

## Perception Gap in the Business Vocational School Students of the teaching adequacy of the 21<sup>st</sup> Century Skills in Facing the Knowledge Economy

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### ABSTRACT

In order to have its graduates having the capabilities aligned with knowledge economies as those the developed countries in the next century, business school students in the developing countries need to be equipped with the 21st century skills. These skills include critical thinking, collaboration, effective communication, creative thinking, global connection, local context, computer literacy etc. On the other hand, the business vocational education as the source of economic development based on expertise, it is very important to get a sufficient portion of the skills to gain control in the future. However, in reality there are some significant problem that made teachers are reluctant to apply in the classroom. This study aims to mapping out how the implementation of 21st century skills at the vocational school in Central Java. However, differently from other research that based on teachers perceptions, the current research use the student's perception. Using the model of the 21st century skills that developed by previous researchers, this study tested on 60 students of Business vocational high school in several Central Java areas. Results of data analysis and frequency distribution table show that there are still some variables that needs to be improved. Implications and suggestions for the development of the development of 21st century skills mastery also to be submitted for the regulatory improvement and further action research and learning purposes.

**Keywords:** perception analyses, 21st century skills, business vocational school

### 1 INTRODUCTION

In order to improve the economy of a country, the government needs to increase the role and nurture the business to grow and prosper. The successful development of the businesses will be running well if the workers have the skills and abilities necessary for success in the era of the knowledge economy of the 21st century. With the growing use of information systems and electronic processing equipment, the required expertise to win the competition in this knowledge economy is the ability to use computers and IT (Beetham & Sharpe, 2007). These expertise often referred to as the 21st century skills, defined as some individual skills appropriate to the development of new 21st century business which are very differently from the industrial age ago (Ananiadou & Claro, 2009). Nevertheless, its apparent that the availability of labors with these abilities are still very limited, these referred by the numbers of businessmen who complained about the lack the availability of labors with the abilities to survive in the 21st century competitions (Boyles, 2012). Lack of skilled labor is ultimately inhibit the growth of companies that are able to adapt and develop rapidly in the face of global competition. Several previous studies have also found that there are significant differences in the perceptions held by teachers and students to the labor market needs (Hodge & Lear, 2011). This prompted a request to the world of education to improve the curriculum could prepare the 21st century skills needed it (Boyles, 2012). Pheeraphan

(2013) in his study revealed that the skills learned by the graduates of secondary schools and colleges have not been able to adapt to the needs of information technology and organizational dynamics, although learning in the classroom using ICT has been so high. This forced the government and universities to collaborate in making a breakthrough that could accommodate the needs of the business world.

Adjusting to these needs, business education institutions in the developed countries have started to consider reviewing the existing curriculum in response to the needs of the business world. In the development of this curriculum is also quite important is to achieve the integration of the required remedy achieve focus to prepare students ready to work effectively for future business (McCuddy & Pirie, 1998). However to achieve these purposes are not an easy tasks. There are debates in the last 20 years about the preparation of the curriculum starting from the appropriateness of content to the teaching methods, which still in presence up to now (Hamilton, McFarland, & Mirchandani, 2000). Therefore it is important for the government to be able to identify and integrate a set of capabilities and expertise in learning that can improve it. According Ananiadou and Claro (2009) there are two things that need the attention of government to the success of this integration. First, the government needs to encourage the participation of all elements of education and business stakeholders to formulate that ability. The second, government must oversee the process of integrating these skills become a standard in the curriculum that need to be integrated and applied by teachers.

In getting the formulation of the necessary skills content, previous studies indicated that the business practices and business models has shifted it focus from activities that rely heavily on the productions by machines to be more power to digital technologies (Buckingham, 2006). However, Ulrich (2009) reported that many schools that do not teach the skills that relevant to the needs of the workforce, mainly in the use of ICT in learning. These changes resulted in the need to curriculums be revisited to improve the mastery of 21st century skills into daily activities. For example, by integrating skills assessment into learning approach, students achievements and study completions. One example, as expressed by Gee (2007 in Binkley et al., 2012) that learning is implemented using computer games and online communities, students can develop the ability to collaborate and think critically, if assessment (assessment) task and competence to be achieved explicitly. This suggests, that it is very important to change the paradigm of learning the necessary skills and new skills and leave the 21st century skills that are not suitable. Thus, to achieve this goal the school needs to change the way students improve their capabilities and skills in thinking necessary for the 21st century. But in some cases, teachers and faculty members at business schools are reluctantly to incorporate the teaching of these skills because they are not examined in the final exams, nor in the teachers' key performance (Kay, Dunne, & Hutchinson, 2010). Based on these facts, it is very important to be able to integrate this skill into the learning to get enough portion for its development. One way is to create a curriculum model that accommodates these skills being integrated with the learning in the classroom (Boyles, 2012). Although learning using ICT has been widely practiced in secondary schools in developing countries (Pheeraphan, 2013), but no studies have specifically integrate the model of teaching using ICT to

