

Running Head: SELF-DETERMINATION META-SYNTHESIS

Self-Determination for Students with Disabilities:

A Narrative Meta-Synthesis

Brian Cobb and Jean Lehmann

Colorado State University

Rebecca Newman-Gonchar

Instructional Research Group, Signal Hill, CA

Morgen Alwell

Appalachian State University

Development of this manuscript was funded in part through the U.S. Department of Education, Office of Special Education Programs (Grant Award No. H324W010005). The opinions expressed herein do not necessarily reflect the policy or position of the U.S. Department of Education, Office of Special Education Programs, and no endorsement by the department should be inferred. The authors wish to express their gratitude to Dr. Selete Avoke for his support of this project and his thoughtful critique of this and other reviews; as well, to the project staff of the *What Works in Transition: Systematic Review Project* for their handling of innumerable minutiae, especially the careful retrieval and coding of research articles.

Abstract

Seven narrative and systematic reviews published since 2000 and focusing on self-determination for individuals with disabilities are reviewed in this narrative meta-synthesis. We distinguish our work from other meta-synthesis work by calling it a *narrative meta-synthesis* because we include both narrative reviews and meta-analyses in this meta-synthesis. These seven reviews focused on different disability groups, different intervention curricular and instructional techniques, and different outcomes. Findings were relatively consistent with multi-component self-determination interventions demonstrating greater positive effects than single-component interventions, and self-determination and academic productivity outcomes showing greater positive effects than academic quality outcomes. Theoretical, empirical, and methodological findings and implications are discussed.

Self-Determination for Students with Disabilities:

A Narrative Meta-Synthesis

Introduction

After having its etiology in the normalization and self-advocacy movements of the 1970's and early 1980's, the first mention of self-determination in legislation was in the Public Housing Act of 1988. However, it was not until the Rehabilitation Acts of 1992 and 1998 and the Individuals with Disabilities Education Acts of 1990 and 1997 that self-determination became a major component of legislated transition services (Wood, Karvonen, Test, Browder, & Algozzine, 2004). The IDEA reauthorization in 1990 mandated students' needs, interests, and preferences be taken into account when planning for a student's transition from school to adult life (Bremer, Kachgal, & Schoeller, 2003) and a research and development initiative in the legislation supported 26 projects during the period from 1991 to 1994 (Ward & Meyer, 1999). The Rehabilitation Act Amendments of 1992 also suggested the need for self-determination in transition services (Baker, Horner, Sappington, & Ard, 2000). These pieces of legislation reflect the belief that we all have the right to direct our own lives, and those rights apply to students with disabilities as well (Bremer et al., 2003; Field & Hoffman, 2002).

After a decade of developmental and empirical research on self-determination – what it's components are and how it can be taught to students with disabilities – self-determination is now considered a key component of high quality transition services (Field, 2003; Wehmeyer, Bersani, & Gagne, 2000). Wehmeyer et al. characterize this historical evolution of self-determination as occurring in three waves – a professionalism wave in the early 1900's, a parent movement in the mid-1990's, and the current self-advocacy movement emerging in the 1970's. “Transition planning provides a powerful context in which to both teach and practice skills like goal setting,

problem solving, effective communication and listening skills, assertiveness and self-advocacy, and decision-making” (Wehmeyer, 2002a, p. 6).

Recently, Chambers, Wehmeyer, Saito, Lida, Lee, and Singh (2007) published a narrative review entitled: “Self-Determination: What Do We Know? Where Do We Go?” These researchers conducted this review by searching the literature and aggregating 31 studies that met their inclusionary criteria into three groups: non-intervention (descriptive) studies (14), perception studies (9), and intervention efficacy studies (10). Since these researchers published their review in early 2007, three systematic reviews of the efficacy of self-determination interventions have appeared – one focusing on effects for students with learning disabilities (Konrad, Fowler, Walker, Test, & Wood, 2007), one focusing on similar effects for students with developmental disabilities (Fowler, Konrad, Walker, Test, & Wood, 2007), and one focusing on effects for students with all disabilities, but only in postsecondary settings (Bae, 2007). These three systematic reviews differed from the Chambers et al. (2007) review in several important ways, including only focusing on intervention efficacy studies (more restrictive than Chambers et al.) and including studies with any academic outcome (much less restrictive).

All three of these systematic reviews were also keyed in important ways to what is arguably the most contemporary, seminal systematic review of the effects of self-determination interventions for students with disabilities – the review by Algozzine, Browder, Karvonen, Test, and Wood (2001). For example, the authors of both the Konrad et al. (2007) and the Fowler et al. (2007) as well as meta-analysts in an additional review focusing on students with severe disabilities (Wood, Fowler, Uphold, & Test, 2005) indexed their literature searching strategies to the studies in the Algozzine et al. review. One other review was published after 2000 (Malian &

Nevin, 2002) and appears to have been developed completely independently from these previously mentioned four systematic reviews.

The purpose of this narrative meta-synthesis is to explore what appear to be the most consistent theoretically and empirically derived effects across these various reviews. There is not a lot of guidance on how to actually conduct and report the findings of a narrative meta-synthesis. Syntheses of meta-analyses in education have appeared in the literature for over two decades (e.g., Anderson, 1983; Gresham, Van, & Cook, 2006; Hattie, 1992), and developmental work and critiques of the methodology of meta-synthesis has appeared in both education (e.g., Eysenck, 1995; Mostert, 1996; Mostert, 2003; Sipe & Curlette, 1997) and with much greater elaboration, in medicine (Moher, Cook, Eastwood, Olkin, Rennie, & Stroup, 1999). Perhaps the most detailed description of the method of meta-synthesis and a corresponding example in education can be found in Torgerson's (2007) "tertiary review" of meta-analyses of literacy learning of English.

This work provides excellent guidance for summarizing across meta-analyses, but little for summarizing across theoretical reviews and meta-analyses. Forness, Kavale, Blum, and Lloyd (1997) and later Forness (2001) have provided a far less technical and potentially more practitioner-friendly format for summarizing across meta-analyses. To accomplish our purpose, we will use a combination of the reporting formats of Forness and the table structure of Mostert (1996), along with a question and answer discussion section. But first, a brief review of recent literature on the constructs and practices of self-determination for students with disabilities.

