The Use of Technology
To Promote Independence and Social Acceptance in Adolescences with Autism

Preparing Adolescents for Adult Life
Transforming Possibilities into Abilities
Preparing Adolescents for Adult Life
Transforming Possibilities into Abilities

A unique ABA driven, community based transition program targeting quality of life as the outcome in preparing for adulthood
THE USE OF BLUETOOTH TECHNOLOGY TO PROMOTE INDEPENDENT RESPONDING IN THE COMMUNITY: REDUCING STIGMA OF PROMPTING

Gloria Satriale, Esq., BCABA, PAAL
Kaori Nepo, M.Ed., BCBA, PAAL
Emily Genter, B.S., PAAL
Avi Glickman, B.A., PAAL
Bluetooth

- Replication of the study (Satriale, Chance, & Nepo, 2007)
  - Complexity of Community based instruction
  - Level of prompting and proximity of instructors
  - Perception in the community-stigma associated with overt and conspicuous level of prompting
  - Social inclusion/community education
Bluetooth

Purpose:
To promote independence and increase community acceptance of adolescents with autism by fading proximity from instructors using Bluetooth technology.
Bluetooth

- Target Behaviors
  - Purchasing in the community
    - locate items
    - wait in line
    - paying with a credit card
  - Job tasks
    - shredding paper
    - clean waiting room
    - clean bathroom
Bluetooth

- Participants-purchase
  - A 13 years old male student with moderate to severe autism
  - A 16 years old male student with moderate to severe autism
  - A 18 years old female student with moderate to severe autism

- Participants-job tasks
  - A 18 years old female student with moderate to severe autism
Procedure:

- Multiple baseline design across three behaviors
  - Locating items within the aisle of the store
  - Waiting in line in order to purchase the items
  - Pay for the items
Bluetooth-job tasks

- Procedure:
  - Multiple baseline design across three tasks
    - shredding papers (shredding, changing trash bag)
    - cleaning waiting room (cleaning tables and windows)
    - Cleaning bathrooms (cleaning mirrors, sink, and toilet)
Bluetooth

- Data collection
  - Number of prompts for each step of the TA for purchasing and job tasks in the community
  - Distance between the student and the instructor
  - IOA
Bluetooth

- Baseline:
  - Participants wore an activated Bluetooth on the ear and kept the paired cell phone in the pocket
  - Participants used written/picture lists or priming before walking in to the store
  - Instructor provided only physical prompts (partial and/or full) as needed to complete the TA for purchasing or job tasks
Bluetooth

- Interventions:
  - Participants wore an activated Bluetooth on the ear and kept the paired cell phone in the pocket or purse.
  - The instructor provided verbal prompts via cell phone connected to the participants.
  - If the participants did not respond to the 2 verbal prompts, the instructor provided light physical guidance.
  - The proximity of the instructor was gradually increased.
Bluetooth
Bluetooth Results
Participant 1-Purchase
Wait (participant 1)

- # of p
- distance

Frequency

Distance (ft)
Purchase (participant 1)

- # of p
- distance

Frequency

Session

Distance (ft)
Bluetooth Results
Participant 2-Purchase
Bluetooth-results

Locate Items (participant 2)

- # of prompts
- Distance

Distance (ft)

Frequency

sessions
Wait (Participant 2)

- # of prompts
- distance

Frequency
Distance (ft)

sessions
Bluetooth-results

Purchase (participant 2)

- # of prompts
- distance

Frequency

Distance (ft)

sessions
Bluetooth-video
Bluetooth Results
Participant 3-Purchase
Bluetooth-results

**Locate Items (Participant 3)**

- **# of prompts**
- **distance**

Frequency vs. Session

Distance (ft)

Graph showing the frequency and distance over sessions.
Bluetooth-results

Wait (participants 3)

- # of prompts
- distance

Session: 0 5 10 15 20 25 30 35 40
Distance (ft): 0 5 10 15 20 25 30 35
Frequency: 0 5 10 15
Bluetooth-results

Purchase (participants 3)

- # of prompts
- Distance

Frequency vs. Session

Distance (ft)
Bluetooth Results
Participant 3-Job Tasks
Shredding

- # of p
- distance

Frequency

Session

Distance (ft)

Bluetooth-results
Bluetooth-results

Bathroom

Session

Distance (ft)

Frequency

# of p  distance

Distance (ft)
Bluetooth-Limitation

- Require receptive language and level of compliance-pre-teaching
- Sensitivity to Bluetooth-desensitization program
- Prompt dependency
- Length of line may have affected data
- Prompts from cashier may have affected data
Bluetooth - Future Consideration

