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APPTICATIONS Makasser,20th - 21'r August 2014 IGMSTEA,o,o Dr€s ?rfr/t41s ISBN
979-604-151-0 Faculty of Mathematics and Science State University of Makassar I : I t i I I
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Their Applications rrrcn.iion.r co.r.E@ o. M.rh.mri.!, s.r.r... rcr..har, , ".*, .* .ffi/sf.*&' __
ICMSTEA 2014; RECENT RESEARCH AND ISSUES ON MATHEMATICS,' SCIENCE,
TECHNOLOGY, EDUCATION AND THEIR A)PLICATIONS Editorial Board: Syafruddin Sidc
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(State University of Makassar, Indonesia) Muhammad AMy, Ph.D. (State University of Makassar, Indonesia) Dr. Suarlin (State University of Makassar, Indonesia) Dr. Ramlawaty (State University of Makassar, Indonesia) August 2014 All praise to Allah SWT, because His mercy and blessings, the proceedings of the "International Conference on Recent Research and Issues in Mathematics, Science, Technology, Education and Their Applications (ICMST[E.A] 2014" is now finally in our hands. ICMSTEA 2014 was successfully held at Phinisi Building, State University of Makassar on 206 - 21r, August, 2014 and followed 149 parallel speakers and around, around 450 participants in total that registered and participated from many universities in Indonesia and abroad.

We hope that everything contained in these proceedings will expand scientific insights while providing new research ideas and innovations to the conference participants all the reader. We would like to thank to the authors for contributing, their papers, and the reviewers who have provided assessment and feedback during the editing process. We also would like to thank to those who have helped the settlement of this proceedings- we apologize if there are any mistakes in these proceedings- We also would like to express my highest appreciation to the sponsors who have contributed to the successful implementation of ICMSTEA 2014 conference and the publication of these proceedings.

Makassar, August 2014 All praise to Allah SWT, because His mercy and blessings, the proceedings of the "International Conference on Recent Research and Issues in Mathematics, Science, Technology, Education and Their Applications (ICMST[E.A] 2014" is now finally in our hands. ICMSTEA 2014 was successfully held at Phinisi Building, State University of Makassar on 206 - 21r, August, 2014 and followed 149 parallel speakers and around, around 450 participants in total that registered and participated from many universities in Indonesia and abroad.

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 the other faculties within State University of Makassar, I am the Editor in Chief @ Mathematics.

Science, Technology, Education and Their Applications (ICMSTful) 2014 ' It is assigned to celebrate the 51st 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. Introduction!! Conference on International Science, Technology, Education and Their Applications (ICMSTEA) 2014 Forerords from the head of Committee Assalamu'alaikurn Warahmatullahi Wabarakaluh.

(ir-xd moming and may God's t'lessings be upon us all Your i:xcellency the Rector of State ljniversity of Makassar Pmf. Dr. H. Arismunandar, M. Ladies and gentlemen, on behalf of the conference comminee, fi.st, I would like to give wlcme to all the delegates. keynote speakcrs, invited speakers, parallel speakers panicipants coming today. Welcome to the conference, welcome lo State University \lakassar.

iud welcome to Nlakassar. fhis cont'erence enlitled "International Con/erence on Recent Research and Issues t.adics and gentlemen, the conference pmudly invites eleven keynote speakers coming &om s!'vcral countrics. Therefore, I would like to express my sincere lthanks to the keynole speakers, inclutling: L l'rr)Lssor Max Warshauer (Texas State tlniversity, USA) 2.

ProGssor Naoki Sato (Kyoto University, Japan) .1. Prof'essor Peter Hubber (Deakin University, Australia) 4. l'rofessor Susie Groves (Dea&in University, Australia) 5. l)r. Frans vim Galen (Utrecht University, Netherlands) 6. Prolcссор lruangiai Nacapricha (Mahidol University, Thailand) 7 Professor Baharuddin bin Aris (University Teknologi Malaysia4 Malaysia) ll.

l,rofessor SumtmanWoro Suprodjo (Gadjah Mada University, Indonesia) 9. Prtrfcssor Ismail bin Kailafli (Univelsili lcknokrgi Malaysia. Malaysia) l0 Profcссор Muhammad ArifTiro (State tlnircrsity ol'Maliassar) l l. l)r. Siti Nuranraliati Prijono (lte Indoncsian Insllitute ofScience) I would like also to give sincere thanks and gratitude to th€ invited speakers, including: l l'rl.

