

The Effects of Intervention in Promoting Self-Determination for Individuals with Disabilities

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Abstract

Self-determination benefits those students with disabilities seeking to improve the quality of their life. This factor assists students, not only in the academic setting but also in terms of social life. This study was replicated from Algozzine et al. in 2001. The purpose of this study was to analyze a number of studies on self-determination across all disability groups. 17 studies were identified which promoted intervention in one or more components of self-determination. Articles selected in this review were published between 2002-2007. The findings indicate that intervention promoting self-determination has been successful in a variety of settings (school, work place, and rehabilitation center) ,with participant of all ages (5 – 50 years), and across a range of disabilities including Learning Disabilities, Mental Retardation, and Cerebral Palsy.

Key words: *Self-determination, intervention, disabilities.*

Wehmeyer stated that self-determination is a constructed theory surrounding self-determined behavior. A self-determined individual is described as a person with volitional actions that enable him/her to act as the primary causal agent in their life and to maintain or improve their quality of life (Wehmeyer, 2006). Self-determination plays a role in acquiring skills and developing attitudes to improve their capacity, not only in the academic field but also in social life.

According to Wehmeyer (2007) self-determination incorporates a number of components: choice-making skills, decision-making skills, problem-solving skills, goal-setting and attainment skills, self-regulation/self-management skills, self-advocacy and leadership skills, positive perception of control, efficacy and outcomes expectations, self-awareness and self-knowledge. People who have higher self-determination are characterized as acting autonomously, self-regulating and possessed of self-realization. Jameson (2007) indicated that individuals with higher degrees of self-determination show highly self-determining behaviors and have more positive success outcomes than those with lesser degrees of self-determination.

Since 1990, there has been substantial research examining the effects of self-determination training on individuals with disabilities. In 1992, Harchik, Sherman and Sheldon reviewed literature that examined the effects of various form of self-management intervention in individuals with disabilities. They found that intervention was more successful when the examiner used multiple strategies of intervention. In 1994, Durlak, Rose and Bursuck trained self-determination skills among eight high school students for their transition to post-secondary school. The results indicated that students can acquire, maintain and generalize the skills for the transition process such as self-advocacy and self-awareness. Wehmeyer & Schwartz (1997) conducted a study measuring the self-determination of 80 students with learning disabilities or

mental retardation. Students in the high self-determination group were twice as likely (80%) as youths in the low self-determination group to be employed (40%), and earned, on average \$2.00 an hour more than students in the low self-determination group who were employed. Shogren, Faggella Luby, Bae and Wehmeyer (2004), provided research to support that incorporating choice-making opportunities into intervention has significant effects to reduce problem behaviors of children and youths with disabilities resulted in an improvement in behavioral outcomes

The intention of this literature review is to summarize the research on self-determination across all disability groups, and add to the knowledge base of specific practices that have been empirically validated for promoting self-determination among individuals with disabilities.

This review used a theory of Self-determination from Wehmeyer (2007), in this framework, self-determination refers to volitional actions that enable one to act as the primary causal agent in one's life and to maintain or improve one's quality of life (Wehmeyer, 2006 in Wehmeyer 2007). Volitional action is characterized by 1) being autonomously acted 2) having self-regulated behavior 3) employing a psychologically empowered manner in initiated and responding to the event that occurred and 4) possessing a self-realizing manner. These characteristics determined whether individuals were self-determined or not. Self-determined individuals also had component elements that were developed and acquired during their life time. The component elements included: choice-making skills, decision-making skills, problem-solving skills, goal-setting and attainment skills, self-regulation/self-management skills, self-advocacy and leadership skills, positive perception of control, efficacy and outcomes expectations, self-awareness and self-knowledge

Research Questions

This study was replicated Algozzines's (2001) study, with the difference in the years of being published and time period. The purpose of this study was to integrate and analyze research in an effort to teach and to promote self-determination skills to individuals with disabilities. The following research questions were as followings:

1. What kinds of intervention have been studied to promote self-determination?
2. Which categories of disabilities were mainly investigated to promote self-determination?
3. What outcomes of intervention promoting self-determination have been demonstrated?

Method

This study used a literature review to analyze what types of intervention have been studied to promote self-determination in individuals with disabilities. Electronic resources were screened to identify articles for possible inclusion in this study. The author conducted research into ERIC, EBSCO-Host, Blackwell-Publishing, Science-Direct, PROQUEST, and SAGEONLINE using the keywords: *self-determination, choice-making skills, decision-making skills, problem-solving skills, goal-setting and attainment skills, self-regulation/self-management skills, self-advocacy and leadership skills, positive perception of control, efficacy and outcomes expectations, self-awareness, self-knowledge, disability, disabilities*. Then, additional searches were made using the resulting bibliographic information. Following the online research, this author selected articles according to these criteria:

1. The article had published with the time frame 2002-2007 (the year 2002 was selected because this study was a replica of the same literature study from 1972-2000 and published in 2001);

2. The subjects had to be individuals classified as having one of the disabilities recognized by the IDEA or non specified developmental disabilities;
3. Studies involved at least 1 individual as a participant without age limitation; and
4. The article had to report the result of a data-based intervention.

This review summarizes the findings from 17 studies that describe the effects of intervention (see Table 4 for a full listing and details of the 17 individual studies).

Results

Intervention

Eleven skills were identified in single subject studies to promote self-determination in individuals with disabilities (see Table 1) Self-monitoring, assessment, evaluation and reinforcement skills were used in nine of the 17 (25.71%) studies. Five (14.29%) studies implemented self-determination interventions using goal setting and goal-evaluation. Problem solving and self-regulation were used in four (11.43%) studies each. Self-advocacy (incl. leadership) and decision-making were incorporated in three (8.57%) studies each, while planning and antecedent cue regulation were used in two (5.71%) studies each. Self-realization and perception, choice making and self-instruction were used in one (2.86%) study each.

In-group studies, six skills were used to promote self-determination. Self-advocacy and leadership were used in two (28.57%) studies. In addition, goal setting and evaluation, self-realization and perception, decision-making, problem solving and planning acted as the self-determination component of the intervention for one (14.29%) study each. There are eleven components of self-determination used in this review, each of the component are described below:

1. Self-monitoring, Self-Assessment or Self-Evaluation and Self-Reinforcement

Self-monitoring was used in six studies. Most of the researchers used worksheets to teach students to self-monitor their performance. One study used only a self-monitoring card (McGlashing et al., 2004), a further study used 3 strategies which combined card, sign language and augmentative strategy (Agran et al,2006),while two studies utilized both the worksheet and card or marble (Wehmeyer et al 2003a, 2003b). Students completed the worksheet (noting whether they succeeded or failed) upon finishing of their tasks. Findings suggest that students with severe intellectual disabilities can be taught self-monitoring skills, though the teacher should use different strategies dependent upon the students' conditions. Two studies that used only self-monitoring, showed progress on students even though one study noted inconsistencies in the result (Wehmeyer et al, 2003). In one study, the self-monitoring process was followed by self-evaluation in which students compared their results with the standard goal and at the end of the process chose their reinforcer (Wehmeyer et al., 2003a). Another study examined self assessment through the use of the portfolio writing strategy (Eisenman & Tascione, 2002). In this study students wrote their experiences as a disabled person and by the process end, had discussed it and redefined themselves. Self-reinforcement was only examined in one study, whereby students chose their reinforcer once finishing their task (Wehmeyer et al., 2003a).

2. Goal-Setting and Goal-Evaluation

Goal setting was used in five studies, in which three studies were incorporated within SDLMI, one study through a multicomponent intervention package and one study within the self-directed IEP. In these studies, goal-setting occurred in an individual setting or small group. Goal setting is the central feature of the Self-regulation Theory (Zimmerman, Bandura & Martinez-Pons, 1992 in Wehmeyer 20007). For individuals with disabilities, goal-setting was

problematic since they lacked consideration of goal consequences, though with systematic steps they can learn to set a goal. This study determined that individuals with disabilities in early elementary grades (K-3) can set goals as long as teachers provide the strategies to teach the skills. In this case, teachers submit pictures and encourage students to draw their interests and goals (Palmer & Wehmeyer, 2003). Another finding noted that strategies to teach goal-setting in individuals with moderate to severe disabilities differed to that of other disabilities group. In this group, each student was given the choice of selecting goals. These choices were based on the teachers' observations of students' abilities in daily activities (Agran et al, 2006). Only one study administers goal evaluation following goal setting. In this study, goal evaluation was delivered daily following student completion of the goal setting's worksheet. Students were taught to make a comparison between goals they reached in each day and goals that should be reached (Copeland et al, 2002).

3. Problem-Solving

Problem solving was established in five studies, while one study utilized a group study design. Three studies used problem-solving skills incorporated within SDLMI, one study used Self Directed IEP intervention, and a further study was demonstrated within literature circles. Findings from this review determined that the discussion session in literature circles can improve understanding about the story on the novel and implemented it in their daily life (Blum, Lipsett & Yocom, 2002). Another finding noted, that SDLMI was one of the strategies to improved problem solving since it includes systematic steps that can be taught to everyone, including those individuals with intellectual disabilities (Agran et al., 2002; Palmer & Wehmeyer, 2003; Palmer et al., 2004). A traditional assumption noted that individuals with intellectual disabilities could not teach problem-solving skills. Findings in these studies indicated they can teach the problem

solving skills if teachers provide the strategies that fit with student's conditions (Blum, Lipsett & Yocom, 2002; Agran et al., 2002).

4. Self-Regulation

Self-regulation was used in four studies. Two studies taught self-regulation incorporated with the Self-Determination Learning Model of Instruction, while two others studies created a strategy to teach self-regulation skills. Self-regulation enables students to examine their environments, evaluate their repertoire of possible response, and implement and evaluate a response (Whitman, 1990 in Wehmeyer, 2007). Findings related to this study observed that self-regulation can be taught alone or incorporated within other strategies (Palmer & Wehmeyer, 2003). This skill can be taught to elementary (K-3) students provided that teachers arrange a discussion session and encourage students facing difficulties (Palmer & Wehmeyer, 2003). Self-regulation consists of systematical steps that guide students towards reaching their goals. One study in this review used writing skills to teach students to regulate themselves (Konrad & Test, 2007). Two studies noted that students with varying disabilities, including developmental disability, can learn this skill to reach their goals and improve performance in general curriculum (Agran et al., 2002; Wehmeyer et al., 2003a).

5. Decision-Making

Decision-making was related to four studies, while a separate study used a group study design. Two studies used decision-making as skills within The Self-Determined Career Development Model; one other study applied the Self-Directed IEP and another one used this skill on literature circles. A decision-making process involves judgment about which solution is best at a given time (Wehmeyer, 2007) and according to Crone, Vendel & van der Molen (2003, in Wehmeyer 2007) young children can engage in this process with reduced and simplified steps

in the decision-making process since it develops in accordance with age. All of the studies in this review used adolescents and adults as participants, and in two studies which used SDLMI they were taught to use decision making-process during phase 1 until phase 3 (Wehmeyer et al., 2005 & Benitez et al., 2005) Two further studies utilized the decision making process as the supporting factor in the intervention (Blum, Lipsett & Yocom, 2002 & Arndt, Konrad & Test, 2006). Since this process involves judgment, one participant afflicted with developmental disability neither displayed nor declined in progress, while he neither declined (Wehmeyer et al., 2003). Another study that used those with developmental disabilities as participants noted progress results since the decision-making in this study incorporated Self Directed IEP intervention. Thus the participants had another opportunity to find support to make the decision (Arndt, Konrad & Test, 2006).

