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History and Definition of PBS

For well over half a century, applied behavior analysis (ABA) has had a tremendous impact on the field of autism, contributing many of the tools and strategies that are now routine practice for individuals with autism spectrum disorder (ASD) who display problem behavior. Applied behavior analysis is specifically credited with the development of functional assessment, which is universally accepted as the “gold standard” of behavioral assessment. It has articulated principles of reinforcement and consequences, which are now firmly established as key determinants of behavior. Applied behavior analysis has also put forth learning theory, establishing the key principles and practices that promote skill acquisition. However, in the late 1980s and early 1990s, the emergence of specific social movements and ecological variables, such as the normalization movement, the inclusion movement, and the era of person-centered values created the need for a new approach to intervention that was more responsive to consumers (e.g., individuals with disabilities and their families) and more in line

with community-based support efforts (Evans & Meyer, 1985; Horner et al., 1990).

Positive behavior support (PBS) emerged to fill this need. In one of the earliest writings on PBS, Carr (1997) articulated the need to focus on consumer goals pertaining to comprehensive lifestyle support, long-term change, and direct support to consumers themselves. Carr predicted that the field of applied behavior analysis would split into two branches in order to address this need. One branch of the field (still referred to as ABA) would maintain a traditional focus on conceptual purity, emphasizing elegant experimental control, and a microanalysis of cause and effect from a researcher’s point of view. The second and newer branch (now referred to as PBS) would focus on ecological relevance, emphasizing meaningful outcomes in the form of lifestyle change, and prioritizing a broader analysis of systems and closer attention to practicality, as defined by non-researchers (i.e., consumers).

The first research monograph on PBS was published in 1999 by Carr and his colleagues in conjunction with the American Association on Mental Retardation (Carr et al., 1999a). In their review, the authors elaborated on the defining characteristics of PBS, referring to PBS as interventions that are designed to increase the probability of functional positive behaviors by way of building key skills (e.g., communication, self-management, and social skills) and changing key elements in the environment (e.g., activity

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patterns, choice options, prompting procedures). These changes often result in measurable improvements in social, vocational, and educational status (i.e., lifestyle change) and concomitant decreases in problem behavior. Thus, PBS refers to interventions that increase positive behaviors, promote lifestyle change, and result in decreases in problem behavior. Using this framework, the monograph attempted to answer several research questions including the following: “How widely applicable is PBS?”; “In what ways is the field evolving?”; “How effective is PBS and what factors modulate its effectiveness?”; and “How responsive is the PBS literature to the needs of consumers and non-researchers?” Following their review, the authors concluded that PBS was a viable approach to intervention that was widely applicable and could be implemented by typical intervention agents in typical settings (Carr et al., 1999a).

Over the years, PBS has shown steady and dramatic growth in its principles and procedures, and interventions are now more likely than ever before to focus on deficient contexts, rather than deficient repertoires (Koegel, Koegel, & Dunlap, 1996). The initial wave of studies that were reviewed in the monograph showed that PBS resulted in substantial improvements in problem behavior in approximately two-thirds of the cases, and these improvements were generally maintained over time (Carr et al., 1999a). Thus, PBS showed promise as an approach for working with students with serious disabilities, including autism spectrum disorder (ASD). However, as Carr and his colleagues (1999a) noted, there was still much work to be done. At the conclusion of their review, the authors suggested that the goals of PBS could most plausibly be met by an increasing emphasis on multicomponent interventions that are linked to assessment information, a broad reorganization of context (systems change), an emphasis on ecological validity (interventions involving typical agents and typical settings), an intervention in all relevant contexts, and the application of practices over protracted periods of time. These recommendations established the framework for a PBS movement, which resulted in the development of a new journal, the *Journal of Positive Behavior*

Interventions (JPBI), and the creation of a new professional organization, the Association for Positive Behavior Support (APBS), specifically dedicated to this work.

Critical Features of PBS

In 2002, Carr et al. published a key article in the *Journal of Positive Behavior Interventions* entitled, “Positive Behavior Support: Evolution of an applied science.” This paper outlined nine “critical features” of Positive Behavior Support that now define this body of work. The nine critical features included (1) comprehensive lifestyle change and quality of life, (2) lifespan perspective, (3) ecological validity, (4) stakeholder participation, (5) social validity, (6) systems change and multicomponent intervention, (7) prevention, (8) flexibility with respect to scientific practices, and (9) multiple theoretical perspectives. In the decade or so since the paper was published, there have been several new contributions to the PBS literature that have illustrated and elucidated these features. A review of this progress will serve as the framework for the present discussion. In each of the sections below, critical features of PBS will be defined and illustrated by case studies and research examples from the literature. In addition, a discussion of measurement is presented within each feature to highlight the new data collection strategies that have evolved in order to capture the broader concepts of PBS. While this information is by no means exhaustive, it is meant to provide an overview of the work that has been done to advance this relatively new field of endeavor.

Comprehensive Lifestyle Change

Comprehensive lifestyle change is the first critical feature of PBS and is aimed at improving a variety of quality of life dimensions. These can include improvements in social relationships (e.g., friendship formation), personal satisfaction (e.g., self-confidence, happiness), employment (e.g., productivity, job prestige, good job match),

self-determination (e.g., personal control, choice of living arrangements, independence), recreation and leisure (e.g., adequate opportunities, good quality of activities), community adjustment (e.g., domestic skills, survival skills), and community integration (e.g., mobility, opportunities for participation in community activities, school inclusion). The person's daily routines, schedules, and social interactions are thus important considerations. Outcome success emphasizes improvements in family life, jobs, community inclusion, supported living, expanding social relationships, and personal satisfaction.