The Construct of Self-Determination

Self-determination is an expression of personal agency. Personal agency means understanding one's strengths, limitations, needs, and preferences well enough to evaluate

options and goals and determine a clear vision for one's future. People who are self-determined have chosen a direction for their lives and are acting of their own accord to attain their personal goals. Self-determination includes internal characteristics, such as a consciousness about oneself, a belief in oneself, and a feeling of empowerment, as well as behaviors, such as goal setting and attaining, decision-making, problem solving, and finding supports to help meet one's goals (Eisenman & Chamberlin, 2001; Whitney-Thomas & Moloney, 2001). Field, Martin, Miller, Ward, and Wehmeyer (1998) define self-determination as:

“a combination of skills, knowledge, and beliefs that enable a person to engage in goal-directed, self-regulated, autonomous behavior. An understanding of ones strengths and limitation, together with a belief of oneself as capable and effective are essential to self-determination. When acting on the basis of these skills and attitudes, individuals have a greater ability to take control of their lives and assume the role of successful adults in our society.” (p. 2)

Self-determined individuals make the things happen in their lives that they would like to have happen. They choose their goals, by assessing their needs, and act in ways to meet those goals. “From an awareness of personal needs, self-determined individuals choose goals, then doggedly pursue them. This involves asserting an individual's presence, making his or her needs known, evaluating progress toward meeting goals, adjusting performance, and creating unique approaches to solve problems” (Martin & Marshall, 1995, pp. 147).

In a thoughtful and important developmental work on the construct of self-determination Wehmeyer Sands, Doll, and Palmer (1997, pp. 307-308) identified four underlying characteristics of self-determination that are cited often in the subsequent literature:

1. Autonomous functioning/behavioural autonomy – acting according to one’s preferences, free of undue external influence,
2. Self-regulation – engaging in self-management, goal setting and attainment, and problem solving,
3. Psychological empowerment – acting on the belief that one can exert control over areas important to him or her, that he or she possesses the skills necessary to exert control, and that exercising those skills will result in desired outcomes; and
4. Self-realisation – acting on an accurate knowledge of one’s strengths and limitation.

Wehmeyer and his colleagues continued their conceptual work by delineating 11 core component elements of self-determined behaviour that included seven sets of behavioral skills, two forms of self-efficacy, and separate components of self-awareness and self-knowledge (p. 309).

About the same time, Field (1996) attempted to clarify and operationalize our understandings of self-determination by elaborating a set of four models of self-determination – an individual beliefs, knowledge, and skills perspective (similar to Wehmeyer et al., 1997 above); an adult outcomes perspective, a self-regulation perspective, and an ecosystems perspective – and suggested a set of instructional interventions that seemed to emanate from those models or perspectives. Additionally, several researchers have attempted to further define and clarify the components of self-determination. As Malian and Nevin (2002) stated in their literature review: “Definitions of *self-determination* in these articles varied greatly.” (p. 68, italics original), and concluded their review by characterizing self-determination as a developmental phenomenon, an ecological phenomenon, a skill or competency, and a psychological trait (p. 73). Test, Fowler, Wood, Brewer, and Eddy (2005) appear to locate self-determination as a *status* that students with disabilities should achieve, and suggest that the

acquisition of four sets of self-advocacy skills (knowledge of self, knowledge of rights, communication skills and leadership skills) would move students forward in achieving a self-determined status.

As the conceptual research on the concepts and components of self-determination is building, so too is the research on moderators to the strength and stability of these components. For example, Franklin, Turnbull, Wehmeyer, and Blackmountain (2004) examined the relevance of these components to the Dine (Navajo) people and found cultural differences in the relative values that the Dine people place on certain of those components, i.e., self-regulation and autonomy. Trainor (2007) used qualitative techniques to explore the unique perceptions of adolescent girls on their own self-determined status; similarly, Carter, Lane, Pierson, and Glaeser (2006) explored these same perceptions of LD youth with emotional disturbance. Finally Greenen, Powers, Hogansen, and Pittman (2007) examined the contextual importance of developing the self-determination status from the unique perspective of youth with disabilities who were in foster care.

Assessment of Self-Determination

Concurrent with the conceptual development of self-determination and its components, several scales have been developed to measure it. Arguably, the most trait-based instrument was developed by Wehmeyer and Kelchner (1995) which assessed the four underlying characteristics mentioned earlier and cited in Wehmeyer et al. (1997). More curriculum-based or instructional planning-oriented measures have also been developed by Martin and Marshall (1996), Hoffman, Field, and Sawilowsky (1996), and Wolman, Campeau, Dubois, Mithaug, and Stolarski (1994). More recently, Field and Hoffman (2007) reviewed each of these instruments and expanded the discussion of assessing self-determination by recommending a variety of assessment techniques

that go well beyond standardized assessments, including interviews, observations, performance samples and situational assessments.

Teaching Self-Determination

Researchers and curriculum developers have begun to create curricular and instructional packages to teach self-determination (Jones, 2006; Test, Karvonen, Wood, Browder, & Algozzine, 2000; Wehmeyer, Agran, & Hughes, 2000). The Self-Determination Synthesis Project (SDSP), for example, has found 60 programs aimed at teaching self-determination (Test et al., 2000). Each has a different goal, ranging from teaching self-determination skills to increasing students' understanding of their own disability and their rights to teaching students to participate in their IEP and transition planning. Researchers suggest that self-determination should be taught by integrating self-determination lessons into the general curriculum and not solely by adding a limited program. Programs aimed at increasing students' self-determination should:

“promote the skills needed to set personal goals, solve problems that act as barriers to achieving these goals, make appropriate choices based on personal preferences and interests, participate in decisions that impact the quality of their lives, advocate for themselves, create action plans to achieve goals, and self-regulate and self-manage day-to-day actions” (Wehmeyer, 2002a, pp. 3-4).

In these programs, students are given opportunities to make choices, set goals, and direct their own learning (Wehmeyer, 2002b). Students participate in their own educational planning and decision making, including IEP and transition planning. They are taught using student directed learning instead of teacher directed learning.

Both the students' families and their educators must provide them with opportunities to practice making choices (Hoffman, 2003). Families and educators encourage students to set and attain their own goals, as well as support the risks they take to meet those goals. "The capabilities needed to become self-determined are most effectively learned through real-world experience, which inherently involves taking risks, making mistakes, and reflecting on outcomes" (Bremer et al., 2003, p. 2). In addition, it is important that families and educators model self-determined behavior.

