

*INCREASING INDICES OF HAPPINESS AMONG
PEOPLE WITH PROFOUND MULTIPLE DISABILITIES:
A PROGRAM REPLICATION AND
COMPONENT ANALYSIS*

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We replicated a program to increase indices of happiness among people with profound multiple disabilities and conducted a component analysis of the program. The program involved presentation and contingent withdrawal of stimuli that had been identified as preferred based on preference assessments and staff opinion. The program was implemented with 3 adult students and was accompanied by increased happiness indices for each student. Subsequent implementation of the two types of stimuli indicated that preferred stimuli based on preference assessments were more consistently accompanied by increased happiness indices than were preferred stimuli based on staff opinion. Social validity measures supported the definition of happiness, in that raters' subjective opinions of the students' happiness coincided with the observed happiness indices. Results are discussed regarding the importance and practical implications of using preference assessments for determining stimuli for increasing happiness indices. Future research areas are suggested, focusing on increasing happiness and other quality-of-life indicators during the daily routines of people with profound disabilities.

DESCRIPTORS: happiness, profound multiple disabilities, quality of life

An area of increasing concern in developmental disabilities is ensuring that individuals experience enjoyment or happiness with certain aspects of their lives. The importance of assisting people with developmental disabilities to acquire an enjoyable quality of life has been discussed frequently (see Felce & Perry, 1995, for a review). Likewise, regulatory standards for agencies that provide supports for people with developmental disabilities have begun to emphasize individual enjoyment and fun experiences as important outcomes of desired agency practices (HCFA, 1996).

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If human services agencies are to assist individuals with developmental disabilities in experiencing day-to-day happiness, then two operational procedures are necessary. First, measures are needed to determine the relative degree of happiness individuals experience with various aspects of agency services. Most measures typically involve asking individuals to describe their enjoyment using self-report measures (Felce & Perry, 1995). However, self-report measures are of no use with individuals who have the most severe disabilities, such as profound mental and physical impairment, because of insufficient communication skills (Favell, Realon, & Sutton, 1996; Reid, Phillips, & Green, 1991).

The second process for assisting individuals in experiencing happiness is the availability of procedures for increasing indices of happiness. That is, if objective measures in-

dicating that individuals are not experiencing happiness, then support personnel must implement or alter agency practices to bring about increased happiness. Due in large part to problems in measuring happiness, determining means of increasing happiness among people with profound multiple disabilities has been recognized as a major challenge (Felce & Perry, 1995; Ivancic & Bailey, 1996; Sailor, Gee, Goetz, & Graham, 1988).

In light of the issues just noted, we recently investigated a means of increasing happiness indices among people who have profound multiple disabilities (Green & Reid, 1996). Indices of happiness were initially defined in terms of discrete behaviors, and a variety of measures were obtained to support the social validity of the defined indices. Subsequently, a classroom program was developed to increase the happiness indices.

Although this research provided initial support for employing a behavior analysis approach to increasing happiness, several questions remain unanswered. First, happiness measures were obtained and validated for only 4 individuals, and it was not clear if the behavioral definitions would be sufficiently sensitive to denote changes in happiness indices for other individuals with profound multiple disabilities. Second, the program for increasing happiness indices was employed in only one classroom by two teacher assistants. Hence, questions remain regarding the external validity of the program's effects in terms of whether the program could be used by other education personnel to increase happiness indices among other people with profound disabilities.

An additional question regarding the happiness program was the degree to which different components of the program contributed to its effectiveness. The latter issue is relevant from an applied standpoint, especially in terms of minimizing the amount of staff effort the program requires. Specifi-

cally, two types of activities were provided as part of the program: (a) activities determined through systematic preference assessments (Pace, Ivancic, Edwards, Iwata, & Page, 1985) to be highly preferred by the participants and (b) activities believed by staff members (Green *et al.*, 1988) to be highly preferred. Conducting preference assessments for people with profound multiple disabilities can be a time-consuming process (Green, Reid, Canipe, & Gardner, 1991). Consequently, it would be beneficial to determine the degree to which systematically assessed preferred stimuli increase the effectiveness of the program relative to stimuli that staff members believe to be highly preferred. Recent research indicates that the latter stimuli can be used to increase happiness indices among some individuals (Favell *et al.*, 1996; Ivancic, Barrett, Simonow, & Kimberly, 1997). However, in both the Favell *et al.* and Ivancic *et al.* investigations, opinion-based preferred stimuli were not accompanied by increased happiness indices among all participants (i.e., at least 20% of the participants did not show increased happiness). Neither of the latter studies evaluated effects of systematically assessed preferred stimuli on happiness indices.

