State University of Makassar

INTERNATIONAL CONFERENCE ON MATHEMATICS, SCIENCES, TECHNOLOGY, EDUCATION AND THEIR APPLICATIONS

"Recent Research and Issues in Mathematics, Sciences, Technology, Education and their Applications"

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ICMSTEA 2014: RECENT RESEARCH AND ISSUES ON MATHEMATICS, SCIENCE, TECHNOLOGY, EDUCATION AND THEIR APPLICATIONS

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Forewords from the Head of Committee

Assalamu’alaikum Warahmatullahi Wabarakaatu.
Good morning and may God’s blessings be upon us all.

Your Excellency the Rector of State University of Makassar (UNM) Prof. Dr. H. Arismunandar, M.Pd. Ladies and gentlemen, on behalf of the conference committee, first, I would like to give our welcome to all the delegates, keynote speakers, invited speakers, parallel speakers and participants coming today. Welcome to the conference, welcome to State University of Makassar, and welcome to Makassar.

This conference entitled “International Conference on Recent Research and Issues in Mathematics, Sciences, Technology, Education and Their Applications (ICMSTEa) 2014”. It is assigned to celebrate the 53rd commemoration of State University of Makassar. The conference is organized by the Faculty of Mathematics and Science in conjunction with several committee members from other faculties within State University of Makassar.

Ladies and gentlemen, the conference proudly invites eleven keynote speakers coming from several countries. Therefore, I would like to express my sincere thanks to the keynote speakers, including:

1. Professor Max Warshauer (Texas State University, USA)
2. Professor Naoki Sato (Kyoto University, Japan)
3. Professor Peter Hubber (Deakin University, Australia)
4. Professor Susie Groves (Deakin University, Australia)
5. Dr. Frans Van Galen (Utrecht University, Netherlands)
6. Professor Duangjai Nacapricha (Mahidol University, Thailand)
7. Professor Baharuddinbin Aris (Universiti Teknologi Malaysia, Malaysia)
8. Professor Suratman Woro Suprodjo (Gadjah Mada University, Indonesia)
9. Professor Ismail bin Kailani (Universiti Teknologi Malaysia, Malaysia)
10. Professor Muhammad Ariff Tiro (State University of Makassar)
11. Dr. Siti Nuramalati Prijono (the Indonesian Institute of Sciences)

I would like also to give sincere thanks and gratitude to the invited speakers, including:

1. Prof. Dr. H. Arismunandar, M.Pd. (State University of Makassar)
2. Prof. Kristian H. Sugiyarto, Ph.D (State University of Yogyakarta)
3. Prof. Dr. Sutarto Hadi (Lambung Mangkurat University)
4. Dr. Nurdin Noni, M.Hum (State University of Makassar)
5. Dr. Yuni Sri Rahayu, M.Si. (State University of Surabaya)
6. Dr. Ayuddin M.T. (State University of Gorontalo)
7. Dr. Usman Pagalay (State Islamic University of Malang)
8. Dr. Suyanta, M.Si. (State University of Yogyakarta)
9. Dr. Elisa Sesa, M.Sc. (Tadulako University, Palu)

Next, I want to thanks and welcome to 149 parallel speakers and totally, 450 participants approximately are registered to participate from many universities in Indonesia from Aceh to Papua, and other countries. All of them have shared their research and theoretical papers presented and discussed in the conference.
In this occasion, I would like to thank Deputy of Governor of South Sulawesi Province (Ir. H. Agus Arifin Nu'mang, M.Si), Mayor of Makassar City (Ir. H. Ramdhan Dhany Pomanto), Rector of UNM (Prof. Dr. H. Arismanendar, M.Pd.), and Director of Post Graduate Program of UNM (Prof. H. Jasruddin Daud Malago), who are very kind to be the host of welcoming dinner and lunch during the conference.

I want to thank also to Kalla Group, KIA Kalla, Erlangga Press, Opti Lab, and e-Bimbel Yogyakarta for their contribution as the sponsors of this conference.