Self-determination also includes self-knowledge and understanding one's strengths, limitations, needs, and preferences. It is important that educators and families find ways to help students learn about themselves in a sensitive way. They must help students talk about their disabilities, their strengths, their needs, and their future goals. "The role of educators in promoting internal perceptions of control, as well as adaptive efficacy and outcome expectations, positive self-awareness, and realistic self-knowledge, is more complex than just providing adequate instructional experiences" (Schalock, 2001, p. 10). Increasing the students' understanding of themselves and their goals are accompanied by many opportunities to practice assessing their needs, determining their goals, taking risks, and reflecting on their experiences. These discussions and the opportunities to practice self-determination occur throughout a child's development, beginning before they attend school for the first time.

Descriptive/Correlational Research on Self-Determination

As the concepts and components of self-determination and our capacity to measure it have matured through the 1990's and early 2000's, a number of descriptive and correlational have appeared in the literature that have helped build its construct validity. For example Wehmeyer, Palmer, Soukup, Garner, & Lawrence (2007) ran a number of complex regression

analyses exploring how well variability in students' differing self-determination skill sets predicted student involvement in transition planning; their findings supported the construct validity of several hypothesized components of self-determination. Too, a number of research studies have appeared correlating self-determination status with estimates of quality of life and satisfaction with life (Cagle, 2006; Lachapelle, Wehmeyer, Haelewyck, Courbois, Keith, Schalock, Verdugo, & Walsh, 2005; Nota, Ferrari, Soresi, & Wehmeyer, 2007; Wehmeyer & Schwartz, 1998). In all cases, hypothesized relationships between self-determination and quality of life were significant and positive (with some caveats), supporting its construct validity.

An increase in self-determination also has been correlated with improvements in perceptions of quality of life. In a follow up study, students with disabilities with greater measured levels of self-determination were shown to be “more than twice as likely as their peers who were not as self determined to be employed... and they earned significantly more” (Wehmeyer, 2002a, p. 3). Wehmeyer and Palmer's (2003) study examined the post-graduation outcomes at one and three year increments. Their research also indicated strong correlations between high self-determination characteristics in students with disabilities and post-graduation outcomes, such as “employment, access to health and other benefits, financial independence, and independent living” (p. 131).

Eisenman and Chamberlin (2001) examined the ways schools are delivering self-determination curricula through participant observations, interviews, networking groups, and student assessments. Their research suggests that self-determination is being taught in schools through “career awareness and exploration, school-based enterprise, social skills and behavior management, and personal characteristics awareness” (p. 140). Few of the schools had implemented any evaluation of these programs or assessments of self-determination. The

researchers found that educators value self-determination skills for all of their students and they believe self-determination instruction should begin early in a student's education. They see the best practices are those that integrate self-determination into the general curriculum and also into the IEPs. Educators also believe students need to have personal goals and the freedom to try new strategies for achieving their goals. In addition, many educators felt that discussing disabilities with students is a very sensitive topic and safe places for them are needed to "talk realistically about their limitations and strengths" (p. 143).

According to Grigal, Neubert, Moon, and Graham (2003), both parents and teachers agree that self-determination should be taught to all students from elementary school to high school. They believe students with disabilities need this instruction most particularly because they are not given as many opportunities to practice these skills. They believed that students should be taught how to participate and be allowed to participate in their own IEP planning processes. However, it was apparent that teachers felt they did not understand self-determination or how to teach it. They did not feel they were implementing lessons on self-determination and did not feel positively about trying to implement such lessons. Although there is support for self-determination curriculum, teachers need instruction on how to implement that instruction. Zhang, Katsiyannis, and Zhang (2002) found that more than half of the teachers they surveyed engaged in instructional techniques to teach self-determination characteristics, but fewer than half of parents surveyed engaged in similar behaviors. They also concluded that parents also need instruction on how to implement self-determination instruction and opportunities for their children.

Summary

In summary, self-determination as a construct is multi-faceted, and is reflective of both a psychological trait (i.e. locus of control) and a behavioral skill set (i.e. communication abilities). For students with disabilities, it appears that increasing their self-determination status correlates with increased quality of life in their future. The skills of self-determination should be taught and modeled at school and at home.

Method

Literature Search Process

Two search processes were used to locate reviews of research or meta-analyses for this narrative meta-synthesis. First electronic searches were conducted in late summer, 2007 of the PsychINFO, Digital Dissertations and Theses, and Educational Resources Information Center (ERIC) databases beginning with the year 1997. Key words used in the searches were *meta-analyses, mega-analyses, meta-syntheses, tertiary review, AND self-determination AND disability*. All abstracts produced by these searches were screened and any report/article/dissertation that appeared to be literature review, research synthesis, meta-analysis, or review of research, on self-determination was acquired and screened for propriety. Second, once the reviews were identified and acquired through the process above, the reference lists of all of these reports were screened for additional reviews/meta-analyses; however, no new reviews were added to the original list of reports acquired through electronic searching.

Inclusionary Criteria

Only articles, dissertations, and reports that focused directly and primarily on producing a formal review of literature, research synthesis, or meta-analysis and delineated some explicit criteria for locating and identifying theoretical or empirical research in their review were

included in this meta-synthesis. Hence, for example, although Wehmeyer, Field, Doren, Jones, and Mason (2004) indicated in their abstract that they “synthesize the decade’s work (p. 413)”, we did not include this article in our review because there were no literature searching criteria in the article and the focus was more a theoretical essay on the alignment of self-determination with the standards-based reform agenda.

Second, the review of literature, research synthesis, or meta-analysis must have focused on the full construct of self-determination as explicitly stated by the author(s) of the review. So, for example, the review of literature on self-advocacy by Test et al. (2005) was not included in this meta-synthesis because the authors focused exclusively on the construct of self-advocacy, and by the authors’ own admission, self-advocacy is only a part of the overall construct of self-determination.

Results, Discussion, and Implications

Descriptive Information

Six journal articles and one dissertation were identified for this meta-synthesis; several descriptive characteristics of these seven reviews are displayed in Table 1. Five of the reviews were followed formal meta-analytic formats and two (Chambers et al., 2007; Malian & Nevin, 2002) were theoretical reviews of literature. Four of the five reviews that followed meta-analytic procedures reported effect size estimates, while the review by Wood et al. (2005) reported only descriptive results. As can be seen in Table 1 most of the seven reviews included studies from the early 1970’s, and six of the seven required the studies to be published in peer-refereed journals. Four of the seven reviews included studies whose samples ranged from pre-kindergarten to college age or adulthood; two of the reviews (Chambers et al. and Malian &

Nevin) did not report age ranges; and the meta-analysis by Bae (2007) included studies of only college students.

