

Enhanced self-determination of adults with intellectual disability as an outcome of moving to community-based work or living environments

M. L. Wehmeyer & N. Bolding

Beach Center on Families and Disability, University of Kansas, Lawrence, Kansas, USA

Abstract

In recent years, the self-determination construct has received increased international visibility and utilization in the field of intellectual disability (ID). This has resulted in efforts to promote skills enhancing self-determination, and in efforts to change how adult services are funded to allocate resources to increase consumer control and direction. An important component to consider in both of these efforts is the role of the environment on self-determination. The present study examined the self-determination, autonomy and life choices of individuals with ID before and after they moved from a more restrictive work or living environment. The self-determination of adults with ID was measured for an average 6-months before and after a move from a more restrictive living or working environment to a community-based setting. Paired-sample *t*-tests indicated that there were significant changes, in each case in a more adaptive direction, in self-determination, autonomous functioning and life choices following a move to a less restrictive

environment. The present findings contribute to emerging evidence that the self-determination of individuals with ID is limited by congregate living or work settings which limit opportunities for choice and decision-making. Alternatively, more normalized, community-based environments support and enhance self-determination. Because self-determination has been linked to positive adult outcomes and enhanced quality of life, it is important to consider ways to enable people with ID to live and work in their communities.

Keywords community, environment, living, self-determination, work

Introduction

In recent years, the self-determination construct has received increased visibility and utilization in the field of intellectual disability (ID). There is general acknowledgement within the educational (Wehmeyer *et al.* 1998; Field *et al.* 1998; Wehmeyer 1999) and adult services (Nerney & Shumway 1996; ASD 1999; Wehmeyer 2001) literature that 'self-determination' is important for children, adolescents and adults with ID. As a construct, self-determination has two basic meanings: (1) the sense of the phrase as pertaining to the rights of a collec-

Correspondence: Dr Michael L. Wehmeyer, Research Associate Professor, Beach Center on Families and Disability, University of Kansas, 3136 Haworth Hall, Lawrence, Kansas 66045, USA (e-mail: wehmeyer@ukans.edu).

tive group, usually citizens of a country, to self-governance; and (2) the use of the phrase as a personal construct referring to having control over one's life and destiny.

Both of these meanings have influenced practice in the field. The current movement to establish consumer-controlled services for adults with ID and other significant disabilities (Nerney & Shumway 1996; ASD 1999) across many countries (e.g. the UK, Australia, New Zealand, Canada and the USA) emphasizes principles of freedom and self-governance of resources. The emphasis on self-determination as a right to self-governance is also evident in the field of social work, where respect for client self-determination has been a principle that guides the way in which services should be provided by social workers (McDermott 1975; Biestek & Gehrig 1978). More than just a right of people in general, however, both the self-determination initiative for adults with ID and the field of social work's use of the construct embodies a respect and value for the rights of individuals to make choices and decisions, and in essence, to live autonomous lives. Therefore, that principle effectively guides service delivery options.

The construct as a personal trait, disposition or characteristic has been most extensively examined in the field of psychology, specifically within theories of personality and, later, motivation (Deci & Ryan 1985; Wehmeyer 2001). The focus on self-determination as a personal construct has been central to efforts in the education of students with ID to enhance skills, abilities, and attitudes which enable them to become causal agents in their own lives (Field *et al.* 1998; Wehmeyer *et al.* 2000).

Whether discussing self-determination as a personal construct or as pertaining to self-governance, one thing is consistent: self-determination is always opposed to 'other' determination, i.e. the right to self-determination of a nation refers to the right of a nation for self-governance, where 'self' refers to 'the people' of the nation, as opposed to being governed by 'others' (e.g. monarchs or military personnel), and likewise, self-determination as a personal construct is opposed to having some other factor (e.g. environment or person) determine one's behaviour and course of action. Mithaug (1998) noted that self-determination as such always has a social context, and stated that:

'[T]his focus on the social nature of the concept directs our attention to the interaction between a person's capacity to choose and act and the social environment that mediates opportunities for those choices and actions.' (Mithaug 1998, p. 42).

It is logical to hypothesize that, as Mithaug (1998) noted, the environment plays a significant role in promoting self-determination. Indeed, most of the theoretical frameworks which have been applied to understanding self-determination (as a personal construct) with individuals with disabilities place some emphasis on the role of the environment as a mediating 'other'.

Four such models have conceptualized self-determination as a personal construct as applied to people with ID, and each addresses the role of the environment to varying degrees. The most explicit examination of the role of the environment in self-determination has been forwarded by B. Abery, R. Stancliffe and colleagues (Abery 1994; Abery & Stancliffe 1996; Stancliffe *et al.* 2000). Abery (1993) proposed an ecological framework for conceptualizing and understanding self-determination in which 'self-determination can be conceptualized as a product of an ongoing interaction between individuals and the multiple environments within which they function' (Abery & Stancliffe 1996, p. 114). This analysis begins with personal characteristics important to self-determination, comprised of self-determination-related skills, knowledge and motivation bases, and expands to examine the influences on self-determination at four ecological levels: (1) the microsystem, (2) the mesosystem, (3) the exosystem and (4) the macrosystem (for an elaboration of these ecological levels, see Stancliffe *et al.* 2000). Self-determination occurs as a result of interactions between these individual factors and the environments within which a person functions.

