A Qualitative Case Study: Exploring the Application of Physiological Measures in Prelinguistic AAC Intervention

Chloe Putnam and Christine Holyfield, Ph.D., CCC-SLP
University of Arkansas, Fayetteville AR, Communication Disorders

UNIVERSITY OF ARKANSAS
College of Education & Health Professions

BACKGROUND

Prelinguistic communication is defined as that which comes before linguistic development and consists of nonverbal means of communication, such as gestures, eye gaze, vocalizations, and expressions (Franco, Davis, & Davis, 2013). In typical development, prelinguistic communication is evident in infants during the beginning stages of communication, before language emerges. However, some individuals with intellectual and developmental disabilities (IDD) with communication limitations continue to use prelinguistic communication as a primary mode of communication later in life. The goal of completing this research is to explore the potential promise of the novel approach of applying physiological measures to AAC intervention for prelinguistic communicators.

PURPOSE

The purpose of this project is to investigate the primary forms of prelinguistic communication used among families with individuals with PIMD and how taking physiological measurements might improve one's AAC intervention.

METHODS

The current study was completed in November of 2020. This is a case-control study with both a population-based sample that also qualifies as a convenience sample. A single interview will virtually take place with the family and individual with PIMD. During this time, observation of any interaction between or utilization by the individual with PIMD and AAC will also be completed and then documented.

Materials:

- The materials for this project include a qualitative interview completed by the family and individual (if possible) and different forms of AAC ranging from PECS to high-tech tablets with communication programs. This interview will include questions taken from a questionnaire designed for this study. A computer and/or phone will be utilized in order to obtain answers to the questionnaire during the interview.

Participants:

- One family with an individual diagnosed with profound intellectual and multiple disabilities (PIMD) who primarily utilizes prelinguistic communication; specifically, one who actively and frequently uses augmentative and alternative communication (AAC).

ANALYSIS

The information collected during the interview process and observation will be used in comparison with the current research regarding physiological measures taken during AAC intervention.

RESEARCH QUESTIONS

1. What does prelinguistic communication look like among one family with a prelinguistic communicator?
2. What are the strengths and weaknesses of AAC intervention for the family?
3. How might physiological information promote more successful AAC and interaction for the family?

APPENDIX A:

Questionnaire for Family Interview

1. How old is your child? Date of birth? Male or Female?
2. What diagnosis/diagnoses does your child have?
3. Does your child attend school?
4. Does your child have a job? If so, what is it? What do his/her tasks look like in a regular day on the job?
5. When not working or at school, what kind of activities does the child participate in both in and outside of home?
6. What are all the ways in which your child communicates with family? With non-family?
7. What does your child communicate about with family? With non-family?
8. What is working well about your child's communication with family? With non-family?
9. What is *not* working well about your child's communication with family? With non-family?
10. Do you think gaining insight on physiological measures (e.g., heart rate) from your child could provide useful information for you to communicate with him/her more successfully?
11. If so, in what ways do you see such information being useful?

RESULTS

The individual utilized in this case study was an adult male, twenty-seven years of age with Apraxia of Speech and ASD as the two most dominant diagnoses. Due to this individual's diagnoses, the interview took place with the individual's primary caretaker, his mother. After observations during the interview process, along with the answers to the questionnaire, the individual's family showed little to no interest in utilizing physiological measures during AAC intervention. According to the interviewee, the understanding of an individual and his/her disabilities was found to be best completed through close interaction and years of observation, rather than physiological measurements in real time.

DISCUSSION

Through the information obtained, it is clear that the family of the individual with PIMD at hand feel there is more precise information to be learned through physical and verbal interaction with the individual, rather than taking physiological measurements from the individual. With this data, we can gather that individuals and families with individuals with PIMD will generally show apprehension to or little interest in taking physiological measurements.

CONCLUSIONS & FUTURE DIRECTIONS

- Though the family of the individual with PIMD expressed little interest in collecting physiological measurements during AAC intervention, it was still incredibly insightful to learn about this particular individual's daily interactions and communicative skills.
- When approaching families with individuals with PIMD in the future, it will be important to consider different facets of communication:
  - Exposure to AAC
  - Reliability on AAC
  - Expertise on communication between individuals and their families
  - Common behaviors
  - Developmental age
- The probability of an individual and their family being in favor of taking physiological measurements is heavily influenced by these factors.

REFERENCES

- Crais, E. R., Watson, L. R., & Baranek, G. T. (2009). Use of gesture development in profiling children's prelinguistic communication skills. *American Journal of Speech-Language Pathology, 18(1),* 95-108. Retrieved from https://search.proquest.com/docview/204281529?accountid=8361
- Franco, J. H., Davis, B. L., & Davis, J. L. (2013). Increasing social interaction using prelinguistic milieu teaching with nonverbal school-age children with autism. *American Journal of Speech-Language Pathology, 22,* 489-502. doi: 10.1044/1058-0360(2012/10-0103)
- Grove, N., Bunning, K., Porter, J., & Olsson, C. (1999). See what I mean: interpreting the meaning of communication by people with severe and profound intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities, 12(3),* 190-203. doi: 10.1111/j.1468-3148.1999.tb00076.x
- Holyfield, C., Drager, K. D. R., Kremkow, J. M. D., & Light, J. (2017). Systematic review of AAC intervention research for adolescents and adults with autism spectrum disorder. *Augmentative and Alternative Communication, 33(4),* 201-212. doi: 10.1080/07434618.2017.1370495
- Ogletree, B. T. & Harn, W. E. (2001). Augmentative and alternative communication for persons with autism: history, issues, and unanswered questions. *Focus on Autism and Other Developmental Disabilities, 16(3),* 138-140. doi: 10.1177/108835760101600301
- Ogletree, B. T. & Pierce, H. K. (2010). AAC for individuals with severe intellectual disabilities: ideas for nonsymbolic communicators. *Journal of Developmental and Physical Disabilities, 22(3),* 273-287. doi: 10.1007/s10882-009-9177-1
- Sigafoos, J. (2010). Introduction to the special issue on augmentative and alternative communication. *Journal of Developmental and Physical Disabilities, 22,* 101-104. doi: 10.1007/s10882-010-9197-x
- Vos, P., De Cock, P., Munde, V., Petry, K., Van Den Noortgate, W., & Maes, B. (2012). The tell-tale: what do heart rate; skin temperature and skin conductance reveal about emotions of people with severe and profound intellectual disabilities? *Research in Developmental Disabilities, 33(4),* 1117-1127. doi: 10.1016/j.ridd.2012.02.006

Chloe Putnam and Christine Holyfield have no relevant financial or nonfinancial relationships to disclose.