Finally, it is my privilege to thank all organizing committee members who have been showing good work and determination for the accomplishment of this conference. I would like to apologize to all of you when there are some inconvenience things during the implementation of this conference.

Thank you and wish you have a meaningful conference.

Assalamu'alaikum Warahmatullahi Wabarakatuh.

Head of Committee,

Suwardi Annas, Ph.D.
Forewords from the Dean of Faculty of Mathematics and Science, State University of Makassar

Bismillahirrahmanirrahim
Assalamu’alaikumWarahmatullahiWabarakatuh

First of all, let us praise to the Almighty, Allah SWT, because of his Blessings and Helps, we are able to gather here to attend the International Conference on Recent Research and Issues in Mathematics, Sciences, Technology, Education and Their Applications (ICMSTEA) 2014.

The development of education and technology in recent decades grows very rapidly. In addition, they have been specialized into many specific topics. Indeed, for researchers and lecturers, being qualified of a specific field as well as being aware of the contemporary development of other fields are two crucial things. One of the reasons why we undertake the conference is to fulfill those two things. By attending the conference, researchers and lecturers have a good opportunity to share their research findings and to obtain broader descriptions of the development of other general knowledge.

We convey our deep appreciation and gratitude to all of the committees that work from the beginning to support and organize the conference. We also strongly expect the participants of the conference to be continually productive, increase the capacity in conducting a research, and carry out both national and international scientific publications.

Finally, let me again recite thank you to the all participants of the conference who are receptive to spend their time to be present and entirely involved at this events. I wish the conference advantageous for all of us.
Billahitaufiqwalhidayah,

Wassalamu’alaikumWarahmatullahi Wabarakatuh.

Dean of Faculty of Mathematics and Science
State University of Makassar

Prof. Dr. H. HamzahUpu, M.Ed.
Forewords from Rector of UNM

Bismillahirrahmanirrahim
Assalamu’alaikumWarahmatullahiWabarakatuh

Your respectable, the high officials of State University of Makassar, the committee, the speakers, and the participants of conference.

It gives me a great pleasure to extend to you all a very warm welcome, especially to our keynote speakers who have accepted our invitation to attend the conference.
It is an opportune time to convey to you that UNM is celebrating the 53rd Dies Natalis and it commends the faculty of Mathematics and Science (FMIPA) to be in charge of all activity sequences in the Dies Natalis. However, the support of other faculties is also really influential and gives valuable contribution to the success of the event.

In that celebration, we undertake several agendas including educational and sport activities. The conference, ICMSTEA, is one of our educational activities that covers a wide range of very interesting items relating to mathematics, sciences, education, technology and their applications.

By taking participation of this seminar, it is highly expected to all of us to share our research findings to society and continuously develop new ideas and knowledge. Those things are two significant steps in improving the quality of nations around the world, increasing our familiarity to each other, and even avoiding underdevelopment.

On this good occasion, let me quote what Obama said about the education related to this conference and I wish fruitful for all of us:

*Every single one of you has something you’re good at. Every single one of you has something to offer. And you have a responsibility to yourself to discover what that is. That is the opportunity an education can provide.*

Furthermore, I would like to take this opportunity to express my heartfelt gratitude to all organizing committee especially for the Faculty of Mathematics and Science that primarily hosts this conference particularly and other Dies Natalis events generally.

Finally, this is a great time for me to declare the official opening of the International Conference on Recent Research and Issues in Mathematics, Sciences, Technology, Education and Their Applications (ICMSTEA) 2014.

I wish you a very enjoyable stay in Makassar, I warmly welcome you again, as in Makassar, we say “salamakkibatturimangkasara”.

Wassalamu’alaikumwarahmatullahiwabarakatuh.

