E-LEARNING-BASED TRAINING MODEL FOR ACCOUNTING TEACHERS IN EAST JAVA

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Abstract

The improvement of teachers competencies have been implemented through conventional training or "class" training. The model demands on high cost and limited participants. The survey result in East Java reveals that the majority of teachers seldom involve in training activities, meanwhile Information and Communication Technology (ICT) has been accessible and affordable in cell's coverage area. The availability of ICT facilities provides opportunities to implement e-learning-based training for teachers. This research aims to use a development research and a test model of effectiveness by using an action research. The result of development signifies that e-learning model should concern in the capabilities of participants in ICT (Direct and Indirect Model). In common, both models contains component of online class orientation*, training session and learning evaluation. The result of study shows this model is able to improve the teachers' capabilities in Financial Accounting. Teachers with high capabilities in ICT are more easily adapted with e-learning, hence all processes might be implemented in online basis. Conversely, teachers with low abilities in ICT are vulnerable for failures in online training. Accordingly, an indirect training might be executed through a phase of ICT orientation and orientation of online class before conducting further phases in online training. The improvement of effectiveness in independent learning process requires a comprehensive content in e-learning and should be performed in sequential basis. Additionally, it is prominent to implement training at the same time with school schedule. Despite of the availability of ICT facilities at school, an academic sharing might be easily comprehended.*

Keywords*: E-Learning, Teacher Training, Accounting*

Introduction

A variety of stadies have stated that teachers have prominent role in the successful of the graduate students (Odhiambo, 2008; Heck, 2009). Considering the teachers' significant roles in learning process, teachers are encouraged to simultaneously improve competencies in accordance with development of knowledge and technology. It is supported by Craig et. Al. (1998:12) revealed that a key success in teachers' performance quality is the continuity of enhancement of teachers' competencies. Teachers as agents of change in school should be the main priority in developing education quality, despite other available resources at school (Hooker, 2010). As a result, Indonesia government has employed several educations and training model for teachers. However, the training conducted primarily has been operated

under conventional model (class training) in which education is limited by space and time. The conventional training model also requires time, energy and high costs.

In order to mitigate the constraints above, the rapid development of Information, Communication and Technology (ICT) might be alternatives of solution as ICT is more widely accessible and is categorized as low costs. The application of ICT in training might reach more participants at lower costs. Chakupalesa et.al. (2013) statesthat the distance education might improve access quality at low costs. Besides, the ICT also creates academic sharing and experience among teachers in different ages, different abilities and different areas with distinctive problems. Lindquist & Long (2011:225) affirmed that the application of ICT might result in a "digital native", a term to represent people who are growing up with information and technology.

ICT for learning has been implemented by numerous universities. E-Learning is a part of distance learning.Simonson, et.al. (2008:25) affirms that distance learning is a methodology and technique strategy which offers possibilities for delivering content and providing communication among participant in education process even the participants come from geographically diverse area. The study contribution in digital era might be observed in the outline of innovative method supported by ICT to maximize learners in dialogue approach in students-centered learning (Salmon, 2002; Sandholtz et.al, 2002).

Afifi (2011:365) observes by which e-learning is a principal device to be applied in overload teaching in a large number of universities inEgypt. The potential advantage of e-learning is the flexibility in large class and study time, the improvement of students' abilities in accordance with knowledge that are independently absorbed, the development of information retention, the delivery of education for local students, the mitigation of educational costs and the delivery of education for disable students. The learning process with e-learningencourages people to independently express ideas in virtual classroom and creates high quality in communication (Davis, 2012: 13). Apart from that, e-learning also broadens educational opportunities for learning via ideas sharing among colleagues and teachers. In its development, e-learning has been applied in training model. A study conducted by Li (2009) found e-learning in pre-service teacher training was successful because e-learning has capabilities to attain learning objectives. The capabilities of independent learning from pre-service teachers improved and students also actively participated. The distance learning program was also employed by Lakatos et.al (2003:28) with the aim of providing flexible learning in space and time. In developed countries and developing countries, e-learning has been widely delivered in service media to comply with

demand of upgrading knowledge, skill and qualification of teachers (Burns, 2011:9).Based on the above rationality, this research aims to improve e-learning-based training model which is supported by Moodle for accounting teachers in East Java.

