The Use of Technology in The Effective Behavior
Analytic Programming

Preparing Adolescents for Adult Life
Transforming Possibilities into Abilities
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 Functioning in The Community:
Targeting The Future

Gloria Satriale, J.D., BCBA
Kaori Nepo, M.Ed., BCBA
Avi Glickman, M.Ed.
Previous investigations (e.g., Satriale, Nepo, & Chance, 2007) demonstrated that Bluetooth® activated cell phone technology can be used to increase the distance between participants and instructors during instruction and, subsequently, reduce the stigma which may be associated with physical prompting in the community.
Purpose

To investigate the efficacy of community-based instruction delivered via Bluetooth® and a remote cell phone and the extent to which telephonic verbal prompting can be successfully faded.
Participants

- A 13-year old male student with moderate to severe autism
- A 16-year old male student with moderate to severe autism
- A 18-year old female student with moderate to severe autism
Procedure

- Multiple baseline design across three behaviors
  1. locate items
  2. wait in line
  3. purchase with a credit card
- Data collected on frequency of prompts, distance between participants and instructors, and the duration of prompt fading.
Baseline

- Participants wore an inactivated Bluetooth® and kept the paired cell phone in his/her pocket.
- Written/picture schedule and/or verbal priming was provided participants at the start of each session.
- Instructor provided only physical prompting (partial and/or full) as needed to complete the TA for purchasing or related tasks.
Intervention

- Participants wore an activated Bluetooth® and kept the paired cell phone in their pocket or purse.
- The instructor provided verbal prompts via cell phone connected to the participant’s phone.
- If the participants did not respond to two (2) verbal prompts, instructor provided light physical guidance.
- The proximity of the instructor to the participant was systematically increased.
Bluetooth®
Result

- Participant 1: met criteria at 43rd session (within 9 weeks)
- Participant 2: met criteria at 33rd session (within 6 weeks)
- Participant 3: met criteria at 65th session (within 13 weeks)
Discussion

- Verbal prompts were able to be faded successfully
- Distance from the participant was able to be increased in advance of skill mastery
- Appearance of independence may help promote social acceptance and community integration
- Wearing the device may help disguise/mask vocal stereotypy
- Provides a safety net while providing a greater independence
Limitations

- The cost and maintenance of the device may be a limitation.
- Participants require some level of receptive language skills to benefit from this intervention.
- Participants may require some form of systematic desensitization to accept the Bluetooth® and reinforced instruction to carry a cell phone.
Future Considerations

- Expansion to a greater variety of skills across more diverse and complex environments.
- Research on implementing such a strategy with more than one individual at a time.
The Use of PDA/Smartphone to Increase Independent Functioning of Adolescents with Autism

Avi Glickman, M.Ed.
Kaori Nepo, M.Ed., BCBA
Gloria Satriale, J.D., BCBA
PDA/Smartphone

Background

} The conventional Augmentative Alternative Communication (AAC) devices can be bulky and stigmatizing

} Individuals are often exposed to various communication systems but may not utilize any system consistently and/or independently as a function of response efficiency

} Technological advancements have made a variety of AAC devices available with improved portability thereby reducing stigma
Purpose

To increase functional communication and reduce potential stigma in the community via utilization of a PDA and Microsoft PowerPoint® application.
Participant

An 18 year-old female student participated in this study. She had prior experience of various AAC systems including American Sign Language, voice output systems, PECS®, and vocal communication. However, she did not use any system consistently.
PDA/Smartphone

Procedure

- Alternating treatment design with a single subject
- Independent (manding) with PECS® and Microsoft PowerPoint® application on a PDA were compared
HI
I'm fine
I want that
thank you
goodbye
bathroom
help
break
Baseline

- Participant had access to PECS® book to communicate but was not prompted

Intervention

- Participant was prompted to use PECS® book to communicate.
Baseline 2

- Participant had access to PECS® book and PDA but was not prompted to use either system

Intervention 2

- Participant was prompted to use the Microsoft PowerPoint® application on a PDA to communicate
PDA/Smartphone
Results - social validity

- 67% of community members surveyed stated that communication with a PDA was faster than with PECS book.
- 55% reported the same comfort level with both systems; 36% reported a higher level of comfort for communication with a PDA; 10% reported a higher level of comfort with PECS.
- 72% reported that both communication systems were easy to understand; 18% reported that communication with the PDA was easier to understand.
PDA/Smartphone

Benefits

- Highly customizable
- Cost effective
- Functional communication
- Use of technology leads to
  - reduced stigma in the community
  - Increased level of independence
  - Promotes community integration
PDA/Smartphone

Limitations

- Individual preferences
- Larger number of social validity data needs to be collected
- Dependency - Require backup system
- Require some degree of fine motor coordination
- Time consuming to program
Future Considerations

- Further improvement on technological devices
  - Reduced cost
  - Easier programming
  - Improved reliability and durability
  - Portability

- Generalization of technology applications

- Further investigation of social validity

- Generalization across large numbers of participants with various needs
The Use of Bluetooth® data collection and Video Feedback to improve staff performance

Kaori Nepo, M.Ed., BCBA
Gloria Satriale, J.D., BCBA
Avi Glickman, M.Ed.
Staff Performance

Background

1. Ongoing staff training is a critical component of effective service delivery in ASD
2. Didactic instruction is generally regarded as insufficient to significantly change staff competencies and performance
3. On-site training is time consuming
4. Current technology may provide a cost effective alternative to didactic training and may be applicable in more remote training environments
Purpose

To improve staff performance by providing feedback via Bluetooth® technology and video taping.
Staff Performance
Staff Performance

Ricky: 31-year old male instructor with 5 years experience working with adolescents with autism and has participated in initial and follow-up PAAL training on basic ABA strategies.

Eric: 27-year old male instructor with no previous experience with adolescents with autism but holds a teaching certificate. Received initial basic PAAL training

George: 34-year old male instructor with over 5 years experience working part-time with adolescents with autism and has received initial and follow-up PAAL training on basic ABA strategies
Staff Performance

Procedure

- Preference assessment
- Multiple baseline design across participants
- Data collected via Bluetooth® and cell phone on the frequency of verbal prompts delivered during 10 minute sessions
Staff Performance

Baseline

} Staff wore Bluetooth® with activated cell phone connected to investigator

} Frequency of verbal prompts was collected through Bluetooth®

} Feedback was not provided at the end of the session

} Staff were blind as to the purpose of the investigation.
Staff Performance

Intervention

- Staff wore activated Bluetooth® connected to the investigator.
- Frequency of verbal prompts was collected via Bluetooth®.
- Target goals for reduction of verbal prompting were established and subsequently reviewed with participants.
- Feedback was provided immediately after each session.
- Video taped sessions were used to provide feedback.
- Staff monitored their performance.
IOA

- IOA data were collected for 31% of sessions across phases
- 100% agreement was achieved
Staff Performance
Staff Performance

VP/10 min - Ricky

# of prompts in 10 min

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

20 18 16 14 12 10 8 6 4 2 0
Staff Performance

VP/10min - Eric

# of prompts in 10 min

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

0 2 4 6 8 10 12 14 16 18 20
Staff Performance

VP/10 min - George

# of prompts in 10 min

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Staff Performance

Results

- Bluetooth® technology can be used effectively to collect frequency data on verbal prompts and improve staff performance assessment.
- The number of verbal prompts significantly decreased across participants with the introduction of the intervention.
- Staff awareness of prompting procedures increased with intervention.
Staff Performance

Certificate of Excellence
Presented to George Jennings
In recognition of outstanding improvement in shaping behaviors

VP/10 min

Presented on 5/8/2002
Kris Hays, M.A., B.C.D.

Certificate of Excellence
Presented to

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Staff Performance

Benefits

- Cost effective
- Minimally intrusive
- Increase frequency of supervision
- Improve staff awareness on performance
- Immediate feedback
- Easily utilized across community environments
Staff Performance

Limitations

- Not applicable to other types of prompting (e.g., physical, gestural, etc.)
- Video taping affected staff performance
- Long term efficacy has not been assessed
- Self monitoring can be difficult at times
- Staff may perceive the intervention as intrusive
- Network connectivity
Future considerations

- Reactivity of participants to video taping and direct observation
- Further investigation on component analysis—combination/sequence of within intervention
- Impact on learners’ performance
- Utilization of technology for data collection
- Expanding application of intervention utilizing other forms of technology
Staff Performance