Rector of State University of Makassar

Prof. Dr. H. Arismunandar, M.Pd.
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VOCATIONAL EDUCATION REFORM IN A GLOBAL ERA

Muhammad Yahya1, Muhammad Farid2
Automotive Engineering Education Department
Engineering Faculty, The State University of Makassar
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Abstract

This paper aims to expose development fluctuation of economic, technology, industrialization, working world, global market: AFTA, AFLA, GATT, APEC 2020, and the application of quality management standards such as: ISO 9000 series, ISO 18000 and other quality standards, which increasingly demands on product quality using the latest technology, absolute need of human resources professionals have competence in accordance with the labor market. Ministry of Education and Culture (Kemdikbud) demanded anticipate this through the policy. Education law No. 20, 2003, Government Regulation (PP) No. 19 of 2005 on education standards, ministerial regulation (Permen) No. 22 on contents standard, Permen No. 23 on competency standards. Program areas, Kemdikbud have enacted curriculum 2013, certifying teachers, establishing a new school unit (USB) SMK (Small Yuniir High School, Vocational High School far away, high school integrated with vocational high school), to stop the establishment of a new high school, increase qualifications teachers and schools standardization, and scheduled in 2014 the ratio of Vocational High School (SMK) and Senior High School (SMA) into 70:30. Those effort to produce quality graduates, qualified in accordance with market expectations of local, regional, and international. To support it, the necessary role of family, neighborhood, community, stakeholders, businesses, international cooperation and financial support from various parties.

Keywords: Economic development, Technology, Industrialization, Working World, Global Market

1. Introduction

In the 21st century, issue of improving education sector in Indonesia appeared to the surface, not only in a general education sector, but also all the lines and levels of education. Advocacy efforts for education pathways that are managed by some of the technical department, with very strong social demands were voiced by the relevant department as the authority managing the educational pathway, practitioners and policy makers, human resource development as a response to National Education System Law No. 20, 2003, PP No. 19 of 2005 as well as other programs. The influence of kinds, lines and levels of education are the elements that contributed to the average of the results of national education. Thus, the weakness of the process and outcomes of an educational pathway will affect the overall educational success index (Rosyada, 2004). The same opinion by Psacharopoulos (1987) suggested that a person's level of education affects earnings, which means that the investment in education can improve the economy.

At the same time, the current educational achievement in Indonesia lagged behind other Asian countries, such as Singapore, Japan, and Malaysia. Even when viewed from the competitiveness of human resources, which is one of the indicators is the education sector. Indonesia increased competitiveness of position 50 in 2012 -2013 to the position 38 in 2013-2014 (Kemdikbud, 2014). Though Indonesia has become part of a world community that can not be avoided, directly involved in the global competition. If not actively involved following the development will lag behind
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other communities, particularly in reaching the market and employment opportunities. This is due to the absence of restrictions on the line again state territory, but moving increasingly widespread, and now starts from the Southeast Asia region and will continue to move into the world. Therefore, the preparation of human resources, quality, competitive and have many comparative advantages become a necessary that must be of concern in the education sector.

Weak human resources educational outcomes also resulted in slow pace of Indonesia recovery from the downturn marked a significant economic in 1998, but when the other ASEAN countries have recovered; Indonesia is still not able to do recovery well. Priatmoko (2003) asserts that education is an important factor in the economic growth by improving the quality of human resources. It can be seen in Japan, where he earned economic progress now could not be separated from the role of education. Japanese education system was produced good quality human beings so even destroyed after defeat in World War II, they can quickly bounce forward and compete even with the defeated country in the war.

Other Asian countries such as South Korea, Taiwan, Hong Kong, and Singapore also show the fact is not much different from Japan, where economic progress that they got because of the high quality of human resources (Rosyada, 2004). Situation in Indonesia diverge with these countries, with natural resources wealth were relatively more abundant, our country is distant behind (Priatmoko, 2003). Overall it is a result of an error in the construction of a long run in orde baru government which emphasizes the physical development and less serious in human resources development.

