Research in Developmental Disabilities 34 (2013) 1125–1133

Contents lists available at SciVerse ScienceDirect

Research in Developmental Disabilities

Review article

Comparison of the predictive validity and consistency among preference assessment procedures: A review of the literature

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ARTICLE INFO

Article history:
Received 27 December 2012
Accepted 28 December 2012
Available online 28 January 2013

Keywords:
Autism
Developmental disabilities
Efficiency
Effectiveness
Predictive validity
Reinforcers
Preference assessments

ABSTRACT

We reviewed 14 experimental studies comparing different preference assessments for individuals with developmental disabilities that were published in peer-reviewed journals between 1985 and 2012. Studies were summarized based on the following six variables: (a) the number of participants, (b) the type of disability, (c) the number and type of stimuli, (d) the average duration of administration, (e) compared procedures, and (f) results. Studies were also classified in terms of the predictive validity and consistency of the preference assessment results. The results suggest the preference assessment procedures that may produce more accurate predictions for the reinforcing effects of identified stimuli and consistent preference results. The findings are discussed in relation to the previous literature. Evidence based modifications of the most efficient preference assessment are also discussed.

Contents

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http://dx.doi.org/10.1016/j.ridd.2012.12.021

1. Introduction

Intervention programs for individuals with developmental disabilities often require the use of reinforcement procedures, which in turn emphasizes the need for accurate identification of effective reinforcers. The task of identifying effective reinforcers is usually accomplished by conducting a systematic assessment of the person's preferences. Multiple formats of preference assessments have been developed to identify potential reinforcers to be used in intervention programs for individuals with developmental disabilities (Pace, Ivancic, Edwards, Iwata, & Page, 1985; Piazza, Roane, & Karsten, 2011). Previously developed preference assessment formats include single-stimulus (SS), paired-stimulus (PS), multiple-stimulus (MS), MS without replacement (MSWO), single-stimulus engagement (SSE), and free-operant (FO). Each format entails the use of varying procedures to identify preference. The SS and SSE procedures, for example, involve the presentation of one stimulus at a time. The PS procedure involves the presentation of two stimuli at a time and requires the participant to choose one option. The MS and MSWO procedures involve the presentation of all stimuli simultaneously and require the participant to choose one option. The primary difference between the MS and MSWO formats is that the MSWO procedure does not entail the replacement of the chosen stimulus back into the stimuli array for the next trial. The FO procedure also entails the presentation of all stimuli simultaneously, but participants are allowed to access one or more on an ongoing basis.

Several studies have examined preference assessment procedures involving different types of stimuli (e.g., Horrocks & Higbee, 2008), the effect of the presence and absence of actual stimuli (e.g., Kuhn, DeLeon, Terlonge, & Goysovich, 2006), the duration of stimulus availability (e.g., Steinhilber & Johnson, 2007), and the schedule of stimulus delivery (e.g., DeLeon et al., 2011). Other studies have compared different procedures to assess their relative effectiveness and/or consistency for identifying reinforcers (e.g., Kodak, Fisher, Kelley, & Kisamore, 2009). In an attempt to summarize this literature, Cannella, O'Reilly, and Lancioni (2005) reviewed 30 choice and preference assessment studies published between 1996 and 2002. They summarized the studies in terms of four categories including choice opportunity, effectiveness of choice making, preference assessment, and effectiveness of preference assessments. The results pertaining to preference assessments suggested that most of those reviewed were effective in identifying reinforcing stimuli. Tullis et al. (2011) extended the Cannella et al.'s review by considering studies published from 2002 to 2010. They summarized five studies in terms of preference assessment comparisons. The findings of some studies were reported as "mixed" (i.e., "when different preference assessment formats or methodologies were compared, the most effective reinforcers were not identified by the same method for all participants"; p. 585). This finding suggests that the best method for identifying potential reinforcers may vary depending on individual characteristics. However, information regarding relative effectiveness/ability of preference assessments to accurately identify effective reinforcers is still limited. Furthermore there is no consolidated finding of the relative effectiveness of preference assessments. Therefore, a more in-depth investigation of the literature pertaining to the relative effects of different preference assessment procedures is needed. Thus, the purpose of the present study was to review the previous literature that compared different preference assessments from 1985 to 2011 and analyze findings in terms of relative predictive qualities regarding effective reinforcers and consistency of results. We chose 1985 as the starting point of the literature search because systematic examination of preference and its effectiveness via empirical experiments began in the mid-1980s (Pace et al., 1985).

2. Methods

2.1. Search strategy

The literature search was conducted through EBSCO, an electronic journals service, covering four databases including ERIC, PsycINFO, MEDLINE, and Psychology and Behavioral Sciences Collection. The keywords used in the electronic search were "preference assessment", or "stimulus preference", or "preferred stimulus", or "comparison preference assessments" and "developmental disability". The electron search yielded 235 of articles. The identified articles were screened against the inclusion criteria (see below) by reading the abstract or full sections if necessary. In addition to the electronic search, a reference examination was carried out with the studies identified as meeting the inclusion criteria via the electronic search. Fourteen studies met the inclusion criteria (indicated by an asterisk in the reference list).

2.2. Inclusion criteria

The studies included in this review met the following three criteria: (a) compared different preference assessment procedures to identify participants' preference through experimental study based on direct observation, (b) involved participants with developmental disabilities, and (c) were published in peer-reviewed journals between 1985 and 2011. Studies were excluded if they did not provide specific data on relative effectiveness regarding identified reinforcers or consistency of preference results (i.e., Horrocks & Morgan, 2009; Reed et al., 2009; Reid et al., 2007).

2.3. Study analysis

The selected studies were categorized in terms of (a) predictive validity of reinforcing effectiveness of selected stimuli, and (b) consistency of the preference results. The latter category was divided into two sub-categories including