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The Effects of Switch Training in AAC Intervention on Children with Severe Physical Disabilities

Short Abstract

The purpose of this study was to demonstrate the effects of switch training in AAC intervention on the communication, switch control, and AAC device use of children with severe physical disabilities. This study followed pre-test, AAC intervention with switch training, post-test and generalization. The research design of study was multiple case studies. AAC intervention with switch training comprised of cooperative evaluation by professionals, switch control training, and AAC device use training. The results found in this study were as followed: First, the communication of children (i.e. vocabulary evolution scores and communication behavior scores) is much improved after the post-test. Second, switch control capabilities of children is gradually enhanced in the post-test compared to the pre-test. Third, upgraded AAC device use capabilities of children were found in the post-test, for instance, children was able to handle 45 cells of AAC tools(Mytalkie) instead of 10 cells in the pre-test. This study highlights the importance of cooperative evaluation between professionals and the need for the study of switch training adaptation for children with physical severe disabilities during AAC intervention.

Purpose

AT is an important pathway to have the independence of people with severe disabilities in the world. In the case of Korea, after the Special Education Law for the Disabled passed in 2007, AT were considered and as essential service for individuals with severe disabilities and included in school program. However, the application of the AT is still limited to the children with severe physical disabilities. Especially, in the field of AAC research, there is few research applying AT device (e.g. switch) to use AAC device and program. The critical reasons are as followed: the high cost of purchasing the appropriate switch and AAC to individual disabilities, the lack of interface that allows to connect and use AAC tools and switches, the absence of evaluation experts to find a suitable switch for the individual student, and limited research for switch training. Thus, it is essential in Korea, we need study result verify to be effective in improving the student's ability on AAC training with switch. The purpose of this study was to demonstrate the effects of switch training in AAC intervention on the communication skill, switch control, and AAC device use of children with severe physical disabilities.

Method

1) Participants

The participants were students with severe physical disabilities. Selection criteria of participants were as follows; ① the students who need AAC because of complex communication need, ② students with physical multiple disability, ③ students who don't have participated in AAC intervention before, ④ students with parental consent. The information of the participants summarized as <table 1>.

<Table 1> Participants of study

Participants	Diagnoses	Gender	Age	School	Grade	Primary modes of communication	IQ test	G M F M	Sense	AAC Experience	Switches experience for AAC device
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A	Athetoid CP	Female	10	Special School	4	vocalization	Unable	9%	Nothing	Once, AAC family camp	No
B	Spastic CP	Female	11	Special School	3	tongue	Unable	6%	Nothing	Once, AAC family camp	No
C	Athetoid CP	Female	12	General School	6	Raise hand	Unable	9%	Right low vision	No	No

2) Materials

This study had two materials: switches and AAC device. Types of switch were such as Bigred switch, joy stick, head switch, and Pillow Switch. AAC device was Mytalkie. As a Korean AAC tool, Mytalkie is easy for editing and using. Mytalkie is equipped with 10,000 symbols and vocabularies and provides 23 different voices.

3) Research design

The research design of study was multiple case studies. Multiple case designs consist of a repeating studies that apply the same intervention in a variety of cases and the analysis unit complex design. In this study, cases were three (participants A, B, C) and embedded unit of analysis were three (Communication skill and behaviors, Capability of switch control, Capability of AAC device use).

The research procedure followed pre-test, switch training in AAC intervention, post-test and generalization.

4) Independent variable: Switch training in AAC Intervention

Switch training in AAC Intervention were independent variables of this study. It consisted of three steps: ① Cooperative evaluation with physical therapists and speech therapists. ② Four levels of switch control training (e.g. modeling, physical prompt, verbal prompt, reacting). ③ Five levels of AAC device(Mytalkie) use training(e.g. preference evaluation, symbol learning, matching training, social story, conversation training).

5) Dependent variable and Data collection

First, communication skill were scores of assessment tools and so evaluation was conducted by using the assessment tools. Communicative behaviors were collected by the number of turn-taking for 10 minutes during storytelling time

Second, capability of switch control was ability of waiting and acting the switch. It was measured by the time to activate the switch during using AAC device.

Third, capability of AAC device use was the ability to use AAC device independently. It was evaluated by collecting AAC device cells(Mytalkie plate) used independently.

Results & Conclusion

The results found in this study were as followed:

First, the communication of children (i.e. vocabulary evolution scores and communication behavior scores) is much improved after the post-test.

Second, switch control capabilities of children is gradually enhanced in the post-test compared to the pre-test.

Third, higher capabilities of children with upgraded AAC device use were found in the post-test. For instance, children was able to handle 45 cells of AAC tools(Mytalkie) in the post-test compared to 10 cells in the pre-test.

This study highlights the importance of cooperative evaluation between professionals and switch training adaptation for children with physical severe disabilities during AAC intervention. In Korea, this study for using the switch with AAC training is significantly important as the first fundamental research in order to verify its effects on students with severe physical disabilities.

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Declaration of Interest Statement

KyungYang Kim disclose I have no financial or other interest in objects or entities mentioned in this paper.