Turnbull and Turnbull (1996) offered an example of lifestyle change in their discussion of JT, a 26-year-old man with autism and behavioral challenges. Here, the goals of intervention were not limited to behavioral change per se but were rather focused on lifestyle change. Treatment objectives were to have JT continue his paid work at a university as a clerical aide; to support JT in living in a home of his own, with roommates (university students) who were available to meet his personal support needs; to assist JT in using local public transportation to and from work; and to support JT in maintaining friendships and community connections at his favorite community spots—a local bakery, two jazz clubs, restaurants with live music, a church, a neighborhood grocery store, and a fitness center. The authors noted that for JT, the criteria for “assessing success” constantly changed in response to the complex ecology of his emerging lifestyle. Following a 6-year planning process referred to as Group Action Planning (Turnbull & Turnbull, 1996), JT worked a total of 30 hours per week at the university as a clerical aide; he moved to a home of his own along with two roommates from the university who each provided him with 12–15 hours of support; he learned to take public transportation to work; he joined a fraternity; and he made several friends in the community with whom he maintained regular contact.

In a second example, Malette, Miranda, Jones, Bunz, and Rogow (1992) presented a series of case studies that evaluated lifestyle changes associated with a Lifestyle Development Planning

Process for four individuals with severe disabilities and challenging behavior. The five-step lifestyle planning process included vision planning, assessing and remediating barriers to participation, assembling meaningful routines and schedules, developing specific intervention strategies, and evaluating effectiveness by way of developing a monitoring system. Following intervention, all four participants engaged in a greater number of integrated activities during the mid- and post-intervention periods, compared with baseline. Three of the four participants experienced gains of more than 200% in the number of preferred, integrated activities they performed at the end of the intervention period. The two adults in the study were engaged in the first integrated work opportunities of their lives and two children participated to various degrees in regular classroom activities in their neighborhood schools. Furthermore, all four participants experienced at least slight increases in their unpaid social networks and performed a greater number of integrated activities with people who were not paid to spend time with them. Finally, all four participants showed evidence of improved behavior and communication skills over the course of the intervention.

In an effort to evaluate lifestyle change, the field has seen an emergence of empirically validated measures designed to capture this complex ecology. For example, the *Resident Lifestyle Inventory* (Wilcox & Bellamy, 1987) measures the types of activities that are performed by an individual, how often each activity occurs, where each activity typically occurs, which activities are preferred, and the level of support needed for participation. *The Social Network Analysis Interview* (Kennedy, Horner, & Newton, 1990) elicits information about the persons who are socially important in the life of the target individual and the types and frequencies of activities in which persons in the social network typically engage with the individual. *The Program Quality Indicators Checklist* (Meyer, Eichinger, & Park-Lee, 1987) identifies the “most promising practices” in educational programs for persons with severe disabilities, as gleaned from a literature review and survey of nationally recognized

experts in the field. It can assess the content of a plan's goals and objectives and track changes over time. *The Ecocultural Family Interview* (Weisner, Coots, & Bernheimer, 1997) assesses resources in the home environment, family connectedness, social networks, and leisure activities. Taken together, these tools represent a growing body of research aimed at measuring lifestyle change as an important feature of PBS.

Lifespan Perspective

The second critical feature of PBS is lifespan perspective. A lifespan perspective recognizes that efforts to achieve meaningful change occur over time. Thus, intervention is seen as a systemic process that evolves as different challenges arise during different stages of life (Turnbull, 1988; Vandercook, York, & Forest, 1989). Carr et al. (2002) noted that when one follows an individual over many years in changing life circumstances, deficient environments and deficient adaptive skills will almost certainly continue to emerge and be identified. Therefore, new PBS strategies may have to be added and old ones modified. In a truly comprehensive PBS approach, intervention never ends and follow-up is measured in decades, not months (Carr et al., 2002). Kennedy and Itkonen (1996) illustrated this principle in their discussion of social relationships across the life span. The authors suggested that support environments vary along a number of dimensions including the manner in which people with severe disabilities are grouped/clustered, the people who are contacted, the availability of specific types of activities, the emphasis and support available for social relationships, and the physical proximity to typical community settings. Each of these dimensions can facilitate or inhibit social relationships; therefore, interventions may vary greatly across an individual's life span and also within any group of people of a particular age.

