A Practice and Evaluation of Distance TA Training Program to Enhance Learning Supporter's Distance Support Ability

Ryo TAKAOKA[a]*, Masayuki SHIMOKAWA[a] , Shigeki AHAMA [a] , Toshiaki HONDA[b] & Toshio OKAMOTO[c]

[a]*Faculty of Education, Yamaguchi University, Japan*
[b]*Faculty of Education, Ibaraki University, Japan*
[c]*The Graduate School of Information Systems,*
University of Electro-Communications, Japan
*ryo@yamaguchi-u.ac.jp

Abstract: The final purpose of this study is to propose learning support methods, in particular collaborative support methods and behaviors, of the learning supporter in e-Learning environment with ICT tools such as SNS, Web Bulletin Board and so on. It is thought that the success or failure of the learning in this e-Learning environment depends on the following factors; (I) Ability for distance support of learning supporter such as tutor, mentor, facilitator and moderator, (II) Competency of learner about learning skill (such as method, attitude and so on) of learner in e-Learning environment, (III) Development of e-Learning environment and distance learning support environment where learners and learning supporters can learn and work actively. So, we need to consider these factors. In this paper, we report a case practice and its evaluation of the Distance TA training program to enhance distance support ability of learning supporter in e-Learning environment, including Distance TA program held in 2010 by the Distance TAs of university students.

Keywords: Distance TA Training Program, Distance Teaching Assistant (Distance TA), Distance Support Ability of Distance TA, Distance Support Training Program, Collaborative Support Methods/behaviors, Distance Learning Support Model, e-Pedagogy

Introduction

The e-Learning tools and new Web applications to support learners according to various learning styles are expected, studied and developed by new computer and network technologies such as WebAPI, AJAX, FreeDB and so on [1, 3, 4, 7, 9]. The learning, educational and training form utilizing these e-Learning is being established as one of the learning programs in high education or corporate education. Furthermore, these are also used for substantiality of learning activity and improvement in scholastic ability in elementary and secondary education.

It is thought that the improvement of the quality of the learning workspace in this e-learning environment depends on the following factors;

(I)   Ability for distance support of learning supporter such as tutor, mentor, facilitator and moderator

(II) Competency of learner about learning skill (such as method, attitude and so on) of learner in e-learning environment

(III) Development of e-learning environment and distance learning support environment where learners and learning supporters can learn and work actively

In particular, when learner and learning supporter take communication not on face-to-face meeting but on the Internet, the learner's stance and the learning supporter's stance are very

important to enhance the quality of the learning workspace in the e-Learning. Specifically, learners need to have the ability to utilize various learning resources effectively on the Internet. Simultaneously, it is indispensable that they get the learning skill in the offered learning environment under the condition that they understood the feature of learning on the e-Learning and the Internet.

On the other hand, learning supporters need to get the method of supporting the learning process on the Internet. For example, it is the method of raising up learner's motivation for learning and supporting the learning process at the synchronous or asynchronous timing, or the technique of supporting the learning process in which multiple learning supporters interact with the learner or the learner group collaboratively.

That is to say, the research about e-Pedagogy of the new pedagogy and learning support method is needed, because learner who survives knowledge-based society continues to learn in the new form of learning and education, attached importance to collaborative and social relation with other learners and environments [6, 9]. The development research and practical study about learning support (for instance, tutoring, mentoring, moderating etc.) for e-Learning have been already advanced as examples of e-Pedagogy research. For example, the role of learning support, the classification and effect of learning activities, the development method of the learning support guideline accompanying with learning support practice and the research on learning supporter training have been studied [5, 10, 11]. Furthermore, in order to cope with the problem of dropout rate and the increase of learner, the research on learning agent which offers adaptive learning support information identifying the learning state of learner with her/his learning history data have been studied[14]. The learning support method or learning skill will be needed by teacher and student of elementary and secondary school from now on [8]. Moreover, the university and faculty of teacher education will be also requested to design and practice the learning program for making these abilities.

