

Graduate Candidates' 21st Century Skills And Challenge For The Faculty And The University In Online Learning Era

Hadiyanto,
Noperdiman
Syamsurizal
Muhaimin
Yuliusman
Supian Ramli
Urip Sulistiyo

All Authors are Teaching Staff at Universitas Jambi, Indonesia
hadiyanto@unja.ac.id

Abstract

This study aimed to investigate students' 21st century skills at a Faculty of Science Technology at a University, Indonesia. The 21st is consist of of two main skills, they are soft skills and hard skills. Soft skills classified into six sub skills, communication, IT, numeracy, learning how to learn, problem solving, and team work. Hard skills were not classified into any sub skills. Students' self-report questionnaire were distributed to 212 hundred the third year students at and 150 returned. The findings show that the students at science technology faculty rated their overall 21st century skills at average level. Students also rated overall soft skills and hard skills were at average level. All of sub components of soft skills; communication skills, IT skills, numeracy, learning how to learn, problem-solving skills and teamwork skills at average level. These findings implied that the science technology students was not prepared enough with 21st century skills. This result implied that the faculty as well as University had a hard challenge to reform the process of learning practices, and such as a policy must be taken to give more emphasizes 21st skills on curriculum, syllabus and teaching and learning practices.

Keywords: *Soft skills, hard skills, learning practices, global challenge, IT Skills, Higher Education*

1. Introduction

There had been hot issues on 21st century skills discussed today in many field of workplace dealing with human resources quality working and seeking for a job. The terms are used might be very, however the essential of the issues are remain the same, such as key skills, adaptive skills, soft skills, generic skills, life skills and interpersonal skills, etc. The issues are broadly published in journal, books and conference, such as Hadiyanto, et al 2017, Laura., et al (2015), Hadiyanto & Suratno, 2015, Bialik, et., al. (2015), ILO, (2014), Hassan., et. al. (2013), Hadiyanto & Mohammed Sani (2013), Person, et. al. (2009), Partnership for 21st century skills (2008) and Zalizan., et. al (2006).

In Indonesia, emphasizing on students 21st century skills had been stated in curriculum based Indonesian Qualification Framework or called by KKNi 2013. Furthermore, Ristekdikti (2016) and UNJA (2018), teaching and learning process at University must enhance the students' soft skills and hard skills. The practices of soft skills bring them to develop and acquire their hard skills. It is expected that the graduates of University come out with lifelong learning, employability and competitiveness capacity.

In responding the new curriculum policy, universities in Indonesia had reconstructed curriculum based on KKNi standard. It stated that the outcome of University graduate must possess 21st century skills such as soft skills and hard skills (Hadiyanto, et al, 2017; Ristekdikti, 2015). However, there is no evaluation or research yet conducted to search students' level of 21st skills today as the impact of new curriculum implementation. The current studies as one of research activities under LPDP Fund conducted a survey research to measure students 21st century skills based on self-evaluation questionnaire of 21st century skills. This study was conducted at the Faculty Science and Technology, Humanities, Economic and Business, and Husbandry, Universitas Jambi. The findings were focused on the level of students' soft skills in terms of communication, numeracy, IT, learning how to learn, problem solving, teamwork, and hard skills.

2. Defining 21st Century Skills: Soft Skills, Hard Skills and Competitiveness

Soft skills, professional skills, interpersonal and personal skills, generic skills, key skills, adaptive skills and others term are interchangeable term used by educator to refer to 21st century skills (Hadiyanto, at al 2017; Bialik at, al 2015; Ristekdikti, 2015; Hadiyanto, 2010; Unja, 2014; Partnership for 21st Century Skills. 2008; Zalizan, et. al, 2006). 21st century skills define is a popular term used among universities to reveal skills needed by

graduates Universities to seek for a job. In this research, soft skills and hard skills are discussed as components of 21st century skills.