The lifespan perspective has led to an increase in the number of longitudinal studies that have been done to evaluate the impact of PBS over time (Carr et al., 1999b; Dunlap et al., 2010; Lucyshyn et al., 2007). A case study by Jensen,

McConnachie, and Pierson (2001) presented a 63-month evaluation of a 35-year-old man who moved from a developmental center into his own home in the community. At baseline, the man demonstrated a high level of problem behaviors that included self-injurious behavior (head hits), vomiting, assault, and property destruction. These behaviors occurred at a high frequency and posed an immediate danger to the participant and to others, requiring the use of mechanical restraints and medications. Following a comprehensive functional analysis of problem behavior, the team implemented a series of intervention phases that included the following: Phase I (7/95–4/96) involved providing community access to increase the man's activity level and provide an opportunity for him to control the environment. Phase 2 (5/96–11/96) involved teaching the man to appropriately request the use of a restraint chair since restraint was identified as a reinforcer. Phase 3 (11/96–10/97) involved moving to a home in the community, which was intended to further minimize the setting factors and antecedents for problem behavior. Phase 4 (10/97–2/98) involved introducing a new recliner to replace the restraint chair. Phase 5 (3/98–4/99) involved removing a medication that appeared to be exacerbating problem behavior. Finally, Phase 6 (5/99–10/99) involved moving to a second home in the community that was purchased by the man's parents. In the last 2 years of the study, the participant was reported to have had no injuries from self-injurious behaviors and no injuries to staff members. His vomiting ceased, and his medication to prevent it was discontinued. The authors reported that his quality of life improved significantly in other areas as well. Moving to his own home allowed him to participate in more community activities, to develop relationships, to participate in the hiring of support staff, and to have greater choice over activities, meals, and his own schedule. From a lifespan perspective, the PBS interventions that were implemented addressed known functions of problem behavior while at the same time responding to new developments and life changes that the man encountered over a period of several years.

In their longitudinal study, Carr et al. (1999b) applied a multicomponent PBS intervention over a period of 1.5–2.5 years with three adults with autism who demonstrated severe problem behavior. The results showed favorable outcomes on dependent variables (i.e., task engagement, problem behavior) that were maintained over time. Importantly, the authors described several changes in the participants' life circumstances, such as residential and employment status and recreational opportunities, as well as the need for follow-up assessments and adjustments to the intervention plans as time passed and new stressors influenced the participants' life situations. A more recent longitudinal study, conducted by Dunlap et al. (2010), involved a multisite evaluation of PBS across a 2-year period. The authors compiled multiple outcome measures from 22 participants in five areas of the country. They summarized information from nearly 20 different data sources and found modest improvements in nearly all of the participants' problem behavior and quality of life relative to baseline, with improvement generally maintaining over the 2 years of the study.

Since PBS is designed to produce or facilitate enduring improvements across the life span, there has been increased attention to the measurement of quality of life (Hughes, Hwang, Kim, Eisenman, & Killian, 1995). As a construct, quality of life pertains to the full breadth of a person's existence, across all settings and hours of the day, and for periods of years, rather than the usual weeks or months of intervention research. For the most part, quality of life has been evaluated using subjective rating scales, including the *Quality of Life Questionnaire* (Schalock & Keith, 1993), the *Quality of Life Evaluation* (Kincaid, Knoster, Harrower, Shannon, & Bustamante, 2002), and the *Family Quality of Life Survey* (Park et al., 2003). To illustrate, the *Quality of Life Evaluation* (Kincaid et al., 2002) uses a 5-point Likert-type rating scale (1 = much worse, 2 = somewhat worse, 3 = no change, 4 = somewhat better, 5 = much better) to evaluate changes in a person's life circumstances over the course of PBS interventions. The survey items tap a variety of quality of life changes including relationships, community contacts, satisfaction, expressive

ability, willingness to try new things, skill acquisition, self-confidence, emotional stability, and general health and well-being.

Carr et al. (2002) recommended that measures of PBS capture three things: problem behavior, implementation of PBS plans, and quality of life changes over time. Recently, it has been suggested that a full battery of assessments, including standardized instruments, structured interviews, and checklists that are individualized on the basis of the participant's age, developmental status, and living circumstances, may be required (Dunlap et al., 2010). Thus, the development of an individualized "case portfolio" has been identified as a venue for collecting and analyzing data, with some instruments administered annually or semiannually, some periodically (i.e., on an as-needed basis), and some continually (e.g., contact logs, journals) (Dunlap et al., 2010). Here, quality of life was defined along six dimensions: (1) material well-being, which includes access to materials or activities that are preferred by the individual and may enhance the individual's pleasure or ability to function effectively; (2) health and safety, which includes health status, medication effects, safety risks, or physical disturbances; (3) social well-being and interpersonal competence, which refers to social networks, presence of friends, and capabilities for interacting; (4) emotional and affective well-being, which includes outward emotional response, evidence of happiness, mood, and emotional stability; (5) leisure and recreation, which includes activities that the individual engages in to occupy him/herself for pleasure; and (6) personal well-being, which includes self-sufficiency and independence, self-determination, and choice regarding personal belongings, activities, clothing, food, living arrangements, and relationships (Dunlap et al., 2010). The authors applied a 9-point Likert-type rating scale (1 = substantial deterioration; 5 = no changes relative to baseline; 9 = substantial improvement) to summarize and evaluate overall changes in quality of life before and after PBS strategies were implemented. This approach allowed information from multiple sources to be synthesized in a meaningful way, creating the potential for an ongoing analysis of quality of life changes across the lifespan.

Ecological Validity

Another critical feature of PBS is ecological validity. PBS addresses quality of life issues in natural contexts, including home, school, and community. In other words, PBS focuses on how the scientific principles underlying the PBS approach can be applied to real-life settings and situations as they pertain to a particular individual. This is what is referred to as ecological validity. Ecological validity involves examining whether typical intervention agents (e.g., parents, teachers) can carry out interventions in typical settings (e.g., the home, the school, the community, the workplace) where they support individuals with ASD (Carr et al., 2002). Singer (2000) has emphasized the need for service delivery systems to provide PBS in real-life settings. Interventions need to be evaluated in natural settings and implemented by typical intervention agents in those settings. This has also been referred to as “contextual fit.” Crone and Horner (2003) defined contextual fit as the congruence between behavior interventions and the values, skills, resources, and routines of the individuals who will be implementing those interventions.

