should be tested in examination is based on the concept of assessment, and study on national examination in other countries (Table 1). Countries all over the world are different terms of grade being assessed, some in the final grade and others in the middle of the level.

Based on its function and objectives, there are three types of assessment, i.e.: assessment of learning, assessment as learning and assessment for learning (Protocol, 2006). Assessment of learning usually tested in the end of a learning period (summative test), while assessment for and as learning usually in the middle of learning process (formative test).

The discussions of this study seek opinions from informant on whether national exam should be tested in grade 9 and 12, grade 8 and 11, or only grade 12 with the consideration that in grade 9, and 12 NE function as assessment of learning while in grade 8 and 11 NE function as assessment for learning which can be used to improve students learning process based on the test results. Based on the discussions, most of the informants agreed that national exam should be test for grade 9 and 12, only few agree to conduct the test in grade 8 and 11. Their reasons are national exam aim to measures students achievement in standard that is why it should be done in the last grade of each level of education, it couldn’t be done in the grade 8 and 11 because the students have not master all the curriculum according to the graduate competencies standard.

Table 1. National Examination in Several Countries

<table>
<thead>
<tr>
<th>No</th>
<th>Country</th>
<th>Grade being tested</th>
<th>Administration Body</th>
<th>Govt/Non Govt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Indonesia</td>
<td>Grade 9 and 12</td>
<td>National Agency for Education Standard (BSNP)</td>
<td>Independent under MOE</td>
</tr>
<tr>
<td>2</td>
<td>Thailand</td>
<td>Grade 6, 9 and 12</td>
<td>National Institute for Educational (NIETS)</td>
<td>Ministry of Education</td>
</tr>
<tr>
<td>3</td>
<td>Japan</td>
<td>Grade 12</td>
<td>National Center for Univ. Entrance Examination</td>
<td>Independent, Non Govt</td>
</tr>
<tr>
<td>4</td>
<td>China</td>
<td>Grade 12</td>
<td>National Education Examination Authority</td>
<td>Ministry of Education</td>
</tr>
<tr>
<td>5</td>
<td>South Korea</td>
<td>Grade 6, 9, and 12</td>
<td>National Assessment of Educational Achievement</td>
<td>Independent, Non Govt</td>
</tr>
<tr>
<td>6</td>
<td>Egypt</td>
<td>Grade 11, 12</td>
<td>National Center for Examination &amp; Educational Evaluation</td>
<td>Ministry of Education</td>
</tr>
<tr>
<td>7</td>
<td>UK</td>
<td>Grade 11</td>
<td>Exam Board: ACCEA, OCR, WJEC</td>
<td>Independent, Non Govt</td>
</tr>
<tr>
<td>8</td>
<td>Netherlands</td>
<td>Grade 12</td>
<td>National Institute for Education Measurement</td>
<td>Independent, Non Govt</td>
</tr>
<tr>
<td>9</td>
<td>India</td>
<td>Grade 10, 12</td>
<td>Central Board of Secondary Education</td>
<td>Ministry of Education</td>
</tr>
<tr>
<td>10</td>
<td>Italy</td>
<td>Grade 12</td>
<td>Ministry of Education</td>
<td>Ministry of Education</td>
</tr>
<tr>
<td>11</td>
<td>Brazil</td>
<td>Grade 4, 8, and 12</td>
<td>Ministry of Education</td>
<td>Ministry of Education</td>
</tr>
</tbody>
</table>

Source: Mahdiamsyah, 2016

5. Target

Issues on whether national examination covered all population of students (current NE) or should it just cover samples of students (surveys) if the aim is only for mapping the quality of education, or could national examination conducted like TOEFL where students independently took the exam nationwide, and human resources involved
in the process are capable in operating computers and online assessment.

6. Subject tested
Subject should be tested in national examination could be one of this options, i.e.: basic literacy, basic literacy and 21st century skills (the 4 Cs: critical thinking, creative, collaboration, and communication) or basic literacy and specialization. All informants agree that these three options could be used, the first one to measure junior high school students, the second one to measure high school students to enter the university, while the third one to measure high school student who would like to enter work force. Arguments is on the basis that examination should test what have been taught in school.

7. Form of exam question
Based on the discussion, the type of questions in the national examination could be in form of multiple choice and brief description. Essays could also be eligible for the test but students should get used to with essays type of exam on their daily assessments.

CONCLUSION
Based on the findings, most of the informants’ aspiration is that the national examination in the future could be used as one of the graduation requirements like it used to be before 2015, but with less weight than before. If previously national exam consists of 60% of total score for graduation, now is suggested for about 20-30%. Another criteria for the proposed model of national examination include: 1) form will be in a certificate, 2) the mode of administration is CBT, online and offline; 3) national examination is delivered by BSNP and Puspendik in collaboration with the Ministry of Higher Education to link between NE and the universities; 4) NE implemented for grade 9 and 12, 5) NE should cover all population of students as it measures student competencies, but could also be taken individually for students who wants to find out their competencies, and 6) subject tested include basic literacy, basic literacy and 21st century skills.

National examination is still needed and need to be raised in term of its stakes.

ACKNOWLEDGEMENT
This study was fully supported by Policy Research Centre for Education and Culture, Board of Research and Development, Ministry of Education and Culture. We thank our colleagues [Relisa, Mrs.], [Indah, Mrs.], [Mahdiansyah, Mr.] and [Yendri, Mrs] for great involvement in this study, also [Sisdiana, Mrs] for thoughtful insight, that are greatly improved the manuscript.

We are also grateful to all the educational expert involved in this study, including [Jahja U, Mr], [Bahrul H, Mr.], [Mansyur, Mr.], [Nuryani, Mrs.], [Nizam, Mr.], [Djemari, Mr.], and [Harry, Mr.] for their comprehensive understanding which significantly improved this manuscript. Without their expertise regarding assessment this manuscript would not be perfect.

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