ASSESSING STUDENTS AND GRADUATES SOFT SKILLS, HARD SKILLS AND COMPETITIVENESS

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Abstract

Directorate General of Indonesians Higher Education recommended that universities graduates obtained standard core competencies. However, Universitas Jambi has not yet developed an instrument to measure students' core competencies. Due to the fact, one of aims this project is to develop students and graduates assessment rubric of soft skills, hard skills and competiveness (SHC). Qualitative content analysis on literature review, existing instrument and transcription of FGD was conducted to reduced indicators of SHC. Content validity was obtained through

workshop among the educators, while consistency of the instrument was tested by Cohen Kappa test agreement. The result of the SHC assessment rubric was specified as follows: Component of soft skills were classified into six communication skills; IT skills, Numeric Skills, Learning Skills, problem solving skills and working with others. Hard skill was not classified into smaller component but directly into indicators, while competiveness classified into three components; entrepreneurship, lifelong learning and employability. Try-out had been conducted to 21 students, and yielded acceptable to moderate level of agreement Kappa value. The result of the students' SHC performance at pilot study shows that students' SHC Performance in overall was at medium level. Students' SHC level of softs skills, hard Skill and competitiveness were at medium level. For the future research, the SHC rubric assessment will be used in experimental research class on students SHC Development at four faculties; science and technology, humanities, economics and husbandry faculty at Universitas Jambi.

1. Introduction

Issues on higher education relate to students' and graduate, hard skills and competitiveness had been hugely and hotly discussed in recent 10 years. Difference terms used in the discussion, they are soft skills, generic skills, life skills and interpersonal skills, etc., but the terms are referred to the same topic of discussion. The issues are broadly published in journal, books and conference, such as Hadiyanto & Suratno, 2015, Bialik, et. al. (2015), Hassan. et. al. (2013), Hadiyanto & Mohammed Sani (2013), Hadiyanto. (2011), Hadiyanto, (2010), Person, Ann., et. al. (2009), The Ontario Public Services (2016), and Zalizan., et. al (2006) discuss how students provided with soft skills activities to gain hard skills and expected that the graduates possess competitiveness at the job market.

Universities curriculum had been changed and continually update to meet the local and global needs and challenges. Dealing with the issues, Universities in Indonesian are in an effort to obtain the standard output of Indonesian Qualification Framework (KKNI).The graduates are demanded to acquire more soft skills rather than hard skills during their learning at Universities

as the result they will possess individual competitiveness not only at job market but also in their career development. It is understood that hard skills can be acquired and developed through soft skills practices. To meet the demand most of universities in Indonesia sporadically state that the graduates have to possess soft skills, hard skills and competitiveness as an outcome of teaching and learning process at Universities. However there is no clear guidance how to design and implement teaching and learning process in undergraduate program with soft skills and hard skills embedded,then there is no measurement tool yet to evaluate the students' capability on soft skills, hard skills and competitiveness perfomance as output and outcome of learning process at Universitas Jambi (Directorat of Students and Learning, 2014 & Hadiyanto 2014).

In short, thought the KKNI had been established since 2013. However, the measurement of soft skills, hard skills and competitiveness development are not yet implemented at Universities level, and there is no a rubrics how to measure the students' SHC output. As a part of research on development model of SHC which funded by LPDP RISPRO under Ministry of Finance Indonesia, the rubric assessment was developed to measure students and graduates' SHC in the learning process. This Rubric was designed to be applicable for all field of the studies, subjects of teaching as well as for measuring bachelors' employer at work place. The process and outcomes of the SHC rubric assessment is reported in the following parts.

2. The objective

This paper aims to define, describe and discuss the process and outcomes of scoring rubric for students and graduate soft skills, hard skills and competitiveness (SHC) in a learning process at University of Jambi. It also aims to report and discuss the main constructs, sub-constructs and indicators developed to assess students and graduates SHC performance.

3. Theoretical Basis

3.1 Defining SHC

The combining term of soft skills, hard skills and competitiveness (SHC) in this study is defined as a blended ability that possessed by a student in an effort of obtaining his/her objective of learning. The definition of three domains of SHC then are defined as follow:

3.1.1 Soft skills

Soft skills, it's self-defined as practical activities applied to generate and developed hard skills in the students' learning context and graduates' working context. This definition based on analysis and synthesis from related articles (Hadiyanto, 2010, Hadiyanto, 2013, and Hadiyanto 2014). Soft skills include communication skills, IT Skills, numeracy skills, learning skills, problem-solving skills and working with others.

