Construction of the Operating-Interface for Web Tutor-Agent

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Abstract

The demand for Creative Multimedia Computer Assisted Instruction (CMCAI) on the Internet/Intranet has been increasing; however, most users (including teachers who are not involved in the teaching of information science or related subjects) are unable to acquire skills or soft wares of using CMCAI and put them into practical use within a short period of time. This study tries to provide a concept of text-base for multimedia dynamic web-pages by using the Agent Object Training Interface (AOTI) to construct and simulate the behavior, scene or instruction situation of on-line tutor-agent. By previous analyses, our research has constructed teaching material on web-pages can be divided into "static contents", "dynamic behavior" and "acquisition feedback." To change the contents or behavior of a dynamic role of a learner for feedback, what users have to do is just open a text file and start editing or make use of the web-paged editing interface presented by this research. Moreover, the research may also provide a new concept and a model for the further study on the development of CMCAI.

Keywords: Agent?AOTI(Agent Object Training Interface)?CMCAI(Creative Multi-media Computer Assistant Instruction)

INTRODUCTION

Owing to the shortage of natural resources as well as being a menber of the World Trade Organiztion (WTO), Taiwan needs more interaction with other countries all over the wrold to escalate the internationization, which puts English instruction to be a cricial factor of achieving the goal. Moreover, E-learning has became main trend in the new imfromation era and can provide the learners diverse English instruction to meet their needs; namely "On Demand" (Ming-Chao Hung, 1999). Internet has becom an important tool and platform of knowledge economy, e-commerce and education resource. Under the policy of enlarging internal needs to equip every classroom with computers, conduccted by the Education Ministry, currently the hardware framework of computering and network envirnment have been reaching perfect in Taiwan. The Education Ministry, on the one hand, focuses on the action principle while conducting the Reform Act of Curruculum Consistence Design for Nine-Year Compulsory Education and encourages schools using eduction action research to elevate the efficiency of policy implementation. On the other hand, it also aggresively urges the development of practical instruction and demostration to achieve the brandnew curriculum goal.

This research is to design a compactable and feasible concept of text-base for multimedia dynamic web-paged using the Agent Object Training Interface (AOTI) to construct and simulate the behaviors, scene or instruction situation of on-line tutor-agent. By previous analyses, our research has constructed teaching material on web-pages can be divided into "static contents", "dynamic behavior" and "acquisition feedback." To change the contents or behavior of a dynamic role of a learner for feedback, what users have to do is just open a text file and start editing or make use of the web-paged editing interface presented by this research. In this case, it is no matter if the teachers or students are familiar with the action or syntax of the on-line tutor-agent, they still can modify or redesign the teaching material. Eventually, the teaching materials may turn to be rich, diverse and suitable for students with each level of English ability and teachers themselves can design the teaching materials they want.

This study is conducted with action research and system analysis method. In the educational action research, the prationers are the researcher themselves as well as the research users. Its purpose is to improve the job context practically, to solve problems the praticoners may encounter and to elimiate the gap of theory and pratice (Ming-Long Wu, 2001). Since educational action research focuses on collaborative work, the integation of critics and opions from each team member may contribute to the improvement and success of the action research. Therefore, the researcher should consistently assess the process and consult other tachers or studens for improvement, while constructing the on-line tutor English conversation learning system. Further, using "system analysis" (Shu-Ling Lin, 1889) to

analyze, align, design, conduct and assess the Web-paged Tutor-Agent is illustrated as Figure 1. The stage of analyzing and aligning adopts the methods of Top-down and DACUM-like, while the stage of desgining, conducting and assessing adopts the method of Bottom-up as follows:

1. The adoption of Top-down system analysis and design: the context design and alignment is based on the English curriculum goal to meet the learner's needs and provide the feasible flowchat and structure.
2. The adoption of Bottom-up system analysis and design: to analyze current teaching dilema and motivation barriers for determinating the most efficient teaching method.
3. The adoption of DACUM-like method: to congregate the experience and techniques of teachers of English and computer science to discuss and modify the alignment and costruction of the system.

PROCEDULE OF THE STUDY

(1) Research Planning: first analyze the knowledge web based on the English materials, then from which extract three items including static content, dynamic content and feedback. The "static content" is the literate presentation, the "dynamic content" is an introduction of the on-line tutor curriculum and the "feedback" means the results data collected from the on-line test which carries out suggestions as learning feedback. The flowchart of the agent behavior (action) training is illustrated as Figure 3.

(2) Research Equipment: the research equipments used for the platform construction are tool software and hardware.

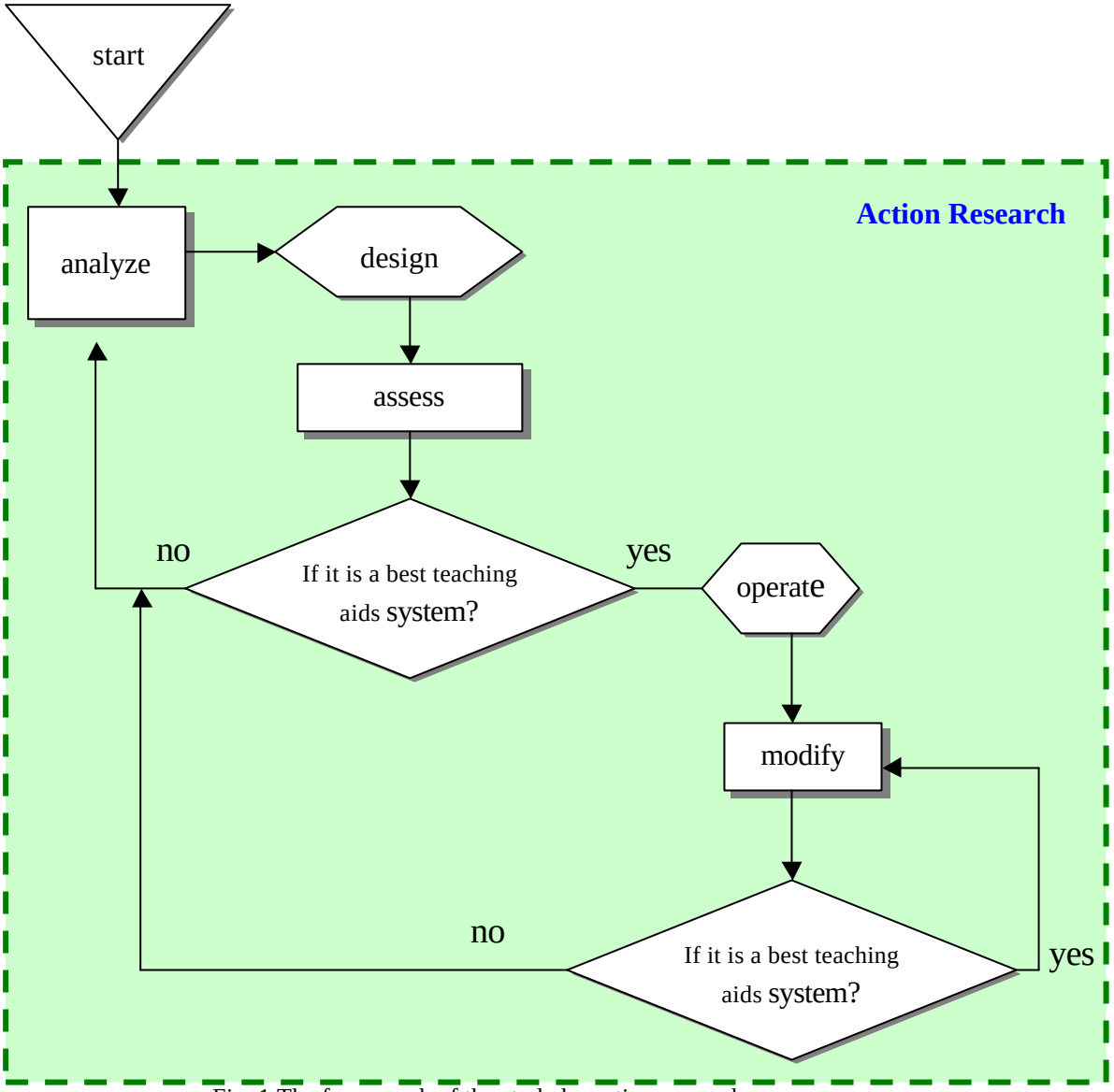

Fig. 1 The framework of the study by action research

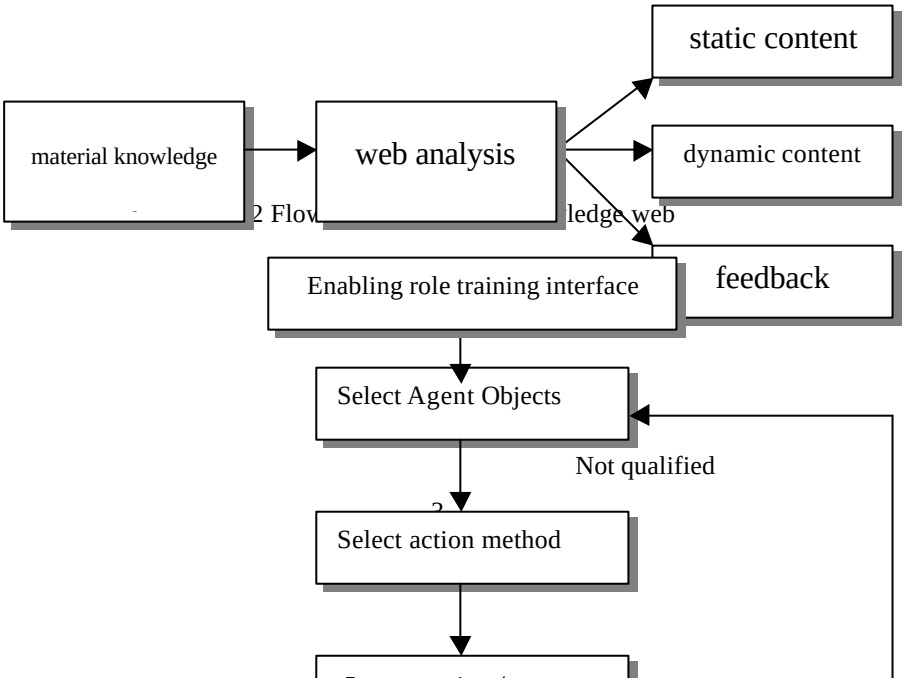

Fig. 3 Flowchart of role behavior train ing

Findings and Discussion

The functions of the "Agent Object-Training System" interface created in this study is illustrated as Figure 4 (Chian-Yun Day and Goe-Fung Hung, 2001):

1. to name the code and item of user-set action
2. to choose the categories of Agent
3. to select diverse types of action
4. to set up Agent action store
5. to create Dialog Box for conversation