McLaughlin, Denney, Snyder, and Welsh (2012) conducted a review of studies published in the *Journal of Positive Behavior Interventions (JPBI)* to examine the extent to which family-centered interventions with contextual fit have appeared in the journal. Contextual fit was defined as (1) acknowledgement of the cultural and linguistic background of families; (2) collaborative partnership with families for assessment, planning, implementation, and evaluation of the behavior support intervention; (3) consideration of family ecology; (4) selection of family activity settings as contexts for intervention; (5) parents or familial caregivers’ perspectives about acceptability, feasibility, effectiveness, sustainability, and satisfaction; and (6) family quality of life (McLaughlin et al., 2012). Their review included 18 research studies and demonstrated that family-implemented interventions were successful in teaching positive behaviors and decreasing problem behaviors in children with ASD. Furthermore, the studies that included maintenance data showed that positive outcomes were maintained over time.

Moes and Frea (2000) presented an elaborate case study that examined the issue of ecological validity. Their study described a PBS intervention with a 3-year-old boy named Matthew who had ASD and challenging behavior. The study compared the child and family outcomes when the intervention was directed solely by the interventionist (the prescriptive approach) or in collaboration with the family (the contextualized approach). The prescriptive approach included the use of standardized protocols and structured teaching formats to direct intervention efforts, while the contextualized approach included an assessment of settings, values, and beliefs to inform the process and increase compatibility between intervention elements and known family routines and practices (Moes & Frea, 2000). All assessment and intervention sessions took place in Matthew’s home and were implemented by his parents and 4-year-old brother during routines in which he was expected to clean up after himself (e.g., putting toys away). The prescriptive treatment package included treatments derived from the literature, including functional communication training (i.e., requesting a “break”), extinction, and demand fading. The contextualized intervention incorporated family preferences gathered during assessment. For example, Matthew’s parents indicated that they wanted to reward him for following through with parental requests, so a treatment component was built in to enable Matthew to earn a desired item/activity of his choice after spending 5 min cleaning up after himself. His parents felt that teaching Matthew to request “help” rather than “break” would be more helpful in guiding their interactions during the “cleaning up” routine. His parents also requested modifications to the prompt sequence used to facilitate cooperation. They reported some level of past success with a three-step prompting sequence, starting with a verbal prompt to complete the request, then a reminder of what could be earned (e.g., “If you pick up your shirt you can play with ____”), and then, if necessary, a verbal “count to 3” procedure (“1,2,3...”) to foster cooperation. Finally, Matthew’s parents wanted his older brother to be a part of the intervention; he was expected to

model and follow the plan that was developed for his brother (Moes & Frea, 2000).

The results showed that in baseline, Matthew engaged in high levels of disruptive behavior and did not use functional communication. When the prescriptive intervention approach was implemented, Matthew began using the functional communication response to request a “break,” but was not engaging in on-task behavior. The demand-fading procedure was then introduced, and Matthew’s disruptive behaviors returned to baseline levels. At the end of intervention, his parents reported that they “couldn’t tell” how well the plan fit in with their beliefs, values, goals, abilities, and needs (Moes & Frea, 2000). When the contextualized intervention was implemented, Matthew showed a decrease in disruptive behavior and an increase in on-task behavior (Moes & Frea, 2000). Furthermore, parent ratings indicated that both parents found the intervention to be highly compatible with their beliefs, values, goals, abilities, and needs (Moes & Frea, 2000).

Fox and Emerson (2001) described the need for examining the perceived value of outcomes by various stakeholders who participate in the intervention process. They found that reduction in the severity of challenging behavior was considered the most important outcome of intervention for a child/young adult living with his or her family in four out of seven stakeholder groups in the study. For adults living in group homes, only three out of seven stakeholder groups identified challenging behavior as the highest priority. Other outcomes that were considered “most important” included increased friendships, increased relationships, learning alternative ways of getting needs met, increased control, and empowerment (Fox & Emerson, 2001). The authors concluded that the evaluation of outcomes should maximize the “goodness of fit” between intervention, the evaluation of the intervention, and the beliefs of the stakeholders involved (Albin, Lucyshyn, Horner, & Flannery, 1996).

To address ecological validity, several researchers have begun to define and measure “goodness of fit” to evaluate whether a plan fits with the overall values and lifestyle of those who are implementing it. Albin et al. (1996) developed a

Goodness-of-Fit Survey which includes 20 items that assess the degree to which a support plan is appropriately matched to the environment. The authors used a 5-point Likert-type rating scale (1 = not at all; 2 = not much; 3 = can’t tell; 4 = well (much); and 5 = very well (very much)) to determine whether the plan applied to all relevant settings and social demands that the child encounters; whether the plan considered the caregiver’s understanding, expectations, and comfort level with the child; whether the plan reflected the highest priority goals; whether the plan fit in with the daily routines and successes of the family; and whether the plan was feasible and sustainable over time. The *Self-Assessment of Contextual Fit* (Horner, Salentine, & Albin, 2003) is a second instrument that has been used to evaluate PBS plans at the statewide level (KIPBS, 2010). This 16-item scale uses a 6-point Likert-type rating (1 = strongly disagree; 2 = moderately disagree; 3 = barely disagree; 4 = barely agree; 5 = moderately agree; 6 = strongly agree) to evaluate eight dimensions of contextual fit, including knowledge of elements in the support plan, skills needed to implement the plan, values consistent with plan elements, resources available to implement the plan, overall support for the plan, effectiveness of the plan, best interest of the person, and efficiency of plan implementation. Thus, the inclusion of “goodness of fit” measures addresses ecological validity as a critical feature of PBS.