3.1.2 Hard skills

Hard skills relate to major and minor knowledge skills. Specifically in this study, it is defined the ability of person using and generating his/her major specific knowledge skills in the real context of learning and working, and it is blended with soft skills (Hadiyanto, 2016; Chanet al., 2015; Ahlstrom et. al., 2014). With this competitiveness will be practically embedded in the practice of soft skills and hard skills.

3.1.3 Competitiveness

Competitiveness refers to the eagerness and the effort of a person to apply, maintain, and improve and promote his/her soft skills and hard skills in his/work, task and learning consistently. Competitiveness categorized into three capacities; lifelong learning, entrepreneurship and employability. The level of competitiveness level was assumed to be affected by the level of his/her soft skills and hard skills (Kumar, 2017, UNJA, 2014, Bruno Lanvin, 2013, Farkas, 2007; 2016, ILO, 2014).

3.2 Asessing SHCStudents Performance

Sunday (2013) and Indonesian Higher Education Curriculum was designed based on Indonesian Qualification Framework (2011), it aims to provide the students with more to soft skills rather gaining hard skills. Students' learning at universities are expected gaining hard skills through the practicing of soft skills. Soft skills itself are driven by using student center learning (SCL)in the classroom and outdoor class. Various strategies can be designed and applied to encourage the SCL in the learning process such as cooperative learning, group work, presentation, discussion, experiencing learning depend on the teachers creativity. By applying these strategies, they students will learn, practice and improve their skills how to communicate, understand others, work to gather, suggest idea, learn from others, use some IT applications, etc.

Related to the output soft skills, hard skills and competitiveness of the learning. In the context of learning, students performance rubric of SHC was developed to measure students' soft skills, hard skills as well as students competetiveness. Rubric for measuring soft skills, hard skills and competitiveness of the students or employee in practical context is very rare, however many instruments of self-evaluation questionnaire had been developed and applied to measure students' soft skills, hard skills and competitiveness.

In daily teaching and learning, hard skills are typically easy to observe, quantify and measure. The evaluation formally designs for this type of skills for every subject. However the hard skills and competitiveness in term practices in real contact were rarely measured by educator. Soft skills are typically hard to observe, quantify and measure by a test. Skills and behavior can be observed by performance and rubric is used measure it (Fiorenza, 2016; Allen, 2014; Educational Research Service, 2004; Mertler, 2001).

SHC Rubric are rating scales that are specifically used with performance assessments. They are formally defined as scoring guides, consisting of specific SHC performance criteria, used in evaluating student work on performance assessements, rubric are typecally rubric was typically specific form of scoring instrument used when evaluating student performances or products resulting from a performance task (Mertler, 2001).

