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**REFORMULATING THE PARADIGM OF
TECHNICAL AND VOCATIONAL EDUCATION**

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PENGANTAR

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Seminar Internasional ini dengan tema ***“Reformulasi Paradigma Pendidikan Teknologi dan Kejuruan”*** merupakan sarana komunikasi ilmiah yang bertujuan untuk mendapatkan konsep-konsep ilmiah dalam rangka mengoptimalkan peran Pendidikan Teknologi dan Kejuruan dalam Pembangunan Nasional dimasa datang.

Prosiding ini merupakan himpunan makalah utama dan makalah paralel, namun karena kesulitan teknis, maka yang dibukukan hanya halaman pertama dari masing-masing makalah yang berisikan judul dan abstrak, sedangkan prosiding lengkap disiapkan dalam bentuk CD yang telah dijadikan dalam format PDF. Kepada bapak-bapak dan ibu-ibu yang memerlukan makalah cetaknya secara lengkap untuk keperluan tertentu, dapat mencetak makalahnya sendiri dan melampirkannya beserta prosiding ini.

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Sie Makalah/Prosiding

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INTERNATIONAL SEMINAR

Reformulating the Paradigm of Technical and Vocational Education



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ACCELERATION PROCESS OF LEARNING VOCATIONAL EDUCATION THROUGH ICT

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Abstract

Vocational education is an education-oriented world of work, a print / form students to be ready to work in the outside world (DUDI). Development of information and communication technology has changed so rapidly that the human paradigm and has spread in every aspect of life, as well as providing a positive impact on education. This has led to the emergence of a new paradigm called the paradigm of "e" stands for the word "electronic" paradigm is starting to stick in all aspects of our lives and this technology will change the way humans live. With the advent of the paradigm "e", will lead us to better (multimedia standard), faster (data communication process), accessibility (Internet Reaches any point), available web-based and collaborative software. Advantages of information technology and communications, played by Internet in providing any information, which aired in multimedia, has brought a change in the culture of learning, especially in the Teaching and Learning (PBM). Currently, many educational institutions have been conducting distance education with the help of ICT. Such education is referred to as e-Education, e-Learning, e-Campus, e-digital, Tele-Education, Cyber-Campus, Virtual University, etc., which are also equipped with a digital library or *virtual* including e-book library. Utilization of information technology for education in general include; Management Information System (MIS), E-learning, Learning Media, Life Skill

Keywords: Learning, Vocational Education, ICT, E-Learning.

Introduction

Education reform must be done quickly to keep up with advances in technology, especially information and communications technology (ICT) in education. The presence of information and communication technologies with the possibility of its application has also caused a series of questions to think about re-learning process that has been carried out conventionally.

Use of internet for education is not just for distance education, but also developed in the conventional education system. Now many educational institutions, especially universities have started to pioneer and develop internet-based learning model in favor of the conventional education system. Internet as a new media has not been socialized. Similarly, people who engage in educational institutions have not been accustomed to using the internet.

Of national education which is conventional, having a lot of obstacles when it is required to provide service to the wider community scattered throughout the archipelago? Constraints include financial limitations, distant locations, and the limited number of institutions. When this has been evolving information and communication technologies that can be used to overcome these obstacles. It is time for information and communication technology used optimally in the organization of education in Indonesia. Especially in the future education will be facing a very tight global competition. In order to win or can come into play in the global dynamics requires a prerequisite strength confidence and independence.

The presence of information and communication technology does not provide choice to the world of education in addition to participating in the use of it. Information and communication technologies now allow the process of global communications to and from all over the world that a country's borders would become irrelevant and the countries of the world were connected into a single unit called a *global village* or “*desa dunia*”. Through the utilization of information and communication technology, anyone can obtain educational services from any educational institution. Anywhere, and anytime you want. According to Surya (2008) In particular, the utilization of information and communication technology in learning can be trusted:

1. Improve the quality of learning,
2. Develop information and communication technology skills (IT skills) needed by students when working, and in later life,
3. Expanding access to Learning and Education,
4. Answering *the* technological imperative "(have to participation in IT),
5. Reduce the cost of education,
6. Increase the ratio of costs and benefits in education.