Stakeholder Participation

The next critical feature of PBS is stakeholder participation. Stakeholder participation assumes that all members of an individual’s support team are relevant stakeholders (e.g., parents, siblings, neighbors, teachers, job coaches, friends, roommates, and the person with disabilities) and participate as partners to build the vision, methods, and success criteria pertinent to defining quality of life for everyone concerned. Stakeholders have an active role in providing valuable qualitative perspectives for assessment purposes; in determining whether proposed prevention strategies are relevant for all of the challenging situations

that need to be dealt with; in evaluating whether the approach taken is practical and in line with the values, needs, and organizational structures related to the individual with disabilities and his or her support network; and in defining what outcomes are likely to improve the general quality of life and enhance the individual's personal satisfaction (Carr, 2002).

Vaughn, Dunlap, Fox, Clarke, and Bucy (1997) presented a case study that detailed a community-based intervention with a 9-year-old boy with significant disruptive and destructive behaviors. A collaborative team that included the boy's mother designed and implemented functional assessments and hypothesis-based interventions in three settings: a drive-through bank, a large grocery store, and a fast-food restaurant. Data showed that the interventions reduced problem behaviors in all three settings and that concomitant increases were observed in desirable mother-child interactions. The PBS procedures, which included the presentation of competing reinforcers in each environment (e.g., toys, picture book/schedule), were conducted by a parent who was also explicitly involved in the assessment process as well as the design and evaluation of the intervention program. Several other studies in the literature have demonstrated the efficacy of using natural supports, including parents (Clarke, Dunlap, & Vaughn, 1999), siblings (Walton & Ingersoll, 2012), teachers (Lee, Sugai, & Horner, 1999), and paraprofessionals (Feldman & Matos, 2013) as intervention agents. However, far fewer studies to date have incorporated community members as natural helpers.

The earlier example of JT (Turnbull & Turnbull, 1996) illustrates the potential role of natural helpers. JT's family engaged in a collaborative process referred to as Group Action Planning to design JT's PBS plan. The initial planning group consisted of JT along with his parents and his sisters, family friends, and a few friends from school. This initial group supported him in achieving employment and a home of his own. At that point, his job coach, a few coworkers, and his roommates became additional Action Group members. Later on, because JT deeply enjoyed music, the family included a music therapy teacher who in turn brought in dozens of

musicians into JT's life. Finally, the family looked for strategic community leaders who were natural "matchmakers" with inclusive community opportunities. They reached out to someone from the church, who also happened to work at the local bakery and knew almost everyone in town. This person had keen communication skills and acted as a group facilitator. JT's planning team expanded from just a few professionals and parents to a rich and extensive arena of family, friends, and community citizens. These stakeholders were passionately committed to him. Collectively, they created a context for social connectedness and interdependent caring; they engaged in dynamic and creative problem-solving and took action steps in order to identify and achieve shared goals. In other words, critical people were present from all different environments in which JT participated so there could be coordination and sharing of responsibility. Over time, waitpersons understood how to provide additional support when JT seemed anxious at the restaurant he frequented; bus drivers knew how to get him home safely if he got on the wrong bus; and people in his neighborhood watched out for him to make sure he was OK.

A variety of similar planning and problem-solving processes have been articulated in the literature under the broad umbrella of person-centered planning. These processes include *Lifestyle Planning* (O'Brien, 1987), *Personal Futures Planning* (Mount, 1987; Mount & Zwernick, 1988), *The McGill Action Planning System* (Forest & Lusthaus, 1987; Vandercook et al., 1989), *Framework for Accomplishment/Personal Profile* (O'Brien, Mount, & O'Brien, 1991), and *Essential Lifestyle Planning* (Smull & Harrison, 1992). These person-centered planning activities share many similarities. Most of the approaches utilize group graphics (large paper and marker drawings) and facilitation techniques to involve groups in learning more about the person and his or her family and planning for a more positive future (Kincaid, 1996). In addition, these approaches share a commitment to five essential goals, outcomes, or valued accomplishments, which include (1) being present and participating in community life, (2) gaining and maintaining

satisfying relationships, (3) expressing preferences and making choices in everyday life, (4) having opportunities to fulfill respected roles and to live with dignity, and (5) continuing to develop personal competencies. Mount (1994) addresses many of the benefits and limits of Personal Futures Planning. Benefits of the process include developing a positive view of the person, inspiring motivation in participants, empowering people with disabilities as well as their family and friends, involving and developing community relationships, and producing organizational change. However, as Mount (1994) pointed out, the integrity of the process is challenged if the emphasis moves away from what the person needs and wants and centers on what the system needs and wants. Mount argued that person-centered planning is not a process that can be standardized, implemented on a large scale, or molded to fit into the existing structures of a service system (Mount, 1994). Instead, it is designed to challenge systems to adapt to the unique needs of the person served. Kincaid (1996) summarized the process of person-centered planning as follows:

The Personal Profile and Futures Plan initiate the approach, additional information is obtained through various activities, a comprehensive plan is developed, and the team or work group continues to work to accomplish the identified goals. (p. 464)

Because the process of person-centered planning is, in and of itself, difficult to standardize and measure, PBS interventionists have instead begun to evaluate stakeholder satisfaction as a means of assessing the person-centered planning process (Abery, McBride, & Rotholz, 1999). This approach has also been applied at the state-wide level in the evaluation of PBS plans (KIPBS, 2010), using the *Person-Centered Planning Process Satisfaction Survey* (Abery et al., 1999). This survey uses a 4-point Likert-type rating scale (1 = not at all satisfied; 2 = a little satisfied; 3 = quite a bit satisfied; and 4 = completely satisfied) to evaluate 32 different aspects of stakeholders' experiences with person-centered planning. Items assess how well the focus person was prepared for the meeting and actively participating, how well the facilitator was prepared and

able to draw others into the process, whether the meeting progressed at a comfortable pace, how responsive the facilitator was to the person's input and point of view, and how satisfied members of the group were with the outcomes of the planning process. Tools such as this hold promise for addressing stakeholder participation as a critical feature of PBS.

Social Validity

Social validity has been identified as another critical feature of PBS (Carr et al., 2002). Social validity refers to whether or not interventions are seen by intervention agents as *practical* (e.g., Can typical intervention agents carry out the strategies?), *desirable* (e.g., Do typical intervention agents view the strategies as being worthy of implementation?), and *appropriate* for the contexts in which they are to be implemented. Social validity has also been defined along the dimensions of whether intervention procedures effectively reduced problem behavior (e.g., Do stakeholders view the strategies as having made a meaningful difference in reducing problem behavior to acceptable levels?) and whether the strategies were effective in improving quality of life (e.g., Do stakeholders view the strategies as having made a meaningful difference in the lifestyle of the individual by increasing opportunities to participate in typical community settings?) (Carr et al., 2002).

An illustration of social validity can be found in the work of Kemp and Carr (1995). Their study detailed a multicomponent approach for remediating problem behavior in three adults with autism and severe problem behavior in a community workplace setting, specifically a greenhouse. They selected treatments based on hypotheses about the variables controlling the problem behavior. The multicomponent intervention included functional communication training (i.e., requesting help or a break), building rapport (i.e., delivering reinforcement non-contingently), making choices (e.g., choosing activities, materials), embedding demands (i.e., alternating between preferred and non-preferred

tasks/steps), and building tolerance for delay of reinforcement. The results showed that following intervention, the participants demonstrated both an increase in time spent in the employment situation without problem behavior and increases in completion of work steps to task completion. Social validation of these results was provided by employment site management. Here, greenhouse managers were asked a series of questions designed to evaluate their confidence level in supporting the adults in the workplace before and after intervention. Managers used a 7-point rating scale (7 = very much/always, 4 = somewhat/sometimes, and 1 = not at all/never) to respond to five different items: (1) "I am confident that the job coach can control the employee's behavior"; (2) "I am confident that my coworkers are safe from harm"; (3) "I am confident that the greenhouse property is safe from harm"; (4) "The employee's behavior in the greenhouse is severe"; and (5) "The employee could make a productive contribution to the greenhouse." The social validity outcomes showed that the managers reported little confidence that the job coach could control the employees' behavior in baseline, but they reported near total confidence at the end of intervention. At the beginning of the study, the managers also reported little confidence that other workers were safe from harm, but they reported total confidence in coworker safety after intervention. Similarly, the managers reported little confidence that the property was safe in baseline and reported near total confidence following intervention. The managers also reported that they found the employees' behavior to be nearly always severe in baseline and almost never severe after intervention. Finally, in baseline, the managers reported little or no production by the employees. Following intervention, the employees were reported to be able to make a productive contribution "always." These results suggested that the intervention strategies were socially valid. That is to say, they were generally effective and acceptable to the greenhouse staff and therefore more likely to be implemented in the workplace.

In a second example, Binnendyk and Lucyshyn (2009) evaluated the effectiveness of a family-centered positive behavior support approach to the amelioration of food refusal behavior in a child with autism. The study was conducted with the child and his family in their home. It employed an empirical case study design with one meal routine, specifically, snack time. Following training and support with the child's mother, results showed high levels of child food acceptance, successful child participation in observed snack routines, and high parental ratings of social validity and contextual fit. Here, social validity was evaluated using a 10-item instrument with a 5-point Likert-type scale (1 = disagree, 5 = agree). Across four evaluations, the mother's average social validity rating was 4.6 (range = 4.3–4.8), suggesting that she consistently believed that the plan goals, procedures, and outcomes were acceptable. These improvements maintained up to 26 months post-intervention. Implementation was also associated with generalization of the child's eating behavior to new foods and to his father's supporting him during snack time. Child behavioral improvements were also associated with parental reports of gains in family quality of life.