t)r. H. Arismuflandar, M.Pd. (State University of Makassar) 2. l'rol Kristian H. Sugiyano, Ph.D. (Slate University of Yogyakarta) l. l'rol. l)r. Sutarto Hadi(l,ambung Mangkur-at tjniversity) .1. l)r Nurdin Noni, M. llum. (Starc llniversity ol'Makiusar) i l)r. Yuni Sri Rahayu, lvl.Si. (Sralc Univirsity of Surabaya) 6. t)r. Ayuddin M.'1. (State University ofcoroftalo) 7. Dr. lrsman Pagalay (State Islamic University ofMalang) 8. Dr. Suyanra" M.Si.

(State University of Yogyakarta) q l)r. Elisa Ses4 M.Sc. (Tadulako University, palu) Nexl. l uanl to thanks and welcome to 149 parallel speakers and totally, 450 panicipants approximatell,are registered ro panicipare from many uriversities in Indoncsia from Aceh to Papua. und othcr countries. All of thern have sharcd thcir rcsearch and theoretical papers prescnted and discusscd in thc confcrncce.

l v,i Yo€ FiDr sho lo? ofl Th ll, S A \\ {r:0tt dar, M.pd. lo give our aken and irersity of 7./J l k is cnference omminee Int m.tion.l Conf.rcrcc o.lilhcm i6, S.i.n., Tennobgy, f,drc.tio, r.d lh.ir Applic.rion3 (ICMSTEA) 10t4 d{.. In this occasioD, I would like to thanks to Deputy of GoveMor ofSouth Sulawesi Province (lr. H. Agus Arifin Nu'mang, M.Si), Mayor of

Makassar City (Ir. H. Ramdhan Dhany Pomanto), Rector of UINM (Prof. Dr. H. Arismunandar, M.Pd.), and Director of Post Graduate Program of IINM (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 Kalia Group, KIA Kall4 Erlangga Press, Opti Lab, and e-Bimbel Yogyakarta for their contribution as the sponsors of this conference. Finally, it is my privilege to thank to the 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. Wassalamu'alaikum Warahmatullahi Wabarakatuh I had of (bmmince.

rag from speakers. Suwardi Annas, Ph.D. International Conference on Mathematics, Science, and Technology Education and Application (ICMSTE, A) 2014 Forewords from the Dean of Faculty of Mathematics and Science, State University of Makassar Bismillahirrahmanirrahim Assalamu'alaikum Warahmatullahi wabarakatuh 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, Science,

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 contribute both national and international scientific publications.

Finally, let me again thank you to all participants of the conference who are receptive to spend their time to be present and entirely involved at this event. I wish the conference advantageous for all of us. BismillahitauqwalhidayatL Wassalamu'alaikum Warahmatullahi Wabarakatuh Dean of Faculty of Mathematics and Science State University of Makassar Prof. Ir. H.

Ilamzah Upu. M.tid. r) 20tt Ina.ro.tionrl Corf.r.!c. on Mitlcrtri.J, S.i.kc., T6h troloay, Educ.aion r.d th.ir Applic.rioss 0cMStEl) 2or4 Helps, we d Issucs in 014. apidly. In chers and :empora.ay :nake the lecturcrs ptions of liom the Pa-'ts of rch, and rcePtive lerece l'orewords frorr Rector of UNM B ismiilahirrahmaninahim Assalamu'alaikum Wamhrnatullahi Waba.rakatuh Your respectable, the high officials of Slate University of Makassar, the committee, thc speakers, and the perticipans of conference.

In that celebration, we underlake several agendas including educational aDd spo activities. The confererrce, ICMSTEA, is otrc of our educational activitics that covers a wide range of ve.y inleresling itcms relating to mathematics, Science, education, technology aDd their applications.