On one hand, research on preference assessments involving people with profound disabilities suggests that staff opinion of preferred activities may not be a reliable source for increasing happiness indices. Several investigations have indicated that staff opinion of relative preferences of individuals is not as accurate as systematic preference assessments for determining reinforcing stimuli (Favell & Cannon, 1976; Green *et al.*, 1988). On the other hand, whereas staff opinion has not been consistently effective in determining relative preferences across a variety of stimuli, staff opinion regarding the most liked stimulus has been effective in identifying reinforcing stimuli (Green *et al.*, 1991; Parsons & Reid, 1990). Hence, de-

termination of the effectiveness of systematically assessed versus staff opinion-based activities for increasing happiness indices appears to warrant experimental evaluation.

The primary purpose of this investigation was to conduct a component analysis of the Green and Reid (1996) program to determine the relative effects of using systematically assessed preferred stimuli versus staff opinion-based preferred stimuli on increasing happiness indices. A second purpose was to attempt to replicate the program in terms of observing, validating, and increasing happiness indices among other individuals with profound multiple disabilities, with the involvement of other educational support personnel.

METHOD

Setting and Participants

The setting consisted of three adult education classrooms in a day treatment center for individuals with severe disabilities. All three classrooms were under the professional supervision of one certified teacher, who was intermittently present in each classroom for oversight responsibilities. The day-to-day operation of the classrooms, each of which served six or seven students, was conducted by two full-time teacher assistants in each classroom. One of the assistants in each classroom implemented all experimental procedures with her respective student. These three staff members had high school degrees and at least 2 years ($M = 13$ years) of experience working with people with profound disabilities.

Three students, 1 from each classroom, participated in the study. Carl, Ron, and Fran were 28, 36, and 41 years of age, respectively, and had multiple disabilities including profound mental and physical impairment. Each student was nonambulatory and was unable to propel his or her wheelchair. The students lacked any conventional

communication skills and were dependent on staff for fulfillment of basic needs such as dressing and eating. Carl had a gastrostomy tube for nutritional intake. All students exhibited spasticity, 2 had spastic quadriplegia, 1 had severe scoliosis, 2 had hearing impairments, and 1 had a visual impairment.

These students were selected for three reasons. First, each student had profound mental and physical disabilities. Second, highly preferred stimuli had been identified for each student based on systematic preference assessments. Third, the students and their support personnel had not participated in the previous happiness research conducted in the same treatment center.

Behavior Definitions and Observation System

Happiness and unhappiness indices were defined as in previous research (see Green & Reid, 1996, for explanation on the development of the indices). Specifically, *happiness* was defined as any facial expression or vocalization that is typically considered to be an indicator of happiness among people without disabilities, including smiling, laughing, and yelling while smiling. *Unhappiness* was defined as any facial expression or vocalization that is typically considered to be an indicator of unhappiness among people without disabilities such as frowning, grimacing, crying, and yelling without smiling.

The observation system consisted of a 10-s partial-interval recording process for happiness and unhappiness. Each 10-s observation interval was separated by a 5-s record interval. Observers included an experimenter, three teachers from the educational treatment center, and two intern assistants. Throughout the investigation, four of the six observers were unaware of which items and activities were preference based and which were opinion based (see Experimental Conditions).

Reliability checks were conducted on

26% of all observations, including each experimental condition for each student. Of all reliability checks, 57% occurred during baseline sessions and 43% occurred during intervention sessions. Interobserver agreement was assessed on an interval-by-interval basis for overall, occurrence, and nonoccurrence agreement by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Overall agreement for individual student happiness indices averaged at least 96% for each student, and nonoccurrence agreement averaged at least 84%. Occurrence agreement was more variable, averaging 89%, 78%, and 89% for Carl, Ron, and Fran, respectively. Ron's occurrence average was deflated due to one session with a low frequency of happiness indices during baseline in which there was one disagreement between observers that resulted in 0% agreement on occurrence.

Throughout all reliability checks, occurrences of unhappiness indices were recorded infrequently. Unhappiness occurrences were recorded by either observer during only three observation sessions for Carl, with occurrence agreement for those sessions averaging 84% (range, 75% to 100%), nonoccurrence agreement averaging 98% (range, 94% to 100%), and overall agreement averaging 99% (range, 95% to 100%). No observer recorded an occurrence of unhappiness during any reliability observation for Ron. For Fran, occurrences were recorded during one observation, with interobserver agreement being 83% for occurrence for that session, 97% for nonoccurrence agreement, and 98% for overall agreement.

Preference Assessments

A systematic preference assessment was initially conducted with each student to determine stimuli that the students consistently approached. The preference assessment process and selection of stimuli to assess in-

cluded the same procedures as described previously (Green *et al.*, 1988, 1991). Briefly, at least 12 stimuli were presented to each student one at a time in a series of trials. Each stimulus was presented to each student at least 30 times across six sessions. Approach responses (Pace *et al.*, 1985) were used as the measure of preference. All stimuli identified as highly preferred were approached by the student during at least 80% of all presentation trials.

Each classroom staff member was also asked her opinion regarding the favorite items and activities of her respective student. Each staff member was familiar with her student, having worked with him or her for at least 2 years ($M = 7$ years). Staff members were not asked to restrict their selections to items and activities that were separate from the stimuli that had been identified as preferred by the preference assessment (two staff members were unaware of what items had been identified as preferred through the preference assessment). However, all items and activities selected by staff members as favorites of the students were different from the items and activities identified through the preference assessment as being highly preferred.

Experimental Conditions

Baseline. During baseline, the teacher assistants conducted their usual classroom routine. Each assistant rotated among students to implement one-to-one teaching programs. Between teaching trials and individual programs (which typically occurred for approximately 10 min at a time), the assistant interacted briefly with all other students. Participants who were not receiving formal one-to-one teaching programs were provided with leisure items and stimulation devices, such as a switch-activated radio, and engaged in social interactions with staff members or received a prompt or praise for ac-

tivation of stimulation devices approximately once every 3 min on average.

Fun time program. The intervention to increase indices of happiness, the “fun time program,” was conducted as described previously (Green & Reid, 1996) and consisted of three components. The first component consisted of the assistant presenting a student with his or her previously assessed most preferred items and activities intermittently for 1 to 3 min during each session. Systematically assessed preferred stimuli were as follows: Fran, vanilla pudding and the staff member clapping her hands; Carl, hug, vibration from a hand-held vibrator, verbal response from a staff member, light rubbing on the arm with a mitt, and presentation of a flickering light; Ron, holding a soft toy in his hand, rocking in a rocking chair, and being read a story.

The second component involved the assistant providing items and activities that, based on the assistant’s opinion, were favorite items and activities of the student. As with the assessment-based items and activities, the opinion-based items and activities were presented intermittently for 1 to 3 min. These items and activities included chocolate milk, chocolate cookies, and lightly scratching her head for Fran; a toy carousel with lights and music and a magazine using an adapted magazine holder for Carl; and hugging, tickling, and rubbing his head for Ron. Thus, throughout a 10-min observation session, the assistant intermittently interacted with the student in ways that she believed pleased the student and presented stimuli identified as preferred by a formal preference assessment. For Ron, three stimuli were based on the preference assessment and three stimuli were based on staff opinion; for Fran, two stimuli were based on the preference assessment and three were based on opinion; for Carl, these numbers of stimuli were five and two.

The third component of the fun time pro-

gram consisted of planned initiation and termination of the assistant’s presentation of stimuli based on observed happiness and unhappiness indices. Staff members were informed prior to the first intervention session about the behavioral definitions of happiness and unhappiness. Subsequently, they were instructed (a) to immediately discontinue an ongoing item presentation or activity with any indication of student unhappiness and (b) to change items or activities after a 1-min period occurred during which no indication of happiness was observed. At least two items or activities were provided each session for each student, with the qualification that for every two items or activities presented, one item or activity represented an assessment-based preferred stimulus and one represented an opinion-based preferred stimulus. Classroom staff members determined which specific items or activities to present, selected out of the respective pools of assessment-based and opinion-based stimuli for each student. An experimenter provided feedback to the staff member after each session, indicating whether students displayed more happiness indices relative to baseline. The feedback was provided in an attempt to maintain the assistant’s proficient implementation of the designated procedures across sessions.

Systematically assessed preferred stimuli. This condition was similar to the fun time program except that the only stimuli used were ones that had been identified as highly preferred based on a systematic preference assessment.

Opinion-based preferred stimuli. This condition was also similar to the fun time program except that the only stimuli used were ones that classroom staff had reported to be favorite items or activities.

Experimental Design

The experimental design consisted of an alternating treatments design (Ulman &

Sulzer-Azaroff, 1975) with each student. Following an initial baseline, the fun time program was alternated with baseline. Baseline and the fun time program were each conducted once per day on weekdays, with the order of conditions alternated across days. Next, the baseline condition and either the systematically assessed preferred activity condition or the opinion-based preferred activity condition were presented each day. The presentation of the latter two conditions was varied across days. In addition, the order of each of the latter two conditions and the baseline condition within a day was varied across days.

Social Validity Measures

Videotape samples were obtained for 2 students (Ron and Carl). These samples included two segments for each student, one segment showing happiness indices based on the experimenter's review of the tapes and one segment showing no happiness indices. To validate the experimenter's categorization of the tape segments, two observers scored the tapes independently of the experimenters, using the observation procedures described previously. One individual had conducted direct observations during the study, whereas the other had been trained in the observation process but had not previously observed the target students. The observers were unaware of how the experimenters had categorized the tape segments. Both observers recorded happiness indices for the tape segments categorized by the experimenters as demonstrating happiness, whereas neither observer recorded happiness indices for the segment categorized by the experimenters as not demonstrating happiness.

The tape segments for Ron and Carl were shown to different groups of reviewers. Different reviewers were solicited to involve a broader sample of opinions. The reviewers for Ron's tape segments were 21 undergraduate students in special education. Of these,

48% had no experience working with people with profound disabilities. The reviewers for Carl's tape segments were nine teacher assistants. All assistants had at least 1 year of experience working with people with profound disabilities but did not work with Carl.

The reviewers rated tape segments using procedures described by Green and Reid (1996). Briefly, the reviewers watched both tape segments to familiarize them with the ongoing activity. The reviewers then watched one segment, completed a Likert rating scale, and repeated the process for the second segment. For Ron, the reviewers first watched the segment that had previously been scored as indicating happiness, whereas the reviewers for Carl first watched the segment showing no happiness. After viewing both segments, the reviewers recorded in which segment the student appeared to be happier. The Likert scale completed after each segment was designed to reflect how happy or unhappy the student appeared. Scale values ranged from *extremely unhappy* (1) to *extremely happy* (7).

RESULTS

Effects of the Fun Time Program

Effects of the fun time program on observed indices of happiness are shown in Figures 1, 2, and 3 for Carl, Ron, and Fran, respectively. For each student, implementation of the program was accompanied by noticeable increases in happiness indices relative to baseline. The average percentage of observation intervals with happiness indices during the initial baseline for Carl was 5% (range, 0% to 10%), with a similar level ($M = 4%$; range, 0% to 13%) during the baseline that was alternated with the fun time program. In contrast, during the program, happiness indices averaged 65% (range, 42% to 93%). Similarly, Ron's baseline averages for happiness indices were 8% (range, 0%

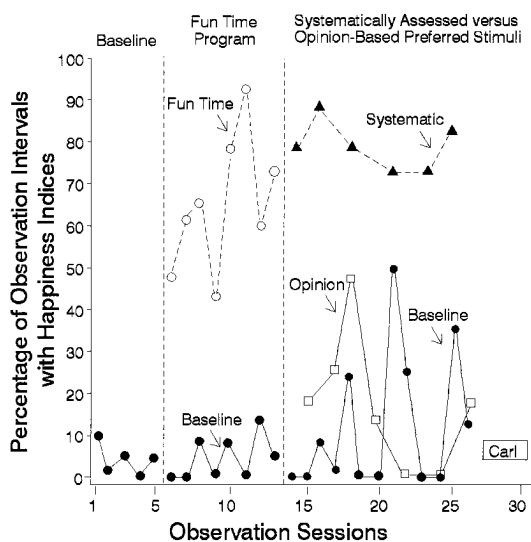


Figure 1. Percentage of observation intervals with happiness indices for Carl during each session of each experimental condition.