Brief questionnaires and subjective rating scales, such as those described above, represent the current standard for evaluating social validity in PBS interventions. These ratings have been applied at various points during intervention and at the end of intervention to determine whether PBS strategies were reported to have made a difference. While most social validity ratings are administered in an interview or self-report format, Brookman-Fraze (2004) used real-time behavioral observations to examine social validity during treatment sessions. In her study, the author examined the effects of a clinician-driven model and a parent/clinician partnership on three mother-child dyads involving very young boys with autism and their caregivers. The author used four different Likert-type scales to assess social validity during treatment sessions. Two different 6-point Likert scales (0–5) were used to assess

parent stress level and parent confidence during parent-child interactions, and two 6-point Likert scales (0–5) were used to assess child interest and affect during the parent-child interactions. Results showed that all three parents in the study demonstrated decreased levels of observed stress and increased levels of observed confidence during the parent-clinician partnership condition compared to the clinician-directed condition. In addition, all three children in the study demonstrated more positive affect during the parent-clinician partnership condition compared to the clinician-directed condition. The authors concluded that collaborative partnerships between parents and professionals had a positive impact on both child target behaviors and overall parent-child interactions and family quality of life. As such, these interventions were considered to be socially valid and therefore likely to increase treatment success and decrease attrition rates among parents participating in parent education programs.

Multicomponent Intervention and Systems Change

PBS emphasizes that efforts should focus on addressing problem contexts, not problem behavior per se. Interventions that directly address problem behavior may not be successful if the context within which the behavior occurs does not support the use of the intervention. For meaningful change to occur, systems need to be reorganized so that change can occur and be maintained. Achieving meaningful change depends on stakeholders sharing a common vision, ongoing training for staff, and motivation for people to adopt new or revised ways of looking at problem contexts (Knoster, Villa, & Thousand, 2000). Horner, Vaughn, Day, and Ard (1996) described an expanded way to look at contexts for problem behavior by including the role of setting events. They described setting events as events that momentarily change the likelihood of a target behavior at a later point in time. For example, if an individual is fatigued, they may be more likely to engage in problem behavior

when presented with a task to complete. If the individual is not fatigued, it may be much more likely that the individual will successfully complete the task in the absence of problem behavior (Smith, Carr, & Moskowitz, 2016). Horner et al. (1996) described several ways in which setting events could be an important part of a multicomponent intervention for problem behavior. Interventions might include minimizing the likelihood that the setting event will affect behavior, for example, ensuring a good night's sleep for an individual who experiences increases in problem behavior when fatigued. Another strategy might be to neutralize the effects of the setting event. For example, if a student just had a fight on the playground and then became uncooperative after reentering the building, the teacher might prompt the student to use a known relaxation routine before presenting an academic task. A third strategy might be to provide additional prompts to facilitate a desired behavior. This could involve a teacher following a direction with a prompt such as, "If you need help doing this, or if you need a break, tell me by..." (Horner et al., 1996).

A comprehensive systems change approach typically involves the use of multicomponent interventions, with treatment efforts simultaneously focusing on setting events, antecedents, skill building, and consequences. In illustration, Lucyshyn et al. (2007) presented a case study of a 5-year-old child, Katherine, who had autism and severe intellectual disability. Katherine and her family were followed for a 10-year period: 2 years in baseline, nearly a year and a half of intervention training and support, and 7 years of post-intervention. The participant was 5 years old when the study began and 15 years old when it concluded. The study targeted four different family routines at home and in the community: dinner, bedtime, fast-food restaurant, and grocery shopping. The intervention plan incorporated a variety of PBS strategies that included four different setting event strategies: ensuring that tasks and activities had meaningful outcomes, using a picture schedule, supporting friendships with nondisabled peers, and decreasing demands when ill. The intervention package also included

five different antecedent strategies: providing advanced information about events that were stressful (e.g., tasks, changes, transitions, being alone); using natural positive contingencies to motivate cooperation; mediating delays using a preferred interaction, item, or activity; ensuring task success with instruction that matched her learning style; and using a “safety signal” to predict a break. To address skill building, the intervention included strategies to teach Katherine to use language to communicate her wants and needs, to participate in group activities, to wait or accept a delay, and to comply with “stop” and “come here” cues. Finally, consequence strategies included contingent praise for appropriate behaviors such as using language, making progress toward independence, calmly waiting, and accepting changes in routine. Planned ignoring of low-intensity behaviors was also included as a consequence-based strategy. Following parent implementation of the multicomponent plan, Katherine’s problem behaviors decreased to zero or near zero levels, while successful participation in routines increased from 0% to 75% of routines observed. Most importantly, across 7 years of post-intervention measurement and brief support, these changes maintained and showed further improvement, with successful participation in routines reaching 100% of routines observed. In addition, implementation of the support process was associated with a broader range of meaningful and durable improvements in Katherine’s behavior and quality of life from early childhood to middle adolescence. Katherine’s parents also reported improvements in the family’s quality of life and in their own personal health that went beyond the immediate focus of the study. As their skills, confidence, and success in supporting their daughter grew, the parents reported a decrease in family fragmentation and social isolation.