Methodology

This research was carried out into 2 phases consisting of development model and atest model of effectiveness. The improvement of prototype model used a development research model Dick & Carey (1985). A product of this phase is a conceptual model, that is, e-learning-based training model for teachers and it is supported by moodle. In order to test the model, an action research design was applied. A targeted population for the test model of effectiveness is Accounting teachers in Senior High Schools in East Java. A random sampling results in sample of this study which covers Probolinggo, Pamekasan, Malang, Mojokerto, Banyuwangi, Tulungagung, Ponorogo, Situbondo, Blitar, Lamongan and Lumajang, which each area had 35 people as sample. Data collected by using documentation technique, assessment and questioner. Further research data was analysed by using qualitative analysis and quantitative analysis.

Results of Study

A. The Advantages and E-learning-Based Training Model

A survey result in 6 (six) cities in East Java shows that 56% of Accounting teachers have education background in non-Accounting area. Even teachers with work experiences more than 20 years, but there is a lack of efforts in improving teacher competency. There was 67% teachers have rarely participated in professionalism-related training for more than the last 20 years. It is indicated that the causes of the circumstancesinclude limited funding, a large number of teachers and a high demand on additional competency that must be obtained by teachers nowadays.

The survey also seems to indicate that the majority of teachers have accesses to PCs, notebook, Internet at home, school and home environment at low costs.Even though there is a complete computer facility, but almost more than 50% of teachers have experiences neither in using ICT for learning objective nor other objective purpose. The condition is supported by data that signifies only 15% teachers stated they often have access to computer facility and Internet to attain information and communication. It is as a result of a fact that teachers have no comprehensive acknowledgment in operating ICT.

Considering the requirement analysis above, training prototype developed in this research uses WBM (Web Based Model). WBM covers not solely the use of computer as communication media but also online learning, online communication, e-mentoring, webinars, webchats, telecollaboration and teleresearch projects (Burn, 2011:53). There have been numerous WBM format might be used but this research uses Moodle.

A training class is designed in a form of e-learning pages comprising of main page, Orientation of Online Class and training sessions. The main page of e-learning provides general information including training subject, guideline, news forum and information about instructors. The main page aims to inform training participants to be physically and mentally prepared for being active and effective participants. Participants must aware that being independent learner and highly participate in this training model are compulsory. Each page provides menus for training materials, discussion, assignments, forum and other menus that are accessible for participants. The questioner result also signifies that navigation design enabled participants to find class content and inclusive features.

For participants categorized as newcomers in e-learning, the model provides Orientation of Online Class. The Orientation of Online Class is designed to provide opportunities for participants in understanding the content in e-learningin order to avoid further technical difficulties in the main session of training. A survey conducted by Li (2009) reveals that when participants independently learn materials, teachers/instructors supports are still in high requirements.

A main session of financial accounting training is organised in a form of training session. Each page provides learning components consisting of learning objective, materials, learning process and evaluation. The learning objective is displayed in every "entrance" of main page. Training materials are displayed in module, Powerpoint, tutorial video and linked articles. Tutorial videosare performed in TeacherTube. Synchronous and asynchronous model are used in learning activities, meanwhile a learning evaluation is conducted online by using features in Moodle.

B. The Result of Model Test

A model developed above has been tested for effectiveness in Accounting teachers covering 11 cities in East Java. The training was carried out into 3 cycle, comprising: 1) orientation of online class; 2) training in Accounting for Inventory;3) Accounting for Fixed Assets.

1) Cycle 1: Orientation of Online Class

In this research, activities in Orientation of Online Class were online implemented. It signifies that participants joined the class from distant areas. There were three prominent activities in this cycle consisting of an assignment aboutbiodatasubmission, an assignment about discussion forum, and an assignment about assessments and quiz. The result of test shows that only 8 participants were successful in submitting biodataon schedule, 10 participants had filledbiodata but unsuccessful to submit; 12 participants submitted biodata outside time required. The low participation in submitting biodata might be caused by: (a) Orientation of Online Class was online-based implemented thus participants withlimited skills in ICT had difficulties in the operation of computer technology; (b) participants had no efforts to read guidelines forbiodatasubmission; (c) participants who filled biodata but failed to submit because there was the last phase missed in the process of submitting.

Other fact shows that none of participants involved in an assignment about discussion. A similar condition also occurred in assignment about quiz.There were only 15 participants were active in completing exercises. The low participation in discussion forum might be as a result of: (a) e-learning-based training is a new media for participants and participants have lack of experience in sharing open ideas/information/advice in discussion forum; (b) a timid or unconfident feeling to express information in discussion forum; (c) the guidelines for Training Activity has been unread by participants thus an activity like discussion forum is considered as a complement not a compulsory. In order to improve the participation, the 2nd cycle encouraged participant for being active in discussion.