6. Self-Advocacy and Leadership

Self-advocacy and leadership was incorporated in five studies, while two of these studies also implemented a group study design. Self-advocacy is the most important factor for students to become independent. Usually self-advocacy was related with the students' participation in the IEP meeting and two studies in this review used selfadvocacy incorporated with the IEP meeting (Test & Neale, 2004 & Arndt, Konrad & Test, 2006). Two others studies advocated writing skills to evoke their understanding about self and as consequences relating to their right and responsibilities (Blum, Lipsett & Yocom, 2002; Eisenman & Tascione, 2002). The common issues associated with students having disabilities is that they never talked about their problem and relied on parents or resource teachers to advocate for them (Wilson, 1994), though teaching self-advocacy required time and energy, thus preventing the teacher from always accomplishing this task. One study on this review used interactive hypermedia programs to replace live

instruction to teach selfadvocacy, and showed that the interactive hypermedia program combined with a small amount of teacher interaction was as effective as live instruction (Lancaster, Schumaker & Deshler, 2002). Another study utilized the Self-Advocacy Strategy and Self Directed IEP to teach students to perform self-advocacy skills (Test & Neale, 2004; Arndt, Konrad & Test, 2006). Findings from this study showed that students with disabilities can teach self-advocacy to improve their participation in IEP meeting and teachers can choose alternative strategies to teach students with disabilities.

7. Planning-Skill

Planning-skill was used in three studies, while only one study used the group study design. Planning-skill became a supporting variable. Of the three studies SDLMI, The Self Determined Career Development Model and Self Directed IEP were used respectively. Planning was usually incorporated in decision-making or self-regulated problem solving. Findings from such a review indicated that planning skills (incl. study planning) can promote self-determination (Palmer et al, 2004), since this skill helps students in regulation and self-direction towards reaching selected goals.

8. Antecedent Cue Regulation

Antecedent Cue Regulation was used in two studies. Antecedent cue regulation relates to strategies that teach students to use behaviors that serve as a discriminative stimulus, to elicit or prompt the desired response or behavior (Wehmeyer, 2007). In this review two studies arranged pictures as the strategy to promote self-determination within participants. Findings noted that this strategy could be applied to individuals possessing severe developmental disabilities (McGlashing-Johnson et al., 2004). For both studies, GAS scores indicated that students, at least,

performed their target behaviors at the predicted level (Wehmeyer et al., 2003; McGlashing-Johnson et al., 2004)

9. Choice-Making

Choice making was used for only one study, which applied SDLMI as a strategy to promote self-determination. In this study students learn how to choose from selecting a goal from amongst three to seven different academic areas. It was found from this study, that students with severe disabilities can teach choice-making with a limitation of options and encouragement from the teacher. They also used pictures to assist students making a choice (Agran et al., 2006).

10. Self-Instruction

Self-Instruction used in one study applied SDLMI as a strategy to promote self-determination. According to Wehmeyer, self-instruction refers to a process in which a person tells himself or herself to do something, and then does it (Wehmeyer, 2007, pg.100). In this study, self-instruction was attached to the problem solving training within SDLMI. Findings noted that this strategy can support a self-regulated problem-solving strategy for students with varying levels of mental retardation to achieve self-selected goals (Agran et al., 2002).

11. Self-Realization and Self-Perception

Self-Realization and Self-Perception were used in two studies, while one study used a group study design. Wehmeyer (2007) stated that self-determined people realize their self; they also have accurate knowledge about themselves and know how to use their strength and weakness in a beneficial way. In these studies, students were taught to learn about their condition through written portfolios and literature circles. Both studies suggest that students learn about their self and expressed satisfaction, whilst simultaneously realizing their limitations and strengths (Eisenman & Tascione, 2002). Learning about self also has consequences for self-

esteem, whereby students can redefine their selves in more positive ways (Blum, Lipsett & Yocom, 2002).

Insert Table 1 about here

Participants

The number of individuals with disabilities in the 17 studies totaled 179, with 48 individuals included in group studies, 131 in single subject studies respectively. Participants in this literature review ranged in age from 5 to 50 years (See Table 2). Seventeen participants (53.4%) in the intervention studies ranged in age from 11-20 years age. While fifty-six (42.7%) ranged in age from 5 to 10 years. The third group consisting of 5 participants (3.8%) ranged in age 20 – 50 years. Mental retardation and specific learning disabilities were the most frequently represented disability categories in the single studies; 7 studies included students with specific learning disabilities and 13 studies included students with mental retardation. Within the group studies, all studies (n =3) included students with specific learning disabilities; though one study also included students with hearing loss, behavior disorder, other health impairment (OHI) and mental retardation. The number of participants with mental retardation totaled 50 students with their classification ranging from severe to moderate, though 30 students had an unspecified mental retardation. The number of students with a specific learning disability totaled 73 with the majority characterized by difficulties in reading and writing. In addition, one study (Palmer & Wehmeyer, 2003) included 14 teachers and another study (Blum et al., 200) included 10 students without disabilities (see Table 3).

Insert Table 2 about here

Insert Table 3 about here

Outcomes of interventions

The results of the interventions have been quite successful towards increasing the skills in individuals with disabilities, though only five studies reported generalized data. The results showed that the method of intervention not only increased target behavior, but also could emerge in other skills such as academic skills, social skills and self-directed (Agran et al., 2002) that are useful for students with disabilities. Findings showed that teachers can use SDLMI to support the development of self-determination. Palmer & Wehmeyer (2003) found it is possible for young children (K-3) to participate in SDLMI process to reach their goal in academic setting, though teachers used different strategies to teach the skills and they should provide additional explanation and daily contact with the children. Within the vocational area, SDLMI has been modified for use in the specific decision-making process in this literature review, with two studies using the model of intervention in career planning. Through the model of self-determination, participants were able to self determine their related employment or job (Wehmeyer et al, 2003b; Benitez et al., 2005). One of the studies indicated that SDLMI was effective in enhancing the work skill development for students with significant disabilities (McGlashing-Johnson, 2004). Individuals affected with varying disabilities can be taught to learn skills to promote self-determination, but for elements that used cognitive ability (such as decision-making), specific strategies must be provided. Also they need specific instruction and steps to implement the skills (Agran et al., 2006; McGlashing-Johnson, 2004). One study

provided doubtful results, since the maturation or history might be related with the participants' performances (Benitez et al., 2005). Self-monitoring which is usually incorporated with other skills or within SDLMI (study by Wehmeyer et al. (2003b)) determined that it is possible to be self-taught, though the effects only lasted during a short period. From the thirteen studies that used social validity, it was noted that both students and teachers were satisfied with the results. Only one participant remarked that he had not gained improvement, though he'd still progressed toward his selected goal (Wehmeyer, 2003b). Most of the participants stated that they learned target skills to reach their goals, and also teachers were inspired to use the model since they perceived positive changes in students.

Insert Table 4 about here

Insert Table 5 about here

Discussion

The major component of self-determination intervention in this literature review was self-monitoring. The majority of the self-monitoring intervention was delivered through class instruction, however only one study had delivered the instruction by way of a one to one basis. Two studies used self-monitoring as single intervention to promote self-determination. According to Wehmeyer (2003b), the study that teaches only self-monitoring strategies indicated less effective results than those found in others studies that used self-monitoring within multi-component intervention. The largest groupings of those participants were individuals with a specific learning disability, followed by individuals with mental retardation. Studies on this

review noted that individuals affected by a varying range of disabilities could be taught to learn skills that promote self-determination. Still, teachers must consider the strategies to teach them and the school system should create a supportive environment for individuals with disabilities. The components least studied were self-realization and self-perception. Findings indicated that many strategies could be adopted for teaching individuals with disabilities, such as interactive programs, multimedia program, literature circles and writing. Those programs were effective based on the results in promoting self-determination.

While most studies noted an increase in self-determination skills after intervention, one study was inconsistent in its results. The literature review indicates that intervention to promote self-determination has been successful in a variety of settings (school, work place, rehabilitation center) with participants of all ages (ranging 5 – 50 years) and with a variety of disabilities (such as Learning Disabilities, Mental Retardation, and Cerebral Palsy). Studies on this review determined that all ages could be taught skills to promote self-determination provided such strategies consider the individuals' condition. This condition was similar to that of the result within Algozzine's review in 2001. Since the development and acquisition of the self-determination components is a life-long process, it will be of benefit to teach these skills to younger students in order to promote self-determination.

Eight studies taught the skills through SDLMI for the purpose promoting self-determination, while the rest of the studies taught the skills through other methods. Since, SDLMI used antecedent cue regulation, self-monitoring, self-instruction, self-evaluation, and self-reinforcement; it appears that this method is a more comprehensive model for promoting self-determination. Teachers may use only one skill to promote self-determination but the result may not be as effective. Eleven studies used class and teaching instruction when delivering the

content of the intervention, and the other six studies focused on one to one instruction. This result proved that self-determination could be taught in combination with many strategies, provided that teachers adopt the best strategies that suit the students and school's environment.

Thirteen studies reported social validity, while interrater-reliability was used in ten studies. Only three studies reported the procedural reliability and two studies used the treatment of fidelity (See Table 5). Findings indicated that both individuals with disabilities and teachers both received benefits and were satisfied with the results, which in turn meant that the intervention covered the needs of both groups. Self-determination is being taught by two methods, first being class instruction and the second as one to one behavioral intervention with systematic prompting and feedback as the person practices the skill. Eleven studies used multiple baseline design, two studies used AB design and two studies used pre-post survey. Qualitative method and modified interrupted time series with switching replication design was used in only one study each.

Several limitations were found in this study, first is that the amount of research included in this review was insufficient and second, the component of self-determination used in this literature review is not proportional, thus the generalization could not be implemented.

Further research is required regarding self-determination for the participants with minor disability, such as multiple disability, sensory impairment and organic brain damage. Also research in post-secondary education and work environment needs further enhancement. This is in part due to the changing situation, the variables within the environment are more complex for individuals with disabilities to deal with.

This study has several implications for practice; Palmer and Wehmeyer (2003) determined that children at a young age can participate in self-determination intervention in goal

selection and work. Thus, children with disabilities could be taught from a very young age to improve their quality of life. Result from this study found that individuals with severe mental retardation can participate and improve their self behavior after intervention. For the teacher, this finding supported the theory students with severe mental retardation can be taught.

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*references marked with an asterisk indicate studies included in the literature review

TABLE 1***Focus in self-determination intervention research***

No	Skills (Component of self- determination)	Number of Single subject studies (n =14)	Percent	Number of Group studies (n = 3)	Percent
1.	Self-monitoring, assessment, evaluation and reinforcement	9	25.71%		
2.	Goal-setting and evaluation	5	14.29%	1	14.29%
3.	Self-advocacy and leadership	3	8.57%	2	28.57%
4.	Problem solving	4	11.43%	1	14.29%
5.	Self-regulation	4	11.43%		
6.	Decision-making	3	8.57%	1	14.29%
7.	Planning (inc. selfdirect, study & voc. planning)	2	5.71%	1	14.29%
8.	Self-realization and perception	1	2.86%	1	14.29%
9.	Antecedent cue regulation	2	5.71%		
10.	Choice-making	1	2.86%		
11.	Self-instruction	1	2.86%		
	TOTAL	35	100%	7	100%

TABLE 2 Age of participants

Age of participants	Number of Single subject studies (n =14)	Percent	Number of Group studies (n =3)	Percent
5-10	56	42.7%	0	
11-20	70	53.4%	48	100%
Over 20	5	3.8%	0	
TOTAL	131	100%	48	100%

TABLE 3 Type of Disability Category

Type of Disability Category	Number of Single Subject Studies (n =14)	Percent	Number of Group Studies (n =3)	Percent
Mental retardation	30	20.8%	20	44.4%
- Unspecified	10		20	
- Mild	6			
- Moderate	11			
- Severe	3			
Specific LD	54	37.5%	19	42.2%
Hearing impairment	3	2.1%	1	2.2%
Autism	9	6.3%		
Behavioral emotional Disorder	3	2.1%		
Cerebral palsy	3	2.1%		
Multiple disability	1	0.7%		
Gifted	2	1.4%		
Traumatic brain injury	1	0.7%		
Cord injury	1	0.7%		
Stroke	1	0.7%		
Alcoholism	1	0.7%		
Behavior disorder			5	11.1%
Speech language impairment	8	5.6%		
ADHD	8	5.6%		
Other health impairment	3	2.1%		
No Label ^a	16	11.1%		
TOTAL	144	100%	45	100%

^aNo label indicates students who were in process of being assessed for possible special education identification or were identified for additional support for math or reading (Palmer & Wehmeyer, 2003)

TABLE 4
Summary of literature on self-determination interventions

No	Study	Sample and Skill	Method (who teaches, where and how)	Outcomes (direct and generalizes)
1.	Blum, Lisset & Yocom (2002)	4 students with a disability in an inclusive language art classroom for 8 th & 9 th graders from local public school. 3 students had reading problems, and 1 student suffered from hearing loss. Students were taught a literature circles and reading strategies. Literature circles are meant to empower the reader by allowing him or her to participate in decision-making, self-perception and problem-solving process to promote self-determination.	Taught in small groups of 5-7 students, by teacher and educational specialist. Literature circles were initially taught through modeling, and students first practiced the roles and their assigned task by reading and discussing short stories. The process contains 2 rounds, first about history and seconds about change process. During the literature circles discussion, the classroom teacher and educational specialist served as observers of the process, completing discussions rubrics that measured students' responses and participation. The pre and post surveys were administered; it asked students to self assess their abilities as a reader. Furthermore, they collected task organizers completed by students and student interview. The intervention conducted in inclusive classroom setting.	Direct: first, classroom teacher, educational specialist and students who had disabilities perceived an improvement in their reading skills due to literature circles. Second, Students were willing to take risks and communicate within groups in rubrics' discussion. Third, student interviews provided insights and feedback, indicating that literatures circles were viewed as providing self-management skills for students. Fourth, literature circles provided an opportunity for students to engage in activities that promote selfdetermination. Another finding is that literature circles can help students with special needs increase their perception of their own abilities as a reader. Generalized: none reported
2.	Eisenman & Tascione (2002)	22 students were classified by the district having mild disabilities, primarily specific	All interventions were conducted by the special education teacher in this school. Senior and junior students had targets to write 2	Direct: students' eagerness to acquire information helped them rationalize their school

learning disabilities assignments, and finally engage in self-experiences and redefine themselves in positive ways. manifested in reading and writing difficulties. They ranged in age from 17-19 (mean=18). Students taught **self-realization** through general English curriculum that also emphasized **self-assessment and self-advocacy**. assessment about what they had learned and how they would use this information in the future. Instructional time, including production of a final student product, lasted from two to three weeks for each composition. The school's block scheduling provided for daily 90-minute class periods. Following the intervention students had the opportunity to ask the teacher about their disabilities. Another researcher (faculty member) conducted three rounds of interviews across the semester (prior to the first targeted assignment, during the intervention and after final targeted assignment). Interviews lasted 30-45 minutes and were conducted individually or with 3-4 students, based on individual student preference. The intervention was conducted in a special education classroom. experiences and redefine themselves in positive ways. Students used the information to reinforce their beliefs to determine their futures and take small steps toward greater self-advocacy within their current school setting. Generalized: the students from this study persisted in school until the end of the school year.

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3. Lancaster, Schumaker, & Deshler (2002) 22 high school students participated in this study. They consisted of a mix of students with learning disabilities (LD), behavior disorders (BD), and other health impairments (OHI). Ages ranged between 16-17 years old. Students were taught **self-advocacy** through Interactive Hypermedia Program and live instructions. The intervention was conducted by researcher and teacher. Participants were divided into 3 groups; comparison group, experimental group with live instruction and experimental group with the Interactive Hypermedia. Interventions occurred at the library and provided during class periods when students were normally assigned to attend the learning resource center. Prior to the learning of The Self Advocacy Strategies (referred to as I PLAN), students taught SHARE Behaviors that enable them to communicate effectively during conferences. Measurement in this study was used 3 ways: 1) Direct: Interactive hypermedia program combined with a relatively small amount of teacher interaction (1 hour) per student is effective in teaching a complex self-advocacy strategy to students with disabilities as live instruction involving approximately three hours of teacher time per student. Generalized: none reported
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oral test according to 10 probe question from The Self Advocacy Program, 2) SHARE checklist to record whether students were using the SHARE behaviors, and 3) I PLAN checklist instruction for live instruction group, which took place in five or six 30-45 minutes sessions, also for Interactive hypermedia group.

