THE TEACHING STRATEGIES IN VOCATIONAL EDUCATION IN THE KNOWLEDGE ERA*)

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Abstract – This paper was arranged to describe the challenge of the teaching strategies in vocational education in the knowledge era. One of the eras that will be meet in the twenty-first century is the knowledge era. In the knowledge era, knowledge is the engine of creativity and culture and defines our humanity, and also the main resource in any economic activity. *Sekolah Menengah Kejuruan* (Vocational Secondary High School) that one of components of vocational education in Indonesia is faced to improve its quality education and to adapt to the changing in the knowledge era. Teaching strategies are one of the components in a schooling scope that should be considered an alternative solution to improve the education quality, and also to accommodate to a change of knowledge in the knowledge era. The constructivism and social-constructivism learning approach, and the five elements of the strategic learning model: plugging in, powering up, synthesizing, outsourcing, and reflecting can be considered as part of the teaching strategies in implementing instructional in the knowledge era. Nevertheless, enriching a teacher's competencies in teaching strategies and other competencies that related to a workforce in the future is needed indeed through professional development activity.

Key words: teaching strategy, vocational education, professional development.

A. Introduction

The rapid scientific and technological development has impacted to every region distance will be relatively closed among nations in the world. Rapid technological change makes skills obsolete very quickly and requires higher levels of innovation. In the early twenty-first century, it has been rapidly growing an information age or a digital age, which then gradually will shift into a knowledge era. In this knowledge era, knowledge is the main resource in any economic activity. Therefore, the information and communication technologies are dramatically changing the way people in many aspects of the world live. In the

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other hand, according to Power (2000: 30) while globalization has increased economic growth in some countries, it has also demanded heightened competitiveness. The basic challenge of the globalized economy is therefore the requirement to adjust and compete in a rapidly changing environment. So that, central to the effort to compete in knowledge era is the creation of a productive, innovation, and flexible workforce.

Because of the globalization, new problems will have appeared in knowledge society, one of them such as the gap between the science and technological progress and the education system. Vocational education is one of the component of education most directly concerned with the acquisition of the knowledge and skills that required by workplace. Power (2000: 30) stated that vocational education of the twenty-first century must be gear to the demands of the 'knowledge society'. Refer to the education system structure of Indonesia, the term of vocational education has spitted into two meanings, i.e. in higher education level and in secondary education level. The vocational education in higher education levels are usually conducted at a universities or a polytechnics, whereas the vocational education in secondary education levels are implemented at school that known as *'Sekolah Menengah Kejuruan (SMK)'* (Vocational Secondary High School - VSHS). Briefly, the aim of VSHS is to prepare graduates to fulfill a workplace. In the further discussion in this paper, the term usage of vocational education means a vocational secondary high school.

The quality education can only be achieved if the education process at school makes students really learn as much as possible. The quality education must be seen from the students' ability to learn independently. Improving the quality of education is determined by the readiness of human resources that involved in the education process. Teacher, '*guru*' in Indonesia term, is one of the determinant factors that will achieve in a high or low quality in educational outcomes. Teachers have a strategic position in any attempts to improve the quality of education, so that should give great attention to the improvement of teachers both in terms of both quantity and quality.

For many years, teaching is considered as an effort to provide information or attempt to demonstrate how to use something, or to give lessons through this particular subject. Teaching activities can be illustrated such as a selling and buying activities, it means that need 'strategy' to clutch the successfulness in his or her transaction. In the knowledge era, the old teaching strategies must be considered to be adapted to the new context of schooling that related to the changing of technology and a workforce setting.

B. The challenge for Vocational Education in the Knowledge Era

Before further discussing related to the challenge for vocational education in the knowledge era, it's better that known well what knowledge and its effect to education are. According to Sallis and Jones (2002:8), knowledge is at the heart of human civilization. It is the engine of creativity and culture and defines our humanity. As consequence, knowledge represents a great deal more than information. Knowledge is information in use, and it is the interaction of information with the human mind that gives it meaning and purpose. Information can only become knowledge when people apply their intellect to it, and interpret it. Information become knowledge when it is believed, understood, and applied. A knowledgeable person uses his or her intellect to make sense of information and, from it, develop new thinking, ideas and concepts and makes them work in new, creative and innovative ways. Thus, knowledge is an integral part of the complex learning processes of all human beings.

Above statement can be inferred that the impact of knowledge to vocational education is relevant in the knowledge era. To be able to enter employment in the knowledge era within many challenges, the ability to maintain viability or survive is indispensable for workers. Wagner (2008: 14-42) has announced the seven survival skills in the face of the New World of Work in the twenty-first century: (1) critical thinking and problem solving, (2) across collaboration networks and leading by influence, (3) agility and adaptability, (4) initiative and entrepreneurialism, (5) effective oral communication, written and, (6) accessing and analyzing of information, and (7) curiosity and imagination. Briefly,

according to Wagner (2008:38) the survival skills are to optimize "left-brain skills" which include critical thinking and problem solving, accessing and evaluating information, and also "right brain skills" which include curiosity, imagination, and creativity.