In a second approach, Mithaug (1993, 1996a, b, 1998) suggested that self-determination is a special form of self-regulation: one that is unusually effective and markedly free of external influence (Mithaug 1996a) in which people who are self-determined regulate their choices and actions more successfully than others. Mithaug (1993) suggested that individuals are often in flux between actual or existing states, and goal or desired states. When a

discrepancy exists between what one has and what one wants, an incentive for self-regulation and subsequent action may be operative. With the realization that a problem or discrepancy exists, the individual may set out to achieve the goal or desired state. However, because of a history of failure, or a sense of powerlessness or learned helplessness, individuals with disabilities may do little to change their situations. They may set expectations that are too low, or in some cases, too high. As Mithaug (1998) noted, negative feelings produce low expectations. Inaccurate self-assessments may produce unrealistic or unfeasible expectations.

Accordingly, individuals need to enhance or increase their expectations to promote success. The ability to set appropriate expectations is based on the individual's success in matching her or his capacity with present opportunity. Capacity is the individual's assessment of existing resources (e.g. skills, interests and motivation), and opportunity refers to the aspects of the existing situation, often the environment, which will allow the individual to achieve the desired gain. Mithaug (1996a) referred to optimal prospects as 'just-right' matches in which individuals are able to correctly match their capacity (i.e. skills and interests) with existing opportunities.

L. Powers and colleagues (Powers *et al.* 1996a, b) have conceptualized self-determination as a function of mastery motivation (characterized by perceived competence, self-esteem, maintenance of an internal locus of control, and internalization of goals and rewards) and self-efficacy expectations. Self-determination is defined as referring to 'personal attitudes and abilities that facilitate an individual's identification and pursuit of goals' (p. 292). The promotion of self-determination within this model results from experiences and efforts which reduce learned helplessness, and promote mastery motivation and self-efficacy expectations. Specifically, self-determination is viewed as antithetical to learned helplessness, and an outcome of promoting mastery motivation and self-efficacy expectations in this model (Powers *et al.* 1996). Powers *et al.* (1996) defined learned helplessness (Seligman 1975) as an 'acquired behavioural disposition characterized by passivity, self-denigration and internalization of devalued social status, perpetuated through permanent, pervasive, internalized negative self-

attributions' (Powers *et al.* 1996, pp. 259–260). Learned helplessness is reinforced by 'environmental factors that encourage passivity by (1) providing little opportunity for an individual to actively make choices and generate successful responses (2) communicating expectations of non-involvement or failure, or (3) reinforcing failure or not reinforcing striving' (Powers *et al.* 1996, p. 260). Powers and colleagues identified factors which promote learned helplessness as including overprotection, and economic, academic or social deprivation components.

Comparatively, self-determination is construed by Powers and colleagues as an acquired behavioural disposition characterized by self-directed, goal-oriented behaviour. While Powers' theory has less explicit emphasis on environmental factors than those of either Abery or Mithaug, research in both the areas of mastery motivation and self-efficacy expectations has identified a host of environmental factors which influence these constructs, and as previously mentioned, environmental factors contribute to learned helplessness.

Finally, Wehmeyer and colleagues have forwarded a functional model of self-determination. Wehmeyer (1997, 1998a) defined self-determination as 'acting as the primary causal agent in one's life and making choices and decisions regarding one's quality of life free from undue external influence or interference' (Wehmeyer 1996a, p. 24). Self-determined behaviour refers to actions that are identified by four essential characteristics: (1) the person acted autonomously; (2) the behaviour(s) is (are) self-regulated; (3) the person initiated and responded to the event(s) in a psychologically empowered manner; and (4) the person acted in a self-realizing manner. These four essential characteristics describe the function of the behaviour, i.e. the purpose served by the behaviour. As such, people can be described as 'self-determined' based on the functional characteristics of their actions or behaviours.

The concept of causal agency is central to the present authors theoretical perspective. Broadly defined, causal agency implies that it is the individual who makes or causes things to happen in her or his life. An agent is a person or thing through which power is exerted or an end is achieved.

Therefore, a causal agent is someone who makes or causes things to happen in her or his life. Self-determined people act as the causal agent in their

lives. They act with intent to shape their futures and their destiny. Self-determination emerges across the life span as children and adolescents learn skills and develop attitudes which enable them to become causal agents in their own lives. These attitudes and abilities are the component elements of self-determination and the essential characteristics which define self-determined behaviour emerge through the development and acquisition of these multiple, interrelated component elements, which include choice- and decision-making skills, problem-solving and goal-setting and attainment skills, self-management skills, self-advocacy skills, self-awareness, and self-understanding. It is this level of the framework that drives instructional activities since each of these component elements has a unique developmental course or is acquired through specific learning experiences (Doll *et al.* 1996; Wehmeyer *et al.* 1997). The present authors have suggested three primary factors which impact the emergence of self-determination: (1) individual capacity, as influenced by learning and development; (2) opportunity, as influenced by environments and experiences; and (3) supports and accommodations.

It should be evident from each of these models that self-determination emerges as a function of the interaction between individuals, their capacities and perceptions, and the environments in which they live, learn, work and play. Nevertheless, it is too often the case that, when the topic of self-determination is broached with regard to people with more severe disabilities, such as ID, the prevalent assumption is that these individuals cannot or do not become self-determined, an opinion formed almost exclusively on assumptions about individual capacity, or the limitations thereof (Wehmeyer 1998a; Wehmeyer *et al.* 2000). However, it is the present authors' belief that, by addressing issues pertaining to environment and opportunity, and by providing adequate supports and accommodations, people with ID can enhance their self-determination and assume greater control of their lives. The emergence of self-determination is not an either/or proposition (e.g. capacity versus opportunity/environment). Just as the growing field of positive behavioural supports (Koegel *et al.* 1996; Carr *et al.* 1999) moves the focus in addressing problematic behaviour from fixing the person

to the remediation of deficient contexts (Carr *et al.* 1999, p. 1), so too is there a need to focus on 'deficient contexts' as a means of enhancing self-determination.