Students learning activities are designed with a view of encouraging students to actively participate in their process of learning. Priority is placed on lecturer setting goals and objectives for the students' engagement and activities related to the promotion of soft skills and hard skills as well as its impact on students competitiveness level (Hadiyanto, et. al. 2017, Ristekdikti, 2016, Washer, 2007).

2.1 Soft Skills Soft skills is 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 as stated in (Hadiyanto, et. al 2017; Laura et al 2015 and Partnership for 21st Century Skills, 2008). Students' soft skills were developed through students' engagement in learning activities. Students must learn the content knowledge by their learning activities.

Communication skills continue to be essential at work so as to maintain successful job performance. The skills need to enable graduates delivering their idea as individual or as group member and comprising a diversity of backgrounds in order to come out with a good decision, solution and negotiations (Dikti, 2015; Ahlstorm, et. al, 2014; Marando, 2012). In this study, Communication skill is defined as the ability of using English to express and exchange ideas by using feelings of thought a variety of verbal and non-verbal media, including speech and written text as also to synthesise information gained from relevant resources (Hadiyanto & Sani, 2013; Zalizan et al, 2006; Washer, 2007).

Information technology skills are one of the '21st century skills' which appears to create a powerful synergy for '21st century skills development'. The use of ICT in teaching and learning would provide many opportunities to teachers and learners in order to develop their lifelong learning. In this study, students' IT practices include the use of Computer, Cd Roms, internet, WEB, Online conference, program, software, database, video and others technology by students for learning. IT Skills, then defined as the competence of using technology of computers as well as its' device and programme, such as using Microsoft office, internet, website, email, messenger, downloading and uploading, applications, online conference, necessary tool and application to access, gain, create, manage and expose information (Hadiyanto, 2010; Barbara, et. all, 2008; Washer, 2007; Zalizan et al, 2006).

Numeracy skills are not only related with number, however it includes the ability of some on to handle information, to express ideas and opinions, to make decisions, solve problems, times management and job priority (Zalizan Mohammad Jelas, et al 2006) and (Bennet, et. al, 2000). Students' activities and engagement, which relate to numeracy activities are such as time managements, identifying relevant and irrelevant information, reporting tasks or assignments by using tables, charts, graphs and numbers. Then *Numeracy skill* refers to the ability of using basic mathematic calculation, interpreting graphical information, timing, prioritizing tasks and sequencing of job or activities. (Hadiyanto & Sani, 2013; Hadiyanto, 2010; Zalizan et al, 2006; Washer, 2007).

Learning skills is learning features processes, understandings and skills that can be learned and taught when one has gained mastery in learning how to learn, one can learn effectively and efficiently through process teaching and learning a course. *Learning skills* is defined as the ability of using strategies as well as doing evaluation on self-learning strategy, seeking for the weakness and coming to better way and output of learning goal, it includes gaining general and detailed information, knowledge and skills in order to achieve the goal of learning (Hadiyanto, et. al. 2017; Hadiyanto & Sani, 2013; Zalizan et al, 2006; Jones, 2009)..

The ability to solve problems will have a great impact on the success of the students' "real life" endeavors. Laura, et. al (2016) and Ahlstrom, et. al (2014) argue that the ability to resolve business or operational problems, reduce 'downtime' and increase system efficiency is all part of the pressures now faced by employees at almost all occupational levels. On the one hand, this requires an individual to focus on the whole production and delivery process in order to understand the significance of a task; on the other hand, it requires independence of thought and action, and a sense of resourcefulness to pre-empt, identify or remedy problems. Problem solving skills can be encouraged through students' activities for instances, problem identification in doing assignment, ways of tackle problem, looking at previous problem, PBL, case studies, self-learning and etcetera. *Problem solving skills*, which is the ability to tackle problem systematically and appropriately in appropriate situation in order come out with an appropriate solution (Luara, et. al, 2016; Ahlstrom, et. al, 2014; Hadiyanto & Sani, 2013; Jelas et al., 2006; Washer, 2007).

The ability to work as team member will give a great impact to produce new ideas and to find the way out in every situation of real work life. In this study, WWO development will be investigate related to students' activities in-group, such as group discussion, group assignment or project, collaboration and cooperation, inter-communications with different races and etcetera. *Working with others* refer to a capacity to interact effectively with other people both on a one to one basis and in groups, including understanding and responding to the needs of a client and working effectively as a member of a team to achieve a goal (Luara, et. al, 2016; Ahlstrom, et. al, 2014; Laura., et. al. 2016; ILO, 2014),

2.2. Hard Skills

Hard skills refer to subject content knowledge, core concepts, ideas, values, and facts, related with students' selected discipline that can be practiced and applied in the real world integrated setting. Specifically, hard skills are 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, et, al. 2017; Chan, et, al., 2015; Unja, 2014; Ahlstrom et. al., 2014).

One should possess the subject specific competencies as his/her basic knowledge and capabilities. The students' engagement in the classroom such as discussion on concepts, ideas, values and facts, as well as students' activities such as explaining contents of knowledge, utilize knowledge in practicum and apply content of knowledge in doing assignment.

3. Developing Students 21st Skills at University

There are many ways of achieving the goals and learning outcomes or program objectives that have been set by each institution. Nevertheless the approaches used in designing the curriculum and the selection of the teaching-learning activities must be based on sound learning principles, where the students are encouraged to acquire hard skills, soft skills and academic character (Hadiyanto, 2017, Ristekdikti 2015, 2016, Burce & O'Sullivan, 2014).

In relation to preparing the classroom for 21st century skills development certainly requires proper planning and preparation. Giving a full lecture or demonstrating the 21st century skills practices; soft skills, hard skills and academic character are not proven methods of developing the skills among the students. The literature stresses the importance of both theory and practice as necessary elements in the process of learning (and the development of 21st century skills through real practice, yet many writers assert that students have difficulty in transferring theoretical concepts acquired in the classroom to practical applications in the workplace in areas as varied as aviation, all disciplines knowledge. For answering the issues, some expert suggested that important opportunities for the development of 21st century skills must occur in the selection of delivery methods. Teaching contexts can provide an explicit focus on the development of 21st century skills, thus providing students with opportunities to develop them. The students '21st century skills will be highly promoted if the large opportunity given to the students to practice these attributes within learning activities and otherwise (The Ontario Public Services. 2016, Hadiyanto & Suratno, 2015, Hassan., et. al. 2013, Hadiyanto, 2010).

Students learn most effectively when they have the opportunity to interact with other students. Interaction among students typically leads to group problem solving. When students are unable to meet together, appropriate interactive technology for learning such as E-mail, E-learning, Online learning, Online course some current ICT application, should be provided to encourage their it skills as well encourage their small group and individual communication. Assignments in which students work together and then report back or present to the class as a whole, encourage student-to-student interaction. Ensure clear directions and realistic goals for group assignments. Distant students need to reflect on what they are learning. They need to examine the existing knowledge frameworks in their heads and how these are being added to or changed by incoming information (Hadiyanto, 2010).

The concept and indicator of students' 21st century skills were retrieved from theories and concept of teaching and learning and then characterized into statements of 21st century skills. In daily learning process, 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 in real contact were rarely measured by educator. Soft skills are typically hard to observe, quantify and measure by a test. Self- evaluation questionnaire model were developed to measure students' 21st century skills.

4. Research Method

The target population of this study was Science Technology Students at State University in Indonesia. The sample of the study was third year students that were selected by purposive sampling. The total sample used in the study was 150 students. The data for this study were generated using a quantitative method. A questionnaire

was conducted to elicit students' self-reports regarding their level of 21st century skills. The students were asked to respond each statement about their level of soft skills, hard skills and competitiveness using a 5-point Likert scale (never, rarely, sometimes, often, and very often). The mean score of the respondents' level of 21st century skills was calculated and interpreted in five levels, as shown in Table 3.

Table 2. Mean Interpretation of 21st Century Skills

Mean Score	Level
1.00 – 1.80	Very Low
1.81 – 2.60	Low
2.61 – 3.40	Average
3.41 – 4.20	High
4.21 – 5.00	Very High

As Table 3 shows, a mean score between 1.00 and 2.33 indicates a low level of soft skills and hard skills, a mean score between 2.34 and 3.66 a average level, and a mean score between 3.67 and 5.00 a high level of soft skills and hard skills.

4.1 Reliability and Validity of Instruments

A reliability analysis demonstrated that overall Cronbach alpha yielded α at 956, means that the instrument is obtain very good consistency. Looking at soft skills and hard skills and all components also obtained Cronbach alpha coefficient at >0.7 and corrected-item correlation $>.300$ (Pallant, 2011). Related to validity, the instrument was developed by referring to existing instruments such as Hadiyanto & Sani, (2013) and Zalizan, et. al, (2006), and latest references of 21st century skills in the higher education as published in Hadiyanto, et. al, (2018).

Tabel 1 Reliability of the Instrument

Main Components and Sub-Component	Number of Items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Soft Skills	50	,382 - .593	,949
Communication Skills	10	,535- ,619	,857
It Skills	6	,551- ,606	,811
Numeracy Skills	8	,476 - ,629	,836
Learning Skills	11	,492 - ,602	,862
Problem Solving Skills	8	,501 - 588	,823
Team Work Skills	8	,550 - ,663	,854
Hard Skills	10	,541 - ,668	,883
21st century skills	107	,421 - ,600	,956

5. Research Findings

Descriptive statistics were used to portray students' soft skills and hard skills at University of Jambi. The findings were reported below.

5.1 Overall Levels of Students' 21st Skills

Mean score of 21st century skills in overall, softs skills and hard skills (2.87 of 5.00) is at average level. A closer examination of the mean score given by the students to each soft skill components were also at average level (see Figure 1).

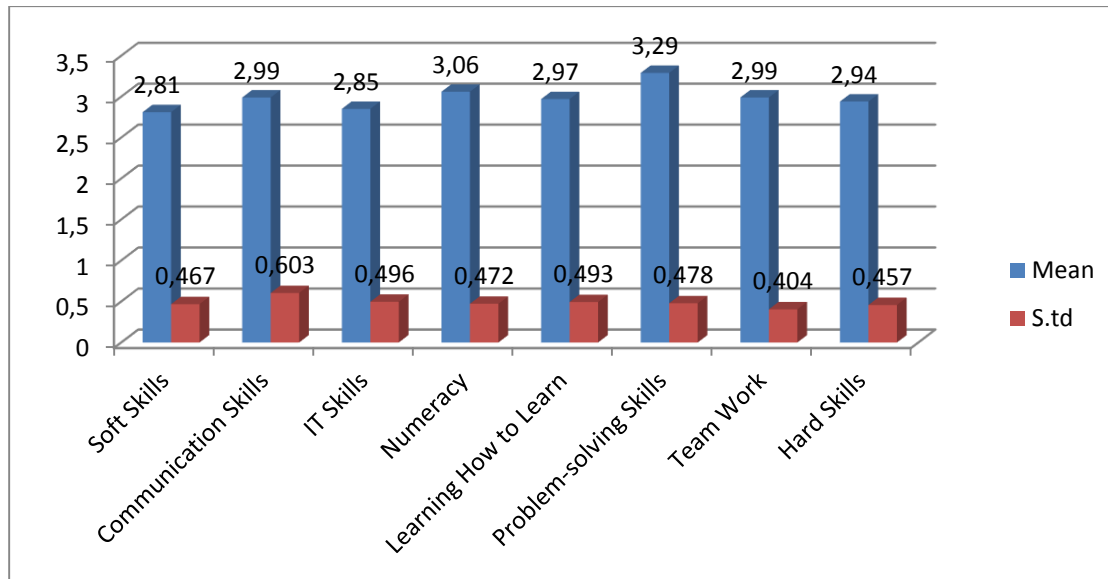


Figure 1 Mean score of Students 21st Skills

5.2 Level of Students' Soft Skills

As displayed in Table 4 the students' communication skills in overall was at average level (mean score 2.81). Furthermore, students rated nine of 10 indicators of communication skills at average level (mean between 2.70 – 3.05). This signifies that the third year students' communication skills had not been encouraged during the process of teaching learning. Statement number 10 of communication skills was at low level mean score (2,17).

Table 4. Mean and level of students' communication skills

Communication	Mean	S.td	Level
1. Making a class presentation	2,98	,639	Average
2. Using different formats for presenting information.	2,74	,667	Average
3. Using varied vocabulary and expressions.	2,81	,628	Average
4. Integrating ideas or information from various sources	2,70	,713	Average
5. Summarizing key issues from a classmate oral presentation.	2,93	,722	Average
6. Giving feedback (question, comment or suggestion)	2,79	,755	Average
7. Communicating some ideas in writing assignment report	2,94	,752	Average
8. Writing a report clearly, in detail and precisely.	3,00	,647	Average
9. Reflecting and evaluating on use of communication skills	3,05	,642	Average
10. Using English as a average of oral and written communication	2,17	,748	Low
OVERALL	2,81	,467	Average

The mean scores of students' IT skills are at the average of 2.74. Furthermore, all indicators of IT skills yielded mean score at average level. Three indictors of IT skills yielded mean below 3.00 or at bottom up of average IT skills (Indicator number 3, 5 and 6) while three others indicators are yielded means score 3.18 to 3.32. These findings mean that the students' development in using ICT is still far from expectation.

Table 4. Mean and level of students' IT skills

IT Skills	Mean	S.td	Level
1. Looking for information from e- resources and printed resources.	3,32	,788	Average
2. Sharing references, resources and information using CD, email, online group, hang out, FB, WA, mobile phone application, etc.	3,20	,819	Average
3. Developing your report (assignment) in the form of text, graphs, chart, image and numbers such as carrying out calculations using suitable software, moving and resizing images.	2,81	,736	Average
4. Presenting assignment using power point, graphs, chart, image, numbers, etc.	3,18	,705	Average
5. Using software or application features to improve work efficiency.	2,62	,890	Average
6. Developing the structure of presentation by using paragraph styles, page numbers and refined presentation by combining text, graph,	2,82	,819	Average

chart images, video, and numbers.

Overall IT Skills	2,74	,667	Average
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Table 6 shows that overall mean score of numeracy was at average level (mean score 2.85). All indicators of numeracy skills yielded mean score at average level (mean between 2.70 – 3.07). This finding signifies that the students did not prepared by the numeracy skills during their study at the faculty. While current working place, future employee must indulge with numeracy skills for instance in managing time, making job priorities, reporting working progress, etc.

Table 6. Mean and level of students' numeracy skills

Numeracy	Mean	S.td	Level
1. Reading and understanding tables, charts, graphs and numbers.	2,73	,733	Average
2. Calculating and measuring learning activities and outcome by times, words numbers, sentences, pages. Topics, number of pictures, table etc	2,66	,715	Average
3. Using effective ways to present findings.	2,98	,689	Average
4. Presenting and calculating main points and sub points in leaning activities and assignment report.	2,89	,618	Average
5. Constructing and labelling tables, charts and graphs to illustrate presentation and findings. ICT	2,85	,728	Average
6. Managing your time in doing assignment and dealing with any difficulties to meet your deadlines.	3,07	,774	Average
7. Monitoring, reflecting, getting feedback and improving calculation skills to support my study activities.	2,70	,694	Average
8. Identifying the relevant information sources and outcomes, I hope to achieve.	3,02	,607	Average
Numeric	2,85	,496	Average

Table 7 displays the students learning skills in overall was at average level (mean score 3.06). Looking at indicator of learning skills shows that all indicators were at average level (mean between 2.68 – 3.36). These findings indicate that the students were not strongly prepared with learning skills, while the skills signify to enhance a graduate lifelong learning.

Table 7. Mean and level of students' learning skills

Learning Skills	Mean	S.td	Level
1. Improving performance in the quality and way of work.	3,12	,650	Average
2. Assessing the effectiveness and efficiency of my learning activity.	3,11	,687	Average
3. Identifying factors that had an impact on my learning outcomes	3,15	,699	Average
4. Setting and planning realistic targets of work.	3,17	,718	Average
5. Learning independently at times and be responsible for organizing own task.	3,36	,720	Average
6. Identifying better ways of learning.	3,17	,642	Average
7. Getting conclusion from different angles of view when completing a an assignment and a discussion	3,08	,670	Average
8. Reviewing what had learned, what had not, and how my way of learning worked.	3,07	,696	Average
9. Consulting way and performance of learning to a lecturer.	2,77	,875	Average
10. Adapting learning strategy (i.e. independent, collaborative and cooperative) as necessary to improve your academic performance.	2,68	,666	Average
11. Creating new information by comparing it from various sources to draw a conclusion.	3,02	,814	Average
Overall	3,06	,472	Average

The findings in Table 8 show that the students' problem solving skills in overall at the average (3.01). Further analysis in each indicator of problem solving skills revealed that there is no indicator obtain mean score at high level, nevertheless all indicators were at average level. These findings imply that the students' problem-solving skills were not developed significantly until at third year of study.

Table 8. Mean and level of students' problem solving skills

Problems Solving Skills	Mean	S.td	Level
1. Identifying problems in doing assignments.	2,93	,631	Average
2. Coming up with ways to tackle a problem.	3,09	,638	Average
3. Using different methods to analyze the problem.	2,91	,713	Average
4. Including and suggesting diverse perspectives.	3,22	,724	Average
5. Making comparisons with similar problems and finding analogies from readings or own experience	2,98	,655	Average
6. Solving problems by getting and making efficient use of available resources	2,86	,765	Average
7. Finding and showing evidence to support my conclusions in an assignment or in a discussion.	2,82	,686	Average
Overall	3,01	,677	Average

Teamwork skills are one of necessary skills in order that the prospective employee be able anticipate work challenges and multi-task constraints, more over obtaining an optimal team work will come out with a high quality of working output. As displayed in Table 4 shows that the students rated their teamwork skills at average level (mean score 3.29). All indicators of teamwork skills yielded mean score at average level (mean between 3.07 – 3.36), except indicator number 7 (Respecting diverse perspectives from different races, religion, gender, academic achievement etc) in learning activities).

Table 9. Mean and level of students' team work skills

Team Work Skills	Mean	S.td	Level
1. Working with others on activities other than coursework.	3,20	,735	Average
2. Having discussion in different race,, ethnic and religion.	3,31	,580	Average
3. Working with others on projects.	3,36	,700	Average
4. Resolving conflicts occurred in group work.	3,18	,754	Average
5. Sharing constructive feedback.	3,07	,696	Average
6. Seeking effective ways to keep team member motivated.	3,26	,609	Average
7. Respecting diverse perspectives from different races, religion, gender, academic achievement etc) in learning activities.	3,67	,718	High
8. Thinking and offering ideas to a group work to complete and achieve better output of a group assignment.	3,30	,757	Average
Overall	3,29	,478	Average

5.2 Level of Students' Hard Skills

Irony findings occurred at the mean scores of hard skills, whereas it is a subject specific skills, it yielded mean score at average level 2.94. Furthermore, students perceived all indicators of hard skills at average level. It was supposed to give high to very high level of mean score, due to these skills relate to their own subject discipline (See Table 9).

Table 10. Mean and level of students' hard skills

Hard Skills	Mean	S.td	Level
1. Applying specific knowledge and skills.	3,09	,616	Average
2. Discussing ideas from your specific knowledge of a course with your colleague.	2,91	,554	Average
3. Doing a field study related to my subject course.	2,76	,641	Average
4. Reflecting and Evaluating my work and it's outcome based on my subject knowledge and expertise	2,88	,618	Average
5. Connecting prior knowledge with topic of discussion in oral and written presentation	3,06	,637	Average
6. Transferring your knowledge based to others people.	3,06	,667	Average

7. Connecting concepts, knowledge and skills in doing filed study	2,79	,788	Average
8. Interpreting and practicing your subject-content knowledge into real action	3,01	,762	Average
9. Answering technical questions proposed by lecturer, friends and others people	2,90	,678	Average
10. Contributing thoughts from my subject knowledge perspective in group assignment activities	2,95	,724	Average
Overall	2,94	,457	Average

6. Discussion

The students able to reflect on their own level of 21st century skills in term of soft skills and hard skills and to identify which of the seven skills they have had. However, students rated their soft skills and hard skill at average level. The teachers must employ some strategies of learning for the students in order that the students and acquire specific knowledge and skills as well as giving a change for the students to practice and developed their own communication, IT, numeracy, learning how to learn, problem solving, and Team Works skills (Laura, et. al, 2016; ILO, 2014; Ahlstrom, et. al; 2014),

Due to the lack of 21st century skills practice among the students, that University should encourage lecturers to implement learning activities that aim to improve students' soft skills and hard skills to ensure a minimum mean score of 4.20 and above, that is, the 'very high level' banding of soft skills.

A team of the university should conduct a bigger research to foster the students 21st century skills to know how its' developed through the students learning. Such as a policy might be taken after deep and detail need analysis, and it is expected that the University develop a blue print of such as guidance of the students' 21st century skills development at the university and faculty. In term of teaching and learning practice, 21st century skills can be nurture in a syllabus and teaching scenario.

The limited students 21st century revealed by this study are therefore of concern. Specifically, our study questions the assumption that 21st century are an inevitable outcome of time spent studying at university, and as discussed, this raises an issue that has received considerable attention both within and beyond HE institutions. Universities researcher must conduct R & D for the model of students 21st century skills development that is integrated with curriculum form University into the classroom. University must take a policy in order the model developed can be implemented through the faculty. Lecturers should make a standard syllabus, the connections between the various parts of the teaching syllabus more explicit, in order to forge stronger links between hard skills and soft skills. At the same time, the promotion of soft skills should be highlighted as one of the strengths of graduate training at university.

Graduates should possess at least high capability, competencies, hard skills, and soft skills that we call as 21st century skills when they completed their study. Graduates need to be equipped with soft skills and hard skills that they can use to 'sell themselves' to employers. By practising these soft skills in and outside of the classroom will enable students to become more effective, independent learners during their studies, and will enhance their employment prospects following graduation. As a result, the university graduate should leave with three main attributes, namely employability, life-long learning, and good citizenship (Hadiyanto, et. 2017; The Ontario Public Services, 2016; Bialik, et. al, 2015; Alberta Education. 2011; Washer, 2007; Star and Hammer, 2007). In short, this study contributes to the issues surrounding the development of soft skills and hard skills at university, and its results may be used as one of justification to develop the model of students' 21st century skills. That is also to inform, support, and plan innovations within the university curriculum and teaching at both universities.

7. Conclusion

This study was conducted at a Science and Technology Faculty of the University in Indonesia, which aims to identify the level of 21st century skills of the third year bachelor students. Students' the 21st century skills were at average level. In more specific, it concludes that soft skills with all components also yielded mean score at average level. The findings also showed that the mean score of the aspect 'hard skills' was at the average level. This signifies that the third year BEd (Hons) undergraduates at the institution were not strongly prepared with 21st century skills and neither the hard skills as the content of courses.

The students were not engaged to practice the 21st century skills in the classroom practice at the faculty. The faculty should think the manner in which soft skills and hard skills could be embedding in curriculum, syllabus and system assessment. The students' engagement in learning activities should be more encouraged. In other words, the students acquire hard skills through students' cantered along with the learning process in the classroom. Furthermore, Faculty must define a certain level of 21st century skills level a requirement of completing a degree programme within their faculty.

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