Given the noted importance of multicomponent interventions, a number of tools have been developed to assist PBS interventionists in identifying a broad range of factors that can affect problem behavior. One of the earliest devices to assess global influences was the *Setting Events Checklist* (Gardner et al., 1986), which is a 16-item checklist that identifies factors such as previous negative

interactions, medication changes, and/or illness as potential setting events for problem behavior. Inspired by this work, Carr, Magito McLaughlin, Giacobbe-Grieco, and Smith (2003a) developed and used a *mood scale* to study the impact of environmental setting events. The mood scale contains a 6-point Likert-type rating of mood (0–1 = bad mood; 2–3 = neutral mood; 4–5 = good mood), followed by a series of open-ended questions aimed at identifying particular setting events that might be associated with bad or good mood. Similar rating scales have been used to evaluate the impact of biological setting events such as menses (Carr, Smith, Giacini, Whelan, & Pancari, 2003b) and fatigue (Smith, Carr, & Moskowitz, 2016). *The Contextual Assessment Inventory* (McAtee, Carr, & Schulte, 2004) identifies generic classes of contextual variables that might be associated with problem behavior. The inventory includes over 90 individual items that are grouped into categories, including aspects of the social and cultural environment that may influence problem behavior (e.g., negative interactions, disappointments); aspects of the task, activity, or routine underway (e.g., rigid, boring, difficult); aspects of the physical environment (e.g., discomfort, change); and aspects of the individual’s physical condition or state of health (e.g., medication, illness, physiological states). For each item in the inventory, caregivers are asked to rate the likelihood of problem behaviors occurring in the presence of each factor (1 = never, 3 = half the time, 5 = always). The authors concluded that the CAI was an efficient, comprehensive, and comprehensible means of helping to identify context events that could be key components of a multicomponent intervention plan (McAtee et al., 2004).

Emphasis on Prevention

A PBS approach emphasizes the prevention of problem behavior. From a PBS perspective, “prevention” refers to intervening on problem behavior when the problem behavior is not occurring so that skill building can occur in an effort to prevent the behavior from occurring again (Carr et al., 2002). This definition of prevention

includes in part an emphasis on the early intervention for problem behavior in young children with ASD, so that problem behavior later in life for those individuals can be prevented or minimized. The proactive approach of prevention can include interventions such as functional communication training (e.g., Carr & Durand, 1985), creating opportunities for choice making (e.g., Dunlap et al., 1994), and curricular revisions (e.g., Dunlap et al., 1991).

An illustration of prevention research can be seen in the work of Kay, Harchik, and Luiselli (2006). The authors presented a case study of a 17-year-old student with autism named George, who attended a public high school. George's drooling was reported to be interfering with his education and his social adjustment at school. His drooling was thought to be the result of a skill deficit; thus, one of the components of the intervention involved George participating in three pre-teaching sessions, where he was taught to follow the instructions "swallow" and "wipe your mouth" using a tissue. Verbal instructions, partial physical guidance, and praise were used during the pre-teaching sessions. Once George demonstrated mastery in following these instructions, additional intervention components were implemented. These interventions included the following components: (1) George's paraprofessional aide checked him every 5 min, and if his mouth was dry, he was praised and provided with an edible reinforcer; (2) if saliva was visible outside his lips, the aide requested George to wipe his mouth and swallow. The results showed that the intervention was associated with a steady reduction and eventual elimination of drooling across the three locations used in the study (classroom, community vocational site, and cooking class). Following the intervention, it was anecdotally reported by school staff that George received greater peer acceptance compared to pre-intervention.

In a second example, highlighting early intervention research, Reeve and Carr (2000) conducted a study that examined whether functional communication training (FCT) could be a means of preventing minor problem behaviors from escalating to more serious behaviors. The partici-

pants in the study were children with developmental delays between the ages of 33 and 60 months. These children were identified by parents and teachers as engaging in minor problem behaviors such as crying, whining, and light hitting when they wanted to gain someone's attention. The participants were assigned to one of two groups. Children in the FCT group interacted with adults who were trained to teach the children functional communication to request attention (e.g., tapping the adult on the arm, saying the teacher's name, or saying a phrase such as "Look what I've done"). The children in the second group, the expressive language training (ELT) group, interacted with adults who were not trained in FCT but were trained to teach general expressive language skills (e.g., labeling, answering questions). Data were collected on the frequency of functional communication use, intensity of problem behaviors, and frequency of problem behaviors. The results of this study indicated that the children in each group made few requests for attention during baseline. During intervention, the children in the FCT group used functional communication requests more often than children in the ELT group and did not show an increase in the frequency or intensity of problem behavior. On the other hand, all of the children in the ELT group showed increases in the frequency and intensity of problem behavior from baseline to intervention. Furthermore, after functional communication training (FCT) was implemented, there was a reduction in problem behavior in the ELT group. The authors concluded that functional communication training may have been effective in preventing increases in problem behavior in children who are at risk.

Prevention tools can be drawn from the applied behavior analysis literature and include "best practice" strategies for teaching and prompting. PBS interventionists are actively engaged in adapting these procedures to real-world community settings, using task analyses, incidental teaching, and a variety of strategies to program for generalization and maintenance across settings and intervention agents. However, since these strategies are not specific to PBS, they will not be articulated here.

Flexibility with Respect to Scientific Practices

PBS presumes different outcomes than its ABA predecessors. For this reason, Carr (1997) suggested the need for a new applied science that addresses consumer needs more systematically and more frequently. With respect to assessment, methods must be user-friendly, feasible in the community, and yield accurate information. PBS challenges researchers to adopt greater flexibility in their definition of what constitutes acceptable data (Schwartz & Olswang, 1996). