Technology Can Be Fun: Students and Clients Benefit from Computers

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Introduction

The Auburn University Summer Computer Literacy and Language Camp:

• Developed by Auburn University Departments CMDS & CSSE
• Pilot program summer 2005 – continued every summer through 2009
• Facilitates communication skills for children with special needs
• Enhances computer skills for typical and special needs children
Benefits to Teaming

Increases leadership
• CMDS students teach CSSE students to work with children with special needs
• CSSE students help CMDS students use computers to meet communication goals

Increase professional skills
• Increase ability to work with other SLPs and other professionals in a team setting
• Increase team building skills
**Increase learning skills**

- CMDS Students become more technologically advanced
- CMDS and CSSE graduate students increase pedagogical skills
- CMDS Students increased knowledge of inclusion
- CMDS Students increased knowledge of working with children in groups (as opposed to one on one)
KASA

- Obtained Knowledge and skills in the following disorder areas:
  - Articulation
  - Dysphagia
  - Fluency
  - Hearing: pre hearing screenings
  - Receptive and expressive language
  - Cognitive
  - Modalities
  - Social
Benefits of Inclusion

Goals for children with special needs should be integrated into the classroom:

• Encourages generalization
• Encourages peer modeling
Benefits of Computers

Children with disabilities increase communication, cognitive and social skills using computers:

• Language more accessible in printed form
• Information can be saved and retrieved
• Computers are interactive
• Computers are used more frequently in schools; children with special needs will be able to work along side peers
• Children with special needs will be able to complete school projects involving computers
Method

Summer 2009 Program
Student selection - 2009

4 graduate CMDS students –
  *interested in public school employment

6 graduate CSSE students –
  *interested in teaching
  *interested in development of computer software for children
Selection of Participating Children - 2009
24 total children
  *16 typical
  *8 children with special needs;
Children with disabilities age range = 7 to 20

Total enrollment: 24 to 28 children
Children with disabilities ranged from 4 to 12
Variety of disorders (Asperger’s; Autism Spectrum; Articulation disorder; Attention Deficit; Learning Disabilities; Cleft Palate; Cerebral Palsy; Downs Syndrome; Williams Syndrome)
Program Procedures
*3-week program (during the month of June)
*3 hours 2 times per week → total: 6 hours per week
*First day → speech, language and hearing screenings
goal development

Program Goals
•Facilitate communication skills using traditional and specialized computer programs and specialized equipment
•Facilitate computer skills for children with special needs
•Facilitate pedagogical and clinical skills in graduate students
•Prepare CMDS graduate students for employment in the schools
  - Increase graduate students comfort level with computers
  - increase graduate students comfort level with inclusion
Traditional Computer Programs
Microsoft word  Excel  Power point

Specialized Computer Programs
• Alice Programming System
• Acorn’s Tree House Vocabulary and Language Skills (Janelle Publications)
• No Glamour Grammar; No Glamour Language & Reasoning and No Glamour Sentence Structure (LinguiSystmes)
• Understanding and Following Directions (Academic Communication Assoc)
• Webber Interactive WH Questions (Super Duper Publications)

Specialized Equipment
• Intellikey (Intellitools)
• Magic Touch Screen (EnableMart)
Progress
Client Progress

• **Previous Progress**
  • Summer 2005 = average of 17% gain for all goals
  • Summer 2006 = average of 20% gain for all goals
  • Summer 2007 = average of 21% gain for all goals
  • Summer 2008 = average of 24% gain for all goals
  • Summer 2009 = average of 20% gain for all goals
Summer 2009 - Progress

• Overall = average of 20% gain for all goals

• Summary of 2009 Goals:
  • Articulation skills
  • Answer questions pertaining to short stories
  • Follow directions
  • Grammar skills
  • Identify letters on keyboard
  • Recall sentences in stories
  • Recognize antonyms, homonyms and synonyms
Additional Goals Targeted During Breaks and Snack

- Fluency
- Oral motor/feeding skills
- Social skills
Summary of Results

* Overall targeted communication goals increased by 20%
* Improvement was seen for both articulation and language goals
* Progress was made on targeted goals when using both specialized computer programs and traditional computer programs
Progress was slightly higher when using specialized computer programs.