to 33%) and 0%, respectively, whereas his average during the program was 45% (range, 30% to 65%). Fran's happiness indices likewise increased during the program, with an average of 52% (range, 18% to 83%) relative to baseline averages of 0% and 10% (range, 0% to 35%).

Component Analysis of the Fun Time Program

The component analysis of the fun time program indicated two general patterns of results (also shown in Figures 1 through 3). First, the activities that were determined to be preferred based on systematic preference assessments were accompanied by increased levels of happiness indices relative to the alternating (and preceding) baseline sessions for each student. Observed happiness indices during the presentation of the systematically assessed, preferred stimuli averaged 79% (range, 73% to 88%) for Carl, 57% (range, 0% to 88%) for Ron, and 56% (range, 0% to 98%) for Fran. In contrast, the alternating baseline averages for the 3 students were 12% (range, 0% to 50%), 1% (range, 0%

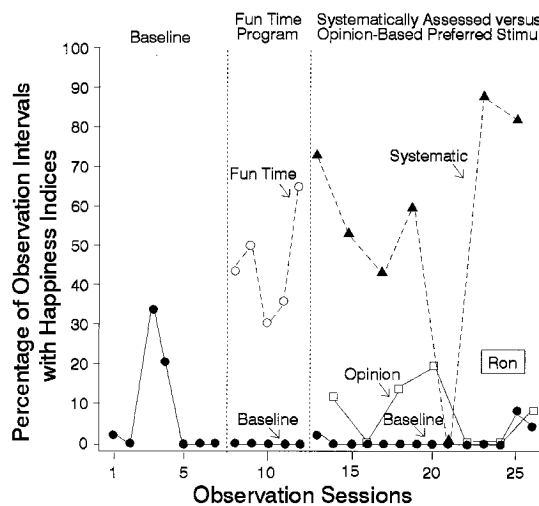


Figure 2. Percentage of observation intervals with happiness indices for Ron during each session of each experimental condition.

to 8%), and 15% (range, 0% to 81%), respectively.

In the second general pattern of results, the level of happiness indices accompanying the staff opinion-based preferred activities was inconsistent relative to the level of happiness during baseline for the 3 students. For

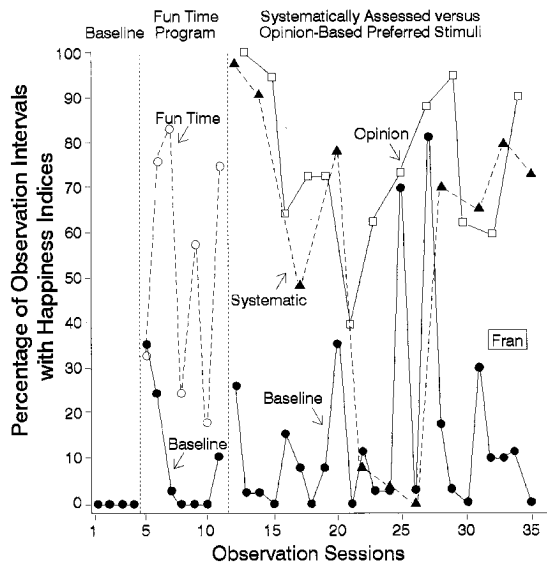


Figure 3. Percentage of observation intervals with happiness indices for Fran during each session of each experimental condition.

Carl and Ron, happiness levels during the opinion-based activities were similar to baseline levels, averaging 17% (range, 0% to 48%) for Carl and 8% (range, 0% to 20%) for Ron. Fran's level of happiness, however, was higher during the opinion-based activities than during baseline, averaging 75% (range, 40% to 100%) relative to her baseline average of 15%.