Indicator of the low quality of the national education can be seen in student achievement. On an international scale, Menakertrans (2005) IMD Competitiveness rank among the Indonesian productivity Asian countries 59, Philippines 49, India 39, China 31, Korea 29, Malaysia, Thailand 28 and 27. Although Indonesia in 2013 rose to 39 and in 2014 climbed to No. 37, but compared to other neighboring countries Indonesia is still behind.

Related the ideas about education reform in Indonesia is very relevant, especially in the context preparation human resources qualified that must begin with improving education at all levels and lines, with a comprehensive improvement include improved planning, learning process, support tools and learning facilities, as well as improved management, which is all that needs done to achieve improvements in educational outcomes. Educational outcomes in the future must be ready to compete in the labor market is not only in our country but also in other countries in the world. They must have a global perspective, global thinking, understand characteristics of community's culture, mastery of language for global communication, mastering a variety skills in use of modern technological tools, as well as having the appropriate skills base relevant to the needs of the market.

2. Changes in The Global Job Market Competence

The global economic turmoil affect education in Indonesia, this is caused by: First, turmoil of economic development, technology, industrialization, the working world, the global market AFTA, AFLA, GATT, APEC 2020, and the application of quality management standards ISO 9000 series, ISO 18000 and other quality standards, which increasingly demands on product quality using the latest technology. Secondly, the lack of a benchmark the national education system, low level of labor force competence, less proportional allocation of funding, not the creation of a national workforce planning
system is integrated in the potential of natural resources and human resources by region and sector, yet the growth of national commitment in innovation and creativity to job creation (policy of employment-friendly economic growth (Menakertrans, 2006). Both of these reasons into consideration needed for structuring an educational system to suit the demands of job market regionally, nationally and internationally, it is certainly a challenge for the world of education to produce graduates who fit the needs of the job market.

Education reform to meet APEC 2020 has to look out with all abilities. If not, we will be stunned in 2020 as a result of unpreparedness we take on ethics and procedures for trading in the free market "hate" much less protection "collusion". If until this happens, we successfully hosted the APEC bold just like the host successfully organized "party" event for the benefit of others (Suyanto, 2000). Many economic and political analysis have been published in various media relating to the implementation of free trade by 2020 for developed countries. So far we have not heard the experts and the education authorities in the country to talk about education reform teaching what should be done to meet the 2020 APEC era whereas in terms of human resources, in general, we are still far behind the other countries belonging in APEC. If from now on the world of education is not to reform fundamentally, it is the era of APEC 2020, our fate will be more determined by other nations. Therefore, the practice of education in Indonesia began at this time should also be oriented to the interests of the Indonesian people in the midst of a global multilateral interaction.

3. Key Factors
A key factor which is very important for education reform in this Republic for APEC 2020, involves teachers and lecturers in teaching and learning at all educational levels (Suyanto & Hisham, 2000). The teachers need to change that too much learning system using verbalistic approach, learning process should be changed collaborative and cooperatively between students or students with a teacher or lecturer. In the era of APEC 2020, any country would have a mutual dependency; education process must be able to translate such conditions in the learning process. The target is to make the students, both the student and the student, accustomed to working together and is interdependent with other groups or individuals in a professional, rather than collusive. Mastery of science and new information by teachers and lecturers should always be updated. Periodically, teachers and lecturers need attend professional meeting to update the knowledge possessed. Without doing so, the teachers will be out of date. If programs is done, there must be consequences for the welfare of teachers and faculty in universities.

One of the efforts to improve educator's competence by issuing the certification. The purpose of certification is none other than to improve the quality of educators to share their knowledge with the students participants. This policy is supported by the release of Law (UU) No. 14 of 2005 on teachers and lecturers, and Law Number 19 Year 2005 on National Education Standards. Another policy is to promote the government develop a vocational school. Analysis of the experts pointed out that vocational schools will multiply to produce more graduates who are ready to use, so that its graduates can directly affect the well-being and may indirectly improve the national economy.