The final purpose of this study is to propose learning support methods, in particular collaborative support methods and behaviors, of the learning supporter in e-learning environment with ICT tools such as SNS, Web Bulletin Board and so on. We have already developed and practiced the Distance Teaching Assistant (Distance TA) Program, in which distance TAs support the problem solving and learning in each group on the Internet [12].

Considering the background of our study, the purpose of this study is to develop a training program to enhance the distance support ability of learning supporter and an educational program to raise the learning skill of learner who have the opportunity of learning on the Internet, to guarantee the quality of learning workspace in the e-Learning environment as a next step.

In this paper, we report a practice and evaluation of the program to enhance the distance support ability of learning supporter proposed as Distance TA Training Program [13]. Firstly, we describe the requested ability, competency and their relations in Distance Learning Support Model. Secondary, we explain the flow of the Distance TA Program in which Distance TAs asynchronously support group learners, who are engaged in problem-solving activities in the learning environment. Moreover, we describe the outline of Distance TA Training program. Finally, we explain the case practice and its evaluation of the Distance TA Training Program including Distance TA Program held in 2010 by the Distance TAs of university students.

1. Requested Ability and Competency in Distance Learning Support Model

The research of e-Pedagogy which explore the learning and education model of next generation in knowledge-based society have been developed. The method of learning support

according to learning form is required in the e-Learning. It is possible to classify the form of this learning support from the following six axes;

+ Number of support target: 1-N persons
+ Number of learning supporter: 1-M persons
+ Number of learning support group: 1-L persons
+ Reality of learning supporter: person, agent
+ Type of learning supporter: teaching person, field expert, facilitator, mentor, TA, and pseudo learner etc.
+ Tense of learning support: synchronous, asynchronous
+ Place of learning support: face-to-face, distance

We have considered and proposed the distance learning support model, in which the learning supporters of M persons constituted from TA in remote site asynchronously and teacher in face-to-face lesson asynchronously support the problem solving of L groups constituted from the support target of N persons in this research [12]. The feature of this asynchronous support is at the point that the communication channel between learning supporters for examining the plan and role of learning support is able to be utilized apart from the interaction among learners. As a result of using this two interaction place, multiple learning supporters become possible to develop collaborative support, changing a certain role dynamically.

In this research, we have been practicing the Distance TA Program as one example of the Distance Learning Support Model (DLSM). We designed the program in which university students participate in the task based group learning asynchronously as Distance TA. The role of Distance TA is to support the teacher who is performing the face-to-face lesson by providing the group with learning support through Web bulletin board. The target and advantage of this program for learner, teacher and Distance TA are as follows.

[Learner]
+ To improve the learner's understanding state of the learning content.
+ To enhance the motivation of learner by relation to university student.
+ To master the learning skill in e-Learning environment.

