Effectiveness of national qualification framework Indonesia based curriculum and higher education national standard behaviour assessment rubric

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Abstract. Non-objective assessments and poorly-defined assessment indicators are known to be the underlying causes of behavior assessment in the teaching and learning process. This study aims to determine whether the use of National Qualification Framework Indonesia Based Curriculum and Higher Education National Standard Behavior Assessment Rubric is effective in improving the learning process. The study used 4-D model (Four-D Model) that are Define, Design, Develop, and Disseminate. Population was students of STKIP PGRI Sumatera Barat. The subjects applied purposive sampling. The instruments were observation sheets and interview guide. Technique of analysis was quantitative and descriptive analysis which was used to find out the level of rubric effectiveness in the learning process. The results show that each of observed dimensions has a significant improvement both pre-test and post-test scores where the average pre-test score is 40% and post-test score is 85%. It is concluded that National Qualification Framework Indonesia Based Curriculum and Higher Education National Standard Behavior Assessment Rubric is effective in improving the learning outcome of learning process. It is expected that the rubric can be used as an assessment instrument to measure students' competence both on affective and psychomotor aspects.

1. Introduction

Assessment is an integral part of a learning process [1]. Assessment is a set of systems related to the objectives. The assessment is one of the elements of learning that must be mastered by teachers and educators. Educators who are able to carry out the assessment well, it means that it is able to determine the achievement of learning outcomes and evaluate them [2]. KKNI and SN-DIKTI have formulated achievement of learning achieved by students, those are attitude, knowledge, general skill and special skill aspect. General attitude and skill aspect have been formulated in KKNI and SN-DIKTI, while for specific knowledge and skill aspect are formulated by Association of similar Study Program in Indonesia. In the book of DIKTI Curriculum 2014, it is explained that the achievement can be achieved when using the approach of SCL (Student Centered Learning) and learning methods based on SCL and with the assessment system in accordance with the principles of assessment [3].

Graduates will be qualified if the lecturer is able to plan, execute, and conduct assessment of student's learning process and outcomes according to the principles of assessment which include educative, authentic, objective, accountable and transparent principles conducted in an integrated manner. So that, the achievement of learning both on knowledge, skills and attitudes are really inherent in the student's personality [3][4][5].
The result of observation and interview conducted on lecturers and students in STKIP PGRI Sumatera Barat, it defined that there were several problems frequently appeared in the assessment process in learning, for example: many lecturers had not understood the achievement of learning in the attitude aspects formulated in the KKNI and SN-DIKTI; there was a lecturer to conduct student attitude evaluation based on like and dislike technique only; lecturers often had difficulty in assessing the ability of students in achieving knowledge, skills and attitudes in accordance with actual conditions; lecturers also often had difficulty in determining appropriate assessment methods to assess a particular ability. For example, when a lecturer assessed attitudes, there were still lecturers who did so in written exams, when they should be assessed through observations using rubrics; There were still many lecturers who always used written exams from the beginning of the assessment to the final examination; many of the trapped lecturers only gave figures on the assessment process. Whereas, the substance of the assessment is to provide feedback on the performance of the ability shown by the students, so that it can lead to the achievement of learning achievement. So that, scoring is not the final goal of the assessment, but it is a part of the assessment of learning outcomes.