Uy laking panicipolion of this seminar, it is highly expected to all of us to share our res€arch findiogs to s€iety and continuously dcvlop 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- Furthermore, I would like to lake this opportunity to expr€ss my heafffelt gratitude to all organizing comminee especially for the Faculty of Mathematics and Scienc€ that primatily hosls this conference particularly and ot!Er Dies Natalis events generally.

l'inally, this is a geal time for me to declare thc official opening of the Intemational Conference on Recent Research and Issues in Mathematics. Science, Technology. Education and Their Applications (ICMSTEA) 2014. I wish you a very enjoyable slay in Makassar, I warmly welcome you again, as in Makassar, we say "salamakkibatturimsngkasala". iVassalarnu'alaikurn Warahmatullahi Wabamkatuh ilclclor ofState University of Makassar ProL Dr. H. Arismunandar, M.Pd It gives me a great pleasure to extend to you all a very warm welcome, especially to our keynote sp€akers who have accepted our invitation to attend the conference.

[1 is an opportune time to convey to you that trNM is celebrating the 53rd Dies Natalis and it comnreods tbe faculty of Mathematics and Science (FMIPA) to be in charge of all activity sequences in the Dies Natalis. However, the suppofl of other faculties is also reall-'- influential and gives valuable contribution to the \$rccss ofthe evtnt.

,l'ABLE OF CON'IENTS Preface Forewords fmm the Head of Cornmitter l'rewords from the Dean l'rewords from the Rector Table of Contents l)esiging and Design Rcseauch Frans van Galen, Utrecht tJniveniity Math works, Math Problems and Math Education Research rv.,r, Texas Statc Univcrsity Job Oriecotation of Undergraduate Statistics Students of FMIPA Univcrsitas Negeri Makassar Mrhammad Arif Tirc, State University of

Makassar Membraneless Vaporization Devices: Effective On-line Tools for Separation of Volatile Compounds in flow-Based Analysis Nacapricho, D, Uraisin, K, Choegehan, N, Rdtano*, imorneong.N

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Hasanuddin University Joke Models of Development Result and Benefits .lokebet Saludung, **State University of Makassar** i he Role of Heavy Metal Fe in Sponges (Poritera) liom Sperronde Archipelago Lydia Melowaty, Krbrior., Pasalr, Paulus Christian University of Indonesia Application of Dynamic Model as Decision Making in Vehicle Emissions Pollution Control at Makassar City Voh.

Ahsan S. Mardr4, State University of Makassar Challenges Facing Economic Education in A Free Trade (ACFIA and A[C) \luham ad Azis, **State University of Makassar** the Application of Learning Group Investigation Model to Improve Students' Learning Outcome of Agricultural Technology Education Department vrrl"a/4 S.

, **State University of Makassar** the Pakarena Sere Jaga Nigandang, Culture Identity and Makassar \irlina Syahfir, State University of Makassar \ir Pollution Control in the Region of Makassar Indonesia 1;ry. State University of Makassar ,ptimization the Learning Based Competence Integrated with Character Education in Vocational High School :::uno I.

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lldr Anhit (rc\$sTEA) a CHALLENGES FACING ECONOMIC EDUCATION IN A FREE TRADE
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the quatity of gradualrs h still low even d€creased. Lorica0oD t-or All (EFA) Globsl
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rates 'Jlat the Educction Developm€rt Index (Ipp) or Educational Dcvelopme Index (EDI) IndorEsia has decr€ased EDI systfin split assessment scoEs thae€ categories, namely the goup of counties with high educEtion index (0.950 ard above), medir-un (0,800 to lcss than 0.950) and lou (belo\$ 0.800). Pq{ on the goqinS of Irdonesia, Malaysia, PhilippinB, Viculrm, Myrnmar and Cambodie are iocuded ;,l the group srd t runei was .anked highest (Reue6" Dcc€mber 3l, 2mE). B&sd on the GMR Ilport dso sp,pcaE rhqr lodoDcsis s r.nking dropped from 58 to 62 Orc total value obtaiDcd EDI Indonesia dccrcased from 0.936 into 0.935.

Funhermore, based on rhe ranking of the Human Developmeot Irdex (HDI) in 2008 hdonesia was ranked tog :t]t of- L?: BruIEi Danrssala4 27; Chin4 %; Malsysis. 63; philiphina, | 02; :lleporE, 28 and Thaitand, 8r (uNDp, 2008) shows thst rhc quality of human ECI t.rdr.ai.d Co.tie .. if.o.-ri!' S.it .t Tdr.Llt' [dt rra. .d .li Attli.dii6 ocitsrEA) Lla rEsowces in Indonesia is stitl far behind comparcd to odlcr coultries.