Research to explore the role of environment in self-determination is only now emerging, particularly as it pertains to people with ID. Wehmeyer *et al.* (1995) examined the degree to which individuals had control over and choice in major domains in their lives (e.g. home/family living, employment, recreation and leisure, and money management). Respondents who lived independently or with family members were more self-determined than respondents who lived in group homes or in a larger congregate setting. Respondents who lived in the largest congregate settings were the least self-determined. However, the type of environment was confounded with level of disability in the above study.

Tossebro (1995) studied the relationship between self-determination and environment for 591 people with ID using staff ratings of the degree of freedom a person had to make decisions and to influence day-to-day activities in her or his life, and then correlated these ratings with living unit size. Self-determination was significantly, positively related to unit size for residences with between one and five residents, and was negatively related to unit size for residences with between six and 16 residents. Thus, as with the Wehmeyer *et al.* (1995) study, self-determination was fostered by smaller, more home-like residences. However, the above study also confounded level of disability with environment. Other studies have examined the impact of environment on component elements of self-determination, particularly choice-making. Stancliffe (1997) and colleagues (Stancliffe & Wehmeyer 1995; Stancliffe & Abery 1997) have shown that environmental factors influence the amount of choice available to people with ID, in each case with more restrictive settings minimizing choice making opportunities.

Recently, Stancliffe *et al.* (2000) reported findings from a study that examined the personal control exercised by 74 adults with ID who lived in community-based settings. Using multiple measures of adaptive and challenging behaviour, self-determination knowledge and competencies, and environmental variables, the above authors found that personal characteristics (e.g. adaptive behaviour and challenging behaviours), self-

determination skills and environmental factors (e.g. residential size, type of funding stream and community living situation) all contributed to personal control. Trends from the above study generally supported previous research, emphasizing that living environments with fewer residents per unit which employ flexible practices and funding mechanisms better support self-determination. The above study is important because it provides information about the relative contribution of each of these factors.

To control for the confound in previous research between environment and level of intelligence, Wehmeyer & Bolding (1999) conducted a matched-samples study to examine the role of environment on relative self-determination independent of the contribution of level of intelligence, which has often been confounded with living environments (e.g. people with more significant disabilities are more likely to live or work in more restrictive environments). Two hundred and seventy-three individuals with ID were recruited based on whether they worked or lived in one of three environments hypothesized to limit or promote self-determination; (1) community-based (e.g. independent living or competitive employment); (2) community-based congregate (e.g. group home or sheltered employment); and (3) non-community based congregate (e.g. institution or work activity programme). Participants in each environmental group were matched with one other person in each other group based on IQ score (within five points), and when possible, by age and gender. This resulted in 91 matched triplets, in which individuals differed only by the environment in which they lived or worked. Data analysis indicated that there were significant differences in level of self-determination, autonomy, life satisfaction and opportunities to make choices based on environment, with persons who lived or worked in non-congregate community-based settings having significantly more adaptive levels on each measure.

The purpose of the present study was to provide further information about the impact of the environment in which people with ID live and work on their self-determination while controlling for the impact of level of ID. The present authors' previous research study (Wehmeyer & Bolding 1999) utilized a matched-sample design to control for level of intelligence and factors other than environment.

However, one plausible explanation for the findings from the above study is that, since people who are more self-determined are more likely to work on their own behalf to get into more favourable living or work circumstances, the findings reflect not so much on the impact of the environment, but instead on the characteristics of the people in the environments. The present study addressed this issue by employing a within-individual design in which individuals with ID were identified prior to a move from a more restrictive to less restrictive work or living environment, and their self-determination measured before and after that transition.

Subjects and methods

Participants

The research participants were 31 adults with ID recruited from agencies providing services and supports to this population in the USA (described in the 'Procedures' section below). The mean age of participants at the time of the first measurement period was 40.8 years ($SD = 8.57$ years). Participants ranged in age from 24 to 62 years of age. Because the present authors used self-report measures of self-determination, choice-availability and autonomy, the sample was limited to people who could reliably complete such measures. Potential participants were identified by staff at participating agencies, after which research staff individually interviewed participants to determine their ability to reliably complete measures. The mean IQ score for the group was 60.25 ($SD = 7.14$). There were 17 males (mean age = 39.47 years, mean IQ = 61.29) and 14 females (mean age = 42.5 years, mean IQ = 58.92) in the sample. Out of the 31 participants, eight moved from a more to less restrictive living environment (e.g. institution/nursing home to group home or community, or group home to community living), 21 moved from a more to less restrictive work setting (day programme to sheltered workshop or competitive employment, or sheltered workshop to competitive employment), and two participants made both a living and work move.

Procedure

The present authors recruited participants with ID who were moving from a more restrictive work or

living environment to a less restrictive work or living environment. Based on standards established in their previous study, environments were classified in three categories: (1) community-based, (2) community-based congregate and (3) non-community-based. Each category is defined below (adapted from Wehmeyer & Bolding 1999):

- 1 *Community-based*: The person works in a competitive job in the community (including supported employment) for minimum wage or better for at least 20 h per week, with or without supports such as job coach; or the person lives in her or his own or shared apartment/house/dwelling (including supported living) with or without supports.
- 2 *Community-based, congregate*: The person works in a sheltered employment setting involving piece-work at piece rates, including working at segregated workshop or in an enclave setting. The person lives in a group home located in the community generally with four to six individuals.
- 3 *Non-community-based, congregate*: The person is served in a congregate day programme operated in a disability-service providing agency, or has no previous history of employment and participates in a segregated vocational preparation programme (e.g. daily living skills training or pre-vocational skills training) while waiting for employment. The person lives in an institution (private or state-run) or nursing home with 12 or more residents.

The participants were recruited through service-providing agencies throughout the country, including four chapters of The Arc (a national association on ID in the USA), six supported employment providers and two residential services providers. These agencies were located in the states of Arkansas, California, Florida, Illinois, Maryland, Texas and Wisconsin. Project personnel contacted a representative from each agency to identify people who were being served by the agency who were scheduled to move from a more restrictive to less restrictive environment. Once participants were identified, they were contacted about their interest in participating in the present study, and if they were favourably inclined, informed consent was obtained from each person, including a parent or guardian, when appropriate. All participants were compensated for their participation in the study.

When participants were identified and consent was obtained, project personnel identified which environmental category best fit the person's original environment (i.e. non-community-based, community-based congregate and community-based) and determined that the move was, indeed, to a less restrictive environment. Questions regarding the environmental category to which the person should be assigned were resolved through consensus among key project personnel.

At that point, data on self-determination, autonomy and choice-availability were collected by project staff, agency psychology staff, or other staff at the service-providing agency who supported the participant to complete the self-report measures described subsequently. When data were collected by someone other than project staff, each such person was provided a set of protocols, a detailed packet of instructions prepared by project staff and were required to participate in a telephone training session with the second author (N.B.). In addition, project staff had continuous contact with agency personnel to answer questions and ensure reliable administration. All assessments used were self-report measures designed for use with accommodations and the role of the administrator is to provide necessary support.

The present authors attempted to collect pre-move data at least 6 months prior to the person's scheduled move and to collect post-move data at least 6 months after that transition. On average, they achieved that objective, although actual intervals varied. The average time from the pre-move collection to the post-move data collection was 14.84 months (range = 6.26–26.77 months, SD = 5.61 months). The average pre-move data collection occurred 6.5 months prior to the transition (range = 1–20 months, SD = 6.01 months), while the average post-move data collection occurred 8.3 months after the transition (range = 3.25–14.56 months, SD = 2.21 months).

Instrumentation

All participants completed two measures, The Arc's Self-Determination Scale: Adult Version (SDS; Wehmeyer & Kelchner 1995a), and the Autonomous Functioning Checklist (AFC): Self-Report Version (Wehmeyer & Kelchner 1995b;

Sigafoos *et al.* 1988). Participants ($n=10$) who transitioned from one living arrangement to another also completed the Life Choices Survey (LCS; Kishi *et al.* 1988).

The SDS (Wehmeyer & Kelchner 1995a) is a 72-item self-report scale that provides data on overall self-determination by measuring individual performance in the four essential characteristics of self-determination identified by Wehmeyer *et al.* (1996). Section 1 measures autonomy, including the individual's independence and the degree to which she or he acts on the basis of personal beliefs, values, interests and abilities. The second section measures self-regulation and consists of two subdomains: (1) interpersonal cognitive problem-solving; and (2) goal-setting and task performance. Section 3 is an indicator of psychological empowerment. Psychological empowerment consists of the various dimensions of perceived control. People who are self-determined take action based on the beliefs that: (1) they have the capacity to perform behaviours needed to influence outcomes in their environment; and (2) if they perform such behaviours, anticipated outcomes will result. Respondents choose from items measuring psychological empowerment using a forced-choice method. High scores reflect positive perceptions of control and efficacy. The final section of the scale measures self-realization. Self-determined people are self-realizing in that they use a comprehensive, and reasonably accurate, knowledge of themselves, and their strengths and limitations to act in such a manner as to capitalize on this knowledge in a beneficial way. Self-knowledge forms through experience with and interpretation of one's environment, and is influenced by evaluations of others, reinforcements and attributions of one's own behaviour. Respondents reply to a series of statements reflecting low or high self-realization by indicating that they agree or disagree with items. High scores reflect high levels of self-realization.

There are a total of 148 points available on the scale and higher scores reflect higher self-determination. The Arc's SDS was developed and normed with 500 adolescents with and without ID (Wehmeyer 1996b). Concurrent criterion-related validity was established by showing relationships between the SDS and conceptually related measures, including multiple measures of locus of

control, academic achievement attributions and self-efficacy. The scale had adequate construct validity, including factorial validity established by repeated factor analyses and discriminative validity, as well as adequate internal consistency (Cronbach's $\alpha=0.90$). The present authors have used the Adolescent Version of the SDS to group students with disabilities leaving high school according to relative self-determination status and found that that grouping students based on scores from the scale predicted better adult outcomes one year later (Wehmeyer & Schwartz 1997).

The Adult Version of the SDS is identical to the Adolescent Version, with selected wording changes in questions to reflect adult outcomes (e.g. replace 'school' with 'work'). Wehmeyer & Bolding (1999) conducted a factor analysis of the Adult Version of the scale, using a principal components analysis with eigenvalues greater than one retained for further analysis. Remaining factors were subjected to varimax rotation with the resulting factor pattern analysed for content. Criterion for item inclusion was a factor loading of at least 0.30, and a minimum of three items was required to establish a coherent theme. These steps replicated the factor analytic study for the Adolescent Version of SDS. Wehmeyer & Bolding (1999) concluded that, overall, there was considerable similarity in factor structure between the Adult and Adolescent versions of the scale. In fact, the factor structure for the adult version more closely fit the functional model of self-determination upon which the scale was constructed than did the adolescent version. Coefficient alpha was 0.92 for the Adult Version, indicating adequate internal consistency reliability. In a previous study using the Adult Version of the SDS, the present authors found that people who scored higher (e.g. were more self-determined) were also more likely to score higher on a quality of life measure (Wehmeyer & Schwartz 1998).

The AFC Self-Report Version (Sigafoos *et al.* 1988) is a 78-item scale that is subdivided into four conceptually distinct subscales: (1) Self and Family Care; (2) Management; (3) Recreational Activity; and (4) Social and Vocational Activity. Questions in the first three domains describe activities, in response to which respondents select one of five alternatives: (1) do not do; (2) do only rarely; (3) do about half the time there is an opportunity; (4)

do most of the time there is an opportunity; and (5) do every time there is an opportunity. The fourth domain poses questions with a yes/no answer. Likert-scale responses are scored from (0) 'do not do' to (4) 'do every time', while dichotomous yes/no responses are scored with zero or one. High total (out of 252 possible) and subscale scores indicate that an individual exhibits behaviours associated with autonomy. Sigafos *et al.* (1988) found that the subscales had high levels of internal consistency (coefficient alpha from 0.76 to 0.86). There were consistent and significant correlations between each subscale and adolescent leadership experience (0.21–0.36), and three of four subscales and number of extracurricular activities (0.34–0.45), providing further evidence for construct validity.

The AFC was originally developed as a parent-report measure for adolescents, but was adapted by Wehmeyer & Kelchner (1995b) as a self-report measure for adults by presenting instructions and items in first-person tense instead of second person. The five-point Likert format used in the original scale was maintained, with responses made singular and first person. Wehmeyer & Kelchner (1995b) found that the factor structure of the self-report version replicated that of the original version and that this version had adequate criterion-related validity. Wehmeyer & Bolding (1999) used the AFC to examine differences in autonomy between people with ID who lived or worked in environments that varied by their restrictiveness.

The LCS (Kishi *et al.* 1988) has 10 items measuring major life decisions and daily choices, and was developed to evaluate daily living choices available to adults with ID. Respondents answer on a scale indicating how often they have the chance to make certain choices. The instrument is completed in an interview format and yields a total score reflecting overall choice opportunity. Stancliffe & Wehmeyer (1995) used the LCS to measure choice availability for individuals with ID, and Stancliffe (1997) used the LCS to compare staff and resident perceptions of choice availability.

Data analyses

Data collection yielded assessment scores pre- and post-move on self-determination and autonomy from all 31 participants and scores from the LCS

for 10 participants, whose move involved changing living residences. Data were analysed using a paired-sample *t*-test and findings from that were presented graphically. All data analyses were conducted using the SPSS for Windows Version 9.0 computer program.

Results

Paired-sample *t*-tests examining pre- and post-move differences on self-determination and autonomy for all participants indicated significant differences on both The Arc's SDS ($P=0.017$) and the Autonomous Functioning Checklist ($P=0.041$). In both cases, mean scores were more adaptive after the person transitioned to the new living or work environment. The mean score on the SDS prior to the move was 101.06, with the mean score after the move 109.71. The mean score on the AFC prior to the move was 146.52, and after the move, it was 160.19, again with the change in a more positive direction. Figure 1 presents pre- and post-move comparisons on both of these measures. Out of the total sample of 31 participants, 25 scored higher on the post-test for SDS, while 20 scored higher on the AFC. Table 1 provides individual scores. Only two participants did not improve on one or the other measure. There were also significant differences before and after the move on LCS scores for those individuals who made a living-related move ($P=0.005$). The mean score before the move was 32.5, and after the move, it was 37.2.

Discussion

After moving from a work or living environment that was more restrictive to one which was

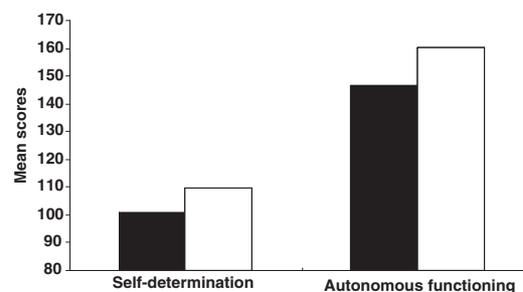


Figure 1 Mean scores for the self-determination and autonomous functioning measures before (■) and after (□) transition.

Participant	AFC		SDS	
	Time 1	Time 2	Time 1	Time 2
1	126.00	172.00	102.00	119.00
2	126.00	135.00	108.00	109.00
3	122.00	146.00	79.00	100.00
4	217.00	174.00	116.00	122.00
5	131.00	108.00	85.00	94.00
6	212.00	174.00	126.00	127.00
7	169.00	143.00	95.00	111.00
8	165.00	162.00	113.00	117.00
9	171.00	167.00	117.00	109.00
10	155.00	177.00	107.00	97.00
11	107.00	105.00	90.00	103.00
12	173.00	187.00	119.00	121.00
13	143.00	196.00	121.00	128.00
14	59.00	89.00	61.00	68.00
15	130.00	193.00	83.00	128.00
16	199.00	217.00	136.00	135.00
17	141.00	184.00	103.00	112.00
18	154.00	84.00	114.00	60.00
19	131.00	163.00	109.00	114.00
20	237.00	233.00	130.00	137.00
21	134.00	120.00	73.00	84.00
22	127.00	187.00	99.00	130.00
23	129.00	144.00	89.00	103.00
24	68.00	95.00	78.00	69.00
25	197.00	213.00	140.00	130.00
26	202.00	170.00	90.00	96.00
27	140.00	194.00	92.00	138.00
28	187.00	201.00	116.00	125.00
29	74.00	148.00	66.00	117.00
30	87.00	161.00	82.00	97.00
31	140.00	97.00	79.00	88.00

Table 1 Pre- and post-transition scores on the Autonomous Functioning Checklist (AFC) and The Arc's Self-Determination Scale (SDS)

community-based and less restrictive, research participants showed gains in self-determination and autonomous functioning, and reported that they had more choice opportunities. These results are consistent with previous research (Stancliffe & Wehmeyer 1995; Wehmeyer *et al.* 1995; Stancliffe & Abery 1997; Wehmeyer & Bolding 1999), and support the importance of addressing both issues of capacity and opportunity to promote enhanced self-determination.

It should be noted from the outset that these findings should be interpreted cautiously. The within-individual design that was used in the present study cannot attribute direct causality to the change in environments and enhanced self-determination.

Had the authors been able to identify a control group of participants who did not move, they would have been able to make stronger statements about the causal link between living and working in less-segregated settings. In addition, because of difficulty in maintaining contact with participants in the course of a move to a different work or living environment, there was wide variability in the time between initial and subsequent measurement periods. When there were longer intervals between measurements, it increased the possibility that factors other than just the move could account for enhanced self-determination. Finally, the exclusive reliance on self-report measures limits the degree to which statements can be made about an individual's

absolute self-determination. That said, the authors believe that, in conjunction with previous evidence concerning the impact of the environment on self-determination, these findings should provide further impetus to the field to examine the environments in which people live, learn, work and play.

The mechanisms by which the environment impacts relative self-determination status (as described in the models discussed in the 'Introduction') are multiple and complex. The impact of an environment on a person's self-determination will be a function of the degree to which she or he is supported or enabled to express preferences, make choices, make decisions, self-direct activities, and so forth. It is not living independently or working competitively, in and of themselves, which ensure enhanced self-determination (although these do probably contribute), as one can easily imagine a circumstance in which a person with ID lives independently, but is alone and without the supports she or he needs to take control over her or his life and destiny. As can be seen in Table 1, the degree to which individuals' self-determination or autonomous functioning changed varied among participants, and such changes are likely a function of multiple variables, including the opportunities to make choices and exert control available in both settings. As such, we need to ensure that the process of enabling people with ID to move to non-congregate settings is accompanied by intensive efforts to ensure adequate supports and accommodations to ensure community integration. Having the opportunity to exert greater control over one's life must go hand in hand with ensuring such supports and providing opportunities to gain greater capacity to take advantage of those opportunities.

The present authors have suggested (Wehmeyer 1998b) that assistive technology devices can provide important supports for individuals with cognitive disabilities. Of particular promise is the potential for computers to enhance self-determination. Efforts are underway to develop software programs which enable individuals with ID to take control over and responsibility for activities like budgeting, meal planning, personal scheduling and other activities which others currently do for individuals with ID (Davies *et al.* 2001). As a field, we must be diligent to ensure that people with ID are not left behind in the computer revolution.

In addition to ensuring adequate supports and accommodations, there is a need to understand more about the characteristics of environments which limit or enhance self-determination. There are a number of factors which could, hypothetically, impact self-determination. There are physical aspects of the environment which include accessibility and ease of mobility within the environment, or placement of materials and resources to ensure independence and access, and to provide options from which to choose and facilitate the expression of preferences. Brotherson *et al.* (1995) noted that the 'built environment influences activity by facilitating certain actions and limiting others' (p. 5). In a work environment, for example, factors such as the placement of signage, the height of counters, location of storage and supply cabinets, and designs for traffic flow all can inhibit or enhance opportunities to act independently, make choices, express preferences, as well as participate in the social milieu of the workplace.

A second factor that influences the impact of the environment on self-determination is the degree to which the environment promotes social inclusion and social competence. Smaller, more home-like or normative environments seem, based on the studies reviewed, to be related to enhanced self-determination, independent of the persons cognitive capacity. However, while this relationship between the number of people with whom one lives and self-determination may be a reality for current models, it seems intuitive that one can only take this 'fact' so far in terms of providing services and supports. Wehmeyer & Bolding (1999) found that there were no significant differences in scores on measures of self-determination, autonomy and choice opportunities between people with ID living in a group home (i.e. with four to six residents) and people living in large congregate settings (i.e. nursing home or institution), while there were significant differences between scores for people living in community-based, non-congregate settings and both other options (i.e. group homes and large congregate settings). Does that mean that living with four to six other people decreases self-determination? Since a great many people live in family units of four or more, that seems a fairly simplistic, and probably inaccurate, conclusion. Certainly, one might, with more certainty, surmise that living with

lots of other people, such as in a nursing home, may, by the sheer pressures of the number of people in the environment, limit individual freedom, autonomy and self-determination. (However, even there, the experiences of college students in dormitory settings or fraternities might beg the question of the 'sheer numbers' assumption.)

