Kellar Instructional Handheld data (KIHd) System

GEORGE MASON UNIVERSITY

A Real Time Mobile Collaborative Data Collection and Analysis Tool

RERC-ACT
ADVANCING COGNITIVE TECHNOLOGIES
University of Colorado School of Medicine

State-of-the-Science Conference
October 25 & 26, 2007

Autism's Impact on Society

- Affects more children than cancer, diabetes, and AIDS combined

- Fastest growing developmental disability

- 1 in 150 Americans diagnosed

- 1.5 million Americans affected

- $35 billon in cost in the U.S. annually

Autism Society of America. (n.d.). *Improving the lives of all affected by autism* .

Retrieved May, 2007, from http://www.autism-society.org/site/PageServer

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# A Real Time Mobile Collaborative Data Collection and Analysis Tool

KIHd System

- Real Time Observable Data Collection
  - How many?
  - How Long?
  - How Accurate?
  - How Fluent?
- Easy Data Entry and Analysis
- Browser Based Multi-Platform
- Simultaneous Use
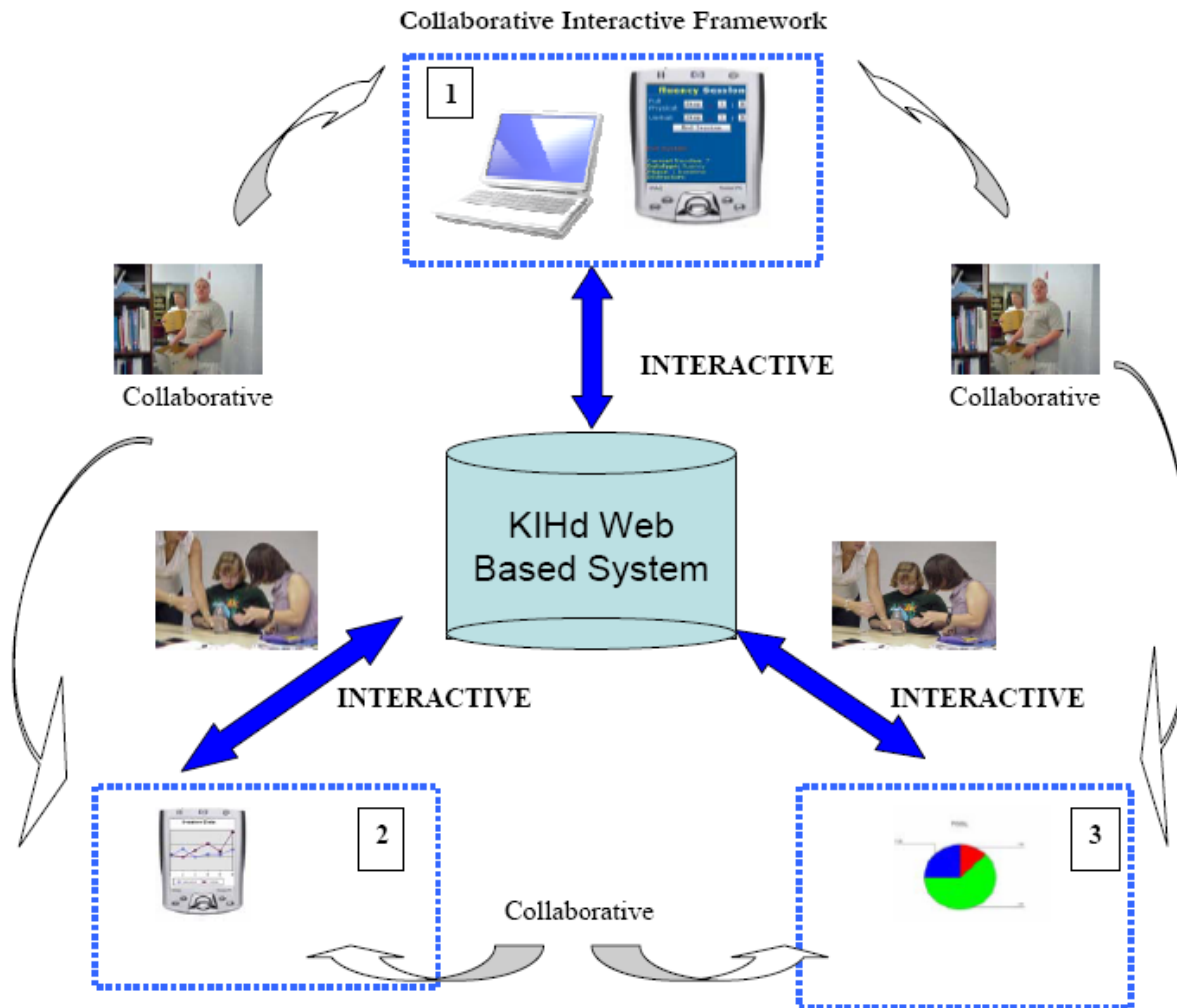- Immediate Feedback
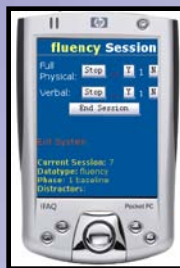
Replaces

- Clipboards (Paper Processes)
- Non Standard Data Collection
- Manual Data Manipulation
- Manual Data Transposition
- Incomplete Data Analysis and Reporting
- Delayed (or no) Feedback
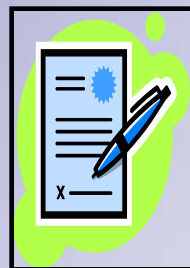
Collaborative Interactive Framework