2) Cycle 2: The Training of Accounting for Inventory

A pre-test was performed first before training materials delivered. From 30 active participants in 1st cycle, there were only 20 participants had been involved in pre-test. The average score of pre-test in accounting for inventory was 4.33 and pre-test in accounting for Fixed Asset accounted for 5.9.

Furthermore, training activities were executed for materials of Accounting for Inventory by using synchronous and asynchronous format. The learning activities were carried out into 3 activities comprising of independent learning, discussion and assessment. In an independent learning, participants were able to access materials. The effectiveness of independent learning process might be observed in sorts of discussion topics raised by participants an the result of assignments and quiz. The majority of discussion topic relates to materials which have already written and discussed in modules and tutorial videos. It signifies that several participants had no comprehensive acknowledgment in materials. It is

indicated that there was a failure in the way of participants' learning. Participants watched video without reading modules first. In addition, participants also finished up assessment without a comprehension of modules. The design on materials delivery in e-learning which could be accessed at the same time was considered as an ineffective design. The final result of this was the result of assignments about Accounting for Inventory that only accounted for 4.2 (out of 10). Besides, the majority of teachers involved in e-learning when there was a schedule at school, meanwhile this training was delivered in school break schedule.

In order to reach an increase of participation in discussion, instructors encouraged participants in two efforts. The first effort was an announcement abouta compulsory to participate in the discussion activities because it is a prerequisite for obtaining training certificate. The second effort was a regular display designabout status of participation.Those efforts were considered effective as there was a mark increase in participation at discussion forum reaching for 10 people. The most preferable discussion topic relates to recording process of inventory that was excluded to be delivered in Accounting textbooks.

3) Cycle 3: The Training of Accounting for Fixed Assets

In this session, the number of active participants in training amounted for 20 people. In similar with Cycle 3, the learning activity was carried out into 3 activities consisting of independent learning, discussion and assessments. The independent learning process was improved by the design of accessibility materials in sequential basis. Module was designed as the first material to be accessed while other materials were hidden. Afterwards, materials in form of powerpoint was shown and followed video tutorials and linked articles. A forum discussion and assignments were opened after participants learned all training materials. This treatment was effective because it had a great impact on the average score of assignment reached 8.0 (the last assignment was 4.5) and post-test score was 7.94 (compared with post-test score in Accounting for Inventory which only contributed 5.90)

In 3rd cycle, participants' participations had a significantincrease. Accounting for 8 people were actively involved in discussion forum with topic from instructors and 12 people were active in discussion forum with topic arisen from participant. The cases discussed were the treatment of Accounting for Fixed Assets in IFRS basis and other real cases related to Fixed Assets.

Discussion

As discussed above,it is stated that e-learning model applied in this research is WBM model. The quality of e-learning prototype developed, generally might be observed in 4 components, including content, communication, assessments and explicit learner support (Goldsworthy &Rankine, 2009).

1. Content

Mubarik (2012:1) stated that a good content is able to integrate explicit and tacid knowledge, and deliver to students as well as conventional learning which have the following characteristic:

a. Accessibility/Shareability refers to content that is accessible from one location and sent to another location. The prototype model developed had been met the criteria of accessibility by using web browser such as Internet Explorer, Mozilla, Google chrome and other browsers. The training contents are accessed by registered participants, administrator, instructor and guess visitors. The ease of access in learning materials might be executed by using Learning Management System (LMS)-Moodle application has been considered as a well established and comprehensive and open source (Sutanta, 2009:4 danTsauri, dkk. 2009:2). It is also supported by reviewer of prototype that affirms the prototype model has attained the criteria of ease of access.
b. Interoperability refers to content developed might be operated by using different tool in different operation system platform and might be operated in some sorts of operation system in several mobile facilities. This research has learning content comprising of text based and multimedia content. The content developed in this training model has been integrated all facilities that create interactive effect. Multimedia is more interesting and might motivate learners to participate in virtual learning process (Vamosi, et.all. 2004:7; AFT, 2000:18).
c. Durability means the content is developed to sustain from development and alteration of technology. The implementation of moodle for the prototype is based on several considerations that moodle application is a free open source, enable for modification by instructors in accordance with the requirment, might be updated, and might be compatible with operation system and highly used by provider web hosting (Sutanta, 2009:14).
d. Reusability, it is a content reused to make further development. The learning content developed in prototype model in this training involves material of Financial