The students' performance can be observed and assessed by at two assessors through learning activities or skills practices. Assessors can use a set of rubric assessment that had been developed by an institution or by a project (Fiorenza, 2016; Li, 2015; Allen, 2014; Sunday, 2013; Indonesian Qualification Framework, 2011; Educational Research Service, 2004 and Mertler 2001). In this study a set of rubric to assess students' SHC performance had been developed. Figure 1 below illustrate the process of assessing students' SHC performance.
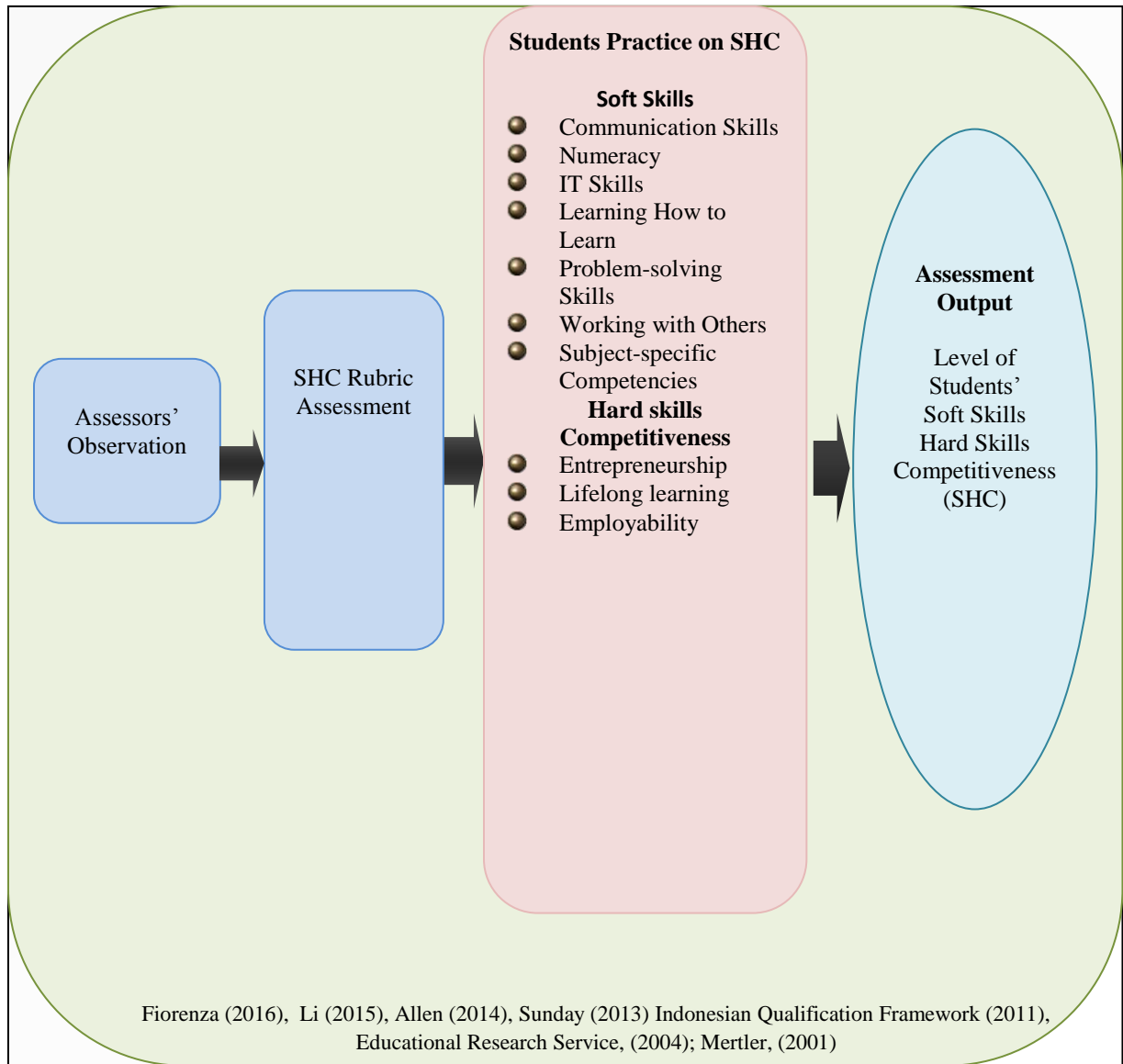
Figure 1: *The process of assessing students' SHC*

4. Method

The development used literature review analysis in different steps and analysis. The measurement was designed with model of performance evaluation by assessors. The first step was analysis of HE curriculum and literature studies including previous others type of instrument such questionnaire; the second step was defining and confirming constructs and sub-constructs to be included the third step was indicator development, and assessment and judgment of

researchers to see the appropriateness of each item under the belonging construct, the fourth step was holding a seminar among lecturers to analyze face validity and the appropriateness based on seminar forum analysis, confirm content validity as well as check technical errors in the rubric and revise its, and the last step was trying out the rubric to 20 students for testing appropriateness and consistency among the students.

Inter-rater reliability was used to analyze the inter-rater agreement toward SHC assessment result. Pallant (2011) suggested Cohen Kappa to test intererater reliability. If significant value Measure Agreement Kappa <.05 then the agreement between rater is achieved. However, accodring Peat (2001, p.228) in Pallant (2011, p.226), a value of .5 for Kappa represents a moderate agreement, above 7 represents a good agreement, and above .8 represent very good agreement. Based on the references, the level of consistency agreement is formulated in the Table 1.