Vocational education already have link and match concept initiated by Wardiman Joyonegoro (Minister of Education and Culture in 1993-1998). The concept needs to be expanded in scope, link and match should also be defined globally. Besides being able to answer the
needs of the nation is also associated with the global challenges that we will face in 2020 (Suyanto & Hisham, 2000). This could impact the educational curriculum. The curriculum must be engineered more meaningful for the environment locally, nationally, and globally. Therefore, the curriculum developed at this time is more flexible curriculum due regard to the interests of students, based schools because schools can incorporate the uniqueness, such as the uniqueness of school, learners, parents and resources available at the school. So that competency contains local, national, and international (Furqan, Kompas: 13/10, 2006).

4. Key Success National Education Reform

Education is an essential requirement for every human being, the state, and the government in reform era. Education should always be cultivated systematically by policy makers competent in this Republic. Updates for the sake of an update is always aligned to education can really make a significant contribution in the effort to educating the nation as has been mandated by the founders of the Republic as outlined in The Constitution Preamble.

Although updates are constantly being made, the effort was not going to have the tip end anytime soon. Why is that? Because there is always a question of education for human civilization and life itself is still there. Educational reform will never be terminated. Especially in today's information era, level of education programs obsolescence in Indonesia is very high. This can occur because of technology development used by the people in the system of production of goods and services so quickly. World production can develop a technology with very high speed because it must compete with the global market economy, so that effectiveness and efficiency calculation should be primary choice. In contrast, the world of education can't easily keep up with technology that is happening in society as a result of the implementation of difficult economic calculations are based on the principles of efficiency and effectiveness against all elements.

According Syafaruddin (2002) increased competition, customer choice and demands of education affect today's education, and therefore the school must develop creativity, innovation and modernization to focus on education reform. Not all educational reform can be calculated on the basis of efficiency, profit and loss as having an important mission of education is difficult to assess the economic, because the other mission is humanitarian. According Solmon in Psacharopoulos (1987) suggests that in general there is no definitive answer can be overcast advantage of the educational process for many because of the many factors that affect this.

Already much educational reform in Indonesia, purpose of the reform is to ensure that product of our education remain relevant to needs of the workforce or further education requirement for the next education level. Updates in the teaching field as well we have done, to encourage teachers to improve their ability of the profession without knowing where they taught in levels, the government has done in the field of education reform which was then given the appropriate teacher certification label PP 19 of 2005. To maintain relevance and efficiency, career guidance in vocational schools should also be programmed. Similarly partner institution programs, internships, and the development of production unit has become an important agenda for education reform nationwide. Of course pembaruan it all, in fact who holds the key to the success of the update? To answer this, we actually need to go back to the fact that most of the educational activity is a learning process.
In the process, the teacher has a very important role.

All updates regarding the process of education should consider teachers in the sense of participation. Updates are only defined at the level of Ministers, the Director General, and Director without seeing the reality of a teacher's ability, will experience obstacles in its implementation. Fullan (1991) revealed "educational change depends on what teachers do and think—it's as simple and as complex as that." The participation of teachers does not mean only the physical sense or quality. But more important is mentally participation supported by the ability of the professional. Therefore, teachers need to have some sort of a common mission in any educational reform process. Education reform in order to be effective, teachers need to be aware of the existence of a common mission to be achieved by the reforms.

Indicators of awareness towards a common mission renewal, Suyanto & Hisham (2000) explain that: 1) shared values and beliefs, 2) clear goals, and 3) instructional leadership. The problem is forgetting the role of the teacher often happens in our national education system reform. With the Law of teachers and lecturers expected that the reforms will run with great success. They forget that teachers have a huge burden are reform welfare, accompanied by very minimal in the middle of the pattern of life that is increasingly materialist and consumerist. Due to the heavy workload of teachers as a result of updates that berrubi repeatedly, so functionally they are not able to participate maximum. Invite teachers to do the update is not as easy as thought by education policy makers. Teachers are also human beings with various limitations. Especially in a large amount, not less than 2.5 million teachers, we could imagine how difficult they to be invited to perform updates and changes in education. Especially if in any updates and changes to it will always display their job.