This assessment process becomes very important by examining, reviewing, giving direction and feedback to students, and using an assessment instrument as a benchmark for achievement. In this case, the relevant assessment process was an assessment model called authentic assessment, which is an assessment consisting of three basic activities, namely: the lecturer assigns the task, the student shows his performance, evaluates on the basis of certain indicators with the instrument called Rubric. Authentic Assessment is defined as a real assessment of students' attitudes, knowledge and skills in the process and the end of learning [6][7]. The use of assessment rubrics is intended to make the assessment objective and facilitate in determining the student's scores. Authentic assessment allows students to apply their knowledge and skills in the learning process [8]. The department can improve the consistency of scores and facilitate a valid assessment of the desired competencies [9]. Rubric is also a teaching tool capable of supporting learning and developing skills [10]. Rubric can be used to assess student skills because it is a powerful tool of assessment and can theoretically detail the skills aspect according to the attitude shown [11]. Rubric can make it easier to evaluate learning achievement [12]. Clauser states that the key to success of the assessment is the correct scoring for the tasks performed. A systematic process containing information gathering, analyzing and interpreting the information to make decisions [13]. The assessment system in the higher education curriculum using the standard of learning assessment contained in the Regulation of the Minister of Research, Technology and Higher Education No. 44 of 2015 article 19 paragraph 1 and 2 is defined as the minimum criteria of process assessment and student learning outcomes in order to fulfill the achievement of graduate learning. Assessment of student learning outcomes and outcomes include: (a). principle of appraisal, (b). technique and assessment instruments; (c). assessment mechanism and procedure, (d). implementation of the assessment; (e). assessment reporting; and (f). student graduation [3]. In assessing, many alternatives used by lecturers to assess student achievement. One of the techniques that can be used in conducting an attitude assessment is the attitude assessment rubric [3].

Rubric is an assessment guide that describes the criteria used by the lecturer in assessing and giving the level of achievement of student learning outcomes. In addition, the rubric contains a list of expected performance characteristics in the process and the work of the students, and it is used as a guide to evaluate each of these characteristics [3]. Andrade states that rubric is a scoring tool that consists of a list of criteria or what to count. So, the rubric, in this study, is a tool of attitude assessment that sets criteria based on the formulation of attitudes in the KKNI and SN-DIKTI that must be achieved by students during higher education [3]. Assessment criteria in an assessment rubric should be determined in order to achieve prospective feedback, which means providing information to achieve the necessary changes and the emotional involvement of the learner. It is also as to ensure a self-learning [14]. The detailed assessment criteria can improve critical thinking skills and high-level analysis in the learning process [15]. The use of rubrics can serve as a reliable and promising assessment tool [16]. The assessment rubric becomes the factor contributing to the assessment
inconsistency in the learning process [17]. Assessment of attitudes and skill assessments conducted by using the rubric of assessment is better than without rubric, and even the student learning outcomes can increase when using the rubric [18]. Students assessed by using a detailed and adequate scoring rubric have higher attitude scores [19]. In this case, the researcher tried to use the attitude assessment column based on KKNI and SN-DIKTI in the learning process in order to conduct an objective attitude assessment, attitude assessment with clear indicators and can perform authentic skill assessment. It is to make a qualified learning process.

2. Method
It was research and development (R&D) research. The development of attitude scheme based on KKNI and SN-DIKTI is using procedural development model. Setyosari explains that procedural model is a descriptive model depicting the flow or procedural steps that must be followed to produce a particular product [20]. Yudhi states the procedural model is a descriptive model, which outlines the steps to be followed to produce the product [20].

The development research is a systematic review of the design, development, and evaluation of programs, processes, and learning products that must meet the criteria of validity, practicality, and effectiveness [21]. In order for the product developed by the researcher is tested its effectiveness and quality, the researcher conducted the developmental research using 4-D Model (Four-D Model). The 4-D development model consists of four main stages: Define, Design, Develop and Disseminate [21].

The research was conducted in STKIP PGRI West Sumatra. The population was all students of STKIP PGRI Sumatera Barat registered in odd semester Academic Year 2017/2018. The sample used purposive sampling with the consideration that the student had less motivation and interest in implementing the learning process. The instruments were observation sheet and interview guide. Technique of data analysis was used in order to see whether the KKNI and SN-DIKTI - based attitude assessment rubric effective to improve student learning outcomes in the learning process. The t-test was performed after analyzing the result before using the KKNI and SN-DIKTI - based attitude assessment rubric (Pre-test) with the score after using the KKNI and SN-DIKTI - based attitude assessment rubric (Post-test). Pre-test was tested three times i.e. the first meeting until the third meeting, while the post-test was also conducted for three meetings started the fourth meeting until the sixth meeting.