[Distance TA]
+ To grasp the understanding situation of learner and support learning in the group of Distance TA.
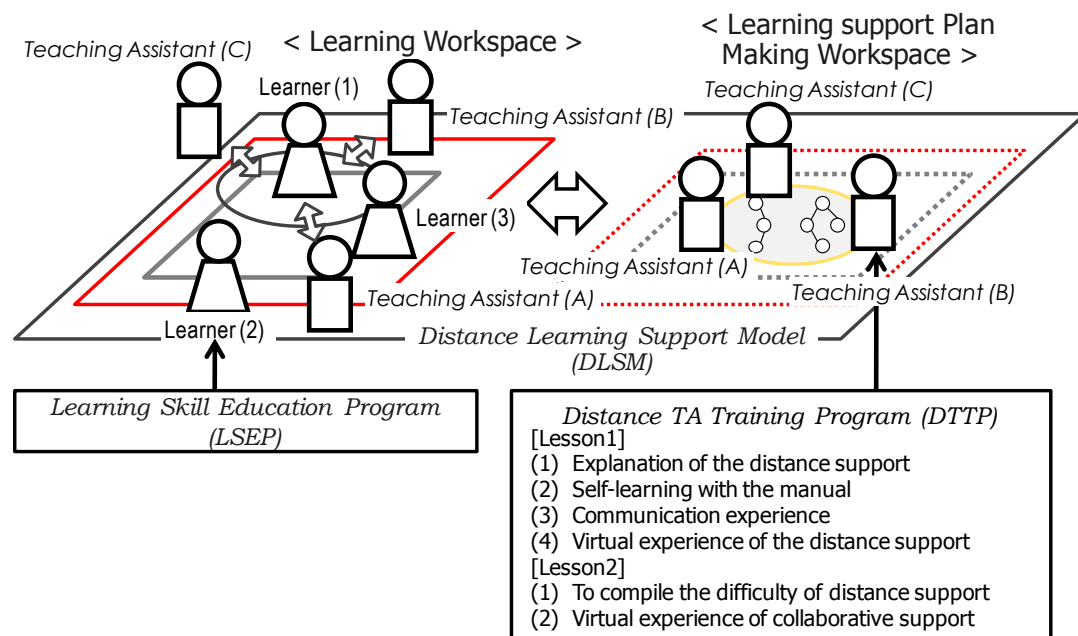+ To enhance the distance support ability in distance learning environment.

Figure 1: Image of DLSM and relation among DLSM, DTTP and LSEP

[Teacher]
+ To improve the method of instruction (including Team Teaching with Distance TA)
  about the contents of a subject.
+ To get the lesson support by participating Distance TA.

The quality of the learning workspace in the e-Learning depends on the learner's stance and learning supporter's stance. Therefore, the program which raises the learning skill in e-Learning environment is required to learner. Furthermore, the program which raises the capability to support learning from remoteness in e-Learning environment is indispensable for learning supporter. Furthermore, the program which raises the capability to support learning from remote site in e-Learning environment is indispensable for learning supporter.

2. Outline of Distance TA Program

Figure 2 shows the flow of Distance TA Program. On the side of university, an instructor explains the Distance TA Program to Distance TAs and then explains the purpose of the Distance TA to university students. Then, the instructor divides Distance TAs into various groups corresponding to the number of high school's group. Each group examines what kind of support methods and behaviors exist by using the Web bulletin board. Then, according to the selected support method, the Distance TA performs her/his role. On the school side, a teacher divides learners into various groups (4-8 members/group) and gives each a subject. Then, the teacher tells the Distance TAs the subject and explains their roles in the Distance TA Program. After an introduction, the teacher gives instruction and support to the learners in a face-to-face lesson. Then, each group or student asks questions and reports on the progress of their work through the Web bulletin board and Work record tool. If a Distance TA is unable to recognize the state of progress of the group work, she/he requests it from the group or learner and gives the learners suitable support according to the situation. The role of the Distance TA is not only to return a correct answer to a learner's question, but also to recognize the state of the learner and group correctly and to function as an instructor, an adviser, a helper and a mentor. Therefore, a Distance TA may give various
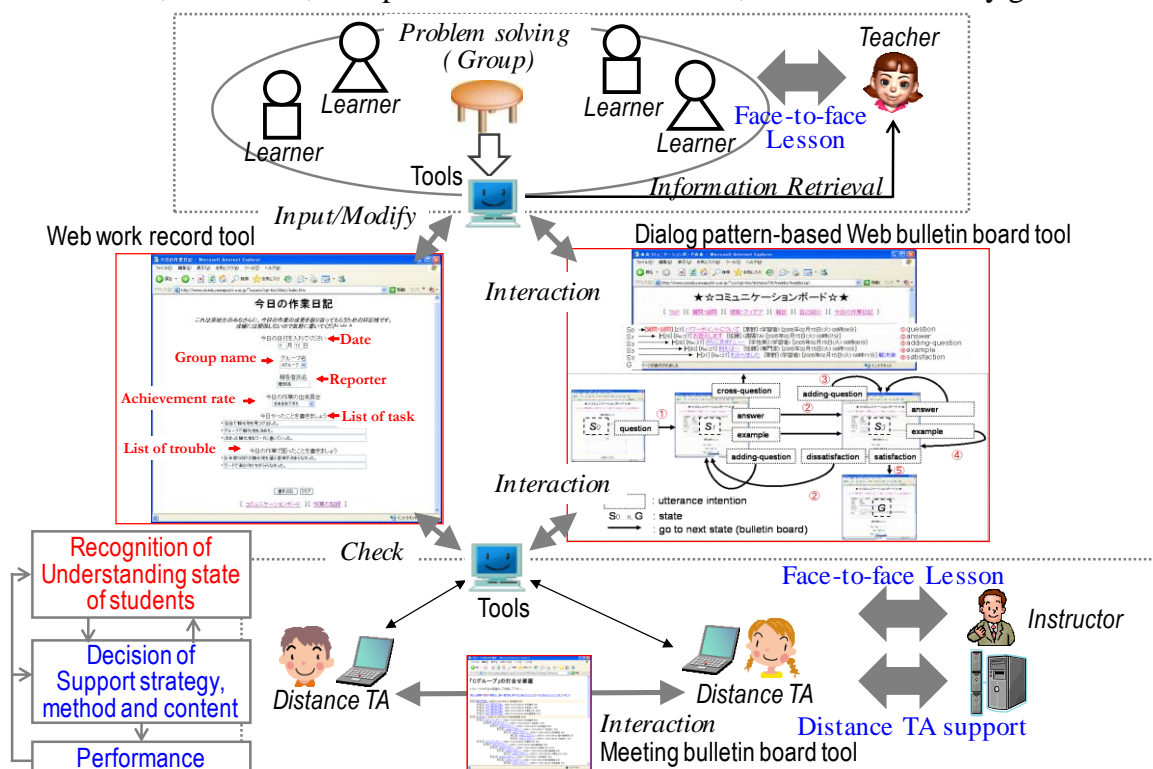

Figure 2: Configuration and Flow of Distance TA Program

kinds of support for problem solving such as work proposals and methods of learning activity.

We have already developed some tools for Distance TA Program [12]. In this program, the teacher, the learners and the Distance TAs use three tools as shown in Figure 2.

- **Dialog pattern-based Web bulletin board tool** to support remote group learning
- **Web work record tool** to record and save learner group or individual learner's work
- **Meeting bulletin board tool** to allow the Distance TAs to discuss support strategies and tactics

3. Outline of DTTP to Enhance Learning Supporter's Distance Support Ability

From the practice of our Distance TA Program, we understood so that it is not easy for Distance TA of university student to understand the feature of the support on a network environment. Moreover, it is difficult for Distance TA to realize collaborative support by multiple learning supporters. So, we considered that it is necessary to develop the learning content about distance support or collaborative support. The following keyword of the learning contents was obtained from the questionnaire in Distance TA Program;

- Characteristic of the Internet and learner on the Internet
- Difficulty of the distance support
- Mental attitude as Distance TA
- Support method and skill on the Internet
- Collaborative support method

It is necessary for Distance TA to understand the learning contents about the above mentioned keywords, having a real practical experience.

To develop the Distance TA Training Program, firstly, we extract the required learning goals and contents shown in Figure 3. Then, we developed the Distance TA Training Program to enhance the distance support ability of Distance TA [13]. Figure 3 shows the lesson goals and activity contents.

4. A Case Practice and Evaluation of DTTP

This practice of Distance TA Training Program held in 2010 involved 16 university students as Distance TA. For this Distance TAs, we carried out a pre and post questionnaire in DTTP, and post questionnaire in Distance TA Program. We got the subjective answers from 14 Distance TAs in each questionnaire. The questionnaire items of a pre and post in DTTP were 14 and 15, and the items of final questionnaire is 19. We show a part of the post questionnaire in table 1.For Q1, Q3 and Q6 in pre and post questionnaire in DTTP, and Q1, Q4, Q7, Q9, Q11 in final questionnaire, we got answers by five possible responses (5.Agree, 4.Somewhat agree, 3.Neutral, 2.Somewhat disagree, 1.Disagree) from Distance TA. Then, we describe a part of the result and consideration of the questionnaire.