That's why, we should pay attention terms of diffusion of innovations to make our teachers. If we apply Carlson theory in national education reform process, from the beginning we would be able to predict whether a teacher is difficult or not invited to perform the update. Because according to him, before adopting a renewal of a teacher, he will see the update in the context of the characteristics of relative advantage, compatibility, complexity, divisibility, and comitmitcability. The teachers we still find it difficult to do the updates because they perceive that this update may be relatively doesn't benefit them, not in accordance with the usual practice everyday at school, not simple, can't be done in stages, or indeed updates it doesn't can be understood by them. (Suyanto & Hisham, 2000)

Empirical evidence ever collected by the authors showed that not all the teachers we are always ready to participate in educational reform functionally. Results Suyanto (2007) about why the teacher is difficult to be invited to perform the update. By using the entire population of teachers in Java for elementary and secondary school levels, the results showed that only a small proportion of teachers who are willing to do in Java programmed educational reform by the government. In the field of active student learning method (CBSA), there are still 30% of teachers who have not done professionally. Teachers who make a profession of career advancement in accordance with Decree Menpen No. 026 of functionalizing position master, a new 5%. Teachers who implement career guidance in schools about 40%. of 40%, those who do not consistently more than 5% and there are 50% of vocational school teachers who have not implemented Institution partnership program.
6. Global content of National Education
Not a single country in this world dares to underestimate the role of education nation. Even Adam Smith, a prominent figure of classical economics, in his book an inquiry into the Nature and Causes of wealth of nations is education brings benefits to individuals and society. Without education enough, then people will be constrained to play a role in the system of division of labor. Yet according to the theory of Adam Smith, the division of labor even with these factors in labor productivity can be improved. That is why; every state has an education system that is designed to create the advantage of human resources (HR) for the nation.

Indonesia also has a national education system has national objectives as contained in Law No. 20 of 2003, however, that goal still needs to be translated in any educational activities both in terms of planning and implementation of the curriculum and the teaching and learning process, in other words educational activities. Nationally still require educational goals more concrete, operational for each field of study, and subject matter. The question now is whether we need to consider in making globalization movement operationalization of our national goals of education into teaching and learning activities in the classroom?

Globalization movement is very pronounced impact on Indonesian socio economic system. Even once real, this time it HR must compete globally. The quality of work that produces goods for the global market must also have international quality. Therefore, we do not adequately prepare students to have a superior comparative only locally and regionally. But further than that, we need to have the learner’s globally competitive advantage. Our export commodities to the developed countries such as electronic equipment, plywood, textiles, handicrafts, and so on, must follow the international quality standards. Consequently, we have to prepare the education workforce is also an international quality. Without regard to the requirements of international trade, we as a nation will not be able to take part in the governance of the global market economy.

This needs to be translated by the national education system into programs and operational learning process. Therefore, the actual national education we also need to think about the global charge in the aspect of teaching for the fields relevant studies. If we ignore grakkan globalization, our education in the long run will only produce local quality of human resources. Conditions like this sooner or later will isolate our nation from the transfer of cutting-edge technology that born by society and civilization of the world as a result they do not own the ability of communication between nations.

7. National Education Agenda: An Essential Issues
Education is an important institution for the process of preparing and improving human resources quality in Indonesia. We need to think set back the agenda for national education essential to be able to fill the 21st century without a doubt will be the future of this nation’s next young children, without preparing them for the future of life in the 21st century with a variety of competitive advantage that must be owned, our nation will sink into each increasingly global world arena. Currently, the government has had a national education program that is very strategic, namely improving the relevance, efficiency, and quality of education. Of course it can indeed be convinced that our national education macro is promising for the provision of human resources truly have a competitive advantage.

8. National Education Efforts Toward Global Vision
a. National Education Standardization

Government efforts to prepare the HR enter the global market has been done seriously, by issuing regulations and policies, such as; National Education System Law No. 20 of 2003, Regulation No. 19 of 2005 on national education standards, followed by Permen No. 22 in 2006 to challenge the content standards, and Permen No. 23 of 2006 concerning the competency standards, other strategic policy which is planned by the government.

