A Meta-Analysis of Self-Determination using Single Subject-Design for Individuals with Disabilities

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Abstract. The purpose of this literature review was to synthesize intervention research examining effects of self-determination interventions on various dependent variables for students with disabilities. The review included analysis of the strength of results, research design quality, and discussion of implications for researchers and practitioners.

Keywords: Self-determination, meta-analysis, students with disabilities

1   Introduction

The term *self-determination* has two primary meanings, both of which have a long history of use outside the disability field. Although the literature reviewed including studies that measured academic dependent variables, none looked exclusively at effects of self-determination interventions on academic outcomes.

Therefore, the purpose of this review was to identify, describe, and synthesize studies that have examined the effects of self-determination interventions on the academic skills as well as problem behaviors of students with disabilities. Also, this review reports the strength of the effects on the academic variables for the studies that used single subject designs and reported data in a manner that allowed for such calculations.

2   Methods

A computer-assisted bibliographic search was conducted using various combinations and derivatives of the following key words: self-determination, meta-analysis, and single-subject. The Psychological Abstracts (PsycINFO), Educational Resources Information Center (ERIC) database and Web of Science, Expanded Academic ASAP,

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and Wilson OmniFile were the primary information databases searched for relevant studies. The second procedure was a manual hand search through peer reviewed journals. Approximately 815 articles were reviewed for this synthesis.

There were a number of criteria specified for this review, including the following: (a) articles were empirically-based investigations; (b) self-determination was the major independent variable to increase or decrease the dependent variables; (c) individuals involved in the study were diagnosed with a certain types of disabilities; (d) selected peer-review articles were published in last 10 years(2002–2013); (e) studies involved treatments using single subject designs; and (g) articles were written in English.

To determine the effective self-determination, we calculated the proportion of nonoverlapping (PND) that a measure of the proportion of nonoverlapping data between baseline and treatment and baseline and maintenance. A median PND of 0.80 were judged to be as effective intervention [1].

Results for search procedure of phase 2, 66 studies were chosen, but after reviewing each article, 26 studies were selected from seven journals.

3   Result

Demographic Information. Ninety two (male=27, female=65) participants with multiple disabilities (i.e., learning disabilities, intellectual disabilities, ADHD, autism, behavioral disorder, etc.) were included in the 26 studies, with an age range of 2 to 32 year-old.

Design Used. All 26 studies, with one using a multiple baseline design and give a reversal design. Six (23%) took place in the general education classroom (e.g.., [2]). Five studies (19.2%) were in a self-contained room at various grade levels (e.g., [3]). And three (11.5%) occurred in resource room (e.g., [4]). The rest of 13 studies (50%) were in multiple locations (i.e., math class, hallways, private room etc.). Nine studies (34.6%) interventionist were researchers or experimenter whom involved the research study (e.g., [5]). 14 studies (53.8%) were at least one general or special education teacher was interventionist (e.g., [3]). The rest of two studies' interventionists were either project coordinator or job coach (e.g., [6]). 14studies (53.8%) included the study fidelity (ranged 88-100) and the rest of the studies (46.2%) did not report. Also, only 14 studies (e.g., [3]) were reported social validity among the 26 selected studies.

Percent Non-Overlapping Data Points. The PND of the self-determination dependent variables were able to be calculated and results and strengths of the effects were summarized in Table 1. PNDs for the twelve studies (46.2%) were above 90%, indicating the very strong result. Seven of these studies (26.9%) demonstrated 100% PND between the phases of the study without the self-determination intervention (e.g.., [3]). And eight studies (30.7%) were between 70-90% (e.g., [7]), indicating fairly effective, whereas, the three studies including Crawley et al. (2006) demonstrated questionable results between 70-50% (e.g., [8]), also the rest of three studies demonstrated questionable results poor below 50% (e.g., [5]).

Table 1. Characteristics of study participants and study design

authors (A-Z)	Study Participants		Study Design				PND		
	SS* & types of disabilities	age (yrs:mon.)	study design	F* (%)	SV*	Reliability	IPND	MPND	Overall
Adkinsa & Gavins (2012)	3 EBD	7:6~9:4	MBaP	100	Yes	N/R	100	100	highly
Agran et al.(2006)	1 ID, 1 BD, 1 autism	13:0-15:0	MBaP	N/R	Yes	98	98.6	100	highly
Coughlin et al. (2012)	3 MID	7:0	MBaP	N/R	N/R	96.9	37.3	N/A	unreliable
Crawley et al. (2006)	1 ID	6;0	ABAB	N/R	N/R	N/R	59.4	N/A	questionable
Devlin (2011)	4 ID	20:0-32:0	MBaP	100	Yes	95~100	96.8	N/A	highly
Farrell & McDougall (2008)	6 LD,ADHD	14:0-15:0	MBaP	99.6	Yes	96~98.8	78.9	87.5	fairly
Holifield et al. (2010)	2 autism	9:4~10:8	MBaP	N/R	N/R	90	78.9	N/A	fairly

NOTE: N/R= Not Reported. SS=Sample Size. OI=Orthopedic Impairment. MD= Multiple Disability. ID=Intellectual Disability. AD= Asperger Syndrome. LD= Learning Disability. EBD= Emotional Behavioral Disorder. WS=William Syndrome. CP=Cerebral Palsy

F=fidelity. SV=Social Validity. MBaP= Multiple Baseline across Participants. MBaB= Multiple baseline across behavior problem. ABAB=Reversal design. IPND=Independent Percent of nonoverlapping Data. MPND=Median Percent of nonoverlapping Data.

4 Discussion

This study reviewed the last 10 years (2002-2013) of the literature regarding self-determination. As we known from the result, approximately 77% of the self-determination intervention for students with disabilities were revealed as highly and/or fairly effective which is similar to results from the previous studies published before 2000-year. Among the self-determination subgroups, self-monitoring (e.g., self-regulated strategy and self-management strategy) were implemented in 15 studies (57.7%). Unlike of the previous literature published before the year 2000 that mostly focused on teaching choice made [9], but recent trends preferred student-directed learning strategies such as self-advocacy, goal-setting, choice-making, and problem-solving.

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