4. Hughes, Agran, Wehmeyer, & Fowler (2002) Four students, ranging in age from 14-17 years with mental retardation from a special education classroom located in a large urban high school participated in this study. They taught a **multi component package (incl. self-monitoring, goal setting, and goal evaluation)** to support the classroom performance.
- This study was conducted in a cosmetology classroom or hairdressing salon by the cosmetology teacher and researcher. Prior to the baseline, participants were asked about a) their target behavior's performance b) their feeling in participating in general classroom c) their goals d) their perception about their success after intervention. During the initial baseline session, they were instructed to take out the worksheet, complete it, return it to the folder and replace the folder on a tablet at the back of the room. Training was composed of: a) soliciting participant's input in setting a performance goal and b) instruction in worksheet completion, self monitoring and goal evaluation. The number of training sessions per participant ranged from 7-11 (M=9) with a duration of 3-34 minutes (M=14). Then they entered evaluation 1 (goal). Trainer feedback was provided as follows; following completion goal of the evaluation sheet, the trainer departed the classroom. No corrective feedback or verbal praise was provided for worksheet completion or self-
- Direct: In this study, multi component intervention was effective at increasing worksheet completion tasks. Findings from this study: Students learned to perform teacher-expected classroom behavior; This study provided appropriate supports for students to complete their assignment in similar to those of their general education classmates; all of the strategies introduced could be adapted by general education teachers to support students with disabilities who are included in their class.
- Generalized: participants completed the worksheet completion task without trainer assistance, praise or feedback during generalization.
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monitoring. This step terminated after participants correctly and independently performed the two targeted goal evaluation steps for 5 consecutive generalization sessions. The trainer withdrew from personal participation completely. Only 3 participants continued along this step, with sessions ranged from 3-11 times.

5. Agran, Blanchard, Wehmeyer & Hughes (2002) Four middle school students characterized by autism, intellectual disabilities or multiple disabilities participated in this study. Students were 14 years (2), 12 years (1), and 15 years (1) respectively. The student taught **self-regulated problem solving strategies to achieve self-selected goals within SDLMI.**
- The study was conducted at several locations according to students' school though within the same neighborhood specified by special education and general education teacher. Prior to the baseline, the teacher discussed the notion of target behavior with students. Then, teachers created from three to five opportunities each day for the student to perform their target behaviors and practice the problem-solving steps daily; specific situation set up to promote the occurrence of the target behavior. On the baseline the student's performance of target behavior was observed. No feedback and reinforcement was provided. Training began by teaching students the sequences of steps in problem solving: 1). Student taught to verbalize, "What is the problem?" and to say out loud what it was. 2). Taught to ask "what can I do about it?" and to verbalize the proposed solution. 3). Taught to implement the proposed solution. 4). Taught to ask "Did that fix the problem?" Students were expected to repeat the question out loud until the trainer was assured that they understood
- Direct: Students with varying levels of mental retardation and other disabilities can learn to use a self-regulated problem solving strategy to achieved self-selected goals. Self-regulated problem solving strategy can potentially be used to address different instructional needs, not restricted in work behavior only. The teachers in this survey indicated that problem solving was their students' greatest skill deficit, but this study suggested teachers can instructs student with mental retardation to use systematic problem-solving strategies. Generalized: none reported.
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		and could recall the steps and their sequence. Praise and feedback were provided throughout the training condition. Upon reaching 80% correct performance, praise and feedback stopped and they entered the maintenance condition.	
6.	Wehmeyer, Yeager, Bolding, Agran & Hughes (2003)	Three students with developmental disabilities participated in this study. Two students were 13 years old and one student was 14 years old. Students were taught the self-regulation package which included antecedent cue regulation or self-monitoring plus self-evaluation and self-reinforcement .	This study occurred in general classroom. Initially, project staff with students' special education teacher and general education teacher conducted observations of students' behavior. After each student had their own goals, data collected through 15 minutes observations. Students also had their own self-regulation sheet for self monitoring/self evaluation. Instruction was provided at least once per day. This instruction continued until the student had reached 100% correct use of self-regulation processes for 3 consecutive sessions.
			Direct: classroom observations of students' goal behaviors in the typical classroom revealed consistent improvement across all three students and individual GAS scores indicated that students achieved more than teachers' expected them to across all of the goal areas. Generalized: Non reported
7.	Wehmeyer, Hughes, Agran, Garner & Yeager (2003)	Participants included four adolescents with intellectual disabilities from a sub urban school district in USA. Students range in age, 17 years (1), 19 years (2) and 21 years (1). Students taught self-monitoring strategy.	Experiment conducted in an inclusive setting by project staff, special education teacher and general education teacher. Research used AB design in 5 phases: first, goal setting (student, teacher and project staff met to identify a goal), second, baseline (in 2 consecutive weeks, 3 days a week, each 15-20 minutes for 2 participants, 2 others participants' data were gathered directly from the teacher), third, Self monitoring training (2 week after baseline, at least once time per day), fourth, intervention (they used a self-monitoring strategy to track their progress in the direction of their self
			Direct: study showed evidence of progress on students self-selected goals after learning and using a self monitoring process, although examination of the various graphs showed that there were some inconsistencies in that progress. This result indicated self-monitoring procedure would produce and maintain a desired change without any other intervention, though