Mandate of the Ministry of National Education 2005-2009 strategic plan mandated 3 pillars of the Development of national education policy, namely: 1) improve the competitiveness of the nation by producing graduates who are independent, qualified, skilled, expert and professional, able to lifelong learning, as well as with life skills that can help him in meeting the challenges and changes, 2) improving the quality of education with national education standards and Minimum Service Standards (MSS), as well as increasing the minimum qualifications and certification for educators and other education personnel, and 3) improve the relevance of education in accordance with the needs of development through increased research, development and creation of science and technology by higher education and the dissemination and its application in society (Dodi, 2007).

Policy direction Kemdikbud partly the same as that used Kemendiknas breakthrough policy during the period 2005 - 2009 which followed terobosan policy is a policy that has been implemented successfully with some adjustments which stated emphasis on the period 2010-2014. Moreover, it also needs to be reinforced with new breakthrough policies in accordance with the existing demands to be made towards the development of national education policy in 2010 - Policy 2014 totaled 15, there are three relevant policies improving the quality of vocational education, namely: 1) an increase in the qualification and certification educators, 2) improving the quality of educational institutions of education personnel (LPTK) and graduates, and 3) Alignment of education with the needs of the business and industrial world. (Kemdiknas, 2010)

Dikmenjur in repositioning its policy on vocational education to 2020 directed the creation of a system of education that is flexible and fermeabel. In connection with these demands, then the direction of vocational development as one of the organizers of vocational training focused on: 1) the arrangement of the field / vocational skills program, 2) increase vocational role and function as an integrated vocational training centers, 3) the application of the system mutly entry-exit, and 4) application of the lining system competence training (CBT). In accordance with the demands of globalization, SMK percentage should be 70% and 30% for high school, as it has been applied in a number of developed countries. It is estimated that, by the end of 2009, the new Ministry of National Education can change the ratio to 50:50. It can be achieved if, among other things, the growth of vocational teacher reaches 15 thousand per year. In order for the ratio 1 teacher for 20 students (Joko, 2007).

b. Total Quality Management (TQM)

Total Quality Management (TQM) became a hot issue in education reform in Indonesia, although somewhat eased back then and not as other issues such as the School-Based Management, Student Based Education, Competence Based Curriculum and the Community Based Education continue to be encouraged in the context of education reform in Indonesia. TQM education reform discourse was filled with trying to improve the quality of education through continuous improvement in all parts of the
range of activities of educational services. Although developed significantly since the early 1990 by educational researchers in the USA and the UK in an attempt to find answers to the development and improvement of the quality of education (Sallis, 1993).

What about education in this beloved Republic? The answer has been heavily on the development of vocational schools, a school that will khususnya leading international schools (SBI). According to data from the existing school 30 who has obtained the ISO 2001: 2000 (Yulianti, 2006).

c. Development Program in SMK

Dirjen Mandiknasmen Strategic Plan (2006) the deconcentration proclaimed establishment of the New School Unit USB), USB - SMK border, SMK large, integrated BC, Transfer function, innovation development SMK, SMK Center / Sister Marine, Hotel Training, Workstation and marine fisheries, ICT center, the development ofTi / JIS / Cisco, The competency test (TUK), certification TOIEC, industry certification, certification of special training, mobile training unit (MTU), community College, a vocational teacher DIV Scholarship, Scholarship DIII, Education S2, Preparation of ISO standards , SMK Outlet, SMK international standard. The ratio of school-high school vocational 2009 50:50, 60:40 in 2014 and 70:30 as the end goal achieving prevailing in developed countries.

d. International Standard School

In 2006, after some of the material that is enhanced under the coordination of the Directorate General for Quality Improvement of Teachers and Education Personnel, then be made policy making profile national and international standard. With a variety of criteria profile for SMK, until 2013 total number of 351 RSBI schools. However, on January 8, 2013 the Constitutional Court decided to dissolve RSBI the reasons, among others: the potential to erode a sense of pride and national character. This is contrary to the constitution which encourages governments to further increase the pride and foster national character. RSBI different treatment given birth to school and student government. (Tempo.co.id, January 8, 2013). Nevertheless, hopes to improve the quality of vocational should be maintained and enhanced to conform to international standards.

