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Teaching requesting and rejecting sequences to four children with developmental disabilities using augmentative and alternative communication

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ABSTRACT

The purpose of this study was to evaluate the feasibility of teaching an integrated requesting–rejecting sequence. Four children with developmental disabilities were taught to request missing items and reject wrong items using either speech-generating devices (SGD) or picture-exchange (PE) communication. Data showed that the introduction of the teaching procedures were associated with acquisition of the targeted requesting and rejecting responses. The newly acquired rejecting responses generalized across two untrained activities and were maintained for up to four weeks following intervention for three of the four participants. The missing-item and wrong-item formats can be successfully combined to teach an integrated sequence of requesting and rejecting to students with developmental disabilities who use speech-generating devices (SGD) or picture-exchange (PE) communication.

A mand is defined as a "verbal operant in which the response is reinforced by a characteristic consequence and is therefore under the functional control of relevant conditions of deprivation or aversive stimulation." (Skinner, 1957, pp. 35–36). Requesting a drink of water when thirsty and rejecting the offer of a non-preferred beverage are examples of mands. Indeed, the acts of requesting wanted or needed objects and rejecting unwanted or wrong objects could be viewed as two common subclasses of the mand.

Mands appear to be among the first communicative functions to emerge in the speech of typically developing children (Carpenter et al., 1983). However, many children with developmental disabilities fail to develop speech. These children are therefore candidates for intervention to develop augmentative and alternative communicative (AAC) forms for expressing the communication functions of requesting and rejecting (Reichle, York, & Sigafoos, 1991). Of the various AAC modes available, both speech-generating devices (SGD) and picture-exchange (PE) systems are viable alternatives for children with developmental disabilities who fail to develop speech (Lancioni et al., 2007; Mirenda, 2003).

For children using SGD or PE, interventionists have successfully used the missing-item format and wrong-item format to teach requesting and rejecting, respectively (Sigafoos, 1999). The missing-item format involves withholding one or more

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items needed to complete an activity (Sigafoos, Couzens, Pennell, Shaw, & Dudfield, 1995). At the point in the activity when the item is needed (e.g., the child has a bowl of cereal, but not the missing spoon), the child is required to request the missing item. With the wrong-item format (Sigafoos & Roberts-Pennell, 1999), after a child has requested an item, they are given a different or wrong item (e.g., the child requests water, but is given a glass of orange juice instead). Offering the wrong item is intended to create an opportunity for the child to reject the wrong item.

While the missing-item and wrong-item formats appear promising for teaching requesting and rejecting respectively (Sigafoos, 1999), there is a potential limitation in using these two formats in isolation. For example, with the wrong-item format, while the child may learn to reject the wrong item, they may not learn to re-request the originally desired item. One possible solution would be to sequence the wrong-item and missing-item formats so as to teach the child to reject wrong items and then re-request the correct item. The purpose of the present study was to evaluate the feasibility and effectiveness of combining the missing-item and wrong-item formats to create opportunities for teaching requesting and rejecting, respectively. That is, participants requested a missing item in order to complete the presented activity, but were sometimes given a wrong item so as to create an opportunity to indicate a rejecting response. Although this procedure for teaching a rejecting response was suggested by Carter and Grunsell (2001), no study to date has empirically demonstrated the effectiveness of this particular combination of formats for teaching requesting and rejecting to children with developmental disabilities who use SGD or PE.

1. Method

1.1. Participants

Four children with developmental disabilities and severe communication impairment participated in this study. The participants' adaptive behaviors were assessed by their teacher using *The Adaptive Behavior Assessment System* (Harrison & Oakland, 2003). The results of this assessment showed that all of them were "extremely low" in all nine sub-domains (i.e., communication, community use, functional academics, school living, health and safety, leisure, self-care, self-direction, and social). All four were chosen for this study because they showed low rates of requesting and lacked any socially acceptable rejecting behaviors. Table 1 includes the characteristics and type of communication system used by the participants.

1.2. Setting

All four children attended a self-contained special education classroom at a public elementary school. This classroom included one certified special education teacher and two teaching assistants. Four other children diagnosed with autism and speech impairment were also present in this classroom. Sessions were conducted on a one-to-one basis by the experimenter in a partitioned corner of their classroom at a table with two chairs.

1.3. Communication systems

All four children had received training to use a SGD or PE to promote their functional communication skills prior to this study. However, their teacher described them as passive and prompt-dependent when using these systems. The participants used their AAC device for requesting within limited contexts, mostly during snack time, rarely used them to make a spontaneous request, and never used them to indicate rejecting. Dan used a *Vantage* (*Prentke Romich Company*). The first screen showed 45 picture icons including "*yes*", "*no*", "*want*", "*try*", "*cup*", and "*tool*". For example, in order to request "*straw*" (one of the missing items), Dan needed to press the "*cup*" icon on the first page, and then "*straw*" on the second page. When the "*straw*" icon was pressed, it produced a recording of a boy's voice saying "straw". After pressing the "*straw*" icon, the screen automatically returned to the first page.

Rob used a *Tech Speak* device (Advanced Multimedia Devices, Inc.). There are 32 square pictures on the board. Among the messages, target requesting and rejecting responses were included such as "*no*", "*ball*", "*playdoh*", "*key*", and "*marble*". The remaining messages included his favorite edible reinforcers, help, and action phrases (e.g., *tie shoes*).

Dave used a *Springboard* SGD (Prentke Romich Company). It was similar to Dan's device, in that to access a missing item Dave needed to press a category icon from the pictures on the first screen and select the missing item picture from the next screen. For example, during the "*watching a DVD*" activity, he needed to press the "*play*" icon from the first screen, and then the "*DVD*" icon on the next page. "*Yes*" and "*no*" icons were placed at the corner of the first screen.

Table 1
Participants characteristics.

Participant	Age (in years)	Ethnicity/gender	Disabilities	AAC device
Dan	7	African-American boy	Autism, severe developmental disabilities	Vantage
Rob	8	Caucasian-American boy	Autism, severe developmental disabilities, seizure	Tech Speak
Dave	9.5	Caucasian-American boy	Severe developmental disabilities	Springboard
Jay	6.5	African-American boy	Autism, developmental disabilities	PE