Table 1: *Level of SHC Rubric Assessment*

Level of Agreement	Kappa Value	If Significant level
Acceptable	.Below 5	<.0.05
Moderate	.5 to .699	<.0.05
Good Agreement	.7 to .800	<.0.05
Very Good Agreement	Above .8	<.0.05

Likert scale 5 is used in assessing students SHC performance. The score of students SHC performance is interpreted based on the Table 2. Mean score 1.00 to 1.80 is interpreted as very low, 1.81 to 2.60 as low, 2.61 to 3.40 as medium, 3.41 as high and 4.21 to 5.00 as very high soft skills, hard skills and competitiveness performance (See Table 2).

Table 2: *Level of SHC Rubric Assessment*

Level of mean score	Interpretation
1.00 – 1.80	Very low
1.81 – 2.60	Low
2.61 – 3.40	Medium
3.41 – 4.20	High
4.21 – 5.00	Very High

However, the scoring system can be adapted depend on a standard used by the teacher and assessor need. For instance, in academic evaluation system Universitas Jambi, 10 to 100 score were used. The likert scale 1 to 5 can be transformed to the standard academic score that is used by Universitas Jambi. To transform the score, following formula is used;

X^1 x 100(%): X^2 = Y

X^1 = Gathering Score

100   = Maximum Percentage (%)

X^2 = Maximum score

Y   = Overall Score

The interpretation of students' SHC performance based on score 00 to 100 is presented in Table 3. Score 00 to 49 is fail, score 50 to 54 is very bad, 55 to 59 is poor, 60 to 64 is fairly enough, 65 to 69 is enough , 70 to 74 is fairly good, 75 to 79 good and more than 80 is interpreted as very good soft skills, hard skills and competitiveness.

Table 3: *Level of SHC Rubric Assessment*

Level of mean score	Interpretation
00 – 49	Fail
50 – 54	Very poor
55 – 59	poor
60 – 64	Fairly Enough
65 – 69	Enough

70 – 74	Fairly Good
75 – 79	Good
80 and above	Very Good

5. Research Findings

Two research findings are reported below. First, the outcome of research instruments that describe the process and result of the instrument development, and the second, overall result of students SHC performance based on pilot study.

5.1 The Outcome of Instrument Development

The first step of instrumentation development was developed mains construct with referring to the Indonesian HE curriculum guidelines (Directorat of Students and Learning, 2014) and literature studies from related literature include Hadiyanto, (2016), Farkas, (2007); (2016), Chan et al., (2015), Hadiyanto (2014), UNJA(2014), Ahlstrom et al.,(2014), ILO, (2014), Hadiyanto, (2013), Bruno Lanvin, (2013), Hadiyanto, (2010) andZalizan et al., (2006).The result of coming out with three mains construct of Core Competencies: Soft Skills, Hard Skills and Competitiveness**.**

The second step was defining sub-constructs as the result of content analysis conducted to the Indonesian HE curriculum guidelines (Directorat of Students and Learning, 2014) and literature studies from related literature include Hadiyanto, (2016), Farkas, (2007); (2016), Chan et al., (2015), Hadiyanto (2014), UNJA(2014), Ahlstrom et al.,(2014), ILO, (2014), Hadiyanto, (2013), Bruno Lanvin, (2013), Hadiyanto, (2010) and Zalizan et al., (2006). The result comes out with categorization of soft skills into communication, IT Skills, Numeracy, Learning how to learn, Problem Solving Skills, and working with others. Hard skill is stand alone construct, while competitiveness was categorized into entrepreneurship, lifelong learning and employability.

The third step was constructing indicators of soft skills, hard skills and competitiveness. Discussion among researchers, literature studies and analysis as well comparison with others different type of instrument for instance comparing with self evaluation questionnaire of SHC.

The fourth step was holding a workshop with attended by 40 members which are consisted of four researchers, 30 lecturers from four faculties, Economic, Animal Husbandry,

Science Technology and Humanities, 3 PhD students, and two master degree students on education. There are two focuses discussed at this step. First, validating was by seeing appropriateness of the indicators under the component of each main construct, analyzing face validity, and confirming content validity. Some revision had been made at this step in terms of description indicators and content. The second one was defining scoring system.