When you look at the components that must be having by a vocational school to become a national and international standard, it is very heavy. But if a school wants to realize it must be standardized. Due to the standardized, the public will know the status of the school, in addition to seeing accreditation results. Moreover, with globalization era, our workforce will compete with workers from other countries. According Yulianti (2006) there are 10 components that must be owned by the school if you want to become an international standard schools namely; as follows: 1) component / process learning-teaching, 2) the organization and management of the school, 3) infrastructure, 4) energy, 4) funding, 6) learners / students, 7) community participation, 8) environmental / school culture, 9) units of production, and 10) partner institutions.

Profile of the initial conditions of a school entering the first national standard schools prepare students to achieve a minimum average grade math 5.6, the minimum value of the average English 7.0, the minimum average value of Indonesian Language 7.0, respectively 10% of the total program expertise. For international schools must obtain the ISO standard. Further infrastructure is to be prepared classrooms, laboratories, field and sports facilities, office, teachers' room and support space. All must meet the
standards. All activities need to be computerized and has internet, e-mail, telephone, facsimile, photocopying, LCD, laptop, TV and VCD. Even more important is the modular learning, and learning through VCD owned devices.

e. Education Quality Assurance
Education quality assurance carried out by an independent institution. Each unit of education in formal and non-formal education required to perform quality assurance. Quality assurance as set out in Law 20 of 2003, Government Regulation (PP) No. 19 in 2005, Permen No. 22, 23 in 2006 can be described as follows:
“Development of national education standards as well as monitoring and reporting achievement nationally implemented by a standardization body, assurance, and quality control of education. Quality assurance of education aims to meet or exceed the National Education Standards.”

Quality assurance of education be gradual, systematic, and planned in a quality assurance program that has a target and a clear time frame. Provincial government, district or city supervises and assist educational unit under its authority to regulate its implementation in arrange or perform quality assurance. BAN-S/M, BAN-PNF, and BAN-PT to provide recommendations to the education quality assurance programs and educational unit accredited, and to the Government and Local Government. LPMP assist local governments in the form of supervision, guidance, direction, advice, technical assistance for education Primary, Secondary and Non-Formal in order to achieve the SNP. BSNP tasked to develop, monitor, and evaluate the implementation of national education standards, the recommendation of the National Education Standards are based on a special assessment.

9. Conclusion
Facing turmoil of economic development, technology, industrialization, the working world, the global market AFTA, AFLA, GATT, APEC 2020, and the application of quality management standards ISO 9000 series, ISO 18000 and other quality standards at some companies, which increasingly demands on product quality using the latest technology, the absolute need HR professionals have the appropriate competence to the job market. For the Ministry of Education demanded more HR professionals to produce ready used

Various measures had been taken Kemdikbud, start by issuing a policy: such as the National Education Law No. 20, 2003, PP No. 19 of 2005 on education standards, Ministrial regulation (Peraturan Menteri/Permen) No. 22 on standard contents, Permen No. 23 on competency standards. Program areas, the ministry has imposed curriculum, 2013, certified teacher since in 2007, establishing a new school unit (USB) SMK (small SMP, SMK remote, integrated vocational high school), to stop the establishment of a new high school, the progressive increase in the qualifications of teachers, opening international schools, and scheduled SMK ratio: 2014 year of high school becomes 70:30.

The effort is to produce quality graduates, qualified in accordance with market expectations of local, regional, and international. To support the necessary role of family, neighborhood, community, stakeholders, businesses, international cooperation and financial support from various parties.

References