Education system that does not utilize information and communication technology will be obsolete and were obsolete and lose credibility. However, on the other hand there is also an opinion stating that the situation is more due to the existence of a conspiracy that resulted in the education world's dependence on information and communication technology. The second opinion is no need to debate because it has its own base and a different perspective. Indeed, that should be of concern is how the impact of information and communication technologies for education, especially learning system, and how the strategy of utilization of information and communication technology in learning. Of course, it is necessary for all strategic steps in order to obtain optimal results.

ICT And Vocational Education

Information and Communications Technology (ICT)

In Indonesia have used the term telematics (*Telematik*) for roughly the same meaning of ICT-that we know *today*. *Encarta Dictionary* describes as *telecommunication + informatics Telematics* (telecommunication + informatics) even before the word meaning *the science of the data transmission*. Processing and distribution of information through telecommunications networks open up many opportunities to be exploited in various fields of human life, including one in education.

Understanding of ICT

According to Eric Deeson (Ruth 2010)

"Information Technology (IT) the handling of information by electric and electronic (and microelectronic) means." Here handling includes transfer. Processing, storage and access, IT special concern being the use of hardware and software for these tasks for the benefit of individual people and society as a whole "

Eric Deeson of explanation can be interpreted that information technology is a human need and move in to take, process and process information in a social context that benefit themselves and society as a whole.

According to the Department of Education while Puskur Indonesia (Kemdikbud), Information and Communication Technology (ICT) includes two aspects, namely Information and Communications Technology.

1. Information Technology is covering all matters relating to process, use as a tool, manipulation, and management information.
2. Communication Technology is everything related to the use of assistive devices to process and transfer data from one device to another.

From the above explanation can be concluded that the Information and Communications Technology is an integral counterpart containing the broader sense of all activities associated with the processing, manipulation, management, and transfer / transfer of information between media.

Vocational Education

Education is a conscious and deliberate effort to create an atmosphere of learning and the learning process so that learners are actively developing the potential for him to have a religious spiritual strength, self-control, personality, intelligence, noble character, as well as the skills needed themselves and society. Education includes teaching special skills, and also something that cannot be seen but more depth is the provision of knowledge, judgment and wisdom. One of the main basis of education is to teach culture through the generations.

Historical development of the education law Act No. 4 of 1950 on Law *Pokok-pokok Pengajaran dan Pendidikan*, No. 2 of 1989 on *Pokok-pokok Pengajaran dan Pendidikan*, up to Act No. 20 of 2003 on *Sistem Pendidikan Nasional*. The structure of Law the educational system based on *Sistem Pendidikan Nasional* No. 20 of 2003 is shown as the following picture:

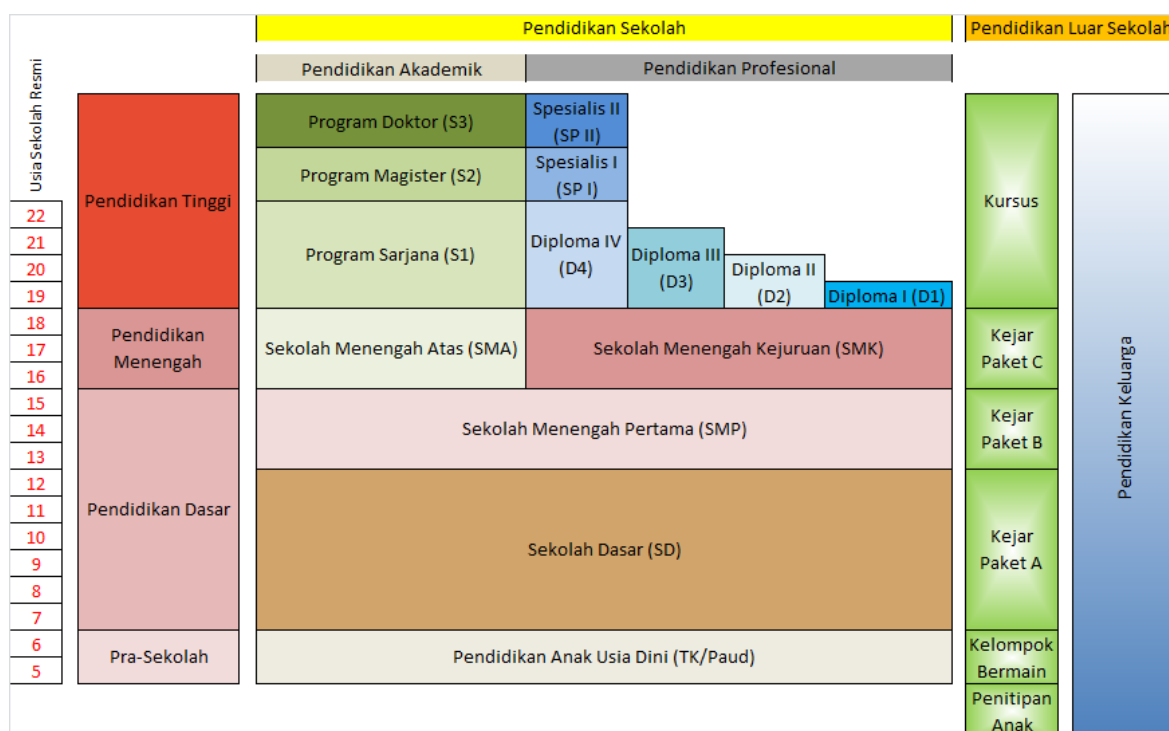


Figure 1. Implementation of education system based Law on *Sistem Pendidikan Nasional* No. 20 of 2003

In general, Vocational Education program / Vocational aims to prepare students to be members of the public who have expert professional skills in implementing, developing and disseminating technologies and / or the use of art and trying to improve people's lives and enrich the national culture.

In particular, the Vocational Education program is geared to producing graduates who have mastered the ability in certain areas of work that can be directly absorbed as workers in industry / private sector, government agencies or independent entrepreneurship. This is because the burden of teaching on Vocational Education program has been structured to prefer the burden of skills (60%) compared to theoretical load (40%).

Pendidikan Kejuruan or Vocational education is one form of the existing education system in Indonesia, education has a mission to assist students in developing a professional attitude, be able to compete, and capable of pursuing its development stages in order to prepare himself in work and career in world of employment.

Vocational education is an education-oriented world of work, a print / form students to be ready to work in the outside world (DUDI). In Article 15 of Law Number 20 Year 2003 on *Sistem Pendidikan Nasional* of vocational education is described secondary education that prepares students primarily for employment in a particular field, while vocational education is higher education that prepares students for a job with a maximum specific applied skills equivalent to an undergraduate program.

Thus, vocational education is an organization of formal education is conducted at the secondary level education, namely: a form secondary vocational of Education Vocational School (SMK).

ICT In Vocational Education

Development of information and communication technology has increased so rapidly that the human paradigm and has spread in every aspect of life, as well as providing a positive and negative impacts. This has led to the emergence of a new paradigm called the paradigm of "e" stands for the word "electronic" paradigm is starting to stick in all aspects of our lives and this technology will change the way humans live. With the advent of the paradigm "e", will lead us to better (multimedia standard), faster (data communication process), accessibility (Internet Reaches any point), available web-based and collaborative software.

The use of information and communication technology has entered the world of education, and has brought a huge positive impact in the education system in Indonesia, as well as creating a new paradigm in education. In particular, information and communications technology has the ability and tremendous contributions in the changing and teaching learning process, and learning culture. Alteration this paradigm, more toward the creation of culture of learning how to learn, and live long learning culture that is independent of place and time.

Developments of information and communication technologies have an impact on education, especially in the learning process. According to Rosenberg (2001), with the widespread use of information and communication technologies are five shifts in the learning process, namely: (1) from training to performance, (2) from the classroom to where and at any time, (3) of the paper to be "on line "or channels, (4) of the physical facilities to network facilities, (5) of the cycle time becomes real time.

Advantages of information technology and communications, played by Internet in providing any information, which aired in multimedia, has brought a change in the culture of learning, especially in the Teaching and Learning (PBM). Currently, many educational institutions have been conducting distance education with the help of ICT. Such education is named as e-Education, e-Learning, e-Campus, e-digital, Tele-Education, Cyber-Campus, Virtual University, etc., which are also equipped with a digital library or *virtual* including e-book library.

With the utilization of information and communications technology intended to increase the performance of educational institutions in its efforts to improve the quality of Indonesian human resources. Teachers and administrators are no longer preoccupied with operational tasks, which actually can be replaced by computers. Thus may provide an advantage in time and labor efficient.

With the use of internet media, government and educational institutions have begun to learn the most effective pattern to be applied to people who have problems with distance and time to get information, especially information in education. One method that was implemented is learning *distance learning*. Methods of *distance learning* is an alternative method of equal opportunity in education. The system is expected to address some of the problems caused by the limitations of qualified teachers. Methods of *distance learning* students or the community is very helpful in learning something new or sciences with a more attractive and easier to understand. In that's access and utilization of this method, the role of the Internet is necessary, because through the internet one can send *file* or *upload the file* you wish to be published via the internet and also one can access the *files* you want searched. In addition to *distance learning* methods, there are many other methods which helps accelerate the learning of education in Indonesia, including the presence of the learning modules (in *e-book* form) are available free, *online learning portal*, etc..

By considering the importance of information and communications technology, today has been following the development of vocational education by opening a department dealing with information technology both in vocational schools (SMK) and at higher education level.

Application For Improved Learning ICT Vocational Education

Efforts to improve the quality of education became an important agenda of government (Kemdikbud). In each GBHN and Repelita always stated that the quality of education is one of the priorities of development in education. Various innovations and educational programs have also been implemented, including improvement of curriculum, textbook procurement, improving the quality of teachers and other education personnel, improvement of education management, and procurement of other facilities. However, various indicators show that the quality of education still has not improved significantly. Recent years following the results of international assessments such as PISA 2003 (*Program for International Student Assessment*) and TIMSS 2003 (*Trends in International Mathematics and Sciences Study*), which put Indonesia in its final position in terms of quality of education.

Breakthroughs and important policies have been taken by the government in order to improve access to equitable and quality education in line with the commitments outlined by UNESCO through its *Education for All (EFA)*.

Indonesia has committed to implement information and communication technologies (ICT) for education. Since the 90's has done a wide range of ICT-based educational testing, especially in higher education (DIKTI) and vocational school (SMK). The target is to reach all levels and education.

Learning is one of the subsystems are not immune from the current change caused by the presence of information and communication technologies are very intrusive. With all its attributes, information and communication technology becomes more inevitable in a system of learning in the classroom. Various possibilities offered by information and communication technologies to improve the quality of learning in the classroom, such as is:

1. Information communication and technology technologies to improve and develop the professional skills of teachers,

2. Information communication and technology as a source of b e learned in learning,
3. Information communication and technology as a tool for interaction learning, and
4. Information communication and technology as a forum for learning, included learning paradigm shift is also caused by a utilization information and communication technology in learning.

To be able to utilize information and communication technology in an optimal learning, it needs the following things:

1. Vision of Learning

The vision that describes how learning should be: characteristics, processes and paradigm in the future. Information and communication technologies bring changes in various aspects of learning, including the learning paradigm.

2. Re - allocation of resources

Re-allocation of resources is very important because over time the relative acceptance of any educational institution is not increased. To utilize information and communication technology, which has a very high *initial cost*, takes courage led educational institutions to reallocate resources according to priorities determined. The allocation of these resources can be made gradually and systematically.

3. Implementation strategy

In accordance with the allocation of resources are made gradually, then the implementation of the strategy also needs to be done gradually and systematically. This stage ensures that the steps taken are not too large so as to distort the tradition of learning which is now already underway and many people already feel comfortable with it.

4. Infrastructure

Facilities and infrastructure to be very important in efforts to use ICT in learning. Use of ICT is dependent on the presence of hardware, software, networking, and human resources can support. If one is not available, then the use of ICT will not be optimal.

5. Accessibility for students

Although utilization has been designed to systematically and carefully, if students do not or do not have access to ICTs, the use of ICT will be the burden alone. If possible, the institution can provide ICT education accessible to students or educational institutions to ensure that students can access ICT for example by providing a list of cafes, computer rental and internet.