Nonetheless, even though it seems evident that congregate settings are detrimental to personal self-determination, one has to examine more than just numbers, be it numbers of residents or staff members, to fully understand the attributes of environments which contribute to enhanced self-determination. Indeed, it seems likely that the factor that is more important than sheer numbers is one of social interactions. Who is it the person is living with? Is this a mutually agreed upon arrangement? Who is providing supports? How do people providing supports interact with the person being supported? To what degree do these interactions embody respect and suggest the person is valued? To what degree do such interactions encourage independence and autonomy, focus on preferences, and promote opportunities to make choices and assume control? What power structures exist in the environment, work or living?

It is at this level of analysis that we can begin to learn more about providing supports and creating environments which promote self-determination and enable people with ID to leave rich, full lives. Research suggests that the factors which lead to outcomes like social inclusion, community integration and an enhanced quality of life, and which also promote enhanced self-determination, are those environments which are community-based and individually focused. We need to enable and support people to move to real homes and to have meaningful jobs, and focus our efforts on identifying how best to support people in those environments and examining what it is about those environments that lead to enhanced self-determination.

Acknowledgements

We are grateful to the hard work of agency staff across the agencies in data collection activities. To ensure the confidentiality of the participants, we

will not identify these agencies, but extend our sincere thanks to them nonetheless. This study was funded through US Department of Education NIDRR grant #H133G50178, although the opinions are those of the authors and should not be interpreted as representing the position of the US Department of Education.

References

- Abery B. (1993) A conceptual framework for enhancing self-determination. In: *Challenges for a Service System in Transition: Ensuring Quality Community Experiences for Persons with Developmental Disabilities* (eds M. Hayden & B. Abery), pp. 345–80. Paul H. Brookes, Baltimore, MD.
- Abery B. (1994) Self-determination: it's not just for adults. *Impact (Feature Issue on Self-Determination)* **6**, 2.
- Abery B. & Stancliffe R. (1996) The ecology of self-determination. In: *Self-Determination Across the Life Span: Independence and Choice for People with Disabilities* (eds D. J. Sands & M. L. Wehmeyer), pp. 111–45. Paul H. Brookes, Baltimore, MD.
- Alliance for Self-Determination (ASD) (1999) *Invited Papers: National Leadership Summit on Self-Determination and Consumer-Direction and Control*. Oregon Health Sciences University, Center on Self-Determination, Portland, OR.
- Biestek F. P. & Gehrig C. C. (1978) *Client Self-Determination in Social Work: a Fifty-Year History*. Loyola University Press, Chicago, IL.
- Brotherson M. J., Cook C. C., Cunconan-Lahr R. & Wehmeyer M. L. (1995) Policy supporting self-determination in the environments of children with disabilities. *Education and Training in Mental Retardation and Developmental Disabilities* **30**, 3–14.
- Carr E. G., Horner R. H. & Turnbull A. P. (1999) *Positive Behavior Support for People with Developmental Disabilities: A Research Synthesis*. American Association on Mental Retardation, Washington, DC.
- Davies D., Stock S. & Wehmeyer M. L. (2001) Enhancing independent Internet access for individuals with mental retardation through the use of a specialized web browser: a pilot study. *Education and Training in Mental Retardation and Developmental Disabilities* **36**, 107–13.
- Deci E. L. & Ryan R. (1985) *Intrinsic Motivation and Self-Determination in Human Behavior*. Plenum Press, New York, NY.
- Doll B., Sands D. J., Wehmeyer M. L. & Palmer S. (1996) Promoting the development and acquisition of self-determined behavior. In: *Self-Determination Across the Life Span: Independence and Choice for People with Disabilities* (eds D. J. Sands & M. L. Wehmeyer), pp. 63–88. Paul H. Brookes, Baltimore, MD.