A comparison of happiness levels between the systematically assessed preferred activities and the opinion-based preferred activities indicated that happiness indices were noticeably higher during the former activities for 2 of the 3 students (Carl and Ron). For Fran, the opinion-based activities were accompanied by a higher average level of happiness indices (75% vs. 56%), although the differences between the two types of activities were inconsistent across sessions (Figure 3).

Unhappiness

Indices of unhappiness were observed infrequently across sessions for all students, averaging less than 1% of observation intervals for each of the 3 students. In addition, there was no consistent trend regarding increases or decreases in unhappiness indices across sessions.

Social Validity Measures

Results of the social validity measures supported the behaviorally defined indices of happiness for both students. For Ron, all 21 reviewers rated the tape segment that had previously been observed to include indices of happiness using the behavioral definitions as showing happiness (average rating of 5.5, between *somewhat happy* and *very happy*). In contrast, only one reviewer rated the segment that had previously been scored as showing no indices of happiness as showing any happiness (average rating of 2.6, between *somewhat unhappy* and *very unhappy*). Similarly for Carl, all reviewers rated the for-

mer tape as showing happiness (average rating of 6.3, between *very happy* and *extremely happy*), whereas only one reviewer rated the latter segment as showing happiness (average of 3.9, just below *neither happy nor unhappy*). For both Ron and Carl, all reviewers responded to the discrete question regarding in which tape segment the student appeared happier by recording the segment that had previously been scored by the experimenters and observers as showing happiness indices.

DISCUSSION

Results of the current study provide support for results of the initial Green and Reid (1996) investigation in several ways. First, the definitions of happiness were used to denote differences in happiness indices for additional individuals who have profound multiple disabilities. The process used to observe happiness indices was reliably implemented by five observers in the school program (in addition to the experimenter). Second, the fun time program was accompanied by increases in happiness indices for each student. Further, the program was conducted by three assistants in three classrooms who had not been involved in the original investigation. The latter results provide some external validity to the initial findings regarding the effectiveness of the procedures for increasing happiness indices.

A potential confounding effect regarding the results of the fun time program and its component parts warrants mentioning. During baseline, staff members provided intermittent instructional activities, whereas during the intervention conditions, only leisure-related activities were provided. It may have been that simply discontinuing the instructional activities was responsible for the increases in happiness indices that occurred during the intervention conditions, regardless of the presentation of preferred activities (i.e., the instructional activities may have

been aversive for the participants). However, for Carl and Ron, there were no consistent differences in happiness indices between baseline sessions and opinion-based preferred stimuli conditions, even though there were no instructional activities in the latter conditions. If discontinuation of instructional activities was responsible for increases in happiness indices, then it would be expected that the latter conditions would have increased happiness indices relative to baseline.

Results of the social validity measures also provide support for the results of Green and Reid (1996) regarding the validity of the defined happiness indices. The happiness ratings of the reviewers consistently coincided with the observations of happiness indices based on the behavioral definitions. When combined with the Green and Reid results, opinions of a variety of individuals offer relatively broad-based support for the validity of the defined indices of happiness.

Results of the component analysis suggest the superiority of using high-preference stimuli that have been identified through systematic preference assessments over those identified by staff opinion. Systematically assessed preferred stimuli were accompanied by noticeable increases in happiness indices relative to baseline for all 3 students, whereas opinion-based preferred stimuli were accompanied by noticeable increases for only 1 student. When directly comparing effects of the two types of stimuli, the former were accompanied by more indices of happiness for 2 students and the latter were accompanied by only somewhat higher levels of happiness indices for 1 student.

One implication of the results is that support personnel will be more likely to increase happiness indices by relying on stimuli that have been identified as highly preferred based on systematic assessments relative to relying solely on subjective opinion regarding favorite stimuli. However, such an implication should be somewhat qualified

pending additional research because of the involvement of only 3 individuals in this investigation. Additional research is needed because, as indicated previously, systematic preference assessments require more time and labor by support personnel relative to relying on an opinion. Consequently, from a practical perspective, a reasonable approach to increasing happiness indices when staff resources are limited would be to rely on stimuli thought to be highly preferred. In some cases (e.g., as with Fran in this study), such an approach may be sufficient to increase happiness indices (see also Favell et al., 1996, and Ivancic et al., 1997). In cases in which this approach is not effective, more labor-intensive preference assessments could then be undertaken to determine additional stimuli that will increase happiness indices.