Chambers et al. (2007) imposed a restriction on the dependent variable such that only studies reporting results on a global measure of self-determination were included. Algozzine et al. (2001) and Wood et al. (2005) required the outcome measure be a component skill associated with self-determination (i.e., choice-making skills; problem-solving skills), while the reviews by Bae (2007), Fowler et al. (2007) and Konrad et al. (2007) included studies that measured effects on any academic skill. Finally, only the Fowler et al. (2007) and Wood et al. (2005) reviews imposed minimum methodological standards upon studies as conditions of inclusion in their respective reviews.

Results of Individual Reviews

Each individual review has a number of dimensions that reflect inclusionary and exclusionary criteria – some of which are narrow and focused, and some of which are more broadly implemented. Each of these seven reviews is described briefly below in terms of these criteria and their major findings (see Table 2).

Algozzine et al. (2001) review. Algozzine, and his colleagues published a review of literature and meta-analysis on the effects of self-determination interventions (Algozzine et al., 2001). They located 51 articles between 1972 and 2000; 22 articles were included in the meta-analysis – nine that used a group design and 13 that used a single-participant design. Studies that had individual study samples that ranged across all disability types and from pre-kindergarten to adulthood were included. No minimum methodological standards must have been met and described by the original study authors in order for their study to be included in this review. Although the outcome measures (dependent variables) across all included studies ranged across a

variety of social/psychological dimensions, only those dependent variables that measured a sub-component of self-determination, or global self-determination were included in the statistical meta-analysis of this review. The median redundant effect size for studies with multi-group designs was $d = .60$, reflecting a moderately strong effect, and one that Forness et al. (1997) called substantial. Overall effects of studies using single-participant designs were also quite high with a median PND (percentage of non-overlapping data points) at 95%. Scruggs and Mastropieri (2001) have recommended that PND's of 70-90% should be considered "effective". Algozzine and his colleagues also concluded that regardless of design, instructional interventions that included more self-determination focal areas and for longer treatment periods yielded greater positive effects than those with fewer focal areas and for shorter instructional durations.

Malian and Nevin (2002). Malian and Nevin (2002) completed a narrative review of the literature on self-determination. There was a relatively narrow period of time in which included studies were published – 1992-1999, but both theoretical and empirical studies were included and there were no restrictions placed on interventions typologies, outcome constructs or methodological standards. Eleven studies were included in their review, and these researchers found six themes throughout the research included in their review, although these themes were developed from a theoretical analysis of patterns across the 11 studies, and not from a statistical meta-analysis. First, they found that self-determination changes throughout the lifespan and it involves "parallel fields of continuous development" emotionally, socially, in communication, and in behavior. Second, they concluded that self-determination is teachable – students learn self-determination through a variety of integrated curriculum and instruction. Third, self-determination is valued by both teachers, students, and family members who evidently all see value in teaching and learning self-determination. Fourth, self-determination involves

psychological components such as independence, self-efficacy, and self-management. These components are fluid and must be practiced in a variety of settings. Fifth, “self-determination is a predictor of successful transition to adult life” (p. 73) and therefore, should be taught to students as early as possible. Sixth, and finally, advocacy and support from others enhances a student’s development of self-determination. Support and encouragement can go a long way to helping students evaluate themselves and their needs, make choices, problem solve, and attain their own goals.

Wood et al. (2005). Wendy Wood and David Test followed up their work on the Algozzine et al. (2001) review with a review focused exclusively on self-determination interventions for individuals with severe disabilities (Wood et al., 2005). They keyed on studies first included in the Algozzine et al. review and added studies published from 2000-2005, staying consistent with other Algozzine et al. inclusionary criteria such as including students with all types of severe disabilities, including only published journal articles, and restricting their focus on dependent variables in the included studies that measured global self-determination or a sub-component of self-determination. Twenty-one studies were included in their review, 20 of which used a single-participant design and one used a case study design. No effect size data were reported in this review. The authors concluded that all studies showed positive effects for at least one participant, and with one exception, all studies that measured multiple components of self-determination for their outcome measure resulted in increases in all participants in the study.

Chambers et al. (2007). Chambers et al. (2007) published a narrative literature review that focused exclusively on including studies that measured global self-determination. This narrowing of inclusionary criteria notwithstanding, these authors included invoked almost no other restrictions on what types of studies they included in their narrative review and ended up

with 31 reports that fell into three categories of work: descriptive studies (14), perception research (9), and intervention research (10). No quantitative synthesis of effects were reported in either of these three categories of research. Chambers et al. then summarized the collective results across each of these three groups of research by indicating that: (a) there is correlational (but not causal) evidence that high levels of self-determination lead to more positive adult outcomes; (b) self-determined behavior appears valued by teachers, parents, and individuals with disabilities, but the data are incomplete; and (c) the intervention efficacy literature base is weak, at least with respect to its efficacy on global self-determination outcomes.

Bae (2007). In the first of three systematic reviews appearing in the literature in 2007, Bae's meta-analysis focused only on postsecondary students with disabilities and only on correlational evidence relating global or component measures of self-determination to academic achievement as measured by grade point average. Twenty-four studies were included initially, but effects from only 18 studies were reported due to the removal of six studies with correlational values that were extreme outliers. Bae included studies that appeared from 1982-2005 and from both two-year and four-year colleges and universities, but restricted the studies to those occurring in the United States. Most noteworthy concluded there was no significant correlation between one or more components of self-determination and academic achievement in postsecondary education, as measured by GPA. Follow-up moderator analyses yielded little variance of any substantive theoretical perspective from this overall effect.

Fowler et al. (2007). Fowler and her colleagues at the University of North Carolina – Charlotte extended the deep meta-analytic research agenda on self-determination interventions for individuals with disabilities with a review focused exclusively on students with developmental disabilities. Their literature searching processes, study sample criteria, and types

of research designs included in this review were nearly identical to the review published two years earlier by Wood et al. (2005). Not coincidentally, the design characteristics that Fowler et al. ended up with mirrored those of Wood et al. with a total of 11 studies, ten of which were single-participant designs. Unlike Wood et al. before them, however, Fowler et al. encountered a much greater variety of intervention components with self-management interventions predominating, but with interventions focusing on choice-making, goal-setting, and self-advocacy also appearing. Also, Fowler et al. calculated PND estimates of effect sizes. Median PND's, aggregated across differing intervention components but disaggregated by differing outcome types ranged from a high of 100% for assignment organization skills to a low of 11% for mathematics quality. Conversely, median PND's, aggregated across all outcome types but disaggregated by intervention components ranged from 100% for multi-component interventions to a low of 11% on self-advocacy instruction. The authors concluded that effects were generally stronger (more positive) on organizational skills needed to produce academic assignments than for academic outcomes *per se*, and that studies of multi-component interventions generated larger effects than studies of single-component interventions.

Konrad et al. (2007). In the last of the 2007 meta-analyses to appear from the University of North Carolina – Charlotte, Konrad et al. (2007) deviated from the searching and inclusionary criteria largely in the focus only on students with learning disabilities, as opposed to the focus on students with developmental disabilities of Fowler et al. (2007) and the focus on students with severe disabilities of Wood et al. (2005). Because of the focus on learning disabilities, the variance in designs utilized by studies included in this review varied somewhat more, with a total of 31 articles reporting on 34 discrete studies – 27 of which were single-participant studies and seven which were multi-group studies. Thirty of the 34 studies used self-management, either by

itself or coupled with one or more other components of self-determination instructional interventions, and 12 of the studies used goal-setting, either singly or with other components. The two most frequent interventions, then, were self-management alone, and combinations of self-determination components.

Effect sizes were calculated for both the multi-group and single-participant studies. For those studies using single-participant designs, PND's were calculated separately for academic productivity and quality measures, with fairly weak positive median effects for both types (60%) across all components of self-determination instruction. Studies using group designs showed even less positive effects with an average effect size across all dependent variables of $g = -.22$; separating the measures out produced near zero or negative effects across writing, spelling, and reading. However, goal-setting instruction did demonstrate a moderately strong effect ($g = .72$) for math achievement only. Perhaps the most promising finding was the effect when self-management instruction was combined with other component instruction in self-determination, at least with the single-participant studies. Here, Konrad et al. (2007) found moderately strong PND's across all dependent variables (median = 81.5%) and very strong effects for productivity outcomes specifically (median = 94%).

Meta-Synthesis Discussion and Implications

We pose a number of empirical, theoretical, and methodological implications that seem warranted from the examination of these seven reviews. First, it is evident that self-determination as a construct is extraordinarily multi-faceted and complex, similar to other important constructs particularly in secondary intervention literature in special education like dropout prevention and transition. In our readings of original and review literature for this manuscript we often found researchers and theoreticians mixing intervention and outcome self-

determination constructs in ways that make intervention development difficult and more time-consuming. Konrad et al. (2007) touched upon a part of this complexity:

If researchers do not carefully operationalize their independent (intervention) variables, consumers cannot be certain what self-determination components are included... Given that self-determination is a complex construct, is it even possible or important to break it down into isolated subskills. When several self-determination components are combined in an interventions, the result may be synergistic effects that would be difficult to study or define. (p. 110)

What is fascinating in this direct quote is that these researchers have touched upon an important and theory-advancing judgment while at the same time falling prey, at least in the language of this quote, to the interchanging of interventions and outcomes by using the term “subskills” (an outcome term) when this entire quote is focused as an intervention discussion. We are not being critical here; this group at the University of North Carolina-Charlotte, along with the folks at the University of Kansas have pushed the self-determination field forward in a very short time period. We only make this point to highlight how empirically and theoretically complex this topic is for experts and practitioners alike.

Second, one pattern of empirical results that seems evident from these reviews is that positive outcomes, whether self-determination oriented (i.e., choice-making skills, problem-solving skills) or academic productivity, seem best achieved or maximized by instructional/curricular interventions that contain multiple components. Four of the reviewers (Algozzine et al., 2001; Fowler et al., 2007; Konrad et al., 2007; Wood et al., 2005) explicitly reached this conclusion and this same point was implied in the work of Chambers et al. (2007) and Malian and Nevin (2002). This is extremely important for curriculum developers, researchers, and practitioners as they develop, research, and implement these types of interventions.

Third, in those reviews that measured academic quality effects, self-determination interventions did not appear to be very effective. Bae (2007) found virtually no correlation

between self-determination skills and grade point average of college students with disabilities. Both Fowler et al. (2007) and Konrad et al. (2007) found similar very weak to negative effects on their disaggregated analyses of academic quality outcomes. If academic achievement enhancement for students with disabilities is what local practitioners are looking for in an instructional package, then it appears they should look elsewhere than at self-determination instructional and curricular packages.

This aforementioned conclusion notwithstanding, we know from the reviews by Algozzine et al. (2001) and Wood et al. (2005), whose reviews only included studies with self-determination outcome measures, that these outcome skills can be effectively enhanced by targeting instructional interventions to them. These findings were supported as well by sub-analyses in the Fowler et al. (2007) and Konrad et al. (2007) reviews that examined skills that may help enable academic achievement, but were not achievement outcomes *per se*. Additionally, Chambers et al. (2007) found that across several studies in their review, self-determination outcome skills development in school correlate strongly and positively with positive adult independent living outcomes. Perhaps, then, the next generation of research and development efforts on self-determination instructional/curricular intervention packages might target their work on *transitional* outcomes – i.e., outcomes associated with the four domains identified by Wehmeyer et al. (1997) of behavioral autonomy, self-regulation, psychological empowerment, and self-realization, and not academic outcomes.

Finally we offer some methodological thoughts. In our own prior systematic review work (c.f., Cobb, Sample, Alwell, & Johns, 2006; Wolgemuth & Cobb, 2007) we have been frustrated with the underdevelopment of meta-analytic procedures, particularly statistical procedures, for studies utilizing single-participant designs. This is particularly important for

special education research given the prevalence of single-participant designs and given that these designs have very limited generalizability – precisely one of the strengths of systematic reviews. While the development of PND analyses was an important developmental step, we would hope in the future that metrics be developed that produce indices that are more in line with the metrics used in multi-group studies. We know that mean difference metrics for effect size calculations will never be useful in single-participant research, but we are heartened to see exploratory theoretical work such as that produced by Zucker, Schmid, McIntosh, D’Agostino, Selker and Lau (1997) and Campbell (2004), and particularly hopeful for improvements in techniques coming from the initiatives reported by Shadish and Rindskopf (2007) and Ramsay, Matowe, Grilli, Grimshaw, and Thomas (2004). When some form of time series or regression metric can be validated for meta-analyzing single-participant data, we may find an enormous power boost by being able to combine, either directly or indirectly, the results of multi-group and single-participant studies. Then, systematic reviews in special education will become more fully integrated into the research synthesis practices of general education.