In Question (1)/(1)/(7), almost Distance TAs answered that they are likely to join in Distance TA Program enjoyably. Moreover, the result of post questionnaire in DTTP become somewhat better than pre result. Some Distance TAs who answer a negative judgement in pre questionnaire described the following reasons; "I have an uneasy feeling for Distance TA Program", "I feel the terminology "Distance TA" difficult", and "It is not easy for me to understand a high school learner's understanding state from remote site". It seems that these problem can solve by explaining the meaning and the method of support or by practicing the trial of Distance TA in advance, in the DTTP. Next, there are the following some reasons in the negative reply of the last questionnaire; "I couldn't support actively", "I was not able to produce the good learning process by shortage of communication with the learner", "There were few reactions from high school learners in our group", "Mutual lesson

time were not the same", and "I sometimes forgot the check of bulletin board". Therefore, we found that the feeling that Distance TA is pleasant tends to be dependent on the behavior of the learner or the group rather than the quality of the DTTP. As future correspondence, we need to explain the feature of the learner's behavior in detail in the DTTP.

Distance TAs gave high positvie answer through the three times of questionnaire to Question (3)/(3)/(9). In the first two times of questionnaires for the opportunity of good learning, somewhat abstract reasons such as practice experience which she/he teachs to learers, necessity for the support technique which can be answered on the network, high school learner's understanding and good opportunity in which she/ he interacts with high school and so on, were conspicuous. Moreover, some Distance TAs gave the following reason as negative answer; for example, she/he had an ambiguous feeling about the purpose and role of Distance TA Program. As the method corresponding to this problem, we need to make Distance TA grasping the actual learner's state through experience, on defining the purpose and role of Distance TA clearly. In the result of last questionnaire, some Distance TAs who answerd a positive judgement described the following reasons; the view of the subject content, the method for supporting a learner or group on considering her/his context in which he/she recieves feedback or information, the movement of viewpoint from learner to teacher, the difficulty of the guidance and discussion on the netwok, the necessity for raising learner's motivation for learning and the consideration on the way of transmitting knowledge and skill to make a learner understood. Also, there are some Distance TAs who noticed the attitude about colloaborative support such as the method of the argument in

---

[Learning Goals]
- To acquire the distance support ability in the distance learning support environment.

[Required Learning Subgoals]
- To understand the concept of the distance support.
- To recognize the difficulty of support activity and the interaction on bulletin board through practice.
- To recognize the difficulty of knowing the situation of the learner.
- To recognize the difficulty of explaining various things for the learner on the bulletin board.
- To recognize, through the practice, the difficulty of carrying out the appropriate support collaborating with other Distance TAs and acquire the basic collaborative skills.
- To create the attitude for the distance learning support as the Distance TA by herself/himself, knowing the difficulty of the Distance TA practice.

// Lesson 1 (1 hours 30 minutes) //
  Distance TA carry out the communication experience on the network after having understood the concept of the distance support.

[Learning Goals]
- To understand the concept of the distance support.
- To understand the characteristic of the information and communication.
- To recognize the difficulty of the synchronous and asynchronous support, while Distance TA has an experience, in which she/he grasp the learning situation and understanding state of the learner.
- To understand the characteristic and a method of basic distance support for the learner.

[Contents of Activity]
I.   Explanation of the distance support and self-learning with the manual.
II. Communication experience and virtual experience of the distance support.
     <The distance support experience is homework for one week>

// Lesson 2 (1 hours 30 minutes) //
  To learn the difficulty from virtual experience of the distance support and carry out collaborative support experience on the network.