accommodate these skills. However, first it is important to map competency skills in vocational school of the 21st century that are still lacking. Hence it is very important to be able to formulate a model of learning in vocational schools which accommodate 21st century skills by integrating the use of ICT in the classroom. Therefore this article focuses on mapping the 21st century skills in the teaching of vocational school students (the field of business studies) in Central Java in the attempt to improve skills that contribute to the success of global business in the 21st century.

The study aims to provide the directions and policies for business school education in the developing countries. The current research starts by providing the introduction in the first section and in the second section, the study reviewed the important 21st century skills and the sets of the hypotheses. In section 3, we review the research methods through sampling approach, the development of scales and data analysis methods. Section 4 displays the results of studies and findings in this study. Finally, in section 5 showed conclusions and limitations of the study.

## 2 EXPECTED CONTRIBUTIONS

1. To provide information regarding the implementation of 21<sup>st</sup> century skills that still need development.
2. To provide information to teachers, skills that still need to be developed further.
3. To provide directions of development of learning models that integrate 21<sup>st</sup> century skills into the curriculum that teachers and students can be accepted.
4. To advise the government and policy makers to the direction and guidance that is needed in the face of a knowledge society.

## 3 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Teaching 21st century skills in schools is not a new topic in business education literature, however many conceptualization has been proposed by researchers. In the circa 2005-2007 many research have reported that desires to changes in the teaching of the skills are necessary because of the many graduates who are not ready to work (Bybee, McCrae, & Laurie, 2009). In developed countries, the concept of 21st century skills has become a standard curriculum that is applied starting from elementary schools to higher education (Ananiadou & Claro, 2009). In its first appearance in the literature, this term referred to skills required in next century competitions for job related and world businesses will rely heavily on the use of technology, to be more innovative in the productions of services and goods. However, when this is the problem of developed countries, this would also means that the developing countries need to prepare the workforce that is able to survive.

Currently we are living in the era of the information economy where the global competitions occurs mainly because of the difference individual factors, technology and innovation (Dede, 2007). Business competition becomes more intense in the form of creative ideas, cutting edge new discoveries and the use of advanced technology. Companies are required to constantly innovate and make improvements to get the

benefit and profit maximization (Sianesi & Van Reenen, 2002). The competitive advantage may be obtained with application of technology in all aspects of the company. In the end, the application of technology in all lines of business operations has changed significantly the need for skills and workforce skills (Organization for Economic Cooperation and Development, 2004). That affected the need of workers who have the skills to work and survive in the global working environment which will earn a proper income (Dede, 2007). However, specific skills to develop by the education are still in discussions in the literatures.

Among the researchers themselves, each has a different concept on the skills most needed in the future. However, according to Boyles (2012), when the term refers to the skill of the 21st century the US government's desire to prepare graduates to survive in the 21st century competition. In his research, there is an increasing trend of educated labor will need as much as 120% annually for the employment of college graduates and 110% for the workforce of postgraduates. This suggests that changes in the standard pattern of labor needs to be a decent job at the company. But surprisingly, the research also gets the fact that the employment of college graduates still do not have the required skills such as critical thinking skills, creativity and ability to use ICT. Upon this, colleges and the government is expected to be preparing graduates to be able to adjust to the needs of the workforce (Ulrich, 2009). In the study of the American Society for Training and Development (ASTD), most companies surveyed, some of the skills most lacking is the expertise about Leadership, Critical Thinking and Creativity are still low (ASTD, 2009).