References

References marked with an asterisk (*) indicate reviews/meta-analyses included in this meta-synthesis.

- *Algozzine, B., Browder, D., Karvonen, M., Test, D. W., & Wood, W. M. (2001 Summer). Effects of interventions to promote self-determination for individuals with disabilities. *Review of Educational Research, 71*(2), 219-277.
- Anderson, R. D. (1983). A consolidation and appraisal of science meta-analyses. *Journal of Research in Science Teaching, 20*, 497-507.
- *Bae, S. J. (2007). *Self-determination and academic achievement of individuals with disabilities in postsecondary education: A meta-analysis*. Unpublished doctoral dissertation, University of Kansas, Lawrence, KS.

- Baker, D. J., Horner, R. H., Sappington, G., & Ard, W. R. (2000). A response to Wehmeyer (1999) and a challenge to the field regarding self-determination. *Focus on Autism and Other Developmental Disabilities, 15*(3), 154-156.
- Bremer, C. D., Kachgal, M., & Schoeller, K. (2003, April). Self-determination: Supporting successful transition. *Research to Practice Brief, 2* (1), 1-8.
- Cagle, S. E. (2006). *Self-determination and life satisfaction among transition-age students with disabilities*. Unpublished doctoral dissertation, University of South Carolina.
- Campbell, J. M. (2004). Statistical comparison of four effect sizes for single-subject designs. *Behavior Modification, 28*(2), 234-246.
- Carter, E. W., Lane, K. L., Pierson, M. R., & Glaeser, B. (2006). Self-determination skills and opportunities of transition-age youth with emotional disturbance and learning disabilities. *Exceptional Children, 72*(3), 333-346.
- *Chambers, C. R., Wehmeyer, M. L., Saito, Y., Lida, K. M., Lee, Y., & Singh, V. (2007). Self-determination: What do we know? Where do we go? *Exceptionality, 15*(1), 3-15.
- Eisenman, L. T. & Chamberlin, M. (2001, May/June). Implementing self-determination activities: Lessons from schools. *Remedial and Special Education, 22*(3), 138-147.
- Eysenck, H. J. (1995). Meta-analysis squared – does it make sense? *American Psychologist, 50*, 110-111.
- Field, S. (1996). Self-determination instructional strategies for youth with learning disabilities. *Journal of Learning Disabilities, 29*(1), 40-52.
- Field, S. (2003). *Self-determination: Assuming control of your plans for postsecondary education*. George Washington University: Heath Resource Center.
- Field, S. & Hoffman, A. (2002, March/April). Lessons learning from implementing the Steps to Self-Determination curriculum. *Remedial and Special Education, 23*(2), 90-98.
- Field, S. & Hoffman, A. (2007). Self-determination in secondary transition assessment. *Assessment for Effective Instruction, 32*(3), 181-190.
- Field, S., Martin, J., Miller, R., Ward, M., & Wehmeyer, M. (1998). *A practical guide for teaching self-determination*. Reston, VA: Council for Exceptional Children.
- Forness, S. R. (2001). Special education and related services: What have we learned from meta-analysis? *Exceptionality, 9*(4), 185-197.

- Forness, S. R., Kavale, K. A., Blum, I. M., & Lloyd, J. W. (1997). Mega-analysis of meta-analyses: What works in special education and related services. *TEACHING Exceptional Children*, 29(6), 4-9.
- *Fowler, C. H., Konrad, M., Walker, A. R., Test, D. W., & Wood, W. M. (2007). Self-determination interventions' effects on the academic performance of students with developmental disabilities. *Education and Training in Developmental Disabilities*, 42(3), 270-285.
- Franklin, H. C., Turnbull, A. P., Wehmeyer, M. L., & Blackmountain, L. (2004). An exploration of the self-determination construct and disability as it relates to the Dine (Navajo) culture. *Education and Training in Developmental Disabilities*, 39(3), 191-205.
- Greenen, S. J., Powers, L. E., Hogansen, J. M., & Pittman, J. O. E. (2007). Youth with disabilities in foster care: Developing self-determination within a context of struggle and disempowerment. *Exceptionality*, 15(1), 17-30.
- Gresham, F. M., Van, M. B., & Cook, C. R. (2006). Social skills training for teaching replacement behaviors: Remediating acquisition deficits in at-risk students. *Behavioral Disorders*, 31(4), 363-377.
- Grigal, M., Neubert, D.A., Moon, M.S., & Graham, S. (2003, Fall). Self-determination for students with disabilities: Views of parents and teachers. *Exceptional Children*, 70(1), 97-112.
- Hattie, J. (1992). Measuring school effects. *Australian Journal of Education*, 36(1), 5-13.
- Hoffman, A. (2003). *Teaching decision making to students with learning disabilities by promoting self-determination*. ERIC Digest, ED 481859. Arlington, VA: Clearinghouse on Disabilities and Gifted Education.
- Hoffman, A., Field, S., & Sawilowsky, S. (1996). *Self-determination assessment battery user's guide*. Detroit, MI: Wayne State University.
- Jones, M. (2006). Teaching self-determination: Empowered teachers, empowered students. *TEACHING Exceptional Children*, 38(6), 12-17.
- *Konrad, M., Fowler, C. H., Walker, A. R., Test, D. W., & Wood, W. M. (2007). Effects of self-determination interventions on the academic skills of students with learning disabilities. *Learning Disability Quarterly*, 30, 89-113.
- Lachapelle, Y., Wehmeyer, M. L., Haelewyck, M. C., Courbois, Y., Keith, K. D., Schalock, R., Verdugo, M. A., & Walsh, P. N. (2005). The relationship between quality of life and self-determination: An international study. *Journal of Intellectual Disability Research*, 49(10), 740-744.