[Learning Goals]
- To recognize the difficulty of carrying out the appropriate support collaborating with Distance TAs.
- To understand the basic behavior as Distance TA.
- To understand the role as mentor or facilitator.
- To recognize the difficulty of knowing the learning situation and understanding state of the learner.
- To understand the ability that the learner should acquire at each situation.

[Contents of activity]
I.   To compile in the group the difficulty of supporting on the network asynchronously.
II. To perform the virtual experience of the collaborative support on the network.

Figure3: Learning Goal and Activity in Distance TA Training Program ([13])

Table 1: Results of response on pre and post questionnaire in DTTP and Distance TA Program

Quesionnaire Item	Date of Enforcement	Evaluation					Average	Standard Deviation
		5	4	3	2	1		
(1)/(1)/(7) Could you enjoy Distance TA ?	Before DTTP	4	7	2	3	0	3.75	1.04
	After DTTP	4	6	3	1	0	3.93	0.88
	After Distance TA Program	4	4	5	2	0	3.67	1.01
(3)/(3)/(9) Could this activity of Distance TA give you good learning ?	Before DTTP	6	9	1	0	0	4.31	0.57
	After DTTP	10	2	0	2	0	4.43	1.05
	After Distance TA Program	6	7	2	0	0	4.27	0.68
(6)/(6)/− Could you do activity positively in this Distance TA Program ?	Before DTTP	2	7	4	3	0	3.50	0.94
	After DTTP	6	4	3	1	0	4.07	0.96
−/−/(1) When you carried out DistanceTA program, were the knowledge and skill learned in DTTP helpful?	After Distance TA Program	7	6	0	2	0	4.20	0.98
−/−/(4) When you carried out Distance TA Program, was the manual learned in DTTP helpful for you ?	After Distance TA Program	5	3	5	2	0	3.73	1.06
−/−/(11) Please look back upon your activities as Distance TA. Are you satisfied with your behavior as Distance TA to high school student?	After Distance TA Program	2	3	2	6	1	2.93	1.22

consideration of the opinion of other Distance TA(s). Though the three marks are same as a result, the point which the learner could describe more specific or with feeling based on experience have appeared as change of reason description.

On the other hand, we received the following negative reasons; for instance, "I was not able to notice the advantage of Distance TA" , "I didn't understande what I can obtain through Distance TA Program". Therefore, we need to reconsider some points (to repair how to describe our manual and to add concrete explanation in face-to-face lesson for the nature of Distance TA and the acquired competency) of DTTP to these problems. Moreover, the average values of Question (7) and (9) after Distance TA Program have fallen. It is thought that this depends a little activity and utterance of high school student, since there was no lesson at the high school side in the latter half of the program.

The negative reason for the answer of Question (6) before DTTP is as follows; for example, "I think that I want to participate in this program positively, however I can't understand the program yet", "Since I have no experience as Distance TA, I don't have the confidence whether I can involve positively or not", "I have the uneasy feeling whether the student shows the interest for this program or not", "There is a problem for the character of Distance TA itself". The average value after DTTP is improving. The cause is the point that Distance TAs have solved the uneasy feeling through the DTTP. Moreover, we carried out the explanation about the feature of high school and the situation of high school student by high school teacher and the self-introduction among each group with Skype besides the DTTP. It turned out that this activity had removed the uneasy feeling of Distance TA. However, Distance TA who describes a reason that she/he don't know how to communicate with learner also existed. In this point, we need to describe how to interact with learner easily, or explain in the DTTP.

Distance TA who evaluated positivly explained about the reason that the existence of the manual could understand easily the image ant the concrete flow of Distance TA, the advantage and problem using Web and how to use each tools. Furthermore, there is the following another reason; the contents of the manual were what was written carefully. Distance TA who evaluated negatively explained about the reason that she/he couldn't grasp the schedule of Distance TA Program or she/he didn't usage the manual itself. From these results, we found the capability leading to promote the understanding of Distance TA that she/he learns the meaning of each terms, and the goal, advantage and flow of Distance TA Program with the manual, and university teacher explain the distance support, in particular collaborative support based on some cases or examples.