Accounting in principle basis. The reusability criteria prepared in material of Financial Accounting because it is considered as a development plan to reach the next level of Intermediate Accounting.

e. Cost Effectiveness

Cost effectiveness is a content that might improve efficiency and productivity. Although e-learning is considered as a low cost media in term of learning process, but it demands on high initial investment to design and create LMS programs, the cost of developing materials, the cost of introduction, the cost of training and other related expensive costs (Sutanta, 2009:14). Apart from the high investment cost, time efficiency and cost efficiency in e-learning might reflects several conditions such as it excludes expenses in class facilities, and it reaches training students in isolated areas, the availability of instructors. In addition, training students are also able to independently manage study time (Effendi and Zhung, 2005 in Sutanta 2009:13).

2. Communication

In similar with face-to-face learning in conventional class, the success of e-learning-based training is determined by the role of communication between trainer (teacher) with students (learner), and communication among learners. Learning communication designed in this training uses synchronous and asynchronous model. Synchronous model assists learner to be participant without isolated feeling. It also avoids frustration in questions or answers in real time basis (Hrastinski, 2008). Communication synchronous media prepared by Moodle is Chat. Chat enables direct communication between learner and instructors and other learners in real time. Additionally, the direct communication also uses other medias such as handphone supported by Short Message Service (SMS), WhatsAp, Line and other similar medias. Asynchronous media in this research are in discussion forum and email.

3. Assessment

Assessment is a core of study activities and teaching. Basically, assessment in e-learning is similar with conventional learning but specifically, there is an e-assessment in e-learning. E-assessment is assessment supported by ICT to present assessment activities and record responses, including assessment process end-to-end from training participants' perspective and tutors (JISC, 2007:6). In this training model developed, the assessment of training result developed in Computer Based Assessment (CBA) which is associated with an

evaluation delivered and marked by computer; and Computer Assisted Assessment (CAA) that refers to an evaluation which is fully supported by computer. CBA is used in online Quiz in which the evaluation tool and evaluation process of study result are executed by moodle. Training participants might finish online quiz and directly observe the study result. CAA model in this model is assignments and discussion forum.

4. Explicit Learner Support

Explicit learner support becomes one principal component in the quality of e-learning. Explicit learner support focuses on e-learning to support learners in integrate e-learning (in this research uses Moodle) with software and (or) articles linked with other external programs (Goldsworthie&Rankine, 2009:340).

Explicit learner support must involve text-matching software, links to students support materials (internally provided) and links to students support materials (externally provided).This research is limited to links to students support materials (internal and external) thus it excludes text-matching software. Text matching software relates to assignment provided for learners that are supported by software to evaluate whether the students' assignments are free from plagiarism (Goldsworthie&Rankine, 2009:340). Text-matching software is excluded as assessment in the this prototype because there was no essay assignment that had subject to plagiarism risk.

This prototype also has links to students support materials (external) comprising of links to articles (reading sources), links to guidelines of assessment activity and links to other relevant information whichmeet class objective. Meanwhile, links to students support materials (external) developed is linked materials or articles from credible website. Students might search for link materials from other websites rather than articles provided in training. Additionally, participants have opportunities to access learning video which is supported by software screencast O-maticvia link connected with TeacherTube.

In reviewing of the result, it can be observed that participants with high performing skills in ICT had advanced score in training. From 35 participants registered, there were only 20 people participated during the training. There is a possibility that distance learning from initial process in this training became one cause of the low participation. Participants failed to be involved in training full time because an orientation of online class online conducted. The low capabilities in ICT became constraints in learning process. Accordingly, e-learning-based training might be more effective if training participants have basic skill in ICT. For

participants with low skills in ICT, it is compulsory that Orientation of Online Class is conducted via face to face between instructors and teachers at school. It is in accordance with Li (2000) that reveals students might have difficulties in learning material independently, hence it is preferable if there was a guide to how to join e-learning before the real online class executed. According with the case, this online training model should be carried out into 2 models as follows:

a) Direct Model

   Teachers with good skill in ICT are targeted for this model. Accordingly, all phases in e-learningrange from orientation of online class to evaluation that might be directly online implemented.

b) Indirect Model

   This model is suitable for teachers with low skills in ICT. Teachers in this group should engage in ICT first before following training session. The Orientation of online class might be conducted face to face in class (offline). Afterwards, the online class might be initiated if participants have good skills in ICT.