- Replication on various skills across a greater number of individual and settings
- Combination with other technology devices to fade proximity further
- Investigation on social validity on stigma associated with close proximity of instructors
- Dyads/triads instructions with Bluetooth technology
THE USE OF AUDITORY PROMPTS VIA MP4 PLAYER AND IPOD™ TO PROMOTE INDEPENDENT ENGAGEMENT IN LEISURE/EXERCISE ROUTINES

Avi Glickman, B.A., PAAL
Gloria Satriale, Esq., BCABA, PAAL
Kaori Nepo, M.Ed., BCBA, PAAL
Emily Genter, B.S., PAAL
MP4 player/ IPod ™

- Community Based Instruction
  - Shaping/Chaining/Prompts
  - Perception in the community
  - Materials for organization and independence
- Alternative Interventions with technology
  - Improved portability
  - Less stigmatizing-community inclusion
Purpose:
To facilitate independence and reduce stigma associated with the close proximity of instructors, the use of physical prompts, and the need to carry adaptive material including a timer, visual schedule, and pen during their workout routines at the local fitness center.
Participants:

1. A 17 years old male student with moderate to severe autism
2. A 18 years old male student with moderate to severe autism
3. A 21 years old female student with moderate to severe autism
MP4 player/ IPod™

- **Procedure**
  - Multiple baseline design with reversal (ABAB) across participants
  - *ABCB for participant 3

- **Behaviors:**
  - Following workout routines
    - locating equipment
    - setting machine
    - complete the exercise

- **Affect**
Data Collection:
- Type and number of prompts required to follow the TA for workout routines
- Affect of students during the routines
(5 point scale: 😡 😞 😞 😊 😊 )
Baseline:
- Participants wore the MP4 player watch or iPod and earphones/headphones connected to the device
- Use written schedule and a portable timer to follow the workout schedule (checking schedule, setting a timer,
- Partial and/full physical prompts were provided as needed
MP4 player/ IPod

- **Intervention:**
  - Participants wore the MP4 player watch or IPod with earphones or headphones connected to the device
  - Verbal directions combined with highly preferred music were given via MP4 player or IPod
  - Partial/full physical prompts were provided as needed
Mp4 Player/ IPod™

- Example of audio.
MP4 Player/IPod™

Workout with MP4 Player (participant 1)

Percentage of Independent Completion vs. Sessions

Sessions

- Baseline
- MP4
- w/o MP4
- MP4

Winter break
Workout with MP4 Player (participant 2)

Percentage of Independent Completion

Session

Baseline MP4 Player MP4

winter break

w/o
Workout with MP4 Player (participant 1)

Workout with MP4 Player (participant 2)
MP4 player/ IPod™

Workout with IPod (participant 3)

Percentage of Independent Completion

CD player | I POD/new routines | w/o IPOD | IPOD

Session

0 8 16 24 32 40 48

winter break

week off
MP4 player/ IPod™

Affect (Workout)

Frequency

- with watch
- without watch
Limitations

- Require receptive language and level of compliance
- Sensitivity to earphones/headphones
- Sensitivity to the watch
- Preference on music
- Initial intensive teaching
- Time consuming to program the watch or IPod
Future implications

- Replication on various skills (c.f. cooking, job tasks...) across settings
- Replication across greater number of participants
- Further research on affects and music across various skills (c.f. attention, fluency, duration)
- Combination with other modes (c.f. pictorial, textual)
THE USE OF VIDEO MODELING TO PROMOTE INDEPENDENCE IN SELF-CARING SKILLS OF ADOLESCENTS WITH AUTISM

Kaori Nepo, M.Ed., BCBA, PAAL
Gloria Satriale, Esq., BCABA, PAAL
Emily Genter, B.S., PAAL
Avi Glickman, B.A., PAAL
Video Modeling

- **History:**

  Promising effectiveness of “video modeling/video prompting” through research studies (e.g. Bellini, 2007)

  - **Social skills** (Kimball, Kinney, Tayler, & Stromer, 2004)
  - **Complex play sequences** (D’Ateno, Mangiapanello, & Tayler, 2003)
  - **Social language** (Maione & Ayres, 2004)
  - **Perspective taking** (Charlop-Christy & Daneshvar, 2003)
  - **Life skills** (sigafoos et al, 2005, 2007)
Video Modeling

- Variation in Video Modeling
  - Variation in latency and frequency
  - Variation in models (c.f. VM, VSM, point of view models)
  - Variation in instructions with video modeling (c.f. chaining, least-most/most-least prompting, shaping)
- Video prompting
Video Modeling

Benefit

- Rapid acquisition of skills
- Effective for both verbal and motor responses
- Effective for NT population and people with learning difficulties
- Fade one on one instructions
- Consistency of sequence/duration
Video Modeling

- Technology-improved portability
  - MP4 player
  - MP4 player Watch
  - Portable DVD player
  - Digital Picture frames
  - PDA devices
  - Cell phones (c.f. I Phone)
  - IPOD™
Video Modeling