6. to align the order of action in the "Agent Action Training Box"
7. to eliminate overall or part of the actions in the "Agent Action Training Box"
8. to review the actions in the "Agent Action Training Box"

Fig. 4: "Agent role-training system" created in this study

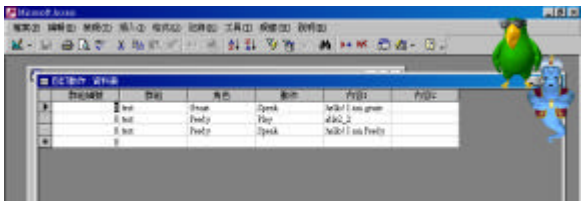

Fig. 5: trained agent "behave" database

The test of feasible action store has been stored in Access Database as indicated on Figure 5, then turn the trained Agent actions to be text file (*.txt) as shown in Figure 6 and at last to accomplish the steps of presenting "Dynamic Actions" web in text, like Figures 7,8 and 9.

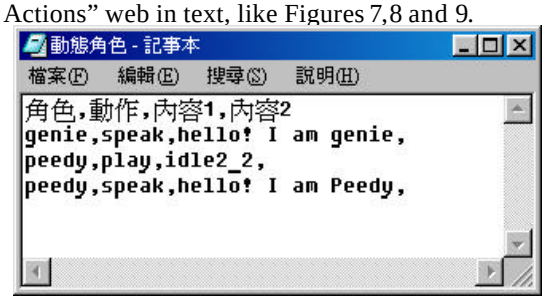

Fig.6 translate the action to text file (*.txt)