		selected goal) and fifth, maintenance (when asked whether desiring to use the strategy or not, 3 students used the strategy for 2 weeks, and one student for single week due to the end of the school year)	evidenced only by the short term. Generalized: none reported.	
8.	McGlashing -Johnson, Agran, Sitlington, Cavin & Wehmeyer (2003)	Participants included 4 students with mental retardation; 2 students with extensive support needs and 2 students with extensive to pervasive support needs. Ages ranged from 16 years (1), 17 years (2) and 20 years (2). Students were taught to use self-monitoring and antecedent cue regulation within SDLMI to enhance the job performance and solve their problem.	4 This study was conducted both at home and work site by researchers and teachers. Participants were observed in 4 phases: pre-baseline (student and teacher or job coach set a goal; this phase is first phase in SDLMI), baseline (researcher collected data from students' job sites), training (students were instructed how to use SDLMI, and they finished the second phase on SDLMI; also, they learned to use self-monitoring and antecedent cue regulation), and maintenance (in this phase students were observed at their job site for correct completion of their task analysis, at the end of maintenance, they finished worksheet for phase III of SDLMI)	Direct: SDLMI represents an effective method to teach problem solving to a person with cognitive disabilities and suggests a functional relationship between the students' use of the model and observed changes in the target behaviors. Students also were provided opportunities to make choices and decisions and to engage in self-directed behavior. Generalized: none reported.
9.	Palmer & Wehmeyer (2003)	Fourteen teachers from 2 states (Texas and Kansas) and fifty students from 5 school districts participated in this study. Students ranged in age from 5-10 years, teachers from 26-57 years. In this study teacher taught students about self-regulated problem-solving and Goal setting skills within SDLMI . 21 Students who participated	2 Teachers received SDLMI training from project staff, using large groups and one to one training. Then, they implemented the strategy to their students over 2 months. They also used GAS to measure the students' goal attainment.	Direct: Teachers' and students' GAS score indicated that goal attainment was on average at or slightly above what was expected by teacher. This result indicated that young children can participate in goal selection and work through the phases of the SDLMI to reach goal attainment. Though, teacher needs to maintain daily contact with younger students.

		in this study had learning disabilities, which included 6 students with mental retardation, 5 students had speech impairment, 2 students identified as gifted and 16 had no label.	Generalized: none reported.
10. Wehmeyer, Lattimore, Jorgensen, Palmer, Thompson & Schumaker (2003)		5 adults with ranged in age from 22-50 years participated in this study. They received VR service at least for 1 year. The variety of disabilities encompassed traumatic brain injury, developmental disability, spinal cord injury, stroke and alcoholism and depression. They taught a self-regulated problem solving model through SDCDM to enable them to self direct planning, decision-making, program implementation and evaluation pertaining to obtaining employment and establishing a career.	Two project staff served as observer and facilitator. They conducted this study in the office of The Kansas Rehabilitation Service. 2 weeks prior to baseline, participants met the facilitator to complete phase 1 (What are my career and job goals?). Baseline data collection was concurrent with phase 2 of SDCDM (What is my plan?). In this phase project the facilitator determined both the action and self monitoring plans. The first two participants who displayed a stable baseline trend then moved into the intervention phase (Phase 3 of SDCDM). In phase 3, the facilitator worked with participants to implement the action plan, to address the question and to self-monitor progress. Direct: participants showed that they could set job and employment goals related to their interests and preferences, participate in designing intervention to achieve those goals, implement and self monitor those goals, and in doing so, made progress toward those goals. Generalized: none reported.
11. Test & Neale (2004)		Four students in eighth grade participated in this study. They were mentally, learning, behavioral or emotional disabled. 3 students were 13 years old while 1 student was	The intervention was conducted in the resource classroom with the teacher who taught the strategy one on one. On baseline, students completed the Arc's Self-determination Scale and 10 probed questions (in three separate sessions). Then they received the intervention, Direct: There was an increase in the score of 10 probe questions which indicated that the students were able to provide more specific information related to their

12. 3 of 4 students were learning partially in the resources room. They taught to use The Self-Advocacy Strategy in IEP meeting.	the self advocacy strategy consists of five steps (IPLAN) which are taught over a series of seven acquisition and generalization stages. The strategy was broken down into 10 lessons each lasting 20-45 minutes. Also, probes were conducted at four specific phases during the intervention and the Arc's Self-determination Scale was completed by the students. Following intervention, an actual IEP meeting was scheduled, and data collected on the IEP meeting. At the IEP meeting, student completed the 10 probe questions.	IEP's after the intervention was introduced. Generalized: on generalization phase, participants' score decreased slightly from intervention.	
12. Palmer, Wehmeyer, Gipson & Agran (2004)	Study participants included 22 middle and junior high school students with intellectual disabilities. 20 students identified as being mental retarded and two students had learning disabilities. Students ranged in age from 11 to 15 years. Students were taught goal-setting, problem solving and study planning skills.	Nineteen students received instruction in the general education classroom and three remaining students received instruction in a resource room. Students were divided into 2 groups. While one of the groups received instruction, the other group became the control group. Each group received 5 weeks of instruction that lasted an average of 35 min each. Measurement consisted of The Arc's Self-determination Scale, problem solving and study planning skills and goal attainment (GAS).	Direct: Students with mental retardation receiving intervention on skills to promote self-determination (problem solving, goal setting and study planning) significantly improved their knowledge and skills in these areas. Students were able to achieve educationally relevant goals tied to district-level standards at expected or greater than expected levels. This supports the hypothesis that instruction to promote self-determination can serve as an "entry point" to general curriculum for students with disabilities. Generalized: none reported.