Another problem that will appear is how to overcome gaps in skills that are expected to work and a possessed skill of a candidate worker. To overcome those of problems of skills gaps, according to Robinson (2000) requires a job readiness skills or known as employability skills. Furthermore, refer to Robinson (2000), employability skills are those basic skills necessary for getting, keeping, and doing well on a job. Employability skills can be grouped into three types of skills, i.e.: basic academic skills, higher-order thinking skills, and personal qualities. Employability skills that mentioned above are teachable skills may be taught in both in school and in employment setting. Above statements are correlated to Power (1999: 30) statements that, in the twenty-first century, vocational education is expected to help students achieve competencies based on fundamental skills such as mathematics, foreign languages and computer literacy, thinking skills such as creativity, problem-solving and decision-making; and personal skills such as sociability, self-esteem, self-reliance, self-management and integrity.

Furthermore, to make relevant between vocational education and workforce market, Pavlova (2009: 45-63) offered a new approach for vocational education in the future that known as ‘education for sustainable development’. Education for sustainable development in terms of improving the quality of human life within earth’s carrying capacity and conservation of the earth’s vitality and diversity, that usage three pillars or perspectives: socio-cultural, environmental, and economic. Of all those statements can be concluded that restructuring of vocational education system is needed to produce what expected to be the vocational education graduate relevant to the required competencies and the workforce demand in the knowledge era.

C. The Teaching Strategies in the Vocational Education in Knowledge Era

As we know that teaching can be viewed as a profession and also as a science and art. As Orlich, *et.al* (2007: 12) stated that teaching is a profession with own body of knowledge, techniques, internal organization, and code of ethics, and as a science because it requires knowledge of techniques, and also as an art because it requires decision making. Teaching can't be separated from schooling context. Orlich, *et.al* (2007: 9-11) has classified key context of schooling into four region, including social context, emotional context, educational context, and collegial context. It means that schooling can also be influenced by another context, especially changes of technology that caused a changing era.

In the vocational education, educational process should be linked and matched to a technology change and a workforce change. Arends (2004:8-17) stated that there are seven teaching challenges in the twenty-first century, i.e.: teaching in a multicultural society, teaching for the construction of meaning, teaching for active learning, teaching and technology, teaching with new views about abilities, teaching and choice, and teaching and accountability. Generally, teaching in a multicultural society is faced to the demography factors. In Indonesian context, the demography trends have significance for teaching and for those preparing to teach in at least three important ways: poverty, social and economy, and racial and ethic. As we know that Indonesia has diversity with thousands island and hundreds cultures, it means that Indonesia is the country with multicultural society.

By teaching for the construction of meaning, the education system must be shifted from a traditional view to a constructivist perspective. Traditionally, the vocational education system is based on a factory model of schooling. Schools, like the factories, were places where instruction or tasks could be standardized and teachers could pass on information to their students in the form of known an "truths". Teachers role were to transmit that knowledge in the form of facts, concepts, and principles to students. In a constructivist perspective, learning is a social and cultural activity that knowledge is somewhat personal, and that learners

construct meaning through interaction with others. Traditionally, the system of schooling rested on a perspective that learning was a passive activity. Learning from a constructivist perspective is viewed as students actively engaging in relevant experiences and having opportunities for dialogue, so that the meaning can evolve and be constructed.

The result of learning can't be measure from human intelligence only. New views of abilities that should be consider by teachers in their teaching and learning process are emotional intelligence and spiritual intelligence. A choosing of a private schools or a public school is still a dilemma for a student's parent to select an appropriate school for their children. In the other hand, there is a stigma that private schools are better than public schools in implementing of teaching and learning process. In the future, teachers must be accountable. They should be held accountable for using best practice throughout a professional development and their career.

Above statements can be concluded that teaching can't be separated from the technology change. Integrating technology into classroom instruction is a pursuit to teachers in adapting their skills with the changing era. As be stated Pisapia (1994) who be quoted by Williams (2000: 12) that integrating technology with teaching means the use of learning technologies to introduce, reinforce, supplement and extend skills. Unfortunately, there is misconception about the use of integrating technology in schools. According to Williams (2000: 15) teachers will become redundant, their teaching functions largely replaced by sophisticated 'teaching machines', but actually teachers who integrate integrating technology into their instruction have important roles to play at all stage of the lesson process.