It is significant that an effectiveness of independent learning process should consider the sequence of e-learning content. It signifies that not all contents might be accessed at the same time, but must be displayed in sequence basis according to phases in learning process. It is a critical factorbecause an independent learning becomes an undeniable factor in the success of training. Chao et.al. (2006) reveals that students are influenced not only by study facilities but also by how the learning process is conducted. In depth, Schramm, 1977 (in Allay, 2004:15) explains the learning process is more highly determined by content and learning strategy available in learning materials rather than technology used to deliver instruction.

After participants comprehend material content in modules, powerpoint and tutorial video, participants might raise question or discuss material in discussion forum. The questioner result shows that 95% of participants wereexcited to hear opinion from others whose different background and ideas from others were considered as prominent assistant to comprehend a topic. Discussion materials were arisen by instructors or participants. It is in accordance with Li (2009) that reveals the implementation of online discussion might increase motivation of students.

The activity of discussion board covers weekly entry such as reading or discussion in lattest issues (Godsworthy&Rankine, 2009). In discussion forum “online class problem” is

expected to be media for participants to solve technical problems from the beginning of the training initiated, hence participants have no disadvantages when joining the training just because technical problems. Considering activity of Discussion forum, it might be concluded that training participants have numerous questions or cases related to Accounting materials. The condition risen because there has been an application of new Accounting Standard and teachers have lack acknowledgement in that matters. This information is important for government or responsible parties to improve teachers' competency and to observe all requirements or constraints encountered by teachers in the implementation of professional tasks.

The result of test also shows that a schedule of training failed to be executed on time because the training was applied in school break schedule, meanwhile the majority of teachers (training participants) accessed e-learning at school. It therefore, it is critical to consider that the training schedule should meet school schedule. Although there was a failure in reaching schedule, but the result of test revealed the score of post-test increased and it signifies that e-learning-based training enables the improvement of teachers' acknowledgment and comprehension in material of Accounting for Inventory and Accounting for Fixed Assets. The success of this training supports a research conducted by Li (2009) that shows the use of e-learning in pre-service teacher training is successful since e-learning might reach the expected learning objective. Similarly, Moon (2005) also conducted e-learning in workplace-based for manager in Small Medium Enterprise in Europe. The distance learning was also applied by Lakatos et.al (2003) with a view to providing more flexible learning over space and time. In developing and developed countries, e-learning has been widely delivered as a part of service facility to meet the requirement of upgrading knowledge, skills and teachers' qualifications (Burns, 2011)

Conclusion

The availability of ICT and teachers capabilities in ICT leads possibilities of improvement in e-learning based training model that assists teachers develop the sckill via a training from distant areas supported by ICT. The e-learning-based training is effective only if students have good skills in ICT particularly in how to operate MS Office. A group of teachers who have lack of how to use ICT effectively was the most barrier in this sort of training. A treatment of this is the group should be engaged in Orientation of Online Class that includes materials of ICT before the real class of training is initiated.

In order to improve the effectiveness of training for teachers and school, the training materials should consider teachers' demands. The training materials might be designed in form of modules, powerpoint or macromedia flash, tutorial video, link materials or link articles from credible websites. Those materials are displayed to participants in sequential basis, beginning from modules then followed by powerpoint then tutorial video and link website. It is significant for participants to access and learn all materials in a correct order thus the acknowledgment of materials might be well attained.

In difference with a conventional training, it is suggested for e-learning-based training model to be executed in school days (not in school break schedule). It is as a result of the majority of teachers only access e-learning at school. The implementation of ICT at school might deliver substantial positive effects and also enables an existence of collaborative learning among teachers from different schools.

References

_____Best Practices for Creating E-LearningFor OutStart Trainer Development. 2006. www.Outstart.com (viewed 1 December 2013)

Afifi, Galal M.H. 2011. E-learning As an Alternative Strategy for Tourism Higher Education in Egypt. *Quality Assurance in Education*.Vol. 19 No. 4, 2011. pp. 357-374

Ahmad, Mubarik. 2012. *PetunjukTeknisPengembanganKontenPembelajaran*. Digital Library and Distance Learning Lab.

Burns, Mary. 2011. ***Distance Education for Teacher Training: Modes, Models, and Methods.***Washington, DC: Education Development Center, Inc.