- *Malian, I. & Nevin, A. (2002, March/April). A review of self-determination literature: Implications for practitioners. *Remedial and Special Education, 23*(2), 68-74.
- Martin, J. E., & Marshall, L. H. (1995). ChoiceMaker: A comprehensive self-determination transition program. *Intervention in School and Clinic, 30*, 147-156.
- Martin, J. E., & Marshall, L. H. (1996). *ChoiceMaker self-determination assessment*. Longmont, CO: Sopris West.
- Moher, D., Cook, D. J., Eastwood, S., Olkin, I., Rennie, D., & Stroup, D. F. (1999). Improving the quality of reports of meta-analyses of randomised controlled trials: the QUORUM statement. *Lancet, 354*, 1896-1900.
- Mostert, M. P. (1996). Reporting meta-analyses in learning disabilities. *Learning Disabilities Research & Practice, 11*(1), 2-14.
- Mostert, M. P. (2003). Meta-analyses in mental retardation. *Education and Training in Developmental Disabilities, 38*(2), 229-249.
- Nota, L., Ferrari, L., Soresi, S., & Wehmeyer, M. (2007). Self-determination, social abilities, and the quality of life of people with intellectual disability. *Journal of Intellectual Disability Research, 51*(11), 850-865.
- Ramsay, C. R., Matowe, L., Grilli, R., Grimshaw, J. M., & Thomas, R. E. (2004). Interrupted time series designs in health technology assessment: Lessons from two systematic reviews of behavior change strategies. *International Journal of Technology Assessment in Health Care, 19*(4), 613-623.
- Schalock, R.L. (2001, April). Self-determination and quality of life: Implications for special education services and supports. *Focus on Exceptional Children, 33*(8), 1-16.
- Scruggs, T. E., & Mastropieri, M. A. (2001). How to summarize single-participant research: Ideas and applications. *Exceptionality, 9*, 227-244.
- Shadish, W. R., & Rindskopf, D. M. (2007). Methods of evidence-based practice: Quantitative synthesis of single-subject designs. *New Directions for Evaluation, 113*, 95-109.
- Sipe, T. A., & Curlette, W. L. (1997). A meta-synthesis of factors related to educational achievement: A methodological approach to summarizing and synthesizing meta-analyses. *International Journal of Educational Research, 25*(7), 583-698.
- Test, D. W., Fowler, C. H., Wood, W. M., Brewer, D. M., & Eddy, S. (2005). A conceptual framework of self-advocacy for students with disabilities. *Remedial and Special Education, 26*(1), 43-54.

- Test, D. W., Karvonen, M., Wood, W. M., Browder, D., & Algozzine, B. (2000 Nov/Dec). Choosing a self-determination curriculum. *TEACHING Exceptional Children*, 33(2), 48-54.
- Trainor, A. A. (2007). Perceptions of adolescent girls with LD regarding self-determination and postsecondary transition planning. *Learning Disability Quarterly*, 30, 31-45.
- Torgerson, C. J. (2007). The quality of systematic reviews of effectiveness in literacy learning in English: A “tertiary” review. *Journal of Research in Reading*, 30(3), 287-315.
- Ward, M. J., & Meyer, R. N. (1999). Self-determination for people with developmental disabilities and autism: Two self-advocates’ perspectives. *Focus on Autism and Other Developmental Disabilities*, 14(3), 133-139.
- Wehmeyer, M. (2002a). *Self-determination and the education of students with disabilities*. ERIC Digest, ED470036. Reston, VA: Clearinghouse on Disabilities and Gifted Education.
- Wehmeyer, M. (2002b). *Promoting the self-determination of students with severe disabilities*. ERIC Digest, ED470522. Arlington VA: Clearinghouse on Disabilities and Gifted Education.
- Wehmeyer, M. L., Agran, M., & Hughes, C. (2000). A national survey of teachers’ promotion of self-determination and student-directed learning. *The Journal of Special Education*, 34(2), 58-68.
- Wehmeyer, M., Bersani, H., & Gagne, R. (2000). Riding the third wave: Self-determination and self-advocacy in the 21st century. *Focus on Autism and Other Developmental Disabilities*, 15(2), 106-115.
- Wehmeyer, M. L., Field, S., Doren, B., Jones, B., & Mason, C. (2004). Self-determination and student involvement in standards-based reform. *Exceptional Children*, 70(4), 413-425.
- Wehmeyer, M. L., & Kelcher, K. (1995). *The Arc’s self-determination scale*. Arlington, TX: The Arc of the United States.
- Wehmeyer, M. L. & Palmer, S. B. (2003). Adult outcomes for students with cognitive disabilities three-years after high school: The impact of self-determination. *Education and Training in Developmental Disabilities*, 38(2), 131-144.
- Wehmeyer, M. L., Palmer, S. B., Soukup, J. H., Garner, N. W., & Lawrence, M. (2007). Self-determination and student transition planning knowledge and skills: Predicting involvement. *Exceptionality*, 15(1), 31-44.
- Wehmeyer, M. L., Sands, D. J., Doll, B., & Palmer, S. (1997). The development of self-determination and implications for educational interventions with students with

- disabilities. *International Journal of Disability, Development, and Education*, 44(4), 305-328.
- Wehmeyer, M., & Schwartz, M. (1998). The relationship between self-determination and quality of life for adults with mental retardation. *Education and Training in Mental Retardation and Developmental Disabilities*, 33(1), 3-12.
- Whitney-Thomas, J. & Moloney, M. (2001, Spring). "Who I am and what I want": Adolescents' self-definition and struggles. *Exceptional Children*, 67(3), 375-389.
- Wolman, J., Campeau, P., Dubois, P., Mithaug, D., & Stolarski, V. (1994). *AIR self-determination scale and user guide*. Palo Alto, CA: American Institutes for Research.
- *Wood, W. M., Fowler, C. H., Uphold, N., & Test, D. W. (2005). A review of self-determination interventions with individuals with severe disabilities. *Research & Practice for Persons with Severe Disabilities*, 30(3), 121-146.
- Wood, W. M., Karvonen, M., Test, D. W., Browder, D., & Algozzine, B. (2004, Jan/Feb). Promoting student self-determination skills in IEP planning. *TEACHING Exceptional Children*, 36(3), 8-16.
- Zhang, D., Katsiyannis, A., & Zhang, J. (2002 Fall). Teacher and parent practice on fostering self-determination of high school students with mild disabilities. *Career Development for Exceptional Individuals*, 25(2), 157-169.
- Zucker, D. R., Schmid, C. H., McIntosh, M. W., D'Agostino, R. B., Selker, H. P., & Lau, J. (1997). Combining single patient (N-of-1) trials to estimate population treatment effects and to evaluate individual patient responses to treatment. *Journal of Clinical Epidemiology*, 50(4), 401-410.