- Field S., Martin J., Miller R., Ward M. & Wehmeyer M. (1998) *A Practical Guide to Teaching Self-Determination*. Council for Exceptional Children, Reston, VA.
- Kishi G., Teelucksingh B., Zollers N., Park-Lee S. & Meyer L. (1988) Daily decision-making in community residences: a social comparison of adults with and without mental retardation. *American Journal on Mental Retardation* **92**, 430–5.
- Koegel L. K., Koegel R. L. & Dunlap G. (1996) *Positive Behavioral Support: Including People with Difficult Behavior in the Community*. Paul H. Brookes, Baltimore, MD.
- McDermott F. E. (1975) *Self-Determination in Social Work*. Routledge and Kegan Paul, London.
- Mithaug D. (1993) *Self-Regulation Theory: How Optimal Adjustment Maximizes Gain*. Praeger Publishers, Westport, CT.
- Mithaug D. (1996a) *Equal Opportunity Theory*. Sage Publications, Thousand Oaks, CA.
- Mithaug D. (1996b) The optimal prospects principle: a theoretical basis for rethinking instructional practices for self-determination. In: *Self-Determination Across the Life Span: Independence and Choice for People with Disabilities* (eds D. J. Sands & M. L. Wehmeyer), pp. 147–65. Paul H. Brookes, Baltimore, MD.
- Mithaug D. (1998) Your right, my obligation? *Journal of the Association for Persons with Severe Disabilities* **23**, 41–3.
- Nerney T. & Shumway D. (1996) *Beyond Managed Care: Self-Determination for People with Disabilities*. University of New Hampshire, Durham, NH.
- Powers L., Sowers J., Turner A., Nesbitt M., Knowles E. & Ellison R. (1996a) TAKE CHARGE: a model for promoting self-determination among adolescents with challenges. In: *Promoting Self-Competence in Children and Youth with Disabilities* (eds L. E. Powers, G. H. S. Singer & J. Sowers), pp. 291–322. Paul H. Brookes, Baltimore, MD.
- Powers L., Wilson R., Matuszewski J., Phillips A., Rein C., Schumacher D. & Gensert J. (1996b) Facilitating adolescent self-determination: What does it take? In: *Self-Determination Across the Life Span: Independence and Choice for People with Disabilities* (eds D. J. Sands & M. L. Wehmeyer), pp. 257–84. Paul H. Brookes, Baltimore, MD.
- Seligman M. E. P. (1975) *Helplessness: On Depression, Development and Death*. W. H. Freeman, New York, NY.
- Sigafoos A. D., Feinstein C. B., Damond M. & Reiss D. (1988) The measurement of behavioral autonomy in adolescence: the Autonomous Functioning Checklist. In: *Adolescent Psychiatry*, Vol. 15 (eds C. Feinstein, A. Esman, J. Looney, G. Orvin, J. Schimmel, A. Schwartzberg, A. Sorsky & M. Sugar), pp. 432–62. University of Chicago Press, Chicago, IL.
- Stancliffe R. (1997) Community living-unit size, staff presence, and residents' choice-making. *Mental Retardation* **35**, 1–9.
- Stancliffe R. & Abery B. (1997) Longitudinal study of deinstitutionalization and the exercise of choice. *Mental Retardation* **35**, 159–69.
- Stancliffe R., Abery B. & Smith J. (2000) Personal control and the ecology of community living settings: beyond living-unit size and type. *Mental Retardation* **105**, 431–54.
- Stancliffe R. & Wehmeyer M. L. (1995) Variability in the availability of choice to adults with mental retardation. *Journal of Vocational Rehabilitation* **5**, 319–28.
- Tossebro J. (1995) Impact of size revisited: relation of number of residents to self-determination and deprivatization. *American Journal on Mental Retardation* **100**, 59–67.
- Wehmeyer M. L. (1996a) Self-determination as an educational outcome: Why is it important to children, youth and adults with disabilities? In: *Self-Determination Across the Life Span: Independence and Choice for People with Disabilities* (eds D. J. Sands & M. L. Wehmeyer), pp. 15–34. Paul H. Brookes, Baltimore, MD.
- Wehmeyer M. L. (1996b) Student self-report measure of self-determination for students with cognitive disabilities. *Education and Training in Mental Retardation and Developmental Disabilities* **31**, 282–93.
- Wehmeyer M. L. (1997) Self-determination as an educational outcome: a definitional framework and implications for intervention. *Journal of Developmental and Physical Disabilities* **9**, 175–209.
- Wehmeyer M. L. (1998a) Self-determination and individuals with significant disabilities: examining meanings and misinterpretations. *Journal of the Association for Persons with Severe Handicaps* **23**, 5–16.
- Wehmeyer M. L. (1998b) National survey of the use of assistive technology by adults with mental retardation. *Mental Retardation* **36**, 44–51.
- Wehmeyer M. L. (1999) A functional model of self-determination: describing development and implementing instruction. *Focus on Autism and Other Developmental Disabilities* **14**, 53–61.
- Wehmeyer M. L. (2001) Self-determination and mental retardation. In: *International Review of Research in Mental Retardation* (ed. L. M. Glidden), pp. 1–48. Lawrence Erlbaum Associates, Hillsdale, NJ.
- Wehmeyer M. L., Agran M. & Hughes C. (1998) *Teaching self-determination to youth with disabilities: Basic skills for successful transition*. Paul H. Brookes, Baltimore, MD.
- Wehmeyer M. L. & Bolding N. (1999) Self-determination across living and working environments: a matched-samples study of adults with mental retardation. *Mental Retardation* **37**, 353–63.
- Wehmeyer M. L. & Kelchner K. (1995a) *The Arc's Self-Determination Scale*. The Arc National Headquarters, Arlington, TX.
- Wehmeyer M. L. & Kelchner K. (1995b) Measuring the autonomy of adults with mental retardation: a self-

- report version of the Autonomous Functioning Checklist. *Career Development of Exceptional Individuals* **18**, 3–20.
- Wehmeyer M. L., Kelchner K. & Richards S. (1995) Individual and environmental factors related to the self-determination of adults with mental retardation. *Journal of Vocational Rehabilitation* **5**, 291–305.
- Wehmeyer M. L., Kelchner K. & Richards S. (1996) Essential characteristics of self-determined behaviors of adults with mental retardation and developmental disabilities. *American Journal on Mental Retardation* **100**, 632–42.
- Wehmeyer M. L., Palmer S. B., Agran M., Mithaug D. E. & Martin J. (2000) Teaching students to become causal agents in their lives: the self-determining learning model of instruction. *Exceptional Children* **66**, 439–53.
- Wehmeyer M. L., Sands D. J., Doll B. & Palmer S. B. (1997) The development of self-determination and implications for educational interventions with students with disabilities. *International Journal of Disability, Development, and Education* **44**, 212–25.
- Wehmeyer M. L. & Schwartz M. (1997) Self-determination and positive adult outcomes: a follow-up study of youth with mental retardation or learning disabilities. *Exceptional Children* **63**, 245–55.
- Wehmeyer M. L. & Schwartz M. (1998) The relationship between self-determination, quality of life, and life satisfaction for adults with mental retardation. *Education and Training in Mental Retardation and Developmental Disabilities* **33**, 3–12.

Received 14 August 2000; revised 13 November 2000

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.