Chakupalesa, Anna Bucheba& Panda, Zambia Santosh.2013.Financial Operations of DistanceEducation and Campus-Based Education: A Zambian Case. *European Journal of Open, Distance and E-Learning*.

Chao, Tracy, Saj, Tami & Tessier, Felicity. 2006. *Establishing a Quality Review for Online Courses.* Educause Quarterly Number 3.

Craig, Helen J. Richard J. Kraft. Joy du Plessis. *Teacher Development Making An Impact*. Paper

Davidson, N & P. O'Leary, Eds 1990.*Cooperative Learning in Mathematics: Handbook for Teacher.* Menlo Park.CA: Addison Wesley

Davis, Charles E. 2002. The field of Accounting: Bridging the Distance Between the Classroom and Practice. *Baylor Business Review*; Winter. 19, 2; ABI/INFORM Global. hal. 12

DirjenPendidikanMenengah. 2011. BukuPanduanImplementasiPembelajaranBerbasis TIK di SMA.DirektoratPembinaanSekolahMenengahAtasFogarty,R. 1999. Architects of intelect.*Educational Leadership* 57 (3); 76-78

Goldsworthy, Kathie & Rankine, Lynnae. 2009. *Identifying the Characteristics of E-Learning Environments Used to Support Large Units*. Proceeding Ascilet Auckland. Hooker, Mary. Models and Best Practices in Teacher Professional Development Education Specialist. http://www.glp.net/home Diakses 23 Agustus 2013, pkl 20.11

Heck, Ronald H. 2009. Teacher effectiveness and student achievement Investigating a multilevel cross-classified model. *Journal of Educational Administration.*Vol. 47 No. 2, 2009.pp. 227-249

Hrastinski, Stefan. 2008. A Study of Synchonous and Asynchronous E-learning Method Discovered that Each Support Different Purposes. *Educause Quarterly. 51-55*

JISC. Effective Practice with e-Assessment: An Overview of Technologies, Policies and Practicein further and higher education. www.jisc.ac.uk/assessment.html

Johnson, D.W; R.T. Johnson; & K.A. Smith. 1998. *Active Learning: Cooperation in the College Classroom.* Edina, Mn:Interaction Book Company

Lakatos,Gyula; Csobod, E ´ va ; Kiss, Mariann; Me´sza´ros, Ilona; &Szabo, Jo´zsef. 2003. A Distance Learning Course as a Tool to Implement SD in Hungary. *International Journal of Sustainability in Higher Education.* 4 (1), 25-32

Learning Technologies, LDSA, 2003 at http://www.ccm.ac.uk/ltech/dysg/ definition_of_e-learning.asp (Viewed 1 Desember 2013)

Li, Baomin. 2009. The use of e-learning in pre-service teacher education.*Campus-Wide Information Systems.*26 (2). 132-136

Lindquist, Thea & Long, Holley. 2011. How Can Educational Technology Facilitate Student Engagement With Online Primary Sources? A User Needs Assessment. *Library Hi Tech.* 29 (2). 224-241

Moon, Suzie; Birchall, David & Williams, Sadie &Vrasidas, Charalambos. 2005. Developing Design Principles for An E-learning Programme for SME Managers to Support Accelerated Learning at The Workplace. *The Journal of Workplace Learning*.17 (5/6). 370-384

Mujtahid. 2011. Pengembanganprofesi Guru. Malang:UIN Maliki Press

Odhiambo, George. 2008. Elusive search for quality education, The case of quality assurance and teacher Accountability. *International Journal of Educational Management.*22 (5). 417-431

OutStart, Inc.2005. Best Practices for Creating E-Learning **.***For OutStart Trainer.Development.* Januari

Sutanta, Edhy. 2009. *KonsepdanImplementasiElearning-StudiKasusPengembanganElearning di SMAN 1 Sentolo Yogyakarta*. Makalah DASI Juni 2009

Salmon, G. (2002).*E-tivities: The key to active online learning.* London: Kogan Page.

Sandholtz, J., Ringstaff, C. and Dawyer, D. 2002.The Evolution of Instruction inTechnology-Rich Classrooms.In R. Pea (ed.), *Technology and learning*.hal 255 – 276). San Franscisco: Jossey-Bass.

Vamosi, Alexander R; Pierce, Barbara G; &Slotkin, Michael H. 2004.Distance Learning in an Accounting Principles Course-Student Satisfaction and Perceptions of Efficacy.*Journal of Education for Business.*79, 6