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| 13. Benitez, Lattimore, Wehmeyer (2005) | 5 students participating in this study, with emotional and behavioral disorders ranged in age from 15-17 years old. They taught SDLMI to promote the involvement in Career and Vocational Planning and decision-making . | This study conducted in alternative middle and high school for male with EBD by researcher. Prior to implementing the model, the lead author met with each participant to discuss his career and employment interests and needs. Each participant was then paired with another participant based on similar employment interests and needs. Participant pairs met with the lead author to complete Phase 1. After completing phase 1, baseline data collection was initiated and participants began formulating action and self-monitoring plans of phase 2 by working through the four questions contained within phase 2. During the training condition, participants received instruction in implementing the plan they create in phase 2. They received daily varied scenarios in each baseline, training, and maintenance conditions. Finally, once participants reached the criteria of 80% correct response for two consecutive days in the training condition, they moved into the maintenance condition. | Direct: All participants displayed improvement over time, though it may be related to history or maturation rather than the immediate results of training. Variability in training complexity and/or rating scale may have contributed to some of the differences outcome. In term of social validation, most students reported they achieved their target goals.
Generalized: none reported. |
| 14. Harris, Friedlander, Saddler, Frizzelle & Graham (2005) | Six students with ADHD, received medication for their disability. The school was located in the suburbs of a large city in the Mid Atlantic States and was situated in what was designated as a low to middle-class neighborhood. They were third, fourth and | This study used students' usual classroom or work areas and instruction was conducted by special education teacher and second author. The study was implemented during the students' language arts period. Each morning, Monday through Thursday, students routinely spent 15 minutes studying their weekly list of spelling words. The list was developed by selecting up to 10 words that children | Direct: Both SMP and SMA had a positive effect on the spelling study behavior of the students with ADHD. Students demonstrated a higher level of spelling practice in the SMA condition as compared to the SMP condition.
Generalized: none reported |
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	fifth grade students. Students were taught to use SMP (Self Monitoring of Performance) and SMA (Self Monitoring of Attention).	misspelled when writing. On Monday, students selected five of these words to study. Prior to the starts of baseline, students taught modified version of the Fitzgerald spelling study procedure. Participant observed during 10 minutes of each of the 15 minute spelling periods. Each student was observed 50 times per session, began 5 minutes after the start of the spelling period.	
15. Arndt, Konrad, & Test (2006)	Five high school students had several disabilities with ages ranged from 14 to 18 years. Students possessed one of the following; educable mental disability, autism, BED, nonverbal LD and mild CP and OHI. Students were taught the Self Directed IEP through the multimedia instruction package. Self directed IEP consists of choice making, problem solving, decision-making, goal setting, self-advocacy and leadership.	The classroom special education teacher conducted the experiment and taught the students in the OPG class. Students were observed during one real IEP meeting and three mock IEP meetings each lasting around 20-30 minutes. Upon completion each was given the self-directed IEP intervention package, with each lesson are designed to be taught in 6-10 45-minutes sessions. The interventions include role play, discussion, and brief reading and writing activities. Lastly, the real IEP meeting took place 1-3 days after the intervention and lasted 50-70 minutes.	Direct: the study indicated a functional relationship between the implementation of the self directed IEP multimedia package and increases in student participation in mock IEP meetings. Generalized: students score increased during the real IEP meeting after intervention.
16. Agran, Cavin, Wehmeyer & Palmer (2006)	Two students were characterized with intellectual disability while one student had Autism spectrum disorder. These students participating in this study in this study were 13 & 15 years	The study took place in students' classroom. Students' Special education teachers and two paraprofessionals conduct the study. Prior to baseline, teacher and student met to develop a students' goal (Phase 1 of SDLMI). Phase 2 of SDLMI was completed during baseline before they received intervention. Training took place	Direct: Students with moderate and severe disability could utilize SDLMI (goal setting, self-monitoring and self-instruction) to promote their access to the general curriculum. Skills were

	<p>old respectively. Students were taught goal-setting, self-monitoring and self-instruction strategy within SDLMI.</p>	<p>over 15-20 minutes. Data was collected 2-4 times per week during baseline and training. Regarding the maintenance condition, students completed phase 3 of SDLMI, observation occurred 1-2 times per week up to 3 ½ months.</p>	<p>maintained at the mastery level for 2 students for 3 ½ months and 2 months, respectively. Generalized: none reported.</p>
<p>17. Konrad & Test (2007)</p>	<p>12 students from middle school with ranged in age 11-15 years. 7 students were identified with learning disabilities, 3 with other health impairment, 1 with a behavioral-emotional disability and 1 with an educable mental disability. Students were taught instruction strategy GO 4 IT...NOW! The strategy was based on self-regulated strategy development model to teach students' paragraph writing skills for IEP's goal and objectives.</p>	<p>4 special education teachers acted as interventionist in the students' language arts resource classroom. Prior to the baseline, students took part in 5 IEP awareness lessons. In relation to the baseline students wrote 2 paragraph (goal and generalization paragraph), and then received instruction strategy GO 4 IT...NOW! The strategy consists of six instructional stages (1. Develop and activate prior background knowledge, 2. Introduce the strategy, 3. Model the strategy, 4. Memorize the strategy, 5. Support Strategy use, 6. Independence performance). In post intervention, they wrote new goal paragraphs, one per day in 3 consecutive days. Generalization stage was divided into 3 phases, during phase one, students wrote paragraphs according to typical expository clarification essay prompts. The last 2 phases were additional prompting and additional feedback since students failed to show improvement. Maintenance stage occurred several weeks after student completing intervention (1st maintenance check was 2 or 4 weeks after intervention and 2nd maintenance check was 6 week after intervention).</p>	<p>Direct: All 12 students displayed increased ability to write IEP goal paragraphs from baseline to post-intervention, with most able to maintain these gains. This finding demonstrated that students can learn to identify and articulate potential IEP goals and objectives. These skills may help students to participate more fully across all stages of the IEP process. Generalized: generalization phase indicated a functional relationship students needed explicit instruction and feedback to generalize the strategy.</p>

TABLE 5
Design, Social validity, Reliability & Intervention method

No	Descriptor	Number	Percent
1	Design		
	1. Multiple baseline design	11	64.7%
	2. AB design	2	11.7%
	3. Qualitative	1	5.8%
	4. Pre post (survey/intervention)	2	11.7%
	5. Modified interrupted time series with switching replication design	1	5.8%
2.	Social validity	13	76.4%
3.	Reliability		
	1. Inter rater reliability	10	58.8%
	2. Procedural reliability	3	17.6%
	3. Treatment fidelity	2	11.7%
4.	Instruction / delivery method		
	1. One to one	6	35.2%
	2. Class	11	64.8%