However, using the approach to the concept of four fundamental capabilities needed to develop business and enterprise. According to Ananiadou and Claro (2009, p. 8) the concept of 21st century skills is defined as all of the skills and competencies required of the youth and society in the information age in order to work effectively. Furthermore, researchers use the framework: information processing, communication and social skills ethics. Although these skills are very common and are often used, but other researchers have conceptually different. For example, other researchers in addition to the three factors mentioned above, Boyles (2012) adds inventive thinking skills. This is in accordance with the changing trend of the future in which all business activities will become increasingly lean and require individual abilities are higher (Dede, 2007). In the future, the company slim structure models, each employee is required to be able to work as an entrepreneur and leader of the company. Therefore the concept of this expertise needs to be equipped with the ability of the student entrepreneurs, hence analyze the needs of the required skills, literature study approaches using cognitive competence, social and behavioral orientation of entrepreneurs Boyles (2012).

Using theoretical concepts that have been presented by the previous study, we divided the 21<sup>st</sup> century skills into the expertise to process information, communication and collaboration skills, expertise closer to the social context and creative thinking skills. In the study of literature, we found many studies that focus on the capabilities required by an employer. To analyze this, the approach can be used to study the ability of entrepreneurial (entrepreneurial competency) which includes Human Capital (Unger, Rauch, Frese, & Rosenbusch, 2011), social skills (Adler & Kwon, 2002), self-efficacy

(Markman & Baron, 2003) and creativity (Gilad, 1984). Mastery of all this expertise will be able to push an entrepreneur to achieve success in business.

According to Ravitz, Hixson, English, and Mergendoller (2012), there are several dimensions of translation of a given framework. Using the theoretical frameworks of four basic activities in job related interrelationships mentioned by Boyles (2012), we proposed to measure these the application of skills by measuring perception of the students. These would provide an interesting finding, because there are discrepancies between teachers and entrepreneurs perception regarding the skills needed in workplace, and it would be beneficial for teachers and students alike for the research. Therefore for the current research a new insight to know the perspectives from student point of views because discrepancies between perceived skills acquired and expected is not uncommon, but surely needed. For example the research by reported discrepancies, Hodge and Lear (2011) reported significant differences in the areas of leadership, creativity and the value of languages. On the findings, it clearly show that there are discrepancies of perception between faculty members and employers regarding the important skills needed.

Drawing on the 21<sup>st</sup> century skills concept from Boyles (2012), it become more clear for the teachers on vocational schools to enhance their teaching to include the several skills conceptualized by those researchers. In previous research, the definitions of the skills required to perform better, Boyles (2012) emphasized the multiple calls for educators to recognize the challenges and opportunities in current job requirements, which then she proposed the (1) Information, media and technology literacy, (2) inventive thinking, (3) Communication and collaboration, and (4) productivity and results. However, to current research knowledge, these grouping of skills, entailed larger skills that should be mastered by students. Although many of the research in this stream acknowledged there are skills important for success in the next century jobs, however there are no single research citing the same skills (Stoltzfus, 2006). Meanwhile, Hodge and Lear (2011) cited management skills, interpersonal skills, teamwork skills, time management skills, personal management skills, problem solving skills, critical thinking skills, technology skills, written communication skills, oral communication skill, listening skills, leadership skills, creativity skills, ethic skill, language skills and computational skills (p. 32).

However, due to the applications and descriptions availability to apply toward students, the current research implemented the measurement based on the Ravitz et al. (2012). The following skills are the descriptions of the skills that deemed important for future students. These are skills taught by teachers with extended professional developments compared by teachers who have not attended those trainings. These dimensions of skills important for the students deemed critical by the teachers are: critical thinking, collaboration skills, communication skills, creativity and innovation skills, self-direction skills, global and local connections. However differently from previous research the current article focus on the differences of implementation of these skills between the private and state vocational schools. With the skills as the critical point for departure, therefore we propose that there are differences between state and private schools at the teaching of these skills.

*H1: there are differences of amount of teaching of 21<sup>st</sup> century skills in between the private and state vocational schools.*

#### **4 RESEARCH METHODS**

The sample for this study was undertaken in the vocational schools in Central Java province that having business department. The survey methods were selected as a part of a bigger research aiming for technology acceptance for the same respondents. The current research following the quantitative method aiming for 10 schools that fall into state or private owned vocational schools. The samples targeted for the students that in the third year of their study. A total of 60 samples were collected for this study, and all of the samples were equally drawn from the groups of bigger sample. However to guarantee the representativeness, equally number of sample of 30 each of the group were drawn. After all data collected, the researchers compile and analyze the data with Spearman Rank coefficient correlation for non-parametric tests using the SPSS, version 19. All of the mean score and coefficient score obtained for further analysis.