- Adolescents Application:
  To teach life skills to improve independence and to increase social acceptance
  - Domestic skills
  - Self care skills
  - Daily living skills
  - Job tasks
Video Modeling

- **Purpose:**
  To improve independence of adolescents with autism during showering and hygiene routines using video modeling via digital picture frames and portable DVD players.
Video Modeling

- Target Behaviors/Skills
  - Showering
  - Brushing Teeth
- Research Design
  - Multiple baseline across participants
- Data collection
  - Number of prompts
VIDEO MODELING

SHOWERING
Video Modeling-Showering

- **Participants**
  - A 17 years old female student diagnosed with moderate to severe autism
  - A 18 years old male student diagnosed with moderate to severe autism
Video Modeling-showering

- Baseline
  - Priming
  - Textual (with pictorial for participant 1) prompts for showering routines
  - Partial and/or full physical prompts as needed
  - Verbal/social praise for attempt/completion of the steps
  - Delayed reinforcers upon completion of all TA
Video Modeling - showering

- Baseline Behaviors
  - Participant 1: required prompts to complete all steps of the TA for washing body parts
  - Participant 2: required prompts to complete all steps of the TA for washing body parts
Video Modeling-showering

- Interventions
  - Priming
  - Video Modeling-visual prompts (VM/ VSM)
  - Full/Partial prompts from behind
  - Gestural prompts to attend to Video
  - Systematic prompt fading
  - Social praise for attempt/ completion of the steps
  - Delayed reinforcers upon completion of all TA
Video Modeling-showering

VM-showering (participant 2)

Percentage of Independent Completion

Baseline

Video Modeling

session

0 2 4 6 8 10 12 14 16
Video Modeling-showering

VM –Showering (participant 2)
VIDEO MODELING TOOTH BRUSHING
Video Modeling-Tooth Brushing

- Participants:
  1. A 16 years old female student with moderate to severe autism
  2. A 18 years old male student with moderate to severe autism
  3. A 13 years old male student with moderate to severe autism
Video Modeling - Tooth Brushing

- **Baseline**
  - Priming
  - Textual (with pictorial for participant 1) prompts for showering routines
  - Partial and/or full physical prompts as needed
  - Verbal/social praise for attempt/completion of the steps
  - Delayed reinforcers upon completion of all TA
Video Modeling-Tooth Brushing

- Interventions
  - Priming
  - Video Modeling-visual prompts
  - Full/Partial prompts from behind
  - Gestural prompts to attend to Video
  - Systematic prompt fading
  - Social praise for attempt/ completion of the steps
  - Delayed reinforcers upon completion of all TA
Video Modeling-Tooth Brushing
Video Modeling-Tooth Brushing

- Baseline Behaviors:
  - Participant 1: bite and suck on the tooth brush
  - Participant 2: 2 seconds of brushing, starring the mirror, or bite the tooth brush
  - Participant 3: starring the mirror and required repeated prompts to start the first step (up to 17 prompts)
Video Modeling - Tooth Brushing
Video Modeling-Tooth Brushing

- **Result**
  - Participant 1: slow and steady improvement on independent completion of the TA
  - Participant 2: significant improvement on independent completion of the TA
  - Participant 3: significant improvement on independent completion of the TA
Video Modeling-results

Brush Teeth (participant 1)

Percentage of Independent Completion

Session

0 5 10 15 20 25 30 35 40

0 10 20 30 40 50 60 70 80 90 100
Video Modeling-results

Brush Teeth (participant 2)

Percentage of Independent Completion

Sessions

Baseline
Video Modeling (VM)
Video Modeling-results

Brush Teeth (participant 3)

Baseline

Video Modeling (VM)

VM w/o VM

Session

Percentage
Video Modeling-Tooth Brushing
Limitation

- Time consuming
- Requires imitation skills/visual processing and motor coordination: pre-teaching
- Requires sustained attention
- Requires level of compliance
- Fading prompts
Future Consideration

- Oral motor imitation
- Combination with auditory prompts
- Further replication on daily living skills (c.f. cooking) and job tasks across greater number of students
- Combine with other teaching procedure (c.f. chaining)
- Portability with MP4 player and other technology devices for tremendous possibilities
Thank you
Web: www.researchautism.org

Peter F. Gerhardt, Ed.D., OAR
Web: MECAAutisms.org

Gloria Satriale, Esq., BCABA, PAAL
gsatriale@mecauautism.org

Kaori G. Nepo, M.Ed., BCBA, PAAL
knepo@mecauautism.org

Avi Glickman, B.A., PAAL
aglickman@mecauautism.org

Emily Genter, B.S., PAAL
egenter@mecauautism.org