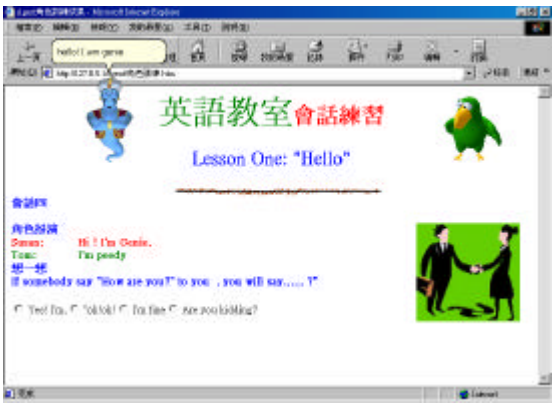

Fig.7 Genie does "I am genie" action

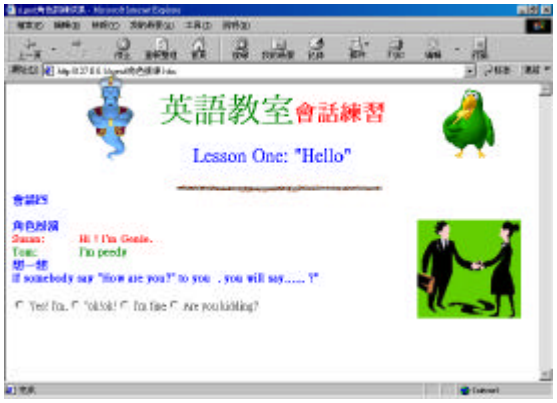

Fig.8 Peedy does "idele2" action

Fig.9 Peedy talks "I am Peedy"

Fig.10 translate the web-page to text file (*.txt)

The "Text File" of the web content can be divided into three parts: "Static Web Page", "Dynamic Role" and "Answer Response" shown as the following Figure 13:

1. "Static Web Page" text file: all words presented on the web page as Figure 14.

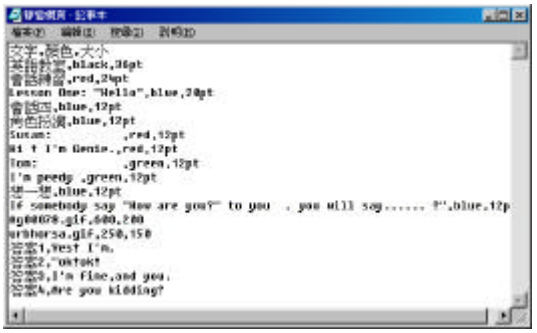

Fig.11 ???????????

2. "Answer Response" text file: the arrangement of on-line tutor-agent and description of the feedback action while click on the answer division

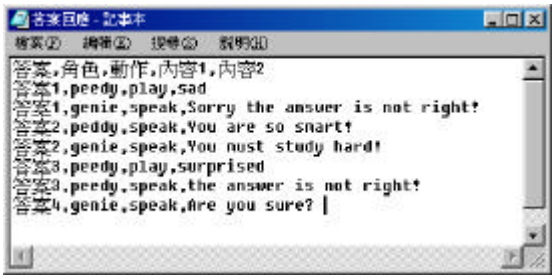

Fig.12 ???????????

3. "Dynamic Role" text file: the role and content of conversation presented on the web page as indicated on Figure 16.

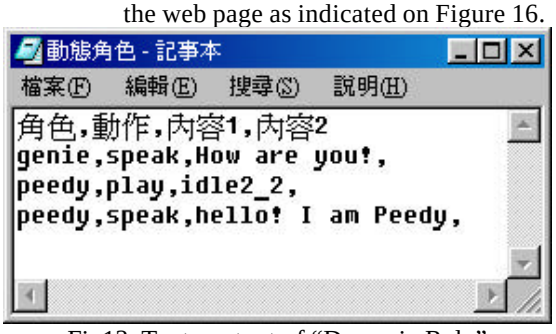

Fig13. Text content of "Dynamic Role"

The application of VBScript design (Goe-Chu Wu, 1998) to modify the operation interface of "Static Web Page," "Static Role" and "Instruction Feedback" as Figures:17,18,19.

Fig. 14 Modifiable operation interface of "Static Web Page"

Fig. 15 Modifiable operation interface "Dynamic Role"

Fig. 16 Modifiable operation interface of "Instruction Feedback"

Conclusion and Application

Jueng-Chao Hung (2000) indicates hat integrating related information to build information inventory and reproducible module suitable for individual demands can provide actively personalized service for learners to be real learning subjects and to experience self-value of constructing knowledge. Gredler (1991) also proposes those who explore computer software could not take " interact" equivalent to "constructive," since interactive learning environment is attractive in education but not imperative in the learning through computers. In this case, although the interactive multimedia computer aided instruction designed in this paper is created by information professional teachers, the material content should be designed by the teachers of English. This research also presents those teachers of English who are not information professionals a feasible module which can be created, modified and facilitated by these teachers and learners. The framework of the module is shown as Figure 12. Suggestions presented for further study are that adding AI function into the Agent to make the system automatically control the learning situation of individual learner, such as the effective learning time, raking estimation of evaluation, time interval of clicking, questions proposed and input content. Eventually, the on-line agent tutoring system is improved more perfectly.

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