Handheld Data Collection

Screen Shots of KIHd System Admin Pages

Current State of Technology

- $600K U.S. Department of Education Steppingstones of Technology Grant
- System (Patent Pending)
- Proprietary Software (Copyright)
- Four Years of Development and Testing Completed
- Classroom Tested

MILESTONES
Years (2003-2006)

1. Developed concept and test technology feasibility and grant application
2. Prototype Design and Usability testing followed by grant application
   - Mason IDD Immersion team
   - Beta Testing with teachers
3. Field testing followed by successful grant application
   - Refinement and testing with Mason LIFE Instructors
4. Autism Focused Implementation Research
   - 2 Year U.S. Department of Education, Steppingstones of Technology Grant (CFDA 84.327A, Innovations for Students with Disabilties/H327A060031)
     - **Increase in traffic as expected (more teacher participants)**
     - **Time on site increased from 20 seconds to 6 minutes**
     - **Pages viewed per visitor increased from 8 pages to 18 pages**
     - **Completion of the requested version of the print graph**
     - **Completion of the stand alone synching system**
     - **2007-2008**
       - **Home program continuing since summer 2007**
       - **Adding more student participants**
       - **Increase number of classrooms**
       - **Market development**

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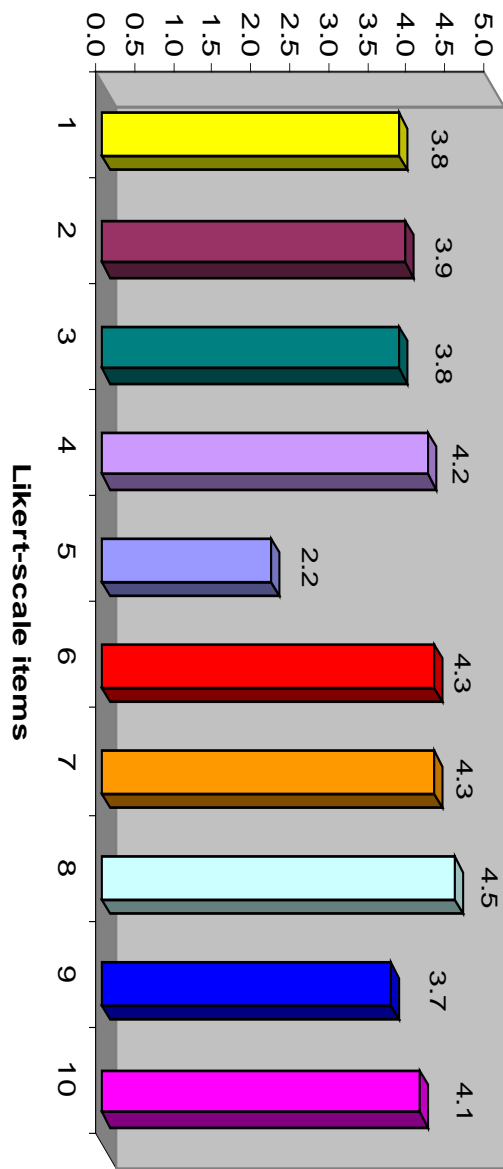ADVANCING COGNITIVE TECHNOLOGIES
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Teacher Perception of System
(Likert Scale 1= Strongly Disagree, 5 = Strongly Agree, N= 11)

Likert-scale item	Rating
1. I feel comfortable with the coordination of my current KIHd System tasks	3.8
2. The KIHd System is better than our previous charting system	3.9
3. I feel comfortable consulting with others in regards to the KIHd System	3.8
4. I feel comfortable with my responsibility level in regard to the KIHd System	4.2
5. I am concerned about the change in my teaching using the KIHd System	2.2
6. I am concerned about the change in the supervision role using the KIHd System	4.3
7. The level of training by the research team is excellent	4.3
8. The level of support by the research team is excellent	4.5
9. The student/s seems productive when the KIHd System is being used in their classroom	3.7
10. I save time by using the KIHd System	4.1

Overall teachers' opinions about the project

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Competitive Landscape

- mTrial
  - Palm System Only
  - Only Measures Frequency
  - Not Real-time
- Observer
  - Uses a Preprogrammed Curriculum
  - Not User Adaptable
  - Not Multi-platform
  - Highly Complex
- DT Trainer
  - Only for Students 2-9 years old
  - Uses a Preprogrammed Curriculum
  - Curriculum Not Changable

Product Models
and Market Segments

Education Regulatory Mandates
(No Child Left Behind)

New Markets

**KIHd Stand Alone
+ Web Based**

**Mobile Device
Synchronize with Web
Database**

**User Licenses
3, 15 and 100**

KIHd Enterprise

For all Users

Data Stored on Local Server
License to # Servers and #Users

*General Education
Health Sciences
Animal Studies
Worker Productivity
Quality Control (e.g. assembly line)
Homeland Security*

Etc........

KIHd Web Based

**3 users/10 students
15 users/75 students
100 users/500 students**

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KIHd System http://kihdsystem.gmu.edu

Version 1.0 Available January 2008

User Licenses
•Web Based for Home or Classroom
•Stand Alone + Web Synchronization

Server Licenses
•Enterprise Edition

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