6. Readiness of teachers

Learning is a process for *production knowledge, knowledge transmission and knowledge application*. Meanwhile, ICT is a tool that can simplify and speed up the process. Teachers need to have a clear attitude and knowledge about it, so it does not make ICT as a learning itself. Therefore, the preparation of teachers starting from the stage of awareness, to the extent of adoption and utilization needs to be done, through various means, as training, *learning* by doing, the school continued. The readiness of teachers include computers, and internet *literacy*, technical and operational knowledge of computers and the internet, ICT-based learning design skills to produce ICT-based learning skills, and skills to integrate ICT in the learning system in general.

7. Quality control and quality assurance

Initiation of ICT-based learning needs to be addressed as the project development of quality learning. In this case, the conceptual and operational planning is a requirement that cannot be negotiable. During the initiation of monitoring is also carried out quality control mechanism that

cannot be avoided, then the evaluation of the success (cost effectiveness and cost efficiency) to the end of the chain to determine the extent of ICT-based learning can provide acceleration in the learning process. Need to be convinced that ICT-based learning will give results in accordance with established learning objectives, rather than reduced or distorted.

8. Collaboration

ICT-based learning may not stand alone. Collaboration and networking skills are the basic foundation of the success of ICT-based learning. That is, required the cooperation of various parties in various roles for ICT-based learning can develop, implement, and evaluate and revise for and improve its quality.

The eight strategies require planning and resources are also quite a bit. Are we able and willing to do all that? According to Machiavelli in *The Prince*: "There is nothing more difficult, to plan, more doubtful of success, not more dangerous to manage than the creation of a new Order of Things ". If we need to change, then we can do it.

Under Law No 14 of 2005 on *Guru dan Dosen*, has determined that any teacher or lecturer should be able to utilize information and communication technology for the purpose of developing an educational activity. Therefore, a teacher is no longer acting as a conduit of information but it can be said as a director or manager of a learning by utilizing information and communication technology.

E-learning is now increasingly recognized as one way to overcome the problems of education, both in developed countries and in developing countries. Many people use different terms to the E-learning, but in principle the E-learning is learning that uses the services of electronics (computers) as tools. E-learning is a learning technology is relatively new in Indonesia.

Many things that drive why e-learning to be one option for improving the quality of education, among others, the rapid information technology facilities, and development of internet users in the world that are currently expanding rapidly. Use of the Internet into a need in support of the work or daily tasks. Especially with the availability of network facilities and internet connection, and the availability of learning software (*course management tools*).

There are four things that need to be prepared prior to use of the Internet to E-learning is:

1. Adjusting the curriculum as an holistic curriculum. Knowledge, skills and values (*nilai*) to be integrated and it's the competency based curriculum.
2. Use the variation of teaching technique to achieve the basic competencies with the computers aids.
3. Assessed by utilizing existing technology (using computers, online assessment system)
4. Provides learning material such as books, computers, multimedia, studio, etc. are adequate. Learning materials that are stored on a computer can be accessed easily by both teachers and students.

Closing

To compete in a knowledge-based economy a person or community should have the 'intellectual capital', master of science and technology information and communication is the primary vehicle in global integration. Or intellectual capital of a society can only be established through quality education and training. Therefore there must be major changes in the national education system in Indonesia. Education should be able to create *employee knowledge* and build *employee knowledge society*.

Development of a rapid growth of information technology is the potential to improve the quality of education. Internets as a biological child of information technology to store information about all the things are infinite, which can be extracted for the benefit of educational development. With the internet, learning is no longer limited by space and time. Utilization of information technology for education in general includes:

1. The system Information Management (SIM)

Academic information systems with an online data base at the school are helping parents to get information on the progress their children at all times. Online data base provides information for the convenience of students, parents and the community.

Interactive Web facilitates communication between school and the stakeholders. Vision, mission and school profiles can easily be known by the common people, the impact with the growing interest of the school community. Academic Web provides convenience to students, teachers, staff, parents, and community, such as students' academic progress, daily progress, administrative duties, registration of new students, and others.

2. E-learning

Implementation of E-learning can be done by various parties. Schools should be able to hold its own e-learning. In simple E-learning can be implemented by teachers to create their own sites or school sites which *are* linked with sites related to the lesson. Site teachers / schools can be filled with subject matter that can be visualized, and evaluation tasks.

