

Teaching Functional Life Skills to Youth with Disabilities

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Purpose

This practice-based systematic review summarizes the scientifically-based research studies that have been produced in the past two decades focused on the effects of interventions associated with domestic/self-help life skills curricula, community participation life skills curricula, and recreation/leisure life skills curricula, on secondary-aged youth with disabilities.

By *scientifically-based research studies* we mean reports of original research that meet recently enacted federal research standards (Education Sciences Reform Act of 2002) which are stated in the Act as follows:

The term “scientifically-based research standards” means research standards that – (i) apply rigorous, systematic, and objective methodology to obtain reliable and valid knowledge relevant to education activities and programs; and (ii) present findings and make claims that are appropriate to and supported by the methods that have been employed (p. 4).

These scientifically-based research studies can be reports of research employing group-based designs, single participant designs, or qualitative designs, but they must report adequate evidence of attention to validity and reliability standards for the particular design used and be consistent with commonly accepted methodological canons for well-implemented research.

By *life skills curricular focus* we mean original research studies that reported on the effects of implementing an intervention that had as its defining characteristic acquisition of a functional life skill(s) in at least one of three areas: (a) recreation and/or leisure; (b) maintaining a home and/or personal care; and/or (c) participation in the community. Life-skills interventions designed to increase academic, social/communicative, and vocational competence for youth with disabilities were not included in this review.

Finally, by *secondary-aged youth with disabilities* we mean original research studies whose samples were exclusively youth with disabilities or were, in part, youth with disabilities and outcome measures for youth with disabilities were reported separately. These youth must have been enrolled in secondary school environments or, if in non-graded residential or day treatment facilities, the studies must have reported the ages of those youth with disabilities as ages 13-22 inclusive.

Background

For all youth with disabilities, a factor delimiting the scope of life skills instruction in the 1980's was precipitated by Madeleine Will's publication of "Bridges" in 1984, which emphasized the need for a vocational focus in transition programming. This federal emphasis on vocational programming influenced public policy and educational practices for years to follow. In the early 1990's, many experts and practitioners in the field of special education sought to reinterpret and broaden this focus, and advocated for a more comprehensive conceptualization of, and approach to, transition services (Halpern, 1993; 1994b). Halpern (1994a) provided a comprehensive and frequently cited definition of transition for youth with disabilities:

Transition refers to a change in status from behaving primarily as a student to assuming emergent adult roles in the community. These roles include employment, participating in post-secondary education, maintaining a home, becoming appropriately involved in the community, and experiencing satisfactory personal and social relationships. The process of enhancing transition involves the participation and coordination of school programs, adult service agencies, and natural supports within the community. The foundations of transition should be laid during the elementary and middle school years, guided by the broad concept of career development. Transition planning should begin no later than age 14, and students should be encouraged, to the full extent of their capabilities, to assume a maximum amount of responsibility for such planning (p. 116).

Many aspects of this more comprehensive view of transition are echoed in the Individuals with Disabilities Education Act (IDEA) regulations of 1997 and 2004, and thus provides the theoretical framework for our review work; as well, our rationale for conceptualizing separate reviews for empirical evidence of interventions designed to impact employment, post-secondary education, social and communicative skills (experiencing satisfactory personal and social relationships), and the particular focus of the current review: maintaining a home, and becoming appropriately involved in the community (e.g., domestic, recreation, and community participation life skills).

Definition of Functional Life Skills and the Focus of this Review

Cronin (1996) defined life skills as "those skills or tasks that contribute to the successful, independent functioning of an individual in adulthood" (p. 54). These skills may generally be grouped in five broad clusters (aligned with Halpern's 1994 definition of comprehensive transition services): self-care and domestic living, recreation and leisure, communication and social skills, vocational skills, and other skills vital for community participation (such as post-secondary education) (Nietupski & Hamre-Nietupski, 1997, p. 38). This review focuses exclusively on three of these five curricular domains – those curricular interventions designed to teach self-care and domestic skills, recreation and leisure skills, and personal competence in community living skills.

What Does This Review Add to the Literature?

While there are several current reviews explicating instructional strategies to teach life skills – some incorporating meta-analytic techniques – this review adds to the literature base of reviews in important ways. First, the focus of this review includes only studies that combine the

use of a life skills intervention and measurement of one or more life skills outcomes (related to community participation, leisure skills, personal care or maintaining a home) exclusively (or in large part) for secondary aged youth with identified disabilities. While this niche alone makes this review unique, we have also required every study included in this review to meet minimum standards of internal and external validity. The standards and assessment rubrics in use were adapted from early design work completed by meta-analysts and systematic review experts at both the Evidence for Policy and Practice Information and Coordinating Centre (EPPI-Centre) at the University of London, and at the What Works Clearinghouse (WWC) in the U. S. Department's Institute of Educational Sciences (see their respective websites at <http://eppi.ioe.ac.uk/EPPIWeb/home.aspx> and <http://www.whatworks.ed.gov/>). Hence, our review should be considered evidence-based.

Search Strategy

Information on sources and search terms used in the review can be found in the full document located at www.nsttac.org.

Search Results and Synthesis Findings

Results in the areas of settings, participants, research designs and calculation of effect sizes, outcomes, characteristics of life skills interventions, treatment fidelity, attrition rates, and calculated effect sizes can be found in the full document located at www.nsttac.org.

Implications for Practice

Should Life Skills Be Taught?

Yes... but the answer is not so simple...

The intervention literature demonstrates a number of effective interventions for teaching functional life skills to youth with disabilities. It is also generally accepted that there is a link between life skills acquisition and life quality, although it is difficult to measure this empirically. "The essence of life skills acquisition cannot be weighed in terms of degrees, diplomas, or other documents; rather, it is demonstrated in their level of independent living, community adjustment, and enhanced quality of life" (Cronin, 1996, p. 53). Thus the relationship between life skills acquisition and life quality: when a person's repertoire of various life skills increases, his or her independent functioning, social competence, and quality of life is also thought to increase.

The inclusive education movement of the 1990's has undeniably produced a shift toward emphasis on the right to access regular education environments, and documentation of strategies to facilitate social inclusion, meaningful participation, and academic learning instead. Trends in general education have also likely influenced the shift away from life skills instruction, most markedly with the advent of the No Child Left Behind Act (NCLB) and the ratcheting up of the academic accountability movement. It might be argued that the national curricular focus for *all* students in secondary education has shifted almost exclusively toward academic achievement and college preparation.

This tension in secondary schooling – teaching youth with disabilities the skills needed to function in and succeed beyond school, versus including these same youth in general education classrooms where the curriculum is largely focused on academics – is as much a philosophical as it is a practical conundrum. Halpern (1993; 1994b) argued that transition curricula be based on some balance between social norms and societal adult expectations on the one hand, and the personal preferences, needs, and choices of transition-aged youth on the other. This balance should then guide the development of both objective and subjective criteria for selecting what skills, methods, and settings to teach secondary-aged youth with the goal being providing an individualized interpretation of, and promoting, life quality. Halpern grouped these conceptual criteria into three general domains: (a) physical and material well-being; (b) performance of adult roles; and (c) personal fulfillment. Life skills instruction addresses each of these domains, especially with careful attention to *how and where* skills are taught; combined with the goals of inclusive, supported education, it also addresses community membership. Practitioners must ensure that the settings and methods utilized are not only effective in terms of instruction, but that they also enhance community membership and ultimately contribute to life quality.

What Life Skills Interventions Have Been Studied and What Interventions Have Been Used?

Fifty studies were found in money and purchasing skills, other community-based instruction, self-protection curricula, leisure skills, domestic or home-keeping skills, and personal self care. See Table 1 for a summary of these studies.

Money and purchasing skills. Five studies taught components of budgeting skills, with task analysis, prompting and differential reinforcement, and computer assisted instruction. Two taught counting bills with a “one more than” strategy; one taught speed counting bills and change, and eight taught purchasing skills, one with videotape modeling in the classroom and generalization probes in real stores (Haring, et al., 1995). General case programming (c.f. Horner & Albin, 1988) was also a feature of this instruction.

Other community-based instruction. Two studies employed task analysis and time delay to teach students to cross streets safely (Branham, et al., 1999; Collins, et al., 1993); one measured the efficacy of functional sight word training in the community (Schloss, et al., 1995); Heal, et al., (1984) measured instruction on a variety of community skills, and a qualitative study incorporated interviews students with physical disabilities about their exclusion from Driver’s Education classes (McGill & Vogtle, 2001).

Self-protection curricula. Three studies were focused on teaching students self-protection curricula through a small group format: modeling, pictures, discussion, rehearsal shaping, reinforcement, and feedback (Fisher & Field, 1985; Lee & Tang, 1988; Llewellyn & McLaughlin, 1986).

Leisure skills. Three groups of studies were included in this section. The first included interventions designed to teach specific games or activities through task analysis and response prompting strategies (e.g, Collins, et al, 1997); the second group of interventions included participation in exercise classes through modeling and shaping (e.g., Zetts, Horvat, & Langone, 1995); the third group included a focus on the efficacy of leisure awareness education, curricula

exposing students to leisure options in their communities (e.g., Hoge, Datillo, & Williams, 1999).

Domestic or home-keeping skills. Four studies included in this section measured the efficacy of task analysis and a system of least prompts to teach cleaning skills (e.g., Domaracki & Lyon, 1992); one measured the effects of modeling and a correction procedure to teach removing broken glass from a sink to students with cognitive disabilities (Winterling, Gast, Wolery, & Farmer, 1992); and three studies employed response prompting to teach cooking and meal preparation skills (e.g., Horsfall & Maggs, 1986) – one of these adding auditory cues to follow simple recipes (Trask-Tyler, et al., 1995). Two other studies complete this section- the first measured the effects of a system of most-to-least prompts and constant time delay to teach laundry skills (Miller & Test, 1989); the last incorporated tactile cues to teach sewing machine use to blind students (MacDonald, et al, 1985).

Personal self care. Three studies were found in this category. For example, Gast, et al. (1992) measured the effects of small group instruction, constant time delay, and backward chaining on the acquisition of first aid skills in learners with significant cognitive delays.

How well do they work?

We believe the only substantive conclusions we can draw from these synthesis results are twofold:

1. Every single effect size for all 38 studies was positive.
2. Despite the fact that 23 of the 38 individual single participant studies had confidence intervals whose range spanned zero, the aggregated confidence interval for these 38 studies was actually very small and well above zero.

These two conclusions suggest very cautious, but nonetheless positive, support for the efficacy of transition-related curricular interventions in single participant intervention contexts.

How hard is it for youth to learn and use them?

The 50 studies in this review also varied widely in the intensity and duration of interventions, from a single session, to many sessions per week over several months. Intervention length and intensity varied at least in part according to the skill being taught and the characteristics of the study participants; generally, for learners with moderate and severe disabilities, duration averaged between 12-50 sessions, over approximately 4 months while generally fewer sessions were required for students with mild cognitive disabilities.

Do they work equally well for different kinds of youth and settings?

Acknowledging the differences reported above in intensity and duration of interventions, as well as the fact that the majority of evidence has been established with students with moderate and severe disabilities, the studies analyzed here indicate that with carefully planned and implemented instruction, *all* students with disabilities are able to acquire various functional life skills.

How long should you implement instruction?

We have no empirical evidence that would confirm a minimum recommendation for length and intensity of a life skills intervention. Almost all of the best evidence studies cited in Table 1 were over a duration of approximately 3- 4 months, and at an intensity level of, typically, a few times per week.

What is the best evidence?

Given the variability of interventions and outcomes associated with this review, there is no single piece which represents the “best evidence” (Slavin, 1986) to teach functional life skills to youth with disabilities. However, there are several studies we can recommend that are exemplary with regard to the curricular areas depicted in Table 1. These are studies which met *better than adequate research quality standards* in almost every area evaluated.

To teach money skills to adolescents with mild disabilities, we recommend the Cuvo, et al. (1991) study. The authors taught students the use of a savings account, money order, and bill paying through use of a self-paced workbook. The Denny and Test (1995) study represents a high quality intervention for teaching a “one more than” or “dollar up” bill counting strategy to youth with moderate disabilities. For teaching generalized purchasing skills to adolescents with moderate - severe cognitive disabilities, we recommend the Haring, et al. (1995) study, which examined the effectiveness of videotape modeling combined with in vivo training to teach students to make purchases in a variety of stores in the community. Likewise, the Mechling, et al. (2002) study is also high quality on most measures. These researchers taught youth with moderate cognitive disabilities to use aisle signs to locate items in stores.

The Vandercook (1991) study is an exemplary work which focuses on leisure skills instruction for students with severe intellectual disabilities; students were accompanied by peers without disabilities and were taught bowling and pinball skills in the community. Regarding leisure skills *awareness* for students with mild disabilities, we recommend Hoge, et al.(1999), despite their use of non-equivalent comparison groups. Students in the experimental group participated in a leisure education program that included an 18-week course, systematic community instruction and support from a leisure coach, and family/friend involvement, with resultant significant gains on a number of leisure skills measures.

We recommend too the Domaracki and Lyon (1992) study, which measured the effects of prompting and task analysis to teach housekeeping and janitorial work skills to adolescents with moderate-severe mental retardation. Also to teach cleaning skills, we recommend the Cuvo, et al. (1992) study, which measured the effects of response prompting to teach cleaning and laundry skills to youth with mild disabilities. For an exemplary study focused on cooking/meal preparation, we recommend the Arnold-Reid, et al. (1997) study. In this study, researchers taught meal planning *and* preparation to youth with mental retardation, with careful attention to nutritional content.

Conclusions

Various interventions designed to teach life skills do work, as is clear from the consistency of empirical evidence reviewed here. However, the state of the literature is such that few, if any, summative statements may be made. First, the studies vary widely in intervention focus, from budgeting to safety skills to using a headset to reduce stereotypic behaviors. Second, we are missing a number of well done studies with youth with milder disabilities, and for youth with more significant disabilities, the great majority of studies are single participant which are, as we have said, difficult to systematically compare in the aggregate. Finally, for all youth with disabilities, a discussion of the place of life skills instruction in a larger context is warranted.

References

The list of references used in the review can be found in the full document located at www.nsttac.org.

Table 1. Life Skills Studies Used in the Review

Curricular areas	Studies	Designs	Intervention features	Outcome features
Money skills Budgeting (5)	Aeschleman & Gedig (1985) Branham, Collins, Schuster, & Kleinert (1999) Browning (1985) Cuvo, Davis, & Gluck (1991) Heal, Colson, & Gross (1984)	Single participant (2): <i>MB x participants or settings</i> Between groups (2): <i>posttest only control group designs</i> Within subjects design (1): <i>Crossover</i>	Banking skills instruction (slides, modeling, prompting [task analysis] and differential feedback) Budgeting instruction (computer assisted instruction [CAI] and workbooks)	Acquisition of basic banking transaction skills: depositing checks and cash and withdrawing cash, to/from savings and checking accounts. Acquisition of basic budgeting and money management skills, e.g., paying bills.
Money skills Dollar up (or one more than) strategy (2)	Denny & Test (1995) Test, Howell, Burkhart, & Beroth (1993)	Single participant designs (2): <i>MB x participants or tasks</i>	Modeling, practice, and praise—different bill denominations/ “cents pile modification”	Acquisition & generalization of paying for purchases with cash
Money skills Speed counting bills and change	Hastings, Raymond, & McLaughlin (1989)	Single participant design (1): <i>MB x participants</i>	Direct instruction to count bills and coins: Tens number line used to assist with	Ability to count bills and coins in stores while making a

Curricular areas	Studies	Designs	Intervention features	Outcome features
(1)			accuracy.	purchase.
Money skills Purchasing (8)	Gumpel & Nativ-Ari-Am (2001) (2) Westling, Floyd, & Carr (1990) Heal, Colson, & Gross (1984) Haring, Kennedy, Adams, & Pitts-Conway (1987) Haring, Breen, Weiner, & Kennedy (1995) Wissick, Lloyd, & Kinzie (1992) Mechling, Gast, & Langone (2002)	Single participant design (5): <i>MB x participants; (1) MB x settings and participants</i> Between groups designs (1): <i>Pretest-posttest control group design</i> Within subjects design (1): <i>Crossover</i>	General case programming and task analysis (least-to-most intrusive prompt system) to teach locating and purchasing items in a grocery store (4) Using videodisc or videotape modeling, with probes/practice in real stores (4).	Acquisition and generalization of shopping skills
Crossing streets (2)	Branham, Collins, Schuster, & Kleinert (1999) Collins, Stinson, & Land (1993)	Single participant designs (2): <i>MB x settings, and MB x participants</i>	Constant time delay or progressive time delay & task analysis.	Acquisition of street crossing skills
General (& assorted) Community-Based Instruction (CBI) (3)	Schloss, Alper, Young, Arnold-Reid, Aylward, & Dudenhoefter (1995) McGill & Vogtle (2001) Heal, Colson, & Gross (1984)	Single participant design (1) <i>MB x settings with a replication.</i> Qualitative (1) Between groups design: <i>Crossover</i> (1)	First study taught functional sight words in community contexts (prompt/fade); second interviewed students regarding their perceptions of inclusion in or exclusion from Driver's Ed classes; third incorporated instruction on variety of community skills	Recognition of functional sight words/ follow directions in rec. settings; various perceptions & themes about driving; Acquisition of functional community living skills

Curricular areas	Studies	Designs	Intervention features	Outcome features
Self-Protection Curricula (3)	Fisher & Field (1985) Lee & Tang (1988) Llewellyn & McLaughlin (1986)	Between groups (2) <i>Pretest-posttest control group design; Pretest-posttest non-equivalent comparison group design</i> Within subjects (1) <i>Single group pretest-posttest design</i>	Skills taught through pictures/discussion, modeling, behavioral rehearsal, shaping, social reinforcement, and feedback.	Acquisition of specific self-protection skills.
Leisure Skills Games/activities(5)	Collins, Hall, & Branson (1997) Keogh, Faw, Whitman, & Reid (1984) Nietupski, et al. (1986) Wall, Gast, & Royston (1999) Vandercook (1991)	Single participant designs (5): <i>MB x tasks with replications across participants (3); MB x participants (2)</i>	Task analysis with system of least prompts and differential feedback to teach playing games, viewing a TV program or video; also choice training intervention, praise for sustaining leisure activity.	Acquisition of game skills; choice making; increase in competence and social interactions at bowling alley.
Leisure Skills Exercise, weights, sports participation (6)	Lagomarcino, Reid, Ivancic, & Faw (1984) O'Conner & Cuvo (1989) Zetts, Horvat, & Langone (1995) Evans, Evans, Schmid, & Pennypacker (1985) Ninot, Bilard, Delignieres, & Sokolowski (2000) Zhang, Gast, Horvat, & Dattilo (1995)	Single participant designs (5): <i>MB x participants (3); MB x tasks w/ replications across participants; reversal design</i> Between groups design (1): <i>pretest-posttest non-equivalent comparison group design</i>	Various instructional strategies to teach dance skills (Dancercise and dance steps); strength training (weights); jogging; swimming; simulated bowling, overhand throwing and short distance putting	Acquisition of leisure & various sports skills; performance in aerobics classes in community; increase in ability to lift and move boxes; vigorous exercise associated with reduction in problem behaviors and increase in on task behaviors.

Curricular areas	Studies	Designs	Intervention features	Outcome features
Leisure Skills Awareness & Education Curricula(2)	Hoge, Dattilo, & Williams (1999)	Single participant design (1): <i>MB x participants</i> .	Leisure education curricula	Increase in <i>perceived freedom</i> as leisure skills acquired.
	Mahon & Bullock (1992)	Between groups design (1): <i>Pretest- posttest non- equivalent comparison group design</i> ;		Increase in leisure awareness/ access via decision making.
Homekeeping Skills (5)	Domaracki & Lyon (1992)	Single participant designs (4): <i>MB x behaviors, with repetitions x participants (2); MB x participants (2).</i>	Task analyses and system of least prompts with differential feedback to facilitate learning various homekeeping tasks (cleaning, safety skills- removing glass shards from sink,etc.)	Acquisition of housekeeping skills.
	Smith, Collins, Schuster, & Kleinert (1999)	Within subjects design: <i>Crossover (1)</i>		
	Heal, Colson, & Gross (1984)			
	Cuvo, Davis, O'Reilly, Mooney, & Crowley (1992)			
	Winterling, Gast, Wolery, & Farmer (1992)			
Cooking/ meal preparation (3)	.Horsfall & Maggs (1986)	Single participant design(3): <i>MB x participants (2); MB x tasks (1)</i>	System of least prompts, task analysis and concurrent instruction on all steps to prepare simple recipes with verbal or tape- recorded instructions.	Acquisition of simple meal prep skills; generalization to untrained recipes; acquisition of meal planning skills w/ attention to meeting nutritional needs; increase in nutritional content of meals consumed.
	Trask-Tyler, Grossi, & Heward (1995)			
	Arnold-Reid, Schloss, & Alper (1997)		Arnold-Reid, et al. also taught Ss to fill out and follow charts using RDA guidelines for meals and snacks.	

Curricular areas	Studies	Designs	Intervention features	Outcome features
Laundry skills (1))	Miller & Test (1989)	Single participant design: <i>multi-element, alternating treatments</i>	Most-to-least prompting strategy and constant time delay (0 sec., then 2 sec.) were used to teach <u>laundry skills</u> (treatments counterbalanced across students and machines).	Acquisition of laundry skills with both interventions: constant time delay more efficient in terms of instructional time with fewer errors.
Sewing machine use (1)	MacDonald, Manning, & Souther (1985)	Between groups design: <i>Posttest only comparison group design</i>	<u>Tactile aids</u> were used to teach blind and sighted students concepts of <u>sewing machine tension</u> : balanced, loose, and tight (fabric squares with various types of stitching).	Learned concept of sewing machine thread tension.
Personal self care (3)	Dunn, Cunningham, & Backman (1998) Gast, Winterling, Wolery, & Farmer (1992) Ulicny, Adler, & Jones (1990)	Single participant designs (3): <i>MB x settings (1); MB x participants (2)</i>	Treatment used two main components: self control, and continuous external reinforcement; Treatment package consisted of small group instruction and constant time delay paired with a backward chain to teach first aid skills; Behavioral scripts and training (rehearsal/ role playing) to improve interview skills of potential attendants.	Reduction in drooling behavior; increase in self esteem; acquisition of first aid skills (cleaning and bandaging a cut, insect bite, and minor burn); acquisition of effective attendant interview skills

Curricular areas	Studies	Designs	Intervention features	Outcome features
Interventions designed to reduce stereotypic/aberrant behaviors (3)	Frea (1997) Gunter, Fox, McEvoy, Shores, & Denny (1993) Johnson, Hunt, & Siebert (1994)	Single participant designs(3): <i>MB across settings with replication x participants (2); MB x behaviors and withdrawal of treatment(1)</i>	First study taught Ss to orient to environmental stimuli through system of least prompts and use of sports watch. Second study used music (through lightweight headphones attached to a small cassette player) non-contingently and contingently applied across four tasks/ settings. Last study: _Food discrimination training using placemat and contingent mild punishment for occurrences of pica.	Increase in noticing/ orienting to environmental stimuli, and reduction in stereotypic behaviors. Reduction of aberrant, repetitive behaviors and task performance differentially affected by intervention. Decrease in pica and food scavenging across settings within institution.
Other intervention: use of ABA to teach reinforcer preference- then used to train other skills (1)	Wacker, Berg, Wiggins, Muldoon, & Cavanaugh (1985)	Single participant design: <i>MB x participants- also alternating treatments</i>	Verbal prompt-delay- physical guidance-praise used to teach a motoric response (hold head up)- paired with music or other reinforcer. Correct response- then to operate switch attached to reinforcer.	Demonstration of reinforcer preferences by participants.

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