In addition to lhe above pmhlems in OE quality of gradualcs, Irdonesia a.lso faced with th€ chslt€nge of laroching the Millenniutn Dcvelopmct Goals rvhich rlas originally launchH h 2020 r.c€leralcd into 2015 Millermium Dcvelopment Goals is the era of the fiee rnarliet or that an eea of globalization characredzed by qualty compctition.

Indonesia join€d the ASEAN Fr.c Tr.de Arca (AFTA), sign€d on J{tlty 28, 1992. In its dcvelopmen! this poffieBhip w&s €xfndcd to irrchde a vadety of other countries, irrcluding China so ao advanced ASEAN-China Fre Trad€ tu€a (ACFTA) ad ASEAN Ecooomic Community (AEC) u{rich inroduc€d in Octoter 2003, will bcgin to be implcmcatcd in 2015.

Economic educotion as a field of snrdy or leaming ar the instifirtional level education urit. Economic education focusing on how to pr€parc the subj€ct shrdent as an irdividul economic actors who have the knowledge and attitudes appropriab io th€ econmic development of its er& Th€ Ftrpos€ of this would be Bflected in the curriculum developed and operatioDalized bssed comprtency stmdards ald gnduale ecooolrlics educrlioo subirct areas. The rutue ofecorDmic actors cgtr ss an individual consumer, the manufacturcr, distdbutor or r€tailer. 2. Dhclrciotr 2.1.

EcaroDlc D{i'rlopDcirt ID tt. P..rp..tivr ofrrc. Tndc Frcc rradc is incEasingly fclt ard the impacl on various aspects of life both economically, culturally, snd politic.lly. Forning tEe tr8de patterns of commmity life thal is full of i ens. comp€dtion in every field of u/ork, thus requiring the quslity of hurnan esourc€s (HR) bpuer.

Competition is a principle of raw life, the world is of free and access competition, to implement something better and better constantly. The motto 'nearly better tomorrow' is the motto of a competitive society, which demands that humans constantly change. In a world of free trade since the 19th century, it is a world of free trade (Friedman, 2006). Furthermore, it is a world of free trade.

(2006) argues that in a life full of competitions like this, the quality of goods and services is also higher. Only the quality of goods and services are valued and needed by the community. The high demands on the quality of goods and services ultimately affect the quality demands of education (schools).

According to Willb Schweke (in Subroto, 2008) distance education is not just going to give birth to quality human resources, but also can give birth to a healthy business climate and economic growth. Some problems of distance education in the face of challenges of free trade, which is the first problem and its purpose of learning materials, the second model problem of learning strategies and methods, and the third problem education, teacher.

The third issue is the determination of the success of economic and educational development and things are interrelated and influence each other. The educator as a spearhead of economic success and education in educational reform demands more professional in creating learning process so that learning can create graduates who can deliver real change according to developments.

To realize the students become economic actors that fulfill demands of trade, the teachers are required to develop learning materials and process according to the needs of the context of free trade demands. Innovative learning strategies should be able to make the students learn more effectively. In a world of free trade, it is a world of free trade (Friedman, 2006). Furthermore, it is a world of free trade.

Practical learning media easily created and supported by technology and the ability to use appropriate language. The free trade era is the era of free trade, the market economic system or the global economic system. Market economic system gives freedom of any economic actors throughout communities across the world to do economic resources most effectively so that.

The main characteristic of competition in the global market. Because the characteristics of freedom to compete for all the actors are very strong in global economy, the era is also known as the era of free market economy. and because there is a process towards the liberal economic atmosphere, also known as economic liberalization (Wahjoedi: 2008).

Listening to the present circumstances, when interpreted in terms of development economics, it is actually present era is the era of classical economics system development (Adam Smith) is characterized by the presence of individual economic freedom, the full workings of the market mechanism, the demand for efficiency, between individual freedom to compete globally, the role of the state as the dominant feature of the command economy into a decline, and no role of any barriers to the trade relations between countries are more free society. Although economic freedom are very strong coloring every aspect of society, but, the.

does not mean economic freedom is the only purpose of the social market economy system. According Wahjoedi (2008), there are 6 aspects of the social purpose of a market economy that should get attention by all individual economic actors, business people, and the Government of a country.