Table 1

Summary of Descriptive Characteristics of Narrative and Systematic Reviews of Self-Determination Literature

Review	Years included for studies	Literature sources	Peer reviewed or not	Types of disabilities included	Age/grade range of participants	Only original research or not	Restrictions based on outcome measures	Restrictions based on methodological quality
Algozzine et al. (2001)	1972 - 2000	Electronic searches Hand searches Reference lists searches Solicitations of researchers	Must be published and peer reviewed	All	Age three to adulthood	Quantitative or qualitative studies	Must focus on a component of self-determination for dependent variable	No
Malian & Nevin (2002)	1992 – 1999	Unclear, but asserted	Published	All	Unclear	Both theoretical and empirical	No	No
Wood et al. (2005)	1972 – 2005	Electronic searches Hand searches Reference lists searches	Must be published and peer reviewed	Severe intellectual disabilities	Pre-kindergarten through adulthood	Quantitative or qualitative studies	Must focus on a component of self-determination for dependent variable	Yes

Table 1 (continued)

Summary of Descriptive Characteristics of Narrative and Systematic Reviews of Self-Determination Literature

Review	Years included for studies	Literature sources	Peer reviewed or not	Types of disabilities included	Age/grade range of participants	Only original research or not	Restrictions based on outcome measures	Restrictions based on methodological quality
Chambers et al. (2007)	No information	Electronic searches	Must be published and peer reviewed	All	No information	Both theoretical and empirical	Must measure global self-determination	No
Bae (2007)	1982 – 2005	Electronic searches Hand searches Conference programs Govt. reports Reference lists searches	All	All	Current or former students with disabilities in two and four year colleges and universities	Quantitative, including correlational studies; U. S. colleges and universities only	Any academic skill	No
Fowler, et al. (2007)	~1972 – 2005	Electronic searches Hand searches Reference lists	Must be published and peer reviewed	MRDD students only	Pre-kindergarten through college	Experimental, pre-experimental or qualitative	Any academic skill	Yes

Table 1 (continued)

Summary of Descriptive Characteristics of Narrative and Systematic Reviews of Self-Determination Literature

Review	Years included for studies	Literature sources	Peer reviewed or not	Types of disabilities included	Age/grade range of participants	Only original research or not	Restrictions based on outcome measures	Restrictions based on methodological quality
Konrad et al. (2007)	1972 - 2005	Electronic searches Hand searches Reference list searches	Must be published and peer reviewed	All plus ADHD	Pre-kindergarten through college	Experimental and pre-experimental	Any academic skill	No

Table 2

Summary of Descriptive Characteristics of Narrative and Systematic Reviews of Self-Determination Literature

Review	Number of Included Studies	Designs of Included Studies	General Topic of Review	Primary Treatment Components in Studies	Major Review Findings
Algozzine et al. (2001)	51 total studies 22 in meta-analysis 29 in narrative only	Multi-group Single-subject One-group, pre-post Qualitative	Focuses on wide range of interventions, but self-determination outcomes only	Choice-making skills Problem-solving skills Self-regulation skills	Group-designed studies with LD students yielded modest positive effects while single participant studies for students with moderate to severe disabilities yielded much stronger positive effects. Instructional interventions that included more self-determination focus areas and for longer treatment periods yielded greater positive effects than those with fewer focal areas and for shorter instructional durations.
Malian & Nevin (2002)	11 studies	Single-subject Longitudinal follow-up Qualitative	Focuses on results of model evaluations, assessment validation, and instructional strategy effectiveness	Comprehensive models Discrete instructional strategies	Self-determination outcomes can be successfully taught to students presenting a wide range of disabilities and severities. Self-determination is a dynamic, developmental phenomenon that can be modeled, taught, and generalized. Positive self-determination skills are a predictor of successful transition to adult life.

Table 2 (continued)

Summary of Descriptive Characteristics of Narrative and Systematic Reviews of Self-Determination Literature

Review	Number of Included Studies	Designs of Included Studies	General Topic of Review	Primary Treatment Components in Studies	Major Review Findings
Wood et al. (2005)	21 studies	20 single – subject 1 qualitative	Focuses on intervention studies promoting self-determination skills	Predominantly instructional interventions in choice-making, problem-solving, and self-regulation and self-reinforcement	All studies showed positive effects for at least one participant (but no metric for effect size reported). With one exception, all studies that measured multiple components of self-determination resulted in increases in all participants. Many components self-determination outcomes have not been adequately measured in intervention studies.
Chambers et al. (2007)	31 studies	Descriptive Intervention Perception	Focuses on studies that use global self-determination as outcome	Largely branded curricula and multi-component instructional interventions	Correlational evidence of enhanced adult outcomes for more self-determined students. More restrictive adult living environments correlate with lower levels of self-determination skills even controlling for level of disability. Teachers seem to value self-determination but do not always teach it due to various reasons. Branded intervention packages generally showed increased self-determination skills attainment.

Table 2 (continued)

Summary of Descriptive Characteristics of Narrative and Systematic Reviews of Self-Determination Literature

Review	Number of Included Studies	Designs of Included Studies	General Topic of Review	Primary Treatment Components in Studies	Major Review Findings
Bae (2007)	24 initially included, but 18 in final analyses due to exclusion of outliers	Not stated, but only correlational information collected for review purposes	Focus was on the correlation between self-determination and postsecondary academic achievement	The “treatment” for each study in this review was a measure of one or more components of self-determination	There is no significant correlation between one or more components of self-determination and academic achievement in postsecondary education, as measured by GPA Measures of core components of self-determination need further psychometric work on reliability, validity, and generalizability for use with individuals with disabilities.
Fowler, et al. (2007)	11 studies	10 single-subject 1 multi-group	Focus was on effects of self-determination instruction or curriculum on academic achievement	The modal intervention component was self-management instruction, followed by multiple components	Effects were generally stronger (more positive) on organizational skills needed to produce academic assignments than for academic outcomes <i>per se</i> . In general, studies measured effects of self-determination interventions on non-academic outcomes rather than actual academic outcomes. Studies of multi-component interventions generated larger effects than studies of single-component interventions.

Table 2 (continued)

Summary of Descriptive Characteristics of Narrative and Systematic Reviews of Self-Determination Literature

Review	Number of Included Studies	Designs of Included Studies	General Topic of Review	Primary Treatment Components in Studies	Major Review Findings
Konrad et al. (2007)	31 articles reporting on 34 discrete studies	27 single subject 7 multi-group	Focus was on effects of self-determination instruction or curriculum on academic achievement	Most studies (30) used self-management component either by itself or coupled with other components (i.e. goal setting) 12 studies used goal setting by itself or with other components	Studies of multi-component interventions generated larger effects than studies of single-component interventions. Effects ranged from very weak to very strong, but were strongest when interventions were used to increase students' productivity. Effects are stronger on producing self-determination skills (choice-making, problem-solving) than on generic academic achievement.