As reported at previous steps, the rubric of SHC development consisted of three major components they are Soft skills, Hard Skills and Competitiveness. Soft skill was categorized communication, IT Skills, Numeracy, Learning how to learn, Problem Solving Skills, Working with others. Each component of soft skills has five indicators of performance. Hard skill is stand alone and indicated by five indicators only. Competiveness classified into three components; entrepreneurship, lifelong learning and employability. Five indicators also developed to indicate each component of competitiveness. The five indicators of SHC are scored from 1 as the lowest to 5 as the highest score. The meaning of each score are as follow; 1 as very low, 2 as low, 3 as medium, 4 as high and 5 as very high. Indicators of each component of soft skills, hard skills and competitiveness are presented in Table 4.1a, 4.1b and 4.1c.

Table 4.1a *Assessment Indicator of SHC performance*: *Soft Skills*

Soft Skills	Indicators
Communication Skill	1. Able to communicate or present ideas clearly and effectively. 2. Able to convince either orally or in writing with the main points systematically. 3. Able to absorb the main ideas and detailed information from oral and written sources. 4. Able to respond with a clear and straight forward. 5. Capable of reading comprehension and use English both in oral and written presentation.
IT Skill	1. Able to search for and select the appropriate information through IT such as files, CDs, Internet, Online Journal, etc. of various sources on the internet to complete the task that has been given properly.

	2. Able to present the assignment using interesting power point, graph, chart, image, number, etc.
	3. Able to develop the structure of presentation by using paragraph style, page number, and outline well.
	4. Able to use software or application feature such as query database, search engine, spread sheet, e-dictionary, e-sticky note, etc to improve the learning efficiency maximally.
	5. Able to present using polite language by combining text, graph, chart, picture, video and number well.
Numeric Skill	1. Able to understand and present the table, chart, graph and number in form of fraction, decimal, percentage, and number in a big number on pictures or words correctly.
	2. Able to use effective and efficient way to present the materials, information and findings by labelling the name of the table, diagram, graph to draw the presentation and result well.
	3. Able to count and estimate learning activities and result in form of multiplication, count of words, sentences, pages, topics, number of pictures, tables, etc correctly.
	4. Able to handle the time well in doing the assignment that related to the difficulties in fulfilling the due date
	5. Able to monitor, reflect, get the feedback and improve numeric skill to support learning activities and work.
Learning Skill	1. Able to improve academic performance as suggested by lecturers
	2. Able to put together ideas or concepts from different perspectives on the task completion or during discussion well
	3. Able to create new information by comparing it from various sources to draw conclusions appropriately.
	4. Able to set realistic targets and plans to complete tasks independently and responsibly

	5. Able to consult with lecturers and adapt learning strategies (ie, independent, collaborative and cooperative) well.
Problem solving skill	1. Able to identify problems, use different methods and sources to analyze problems. 2. Able to come up with some ideas in solving problems by explaining the key points clearly, effectively, convincingly and systematically. 3. Able to accommodate multiple perspectives (different races, religions, gender, political beliefs, etc.) and provide evidence to support conclusions in discussions or do tasks well. 4. Able to solve difficult problems by making comparisons with similar problems and find an analogy from reading or own experience appropriately. 5. Able to use and combine the usage of facilities to learn and and find a solution of problems in learning process.
Team work Skill	1. Able to work together and have a serious conversation with the team, and respect the different perspectives of different races, ethnicities, religions, etc. in the learning activities. 2. Able to resolve conflicts and provide constructive feedback. 3. Able to maintain team motivation effectively and offer ideas to achieve better results. 4. Able to contribute as team members or team leaders in completing tasks or projects. 5. Able to stimulate team members to contribute to teamwork, accommodate team members' contributions and combine the team members opinion well.

Table 4.1b *Assessment Indicator of SHC performance: Hard Skills*

Hard Skills	Indicators
Hard Skills	1. Able to apply the knowledge and skills of the specific field into practice perfectly.

