

Faculty Innovator Grant 2006
Center for Learning Technologies

Final Report Form

Primary Faculty Name:	Amy B. Adcock
Department:	Educational Curriculum and Instruction
Email Address:	aadcock@odu.edu
Office Phone Number:	683-5491
Project Title: (10 words or less)	Project CATHIE: Computer Agents Teaching Helping Interactions Effectively

Other faculty:

Faculty Name:	Department	Email Address	Office Phone Number
Molly H. Duggan	Educational Leadership and Counseling	mduggan@odu.edu	683-3165
Lee Belfore	Electrical and Computer Engineering	lbelfore@odu.edu	683-3746

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1. Describe the specific teaching and learning issues being addressed by the proposal.

The CATHIE system was developed to teach entry-level human service skills to students enrolled in TELTECHNET courses. Techniques used in traditional classes such as role-plays, group work, and even videotapes are much more difficult to adapt for use in a distance learning setting. Add to this the challenge of large class sizes, and teaching interpersonal communication skills at a distance becomes even more overwhelming. CATHIE was designed as a method to provide opportunities for their distance-learning students to learn and practice helping skills appropriate for the field. Learning outcomes associated with this project include the following:

- An improvement of overall helping skills after using the CATHIE system
 - Assessed via pre- and posttest assessments
 - Assessed by tracking student responses during the CATHIE interaction
- Student perceptions of CATHIE
 - The correlation between improvement in helping skills and perceived motivational qualities of CATHIE

These outcomes are relevant in that a system that can teach helping skills effectively online and possesses high motivational qualities will benefit students both at a distance and as supplemental practice for students in the traditional learning environments.

2. Describe the revised specific teaching and learning issues being addressed by the proposal (if applicable):

This is not applicable as the learning outcomes remained consistent.

3. Describe the development activities involved addressing the learning or teaching issue.

This grant allowed the researchers to continue the development of CATHIE from an alpha to a beta version. We included collaborations between subject matter experts and designers located in the Darden College of Education and software engineering and programming experts in the Frank Batten College of Engineering resulting in the following improvements to the CATHIE system:

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- A new agent (developed with Hapttek[®] software) with better features, facial gesturing and a human voice
- A more instructionally effective learning environment, including the ability to demonstrate feedback

Once the environment was redesigned, the effectiveness was measured via a pretest-interaction-posttest protocol. Additional feedback was provided throughout the scenario to assist students in learning to discriminate between the responses.

4. Describe the learning outcomes attained by the project.

An examination of the achievement data collected from this implementation of the CATHIE system indicates significant learning gains on the helping skills response posttest. However, participants significantly lost ground in their acquisition of discrimination skills. This indicates to the researchers that the inclusion of corrective feedback might not be the most effective means of improving these skills. During this phase of implementation, we also decided to compare the learning differences when participants were shown a model of a “best practices” script in either one scrollable page or in small bites of three dialog moves. Analysis indicates that these differences did not have a significant effect on learning outcomes although the long script did trend towards higher scores in the helping skills assessment.

5. Describe unexpected outcomes, if any.

It was unexpected to find that neither feedback nor the modeling of a best practices script seemed to improve participant’s helping skills. The researchers will continue to try other instructional strategies to address this discrepancy.

6. Describe the impact of the completed project on your colleagues, department, college, or community.

This project has had a large impact on our colleagues and the students in the program. The researchers have had interest from other departments to use our system as a supplemental practice module in their classes. We are currently developing plans for an authoring tool so that subject matter experts can create their own scripts for CATHIE.

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7. Describe how the project can be a model, template, or prototype for use by other instructors.

CATHIE provides an excellent model of the exploration of methodologies to serve students at a distance that are studying in domains that do not usually lend themselves to web-based instruction (i.e., open ended domains). By continuing the development of CATHIE (especially with the successful development of an authoring tool), we hope to make it available to other instructors and many content areas.

8. Describe the technology used to help address the issues described in the proposal.

The technology used for this project consisted of software packages allowing programmers to design and implement realistic animated agents available from Haptik[®]. This software is important for this phase of the CATHIE project as it allows for a more malleable agent with realistic facial gestures. It was the intention of the researchers to purchase and employ the OddCast speech engine. The text to speech engine was intended to allow for a clear, understandable voice. Implementation issues with the use of Haptik[®] hindered the use of a text to speech engine. Therefore, the system included a recorded voice rather than computer generated speech.

9. Describe products, if any, that are a result of the project.

The final project from this project is the beta version of the CATHIE system. This version has overcome accessibility issues associated with the alpha version and included feedback for the users. Figure 1 shows a screen shot of the new CATHIE environment.

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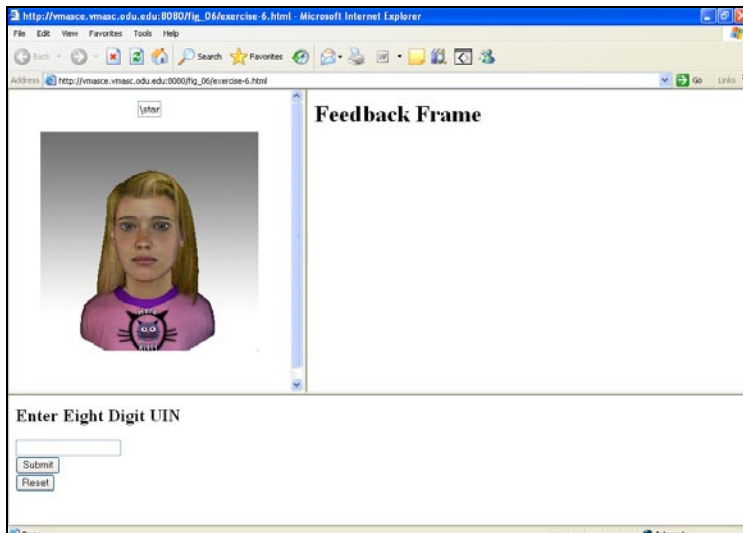


Figure 1. CATHIE

10. Describe the future plans for this project, if any.

Future plans for this project include inclusion of interactive learning modules to allow for extra practice in the learning environment and the construction of a script authoring tool to allow subject matter experts to create scripts for use in their specific classes.

11. Attach a financial report with updated Budget Plan Matrix.

All funds were sourced from the FIG grant and were used in the indicated manner. All personnel were paid by stipend. An initial estimate of software cost was less as the researchers decided to record a human voice rather than purchase a speech engine. See attached documentation for funding allocations:

- \$500 stipend to Amy Adcock
- \$500 stipend to Molly Duggan
- \$500 stipend to Lee Belfore
- \$1,500 transfer to budget 1CR00*

*Because of software purchase issues, the project was under budget by \$538.00. This money was rolled over into the University budget from budget 1CR00.

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Final Budget Matrix

Budget Item (equipment, personnel, software, etc.)	Qty	Total Cost	Source of Funds	
			Amount from FIG	Amount from Other Source
Programmer (COE Student)		900.00	900.00	
Content Expertise (Duggan)		500.00	500.00	
Design Expertise (Adcock)		500.00	500.00	
Implementation Expertise (Belfore)		500.00	500.00	
Software for agent development		62.00	62.00	
TOTAL		2,462.00	2,462.00	