The current research was based the measurement scale from (Ravitz et al., 2012), whose developed the scale from the skills measure reported by Shear, Novais, Means, Gallagher, and Langworthy (2010). The survey also provided the answer ranged from scale ranged from 1-5 with choices 1 'Almost never'; 2 'A few times a semester'; 3 '1-3 times per month'; 4 '1-3 times per week' and 5 'Almost daily'. Following the conceptualization, here are the conceptualizations from Ravitz et al. (2012, p. 3):

(CT) **CRITICAL THINKING SKILLS** refer to students being able to analyze complex problems, investigate questions for which there are no clear-cut answers, evaluate different points of view or sources of information, and draw appropriate conclusions based on evidence and reasoning.

(CO) **COLLABORATION SKILLS** refer to students being able to work together to solve problems or answer questions, to work effectively and respectfully in teams to accomplish a common goal and to assume shared responsibility for completing a task.

(CM) **COMMUNICATION SKILLS** refer to students being able to organize their thoughts, data and findings and share these effectively through a variety of media as well as orally and in writing.

(CR) **CREATIVITY AND INNOVATION SKILLS** refer to students being able to generate and refine solutions to complex problems or tasks based on synthesis, analysis and then combining or presenting what they have learned in new and original way.

(S) **SELF-DIRECTION SKILLS** refer to students being able to take responsibility for their learning by identifying topics to pursue and processes for their own learning, and being able to review their own work and respond to feedback.

(G) **GLOBAL CONNECTIONS** refers to students being able to understand global, geopolitical issues including awareness of geography, culture, language, history, and literature from other countries.

(L) LOCAL CONNECTIONS refers to students being able to apply what they have learned to local contexts and community.

## 5 FINDINGS

Based on the results of the study there are three major findings in this research. Regarding the differences of the skills acquired by the students, the discrepancies related for the frequencies of the teaching.

**Table 1. Hypotheses testing and results**

Skills	results	remarks
Critical Thinking skills	Significant	Supported
Collaboration skills	Significant	Supported
Communication skills	Insignificant	Unsupported
Creativity and innovation	Insignificant	Unsupported
Self-direction skills	Insignificant	Unsupported
Global connection skills	Insignificant	Unsupported
Local connection skills	Significant	Supported

(Source: results)

## 6 DISCUSSIONS

Based on the results, it is important for the current teachers in vocational schools to upgrade their skills teaching methods and curriculum. The study identifies several skills that still having discrepancies between the two groups. These findings are exclaiming the important skills that deemed important by the students. Knowledge about these skills discrepancies can help the teachers to focus on the aspects need development for the students. These concerns also important for the vocational education researchers (Ravitz et al., 2012), because best practices for the skills embedded in the curriculum are not familiar for teaching in high school students (Stoltzfus, 2006). Among these skills, there are several different results.

However, there must be recognized that these skills are required in future qualification for the vocational schools graduates for competing in the business, therefor the embedding method for the teaching of this skills are important avenue for future researchers. From 21<sup>st</sup> century skills deemed important (Boyles, 2012; Ravitz et al., 2012), only collaboration, communications and local connection skills that having differences. These difference can be because of the culture differences, which the working together was the value shared by the students (Hodge & Lear, 2011). Other reasons for these discrepancies, may also because of the students was not aware for the teaching from the teachers (Stoltzfus, 2006). Other reasons provided by these researchers, that the teachers may also reluctantly teaches the skills due to the teaching of this skills was not included in the national tests.

## 7 CONCLUSIONS AND LIMITATIONS

More research required to complete the knowledge in this field by extending the respondents to other group of schools. Additionally, the research could conducting the relationships tests of the constructs toward the other constructs such as students' performance (Pheeraphan, 2013), teachers qualifications (Pihie & Bagheri, 2011) and entrepreneurial intentions (Abduh, Maritz, & Rushworth, 2012). The information regarding the relationships of these construct would provide better concept for academic development of the superior curriculums of vocational studies. Further, the other limitation was the statistics, for example the sampling methods (MacKenzie, Podsakoff, & Podsakoff, 2011), statistical analysis and scales used.

The other suggestions for the current research is the development of teaching methods that embedded the skills teaching. This effort would bridge the discrepancies, can be in the forms of technological model for the teaching. For example, the teaching of business subject using ICT that embedding the skills and other materials for the success of the students in the future.

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