Critical Review:

level language, reinforce, and expand utterances; with instruction to the child to verbally produce the message after creating it on the device to diminish their reliance on the tablet's production of language. The first six-week cycle began with the SLP leading sessions and introducing and explaining the functions of the device to the child and family. The second cycle, week seven-12, included self-guided at-home therapy in each family. Week 13-18 they returned to sessions with SLP, then completed the final six weeks, week 18-24, at home. Upon completing the last week, the children were reassessed and another language sample was obtained.

Statistical analysis revealed an increase in mean length of utterance (MLUs), number of words spoken and mean turn length. Further, pragmatic development was also noted post intervention.

The strengths of this investigation included that the researchers ensured all participants used the same devices, which supported consistency throughout the investigation. Researchers also provided detailed steps of how results were acquired and identified possible disruptions to data collection, e.g., a student being ill, possibility hindering their performance for the day. However, limitations in the study included the small sample size and there being no control group. Further,

adults were always present in session, with specified roles as the communication or physical partner, e.g., the physical partner guided tactile prompts to support the child's hearing loss. While the physical prompter placed the child's hand on the symbol, the communication partner then orally dictated words that matched the symbol, e.g., "MORE: you want more." To generate a baseline, the boy was introduced to a stimulus and engaged with it for 30 seconds before it was taken away. Upon obtaining a baseline, the facilitators began the introduction of the modified PECS intervention. The boy was only corrected if a non-symbol exchange was conducted, such as screaming or whining; this method of communication is difficult for listeners to interpret. Trials took place in the child's special education classroom. Trials consisted of a completion of steps for one stimuli, which were video recorded, and ranged from zero to 17 per day and tailored to factors in his day, such as his interest and mood; stimuli included, food or cup for 'more,' face washing or brushing teeth for 'done,' and thunder tube and slinky for 'new.' Correct trials were measured by him independently reaching towards the tactile symbol with each stimulus accumulating individual scores for each trial day. The ceiling benchmark consisted of correct responses on 60% or more per day, for three consecutive days. A maximum of 15 days of not reaching the criterion meant that the researchers began the next stimulus. Continual baseline and maintenance data collection occurred at the end of each intervention and continued for the entire school year.

Statistical analysis revealed that by the end of the investigation, the boy completed every step in the trials. The results indicated that, in conjunction with previous studies, when combined with systematic prompting, PECS and picture exchange methods, such as those with tactile symbols, demonstrated promising results to improving expressive communication. The child consistently demonstrated his ability to utilize symbols to make a request.

Strengths in this study included the detailed criteria of correct responses and performance expectations for each trial. Additionally, that the child could use three symbols to convey various intentions in different situations; the use of core vocabulary offered diverse opportunities to functionally communicate. Limitations included the use of one participant, and his multiple disabilities, as it was difficult to conclude findings without caveats relating to hearing loss and language development. Further, the lack of formal assessments and the disruptions in protocol may have interfered with data collection, for example, scheduling issues that led to no measurements being taken for a stimulus on some days and trials being done in natural settings creating a lack of control on the environment; however, this may be beneficial for carryover.

Overall, this report provided suggestive evidence of AAC interventions supporting children with hearing loss in their language development.

Davis et al. (2010) conducted a systematic review of experimentally designed studies. This review evaluated the utility of electronic or non-electronic, AAC techniques and the value they can have on individuals with hearing loss and disabilities. Participants were between one to 21 years old, with a total of 32 total participants. Children between five to 12 years of age made up 16% of the sample and those under four years of age consisted of 13% of the sample. Researchers also indicated participants' prior methods of communication, e.g., gestures, ASL or low tech AAC. In contrast to a scoping review, a systematic review gathers data on a topic to identify opportunities or gaps in the literature with a specific and focused research question (University of Toronto Libraries: Gerstein Science Information Centre, 2020). This review included, various disabilities and general elements of communication, but this analysis will focus on AAC relating to DHH and language outcomes.

Researchers used 27 databases, such as, PsychINFO, PsycARTICLES and MEDLINE, to search for relevant and appropriate articles; 14 articles were included in this review. Unanimous decisions were made regarding study inclusions and two scoring errors that were discovered were corrected. The inclusion criteria of the he

disabilities, as well as a broad age ranges; these vague criteria make the results difficult to compare to children with only hearing loss.

This review provided suggestive evidence that AAC