According to Hsu, *et.al* (2000: 71-91), in order to integrate instructional technology into curriculum meaningful, it is important for teachers to know what are predominant learning theories and how such as computer applications can be integrated in relation to learning theories. Furthermore, Hsu stated that there are four major models of learning have dominated educational psychology, i.e. *behaviorism, cognitivism, constructivism, and social-constructivism*. In behaviorism and cognitivism approach assume that learning can be taken place

when the knowledge is transmitted to learners. When a computer is utilized in integration instructional technology, under both approaches, the role of the computer is to act as a sort of tutor. In this activity, a teacher's role is performed to present information and to provide a controlled learning environment. Unlike both of the learning approach above, according to Chen, *et.al* (2000: 187), in views of constructivism and social-constructivism approach, a computer in teaching and learning process can play a significant role in either being used as a tool or providing access to instructional materials. Furthermore, Chen (2000: 187) stated that in constructivism and social-constructivism approach, the teacher's role is a guide, a facilitator, a coach to assist students to model learning using various strategies and to inspire students in playing with ideas and manipulating information that they have gathered. Of all those statements can be inferred that constructivism and social-constructivism learning approach can be selected appropriately as part of teaching strategies in implementing instructional in the knowledge era.

According to Tileston (2007: 4) teaching for long-term memory is critical. To help students learn and remember as well as factors that prevent understanding and retention, a teacher should plan a teaching strategies as well as a strategic learning model that appropriate to students. Tileston (2007: 5-33) offers the five elements of the strategic learning model for today's learns: plugging in, powering up, synthesizing, outsourcing, and reflecting. Plugging is about creating the kind of environment that raises the comfort level of students. Powering up means the point in the lesson when a teacher pulls students into the learning by tapping into what they already know and by creating a hook to the new learning. Synthesizing is a learning declarative information from multiple sources and integrating it so that it meaningful and useful to the students. Outsourcing is the place in the lesson where students use information that they have learned in meaningful way. Reflections represent the part of lesson in which students are given the opportunity to think about the learning, to examine, to relate it to their world and to self-evaluate. Of course, to implement all of those elements, the teacher's role in strategic-learning classroom is the key to make learning process meaningful.

Teaching as a profession for teachers must be improved their knowledge and skills quality in order to adapt to technological change. One of alternatives to improve the teacher's professionalism can be conducted through a professional development activities. According to Diaz-Maggioli (2004:5), the vision of professional development is grounded in faith in teachers, the institutions they work for, and the power of broader community of educators around the country and the globe. Effective professional development should be understood as a job-embedded commitment that teacher make in order to further the purpose of the profession while addressing their own particular need. It should follow the principles that guide the learning practices of experienced adult, in teaching communities that foster cooperation and shared expertise. Diaz-Maggioli summarized visionary professional development in contrast to more traditional practices as follows.

Characteristics of Traditional Professional Development	Characteristics of Visionary Professional Development
• Top-down decision-making	• Collaborative decision-making
• A "fix-it" approach	• A growth-driven approach
• Lack of program ownership among teachers	• Collective contraction of programs
• Prescriptive ideas	• Inquiry-based ideas
• One-size-fits-all techniques	• Tailor-made techniques
• Fixed and untimely delivery methods	• Varied and timely delivery methods
• Little or no follow-up	• Adequate support systems
• Decontextualized programs	• Context-specific programs
• Lack of proper evaluation	• Proactive assessment
• Pedagogical (child-centered) instruction	• Andragogical (adult-centered) instruction

The above statements can be stated that the professional development is required for teachers to improve their pedagogic knowledge and subject matter based on standards requirements.The results of the professional development of teachers are expected to improve their the teaching quality and strategy.

D. Conclusion

Vocational education is one of the component of education most directly concerned with the acquisition of the knowledge and skills that required by workplace. In the twenty-first century, one of the era that will meet is the knowledge era. Consequences that will occur in the knowledge era is going to emerge a variety of a skills demand, such as survival skills and employability skills needed by workplace. Furthermore, to make relevant between vocational education and workforce market, education for sustainable development (ESD) is one of educational approach that can be offered to restructure a new paradigm for vocational education, especially VSHS, in the future. Teacher is one of the determinant factors that will achieve in a high or low quality in educational outcomes.

The teaching is a profession and also as a science and art. There are seven teaching challenges in the twenty-first century: teaching in a multicultural society, teaching for the construction of meaning, teaching for active learning, teaching and technology, teaching with new views about abilities, teaching and choice, and teaching and accountability. Therefore, choosing appropriate teaching strategies is needed indeed, so that the learning process can adapt to the new context of schooling that related to the changing of technology and a workforce setting.

Integrating technology into classroom instruction is a pursuit to teachers in adapting their skills with the changing era. The constructivism and social-constructivism learning approach can still be selected appropriately as part of teaching strategies in implementing instructional in the knowledge era. The teachers can implement in their teaching strategies by considering the five elements of the strategic learning model: plugging in, powering up, synthesizing, outsourcing, and reflecting. But then, all of these agendas cannot be achieved when the quality of teachers' knowledge and skills are not upgraded in accordance with the change of era. One of alternatives to improve the teacher’s professionalism can be conducted through professional development activities.

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