3. Result and discussion
Effectiveness of KKNI and SN-DIKTI - based attitude assessment rubric was seen on the level of achievement of planned learning objectives and how much influence or effect arising from the use of the rubric in the learning process. It is to bring changes to student learning outcomes during the learning process and change student attitudes to a better way. In this case, the learning outcome was based on student’s affective and psychomotor. The use of rubrics was regarded to be effective in making changes to student learning outcomes if student affective and psychomotoric scores statistically show significant differences and improvements for each meeting in the learning process.

In this study, the increase of learning outcomes in terms of student’s affective and psychomotor were seen from the analysis of the assessment conducted through observations based on the KKNI and SN-DIKTI - based attitude assessment rubric that has been developed by comparing the scores result before using the KKNI and SN-DIKTI - based attitude assessment rubric (Pre-test) with the score after using the KKNI and SN-DIKTI - based attitude assessment rubric (Post-test). Indicators observed are based on the needs of the subjects that are taught and the material learned in the learning process. In this case, the observed indicators are discipline, independence, responsibility, cooperation and confidence. Assessment was conducted six times on Curriculum Analysis Course followed by all students registered in Academic Year 2015 in the odd semester 2017/2018 at STKIP PGRI Sumatera Barat consisting of 26 students. The distribution of student assessment results can be seen in table 1.
Table 1. Distribution and percentage of student score for affective and psychomotoric aspect.

| Indicator         | Class |                  |                  | Improvement Points |
|-------------------|-------|------------------|------------------|--------------------|
|                   | Pre-test | Post-test |                  |                    |
|                   | I  II  III | Average | IV   V    VI | Average |                    |
| Discipline        | 47   49  44 | 47     | 82   91  90 | 88     | 41                  |
| Independence      | 36   38  47 | 40     | 82   87  92 | 87     | 47                  |
| Responsibility    | 32   45  46 | 41     | 82   89  90 | 87     | 46                  |
| Cooperation       | 30   38  44 | 37     | 81   82  92 | 85     | 48                  |
| Self-Confidence   | 29   33  38 | 33     | 73   79  88 | 80     | 47                  |
| Average           | 35   41  44 | 40     | 80   86  91 | 85     | 45                  |

Table 1 shows that in every indicator, there is a significant improvement between the pre-test and post-test scores for all predetermined assessment indicators. Significant improvement is found in the cooperative attitude indicator with an increase of 48%. While, the lowest score is in the attitude indicator of discipline, but when it is compared with the initial score obtained before using the KKNI and SN-DIKTI - based attitude assessment rubric still has a significant increase of 41%. In general, there is a significant increase between the pre-test value and the post-test score with an average pre-test score of 40% and an average post-test score of 85%. So that, the point of increase between pre-test and post-test is for 45%. The increase of pre-test to this post-test means that the use of KKNI and SN-DIKTI based attitude assessment is effective in improving student learning outcomes in the learning process. Statistically, the effectiveness of the rubric of attitude assessment toward students’ learning outcomes on the affective aspect can be proven from the data analysis using t test. The calculation results show that $t_{count} = 17.71 > 1.70 = t (0.05:25)$ and then the hypothesis is accepted. Thus, the rubric of attitude assessment used is effective in improving student learning outcomes for affective and psychomotor domains.

The result of data analysis shows that there is an increase of average percentage of using KKNI and SN-DIKTI - based attitude assessment rubric on student’s learning outcome from the affective aspect i.e. 45%. From the first meeting until the third meeting, the percentage increases based on the indicator that is considered not so visible and tend to go up. In fact, the average percentage / indicator is none reaching up 50%. The average percentage for all indicators is only 40%. It is far from the target. However, from the fourth meeting until the sixth meeting, the average percentage for all indicators tends to increase, with the highest average percentage i.e. 88% on the indicator of discipline attitude and the lowest percentage average of 80% on the indicator of confidence. Generally, for three meetings i.e four to six meetings have significant increases. It can be concluded that the results of student learning on the affective and psychomotor aspects with the use of KKNI and SN-DIKTI - based attitude assessment rubric in the learning process is better than the results of student learning before using the rubric of KKNI and SN-DIKTI - based attitude assessment. It means that the rubric is effective in improving student learning outcomes on affective and psychomotor aspects.