6th aspect of the social objectives are: economic efficiency, economic justice, economic freedom, economic growth, economic security, and economic stability. (1) Economic efficiency in a market economy, all economic activities made by consumers and producers in the market. Specialization and international trade will increase productivity and competition. (2) Economic Justice.

meaning there is a fair chance people are free to make their own decisions how to use their resources, but capacity, although not guaranteed to be successful. Revenue will depend on the value of labor and other resources that can be sold individually, (3) Economic freedom, understood as the private ownership of all kinds of economic resources and allowed individual freedom and control over valuable resources.

(4) Economic growth" interpreted as an incentive for individuals and businesses to produce more and to avoid stagnation of concern in the efficient use of resources. Specialization and capital investment in the education and training of workers to meet high demand of the output (5) the economic security, meaning that in general, individuals are responsible for their own health, decreased ability, housing and income.

But here some government programs undertaken to reduce risk and provide improved economic security as an aid for low-income families, unemployment compensation, social security, and job training programs of government. (6) economic stability, some unemployment can be tolerated depending on the income sources of individuals owned can be sold, the government uses financial and fiscal policies to reduce the unemployment and inflation and pay attention to economic growth.

The development of the global economic system, has in determining the development of the indicators of the economy. and accounts for the basic study of economic education for the sake of learning. Therefore if you want to develop economic education to prosper the next 893 I.I., rii..a C.rf.'tc o. M.o.rii* S.f..., T..t..LA,, Edr..d.. ..d td. Afr\$..ri, ..

ocMsTt"{} zora generadon of ft€e bade era, thpn fhrc &t at least four basic science education should be presented in the material economy, namely: fundamental (basic philosophy; economics, microeconomic theory, macroeconomic theory, and international trade. Meanwhile, for the sake of the regional autonomy law, then in addition to ,l economics mentioned above also need to be added public economic studies.

Through public economics, it can be derived that the economic role of government in a free market economy and decentralization there are 4 main roles, namely: the role of allocative, distributive role, the role of regulation, and the role of stabilization. Allocative role. the government should allocate resources in order to create maximum welfare.

The role of distribution means balancing between efficiency and fairness in allocating resources through tax policy, social security and distribution services for the public sector affect the distribution of income- The role of Regulation the government makes the rules and laws of contract, consumer protection, law enforcement and others, thus supporting the market economy namely The role of stabilization which is the allocation distribution and regulatory rules coloring the micro economic characteristics; role in stabilizing the macro-economy through fiscal policy, monetary policy and other economic policies 10 achievements, the objectives in controlling inflation employment and others. 2. Role of Education International Economic In the face of free trade economic institutions, especially institutions of formal education required to be able to prepare human resources who have the appropriate competence standards.

For Indonesia standards is required that graduates have the minimum competency in accordance with the standards of the National Qualifications Framework Indonesia (KKNI) at each level of education. Thus economics education institutions as places where learning can take place economic education is expected to produce standards compliant of KKNI.

When examined carefully, the economics of education is a learning process can be mapped into 8 particular structures. These places include formal schooling and family informal, non-formal and community. Things that make the difference is that every institution where the learning process is economic education in learning forms.

to be implemented in each of the economic institutions of society

and government, so that it can enter into the policy of both local and central government. Hence the role of the educator can provide input for the determination of local government policies, especially for the benefit of the individual in economic skills. 2J.1. Economic Education Learning Materials is very wide and dynamic to allow the development of the curriculum. It is likened to the external sources of economic education materials is an area of human life activity ("as wide as human activity"), and all human life ("as long as human life"). Basically there are two sources of economic education learning materials, which is the source of theoretical and practical sources.

Sources theoretical, derived from the study of the development of philosophical thought, scientific theories, and facts derived from a view of the analysis of empirical evidence, namely through research results, scientific journals. To obtain practical source of information IL 894 and Erie. C. & T. L6,, Ed. d. d. if it occurs in everyday field can be obtained through scientific journals, newspaper articles, TV media, and the Internet.

If the sources are structured systematically, there are several main components - namely the analysis of philosophical, theoretical, applied side, and the development of economics. Each component has supported the development of economics and related economics.