- Not all goals were targeted using both traditional and specialized computer programs.

- Goals using both programs include:
  - Answer questions pertaining to stories;
  - Grammar skills; Identify letters on keyboard;
  - Recognize antonyms, homonyms and synonyms.

- Goals targeted using specialized computer programs increased by 15%.

- Goals targeted using traditional computer programs increased by 14%.
Graduate Student Survey Results

• Pre and post instructors’ evaluation results show an increase instructor’s knowledge of technology and computer skills

• *Total increase (CMDS + CSSE) = 4.6 to 4.9
• *CMDS increase = 4.67 to 5.0
• *CSSE increase = 4.66 to 4.84
Pre Survey – CSSE Students

• CSSE Students agreed most (5.0) with:
  * working with children with disabilities is effective in increasing knowledge of disabilities (#4)
  * use of computers is effective in increasing children’s learning (#5)

• CSSE Students agreed least (4.0) with:
  * understanding how to work with children with special needs in an inclusion setting (#9)
Pre Survey – CMDS Students

- CMDS Students agreed most (5.0) with:
  - *ability to interact with peers from different disciplines (#2)*
  - *working with CSSE peers is effective in increasing computer knowledge (#3)*
  - *working directly with computers is effective in increasing knowledge of computers (#4)*
  - *use of computers is effective in increasing children’s learning (#5)*
CMDS Survey Results - Continued

- CMDS graduate students agreed least with (4.0):

  *understanding how to modify computer programs to meet targeted goals (#7)*
Post Survey Responses

• CCSE Students agreed most (5.0) with:
  comfort level in working with peers from different disciplines (#1); ability to interact with peers from different disciplines (#2); working with CSSE peers is effective in increasing computer knowledge (#3); working directly with computers is effective in increasing knowledge of computers (#4); use of computers is effective in increasing children’s learning (#5); understanding how to incorporate goals along with computer technology (#6)

• CMDS Students agreed with all questions (5.0)
Analysis of Pre & Post Survey - CSSE

Most improvement for CSSE Students seen in questions:

• #6 increasing from 4.6 to 5.0
  *understanding how to incorporate goals along with computer technology

• # 8 increasing from 4.4 to 4.8
  *understanding how to modify targeted goals while working with computers
Analysis of Pre & Post Survey - CMDS

Most improvement for CMDS students seen in questions

# 7 increasing from 4.0 to 5.0
*understanding how to modify computer programs to meet targeted goals

• # 8 increasing from 4.25 to 5.0
*understanding how to modify targeted goals while working with computers

• # 9 increasing from 4.25 to 5.0
*understanding how to work with children with special needs in an inclusion setting
By the end of the semester both CSSE and CMDS students reported:

participating in computer camp improved with their ability to modify computer programs and communication goals to meet the children’s need.

CMDS students reported an increased comfort level with computers and with inclusion programs.
Survey Questions (1 – 5)

1. I feel comfortable working with peers from different disciplines

2. I am able to interact well with peers from different disciplines

3. Working with peers from CSSE is effective way to increase knowledge of computers (for CMDS Students) / Working with peers from CMDS is an effective way to increase knowledge of working with children with special needs (for CSSE Students)

4. Working directly with computers effective in increasing knowledge of computers (for CMDS Students) / Working directly with children with special needs is effective in increasing knowledge of disabilities (for CSSE students)

5. Computers are effective in increasing children’s learning
Survey Questions (6 – 10)

6. I understand how to incorporate goals along with computer technology

7. I understand how to modify computer programs to meet targeted goals

8. I understand how to modify targeted goals while working with computers

9. I understand how to work with children with special needs children in an inclusion setting

10. I understand how to work effectively with children from a variety of multicultural backgrounds
Conclusions

• Program was successful for increasing computer and communication skills for children with special needs

• Children with special needs increased knowledge in both computer skills and made improvements with targeted communication goals

• Overall communication goals increased by 20%

• Both specialized computer programs and traditional computer programs were effective in increasing targeted communication goals

• Specialized computer programs were slightly more effective in increasing targeted goals (15% vs. 14%)

• Program was a successful training program for both CSSE and CMDS Graduate Students

• The program goal for increasing graduate students comfort level with computers and with working with an inclusion program was accomplished
References