The increase in percentage occurred because from the first meeting until the third meeting, the researcher did not explain to the students about the criteria of the assessment for the five indicators such as discipline, independence, responsibility, cooperation and confidence. However, from the fourth meeting until the sixth meeting, the researcher explained that those five assessment indicators were assessed based on the rubric that the researcher had developed called KKNI and SN-DIKTI - based attitude assessment. Rubrics are developed clearly and in detail according to the criteria of each aspect of the observed attitude [22]. In addition, the scoring rubric makes students' motivation and activity increase [23][24]. The students are always trying to improve any deficiencies that exist in the learning process. Azim and Khan stated that during the process of authentic assessment, students are active and responsible for their own learning outcomes. Assessment is conducted in a transparent manner, in accordance with the attitude of students during the learning process. Transparency of
assessment using the rubric of attitude assessment makes students know about the competence to be assessed by the lecturers [24]. It encourages and develops the students’ desire to prepare themselves before implementing the learning process [25]. Middle States Commission on Higher Education states that students’ understanding of the assessment criteria or objectives of learning can make students learn effectively [26]. The transparency of the assessment has been done well. Because on each meeting students directly know their score, it gives them the opportunity to correct the score if it is not as expected. Reassessment by students aims to train students’ ability to assess their performance. This is supported by the statement of the Reform Group Assessment which is one of the standards of an effective assessment that is the involvement of students in determining the assessment criteria or indicators to be assessed [27].

The opportunity given to the students to revaluate is one of the efforts to improve their learning, so that students are motivated to plan the business to develop their capability. McCarthy states that in authentic assessment, students need to learn to evaluate the quality of their work [28]. The quality of work is determined by the good learning outcomes obtained by students in the learning process. It is enhanced by the Assessment Reform Group's opinion that an effective assessment principle is an assessment that is capable of improving learning. One of them provides an opportunity for students to assess their own work and seek solutions to improve their capabilities [27]. The existence of the transparency of the assessment has a positive effect on students’ attitudes during the learning process.

4. Conclusion
KKNI and SN-DIKTI - based attitude assessment rubric is one of the evaluation instruments used by lecturers to evaluate the learning process. The observed attitude assessment is discipline, independence, responsible, cooperation, and self-confident where it is in line with the most related attitude in the course. Student’s learning outcome using the rubric in teaching and learning tend to improve if it is compared into before using the rubric. It can be seen from the significance difference between pre-test and post-test. The increase on pre-test dan post-test is 45%. Statistically, the effectiveness of KKNI and SN-DIKTI - based attitude assessment rubric toward student learning outcome can be seen through the t-test. It means that the rubric can be one of the evaluation instruments of student attitude and skill during the teaching and learning because it one of the best way to have an objective and transparency evaluation.

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References
[1] Calenda M and Tammaro R 2015 The assessment of learning: from competence to new evaluation Procedia - Soc. Behav. Sci. 174 3885–92
[2] Yuen C and Sidhu G K 2014 Assessment practices in higher education in United States Procedia - Soc. Behav. Sci. 123 299–306
[3] Direktorat Pembelajaran dan Kemahasiswaan T K dan P 2014 Buku Kurikulum Pendidikan Tinggi
[4] Direktorat Jenderal Pendidikan Dasar dan Menengah K P dan K 2017 Panduan Penilaian oleh Pendidik dan Satuan Pendidikan
[5] Me U and A G R M 2014 Comprehensive Assessment of Teaching Performance in Medical Education Procedia - Soc. Behav. Sci. 141 252–9
[6] Novianto A and Mustadi A 2015 Analisis Buku Teks Muatan Tematik Integratif, Scientific Approach, dan Authentic Assessment Sekolah Dasar J. Kependidikan 45 1–15
[7] Rukmana T 2016 Keterlaksanaan Penilaian Autentik Mata Pelajaran Fisika SMA Negeri The
Feasibility of Authentic Assessment on Physics Subject at State Senior High Schools J. Inov. Pendidik. IPA 2 111–21

[8] Wu X V, Heng M A and Wang W 2015 Nursing students’ experiences with the use of authentic assessment rubric and case approach in the clinical laboratories Nurse Educ. Today 35 549–55

[9] Jonsson A and Svingby G 2007 The use of scoring rubrics: Reliability, validity and educational consequences Educ. Res. Rev. 2 130–44

[10] Andrade H G 2000 Using Rubrics to Promote Thinking and Learning 57 13–8

[11] Hastie C, Fahy K and Parratt J 2014 The development of a rubric for peer assessment of individual teamwork skills in undergraduate midwifery students Women and Birth 27 220–6

[12] Kutlu O, Yildirim O and Bilican S 2010 The comparison of the views of teachers with positive and negative attitudes towards rubrics Procedia - Soc. Behav. Sci. 9 1566–73

[13] Kartowagiran B 2006 Kinerja Guru Profesional (Guru Pasca Sertifikasi) 463–73

[14] Gómez A R 2014 Foreign Language Testing through Competence Assessment Rubrics and Oral Interviews in the European Higher Education Area Procedia - Soc. Behav. Sci. 141 524–32

[15] Morozov A 2011 Student attitudes toward the assessment criteria in writing-intensive college courses Assess. Writ. 16 6–31

[16] Bindayel N A 2017 Reliability of rubrics in the assessment of orthodontic oral presentation Saudi Dent. J. 29 135–9

[17] Bahri N A S, Azli N A and Samah N A 2012 Problem-Based Learning Laboratory (PBLab): Facilitators’ Perspective on Rubric Assessment Procedia - Soc. Behav. Sci. 56 88–95

[18] Laurian S and Fitzgerald C J 2013 Effects of Using Rubrics in a University Academic Level Romanian Literature Class Procedia - Soc. Behav. Sci. 76 431–40

[19] Kutlu Ö, Bilican S and Yildirim Ö 2010 A study on the primary school teachers’ attitudes towards rubrics with reference to different variables Procedia - Soc. Behav. Sci. 2 5398–402

[20] Setyosari P 2013 Metode Penelitian dan Pengembangan (Jakarta: Kencana Prenadamedia Group)

[21] Richey R C, Klein J D, and Nelson W A 2004 Developmental research: Studies of instructional design and development Handbook of research for educational communications and technology vol 2 pp 1099–130

[22] Jeong H 2015 What is your teacher rubric? Extracting teachers’ assessment constructs 20

[23] Setiawan A and Malik A 2018 Rubric Assessment on Science and Creative Thinking Skills of Students

[24] Reddy Y M and Andrade H Assessment & Evaluation in Higher Education A review of rubric use in higher education 37–41

[25] Wang W 2017 Using rubrics in student self-assessment: student perceptions in the English as a foreign language writing context Assess. Eval. High. Educ. 42 1280–92

[26] Bates A W, Bates T and Sangra A 2011 Managing technology in higher education: Strategies for transforming teaching and learning. (John Wiley & Sons)

[27] Wijayanti, Enny M 2015 Pengembangan Instrumen Asesmen Diri Dan Teman Sejawat Kompetensi Bidang Studi Pada Mahasiswa J. Penelit. dan Eval. Pendidik. 19 129–44

[28] Halonen J S, Clay S, Mccarthy M, Dunn D S, Iv G W H, Mcentarffer R, Mehrotra C, Weaver K a and Whitlock K TOPICAL ARTICLES A Rubric for Learning , Teaching , and Assessing Scientific Inquiry in Psychology Teach. Psychol. 196–208