Concerns regarding the practicality of conducting preference assessments as a first step in programs designed to increase happiness may be significantly reduced as research develops more efficient assessment strategies (e.g., DeLeon & Iwata, 1996; Windsor, Piche, & Locke, 1994). However, another concern that may arise is that highly preferred stimuli may not be identified through preference assessments for some individuals with profound multiple disabilities. For example, Ivancic and colleagues (Ivancic & Bailey, 1996; Ivancic et al., 1997) have identified individuals with profound multiple disabilities who display very low levels of alertness and minimal body movement. These individuals often do not respond to behavioral interventions that appear to be effective with others who have more body movement and alertness. Hence, results with the procedures described in this investigation should not be assumed to generalize to the entire population of people who have profound multiple disabilities.

Throughout the investigation, indices of unhappiness appeared very infrequently.

This outcome warrants attention because the nature of implementing the procedures could conceivably increase indices of unhappiness. Specifically, because staff members withdrew any stimulus that was accompanied by indices of unhappiness, the staff actions may have negatively reinforced unhappiness indices inadvertently. Although such an outcome did not occur either in the current study or in the original investigation, it is recommended that future applications of the fun time program be accompanied by observations of unhappiness indices to ensure that these do not increase.

Although several measures have supported the social validity of the happiness indices as noted earlier, the results should still be interpreted somewhat cautiously. As discussed previously (Green & Reid, 1996), happiness represents a private event and, as such, is not readily amenable to the measurement and intervention methodologies that are typically used in behavior analysis. Nevertheless, the importance of happiness for people with disabilities, including individuals with the most serious disabilities, is well accepted (Felce & Perry, 1995). If support personnel are concerned with promoting happiness, some means of measuring happiness is needed. The happiness measures in this investigation appear to represent one way to operationalize and observe indices of the private event of happiness.

Overall, the behavior-change results provide additional support for using a behavior-analytic approach to increasing important indices of quality of life among people who have the most severe disabilities. Research is warranted to determine how behavioral approaches could be used to enhance other important quality-of-life indices, such as friendship (Felce & Perry, 1995), that heretofore have not undergone systematic operationalization and direct intervention. In regard to happiness specifically, research is needed to determine the extent to which the

procedures for increasing happiness indices can be applied to other settings. It is also important to determine how measures of happiness indices relate to relative frequencies of other behaviors addressed in behavior analysis, such as various types of work performances. Finally, investigations are warranted to determine how to increase happiness indices throughout the routine day rather than only during the circumscribed time periods in this study. However, many classrooms and related settings have specific periods during the day that are devoted to leisure and general fun time. The procedures represented in this study offer one means of potentially ensuring that specified leisure periods are indeed accompanied by indices of happiness in participating individuals.

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STUDY QUESTIONS

1. According to the authors, what is needed to assist individuals with developmental disabilities in experiencing day-to-day happiness?
2. How did the authors attempt to extend the findings previously reported by Green and Reid (1996)?
3. In what way might the criteria for participation in this study have affected its external validity?
4. What responses were used to define *happiness* and *unhappiness*, and what was the basis for selecting these responses?
5. What two different approaches were used to identify preferred stimuli, why were these approaches compared, and what were the results of the comparison?
6. What were the differences among the three experimental conditions, and what effects on happiness were associated with the conditions?
7. The authors noted that, because instructional activities during baseline were terminated at the beginning of the fun time program, there existed the possibility that increases in happiness were not so much a function of initiating the fun time program but, rather, of merely terminating baseline. What data suggest that this was an unlikely source of confounding?

8. Although unhappiness was observed rarely during the study, the authors cautioned that the practice of withdrawing a stimulus contingent on the occurrence of unhappiness may inadvertently increase unhappiness through negative reinforcement (i.e., escape from the current activity). However, because the items presented were highly preferred, what alternative explanation might account for both the low levels of unhappiness and the high levels of happiness observed in the study?

Questions prepared by Juliet Burke and SungWoo Kahng, University of Florida