Moreover, we gave some open ended quesitons to Distance TA. Especially, from a relation with the above-mentioned result, the uneasy feeling of Distance TA is resoved by

the following reasons; "She/he understood the collborative relation with group menbers through concrete work", "She/he understood the state or the condition of high school learners by self-introduction between Distance TAs and the learners with Skype", "There was a metting bulletin board which can be discussed only by Distance TAs" and "She/he understood various support method through DTTP and Distance TA Program". From this answer result, it turned out that the propose program was functioning.

From the above result and consideration, we found that DTTP contributes to the learning of Distance TA effectively, but we need to redesign some points in the DTTP.

5. Conclusion

In this paper, we explained the requested Ability and Competency in Distance Learning Support Model. Moreover, we reported a case practice and its evaluation of DTTP and Distance TA Program. We could find some improvement points in DTTP. In particular, since it turned out that the learning support in early stage of the program, we would like to improve the DTTP corresponding to this part.

In the future, we'd like to develop an educational program to raise the learning skill of learner who has the opportunity of learning on the Internet. Furthermore, we need to design and develop some tools for making collaborative support easy to develop.

Acknowledgements

References

[1] Cachia, R. et al, (2011). The potential of ICT for creative learning and innovative teaching, *Proceedings of e-Society2011* (pp.3-10). Avila, Spain.

[2] Chen, W., Lim, C. and Tan, A., (2010). Pre-Service Teachers' ICT Experiences and Competencies: New Generation of Teachers in Digital Age. *In Proceeding of ICCE 2010*(pp.631-638). Putrajaya, Malaysia.

[3] Glud, L. N. et al, (2010). Contributing to a Learning Methodology for Web 2.0 Learning? Identifying Central Tensions in Educational Use of Web 2.0 Technologies, *Proceedings of NL2010* (pp.177-184).

[4] Kashihara A(eds.)., (2011). Special Issues: Education/Learning Support in Network Community. *Transaction of Japanese Society for Information and Systems in Education, 28*(1), 7-49.

[5] Lord, D. and Coninx, N. (2010). E-mentoring in vocational teacher education, *Proceedings of CELDA2010* (pp.177-184). Timisoara, Romania.

[6] Okamoto, T. (2005). The present situation and future direction about e-Learning Technologies and e-Pedagogy. *Proceedings of the SIG-ALST-A501* (pp. 25-32). Tokyo, Japan.

[7] Okamoto, T. and Anma, F. (2010). The Framework for e-Learning 2.0 and Its Primary functions. *Proceedings of CATE2010* (pp. 1-7). Hawaii, USA.

[8] Oyanagi, W., (2010). A Preliminary Study on Pedagogy about Learning in e-World – A Examination of Critical Pedagogy as a Principle of e-Pedagogy-. *In Bulletin of Nara Univ. Educ., 59*(1), 209-216.

[9] Rutkowski, J. and Moscinska, K., T. (2010). Barriers to innovation in e-Pedagogy: A Case Study. *Proceedings of CATE2010* (pp. 146-151). Hawaii, USA. [9]

[10] Salomon, G. (2004). *E-Moderating: The key to teaching and learning online*, London, UK: Taylor & Francis Books Ltd.

[11] Simpson, O. (2002). *Supporting Students in Online, Open and Distance Learning*. London, UK: Kogan Page Limitted.

[12] Takaoka, R. et al, (2007). Collaborative Support Model for Group Learners among Distance Teaching Assistant. *In Proceeding of ICCE 2007* (pp.595-602). Hirosima, Japan.

[13] Takaoka, R. et al, (2010). A Proposal of Program to Enhance Distance Support Ablity of Learning Supporter. *In Proceeding of CELDA, 1* (pp.240-244). Timisoara, Romania.

[14] Ueno, M., (2004). Animated agent to maintain learner's attention in e-learning. *In Proceeding of E-Learn2004* (pp.194-201). Washingon, DC.