3. Media Learning

Multimedia-based learning (technology involving text, images, sound and video) can present a more interesting subject matter, not monotonous, and ease delivery. Students can study a particular subject matter on their own computers equipped with multimedia programs.

4. Life Skill.

Almost all areas of work requiring a computer. Jobs that require skill to use a computer wide open. Skills using a computer are one of the life skills needed to compete in a knowledge-based economic system.

Contain the information technology education life skills that can be developed either specific or general life skills life skill.

Information and communication technology in education is not the only way to improve the quality of education, for example many of our brothers who are in poor schools and the remote turns thanks to the power of determination, a strong awareness and desire was to have the quality and the quality of education is more better than schools that have adopted ICT in their schools.

E-learning cannot improve the quality of education, but the E-learning can help improve the quality of education in other words E-learning helps accelerate the learning process. It is expected that the presence of E-learning as a medium of distance education (Distance Learning) will be a solution to improve the quality of education of school children in Indonesia, not be a limiting factor and the equity gap is the quality of education. Appropriate experiences of other countries are implementing distance learning showed a significant success.

What about Indonesia, Indonesia Could the success of improving the quality of education?. Of course it all depends on the awareness and the strong desire of Indonesia's own human individual. "Start with yourself", in the presence of moral goodness and determination of us as individuals and as educators, then this nation will be better, and improving the quality of education will be achieved through a quality learning process.

References

- Entis Sutisna. (2011). *Optimalisasi Pemanfaatan Teknologi Informasi dalam Pendidikan*. http://www.pusat-sumber-belajar-psma.org/content/blog/3695_optimalisasi-pemanfaatan-teknologi-informasi-dalam-pendidikan. akses tanggal 2 Juni 2011.
- Gemari. (2003). *Upaya Meningkatkan Mutu Pendidikan Di Indonesia* <http://kbi.gemari.or.id/> akses tanggal 5 Juni 2011.
- Herminarto dkk. (2010). *Paradigma Baru Pendidikan Vokasi*. <http://www.google.com> (pendidikan vokasi) akses tanggal 15 Maret 2011.
- In Setiyaningsih. (2009). *Teknologi Informasi dan Komunikasi* <http://iinsetiyaningsih.wordpress.com/2009/01/13/pengertian-tik-2/> akses tanggal 25 Mei 2011.
- Mappalotteng A. Muis. (2011). *Pengembangan Model Pembelajaran Berbantuan Komputer Pada Sekolah Menengah Kejuruan*. Disertasi. PPs UNY.
- Surya. Muhammad. (2006). *Potensi Tehnologi Dan Komunikasi Dalam Peningkatan Mutu Pembelajaran Di Kelas*. Makalah dalam Seminar "Pemanfaatan Teknologi Informasi dan Komunikasi untuk Pendidikan Jarak Jauh dalam Rangka Peningkatan Mutu Pembelajaran", diselenggarakan oleh Pustekkom Depdiknas, tanggal 12 Desember 2006 di Jakarta.
- Ratih Pujihati. (2010). *Dampak Teknologi Informasi dan Komunikasi Pada Bidang Pendidikan*. <http://ratihpujihati.blog.upi.edu/2010/11/05/dampak-teknologi-informasi-dan-komunikasi-pada-bidang-pendidikan/> akses tanggal 25 Mei 2011.
- Richard Caladine, (2008). *Enhancing E-Learning with Media-Rich Content and Interactions* University of Wollongong, Australia Hershey. New York
- Rosenberg (2001). *Pentingnya Teknologi Informasi dalam Pendidikan*. <http://www.perpustakaan-online.blogspot.com/2008/05/pentingnya-teknologi-informasi-dalam.html>. Akses tanggal 25 Mei 2011.
- Undang-undang Nomor 20 tahun 2003 Perihal Sistem Pendidikan Nasional
- Undang-undang Nomor 14 tahun 2005 Perihal Guru dan Dosen
- Wordpress. *ICT Dalam Dunia Pendidikan*. <http://wordpress.com/2007/05/2007-05-20-ict-dalam-pendidikan.pdf>. akses tanggal 25 Mei 2011