In the latest development in the branch of economics that plays an important role in the era of competition, namely fundamental economics, microeconomics, macroeconomics, and international trade, and accounting. 2JJ. Model, Strategy, and Method The model is a conceptual framework that is used as a guideline in conducting the activity. So it is a learning model that describes the conceptual pattern and perform procedures in organizing systematic learning experience and learning to achieve specific learning objectives and serves as a guide for planning instruction for teachers in implementing learning activities.

Learning strategies is related to the general pattern of teaching and learning activities (transactional) should occur in the classroom during a lesson. While one teaching method means path or way which must be passed in order to achieve certain goals. Model is the strategy of *systemic development/ of a learning model* consisting of curriculum and learners to interact with each other in doing an activity so that the learning process goes well in terms of learning objectives achieved.

So the model, strategies and methods of teaching economics education designed to achieve the learning objectives of economic education. Moreover, in addition to the learning process, factors other than input and output to be generated, The nature of learning strategies should be dynamic, innovative, with a focus on active student participation. 1.23.

The Role of Teacher Education in the Education System is especially for teachers.

Any attempt to improve the educational system must be separated from the role of the teacher because the teacher is the key and the central point of any education reform focused on qualitative changes. Because the teacher is the dominant component in the educational process, the role of the teacher is crucial. According to Fajana (2005) teachers have a central position in the effort to improve the human resource.

Although various approaches oriented education to students but the role of the teacher in the learning process is still very dominant. In any kind of strategy the existence of teacher education is still the main element and very influential in education for the creation of quality human resources. In other words, the responsibility of improving the quality of human resources is the responsibility of the teacher. To use the model and function of the teacher directly implement the activity of the relation to the era of globalization and free trade economics the teacher should at least have the characteristics: (1) Master the disciplines correctly and follow the development of science and technology/ (2) Learning method with good control, including innovations in learning (3) Master the language of science, including interdisciplinary languages (4) Master information technology (5) Have a commitment and responsibility in carrying out their duties (6) The profession properly rewarded (7) Master research methodology (8) Has a good moral qualities, and (9) Has a modern character (Wehjoedi: 2008) 895. The study of C...L...T...r...S... T...h...a...r... Ead... d... t... k... A...X...raii (rc srEA) lei{ Research Sidi (2000) found that in developing -J...tries contribute to the teacher performance is the quality of its graduates by 16.0%, 23.0% and 22.0% respectively, and means 1996.

Cruickshank (1990) found that the performance of teachers has an immediate effect on the learning process, meaning that if the performance of the teacher in the learning process is better, the quality of graduates it produces good results. Sudjana (2002) found that 16.0% of student learning outcomes are influenced by the performance of the teacher with the details of the teacher's ability to reach to class. 32.43%, and the subject matter contributed 32.38%, and the attitudes of teachers towards subjects contributed 16.60%.

Duikin (2001) found that the effectiveness of the teaching performance of teachers in dealing with the quality of graduates. The better performance of the teacher in the learning process of the higher quality of graduates in terms of academic achievement, the better. The factors as a result of learning require to have competence. Government regulation number: 19/2005 requires four competencies of a teacher, namely: (1) pedagogical (2) personal competence (3) professional competence (4) social competence.

Teachers who must have the following competencies, it can be referred to as 8 professional teacher. In connection with the profession of teachers, Act No. 14 of 2005 on teachers and lecturers expressed the principles of professionalism as follows: a. Have the talent, integrity, spirit and idealism. b. Is committed to improving the quality of education. c. Devoted to public character.

Have academic qualifications and order according to tasks- d. Have the necessary competence in accordance with the tasks. e. Has the responsibility for the execution of tasks professionally. f. Earned income determined in accordance with work performance. & Have the opportunity to develop their skills continuously with the professionalism of lifelong learning. h.

Having a guarantee of legal protection and professional dignity. Having an organization that has the authority to regulate matters relating to the teaching profession. 3. Coined! Free trade requires us to enter into competition and the quality of service commitment and standards. Committed Education related with the challenge and how to design and implement learning that can produce graduates who have the knowledge and ability to quickly adapt to changes so as to @paa global. Rofroca! I. Cruickshank D.R- 1990 Research and Inform Teachers and Teachers. Bloomingdale. Phi Delta Kappa Education Foundation. 2. Durkin & Bidle B.J. 2001 Study of teaching.

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