	2. Able to correlate what has been studied beforehand in the scope of his/her knowledge in oral and written presentations.
	3. Able to answer questions and give specific and practical explanations in her/his field, then it can be understood simply by people of different fields.
	4. Able to design and implement a field study related to my field of knowledge specifically and technically.
	5. Able to contribute from the perspective of her/his field to complete a project / group task

Table 4.1c *Assessment Indicator of SHC performance: Competitiveness*

Competitiveness	Indicators
Entrepreneurship	1. Able to plan, organize and complete a task / project.
	2. Able to promote the benefits and economic value of his product to others.
	3. Able to read the business opportunities in accordance with her/his field, skills and competence (expertise).
	4. Able to open business opportunities in accordance with her/his field, skills and competence (expertise).
	5. Have consistency and tenacity attitude in performing tasks / roles.
Long Life Learning	1. Know the weaknesses of himself and be able to overcome them.
	2. Show her/his spirit and willingness to learn continuously from the environment (friends, groups, and what she/he observes).
	3. Evaluate the expertise (her knowledge) and develop it according to current needs.
	4. Learn and compare issues (information) and related facts to draw a conclusion.
	5. Using various sources such as ICT, Video, Online sources, and other resources to develop his or her competence.

Employability	1. Able to integrate the application of soft skills and hard skills in the work / task.
	2. Able to complete the tasks assigned and responsible for what he does
	3. Able to work without being dependent on others And adapt to new environment quickly.
	4. Discovering and using new and better ways to do tasks, bringing creativity, ideas and innovative results, thinking out of the box
	5. Able to use English specifically in her field of knowledge.

5.2 Reliability Test of the Rubric Assessment

Inter-rater reliability was used to analyze the inter-rater agreement toward SHC assessment result. Pallant (2011) suggested Cohen Kappa to test intererater reliability. If significant value Measure Agreement Kappa<.05 then the agreement between rater is achieved. However, Accodring Peat (2001, p.228) in Pallant (2011, p.226), a value of .5 for Kappa represents moderate agreemen, above 7 represents good agreement, and above .8 represent very good agreement. In this analysis of the instrument found that there is an agreement between raters toward students' soft skills in overall (Kappa Value.256 and Approx Sig.016<.05) and all skills obtain agreement between rater. Hard Skill yielded Kappa Value, 354 and Approx Sig.000<.05 and it is acceptable. Competetiveness in overall yielded accepted Kappa Valueat .296 and Approx Sig. 003<.05, while each sub-construct of competetiveness were also given accepted value of agreement; enterprenurship at Kappa Value .261 and Approx Sig.046<.05, lifelong learning at Kappa Value, .278 and Approx Sig.038<.05 and emplyability at Kappa Value, .478 and Approx Sig.008<.05. Table 5 shows the result of Cohen Kappa Analysis in detail as well as the level of agrrement level.

Table 5: *Raters' Mean Score and Cohen Kappa Test Agreement*

Construct of SHC	Rater 1 Sore	Rater 2 Score	Kappa Value	Approx.Sig.	Level of Agreemen
I. Soft Skill	3,84	3,72	.259	.000	Accepted
a. Communication	3,61	3,47	.653	.000	Moderate
b. It Skills	3,80	3,66	.516	.002	Moderate
c. Numeracy	3,66	3,52	.710	.001	Moderate
d. LHTL	3,85	3,76	.696	.001	Moderate
e. Prob. Solving Skills	3,80	3,90	.583	.000	Moderate
f. Working with others	4,33	4,00	.337	.017	Accepted
II. Hard Skill	3,52	3,90	.354	.016	Accepted
III. Competetiveness	3,55	3,80	.296	.003	Accepted
a. Enterpreneurship	3,23	3,71	.261	.049	Accepted
b. Lifelong Learning	3,66	4,14	.278	.038	Accepeted
c. Employability	3,76	3,57	.478	.008	Accepted

In short, though the rubric of SHC Performance successfully developed and obtained accepted agreement. Quality improvement of the rubrics assessment istrument is still being continued until obtaining at least moderate agreement for all construct of SHC.

5.3 Overall Result of Students SHC Performance Based on Pilot Study

Table 4 shows the students' SHC performance based on pilot study data. This result is an example of how the students SHC performance calculated and reported. Two assessors had assessed students' performance of SHC. Both assessments result were computed become one score of students' SHC performance after consistency assumption achieved (see Table 5). The result shows that the students' SHC performance in overall was at medium level, and mean score in the range of 2.61 to 3.40 (see Table 2 – Interpretation of means score). Furthermore Students' softs skills (mean 3.09), Hard Skill (mean 3.01) and Competitiveness (3,16) were at high level.

If students' SHC performance convert to standard academic score of Universitas Jambi, students' overall score of SHC were at fairly enough (mean score 61.80), soft skills were at fairly enough (mean score 61.52), and competitiveness was at fairly enough level. The findings in detail are presented in Table 6.

Table 6: *Overall mean score and level of students' SHC*

Construct of SHC	Mean	S.td	Level	Universitas Jambi' Standard Score	S.td	Level
I. SHC	3.09	.353	Medium	61.80	7.07	Fairly Enough
II. Soft Skill	3.07	.363	Medium	61.52	7.27	Fairly Enough
a. Communication	2.87	.447	Medium	57.55	8.95	Poor
b. It Skills	3.10	.525	Medium	62.08	10.5	Fairly Enough
c. Numeracy	2.97	.470	Medium	59.54	9.40	Poor
d. LHTL	3.12	.443	Medium	62.42	8.86	Fairly Enough
e. Prob. Solving Skills	3.02	.459	Medium	60.56	9.19	Fairly Enough
f. Working with others	3.37	.469	Medium	67.50	9.38	Fairly Enough
III. Hard Skill	3.01	.454	Medium	60.31	9.08	Fairly Enough
IV. Competetiveness	3.16	.424	High	63.29	8.49	Fairly Good
g. Enterpreneurship	3.09	.476	Medium	61.96	9.53	Fairly Enough
h. Lifelong Learning	3.29	.536	High	65.81	10.7	Fairly Enough
i. Employability	3.12	.448	Medium	62.45	8.97	Fairly Enough

6. Discussion

Since there are two types of rubric; holistic and analytic, the SHC performance rubric must refer to one of the rubric type. A holistic rubric requires the teacher to score the overall process or product as a whole, without judging the component parts separately. In contrast, with an analytic rubric, the teacher scores separate, individual parts of product or performance first, then sums the individual scores to obtain a total score. (Nikito, 2001, Moskal, 2000 in Craig A. Mertler, 2001).

The analytic rubric was applied in SHC assessment rubric. By referring to the Mertler (2001), this kind of rubric is more appropriate to assess student performance. The students' SHC performance is compounded from three main constructs; they are soft skills, hard skills and competitiveness. Each main construct are assessed through their individual skills and individual skills are measured by using five indicators in each. The qualitative indicators are used in the SHC rubric assessement to observe the students performance in the process of learning, the observing must be done by two teachers or raters in the classroom, to see the consistency and the fairness of scoring. There is no correct or wrong in the assessment, because the rubric is seeing how and what skills students perform based on the SHC indicators performance. This rubric is appropriate to be used as formative assessment or evaluation on a course, it depends on how the teacher adapt the indicators or descriptions of each skills and make it specific to his/her subject or course.

Using the rubric can help teachers to evaluate his instructions technique, and also teachers can give feedback to the students about their performance on that skills. As a type formative assessement, SHC rubric scoring system makes the combination with summative asessement is possible. However the combination effectiveness of SHC rubric asessement and submative asessment are not being tested yet and it will be tried out in students' SHC Development experimental research of this project.

7. Conclusion

This article presented the rubric development process of students' SHC performance University of Jambi. Five steps had been applied in the process. First step was analysis of Indonesians' HE curriculum and literature studies and defining three main cosntructs; second step was defining sub-constructs of each main construct; the third one was defining indicators development, the fourth step was holding a workshop among lecturers to obtain face and content validity, and the fifth step was trying out and reliability testing.The rubric was tried out to 21 participants at English Education Depertment, Faculty of Education and Teacher Training, Universitas Jambi. The result of Cohen Kappa analysis shows that there is an agreement between raters toward students' soft skills, hard skills and competitiveness. From whole process of the development, it can be concluded that the SHC rubric assessment is reliable, valid, and

appropriate to be used to assess students' soft skills, hard skills, and competitiveness.   The result of the students' SHC performance at pilot study shows that students' SHC Performance in overall was at medium level, while looking at main components of SHC; softs skills, hard Skill and competitiveness were also performed at medium level by the students. Furthermore, students' SHC Development model will be implemented in future classroom experiment research, while   the SHC rubric assessment will be applied at pre observation and post observation. It is expected that the end of the classroom experiment research will come out with some recommendations for model SHC development and SHC Rubric assessment revision and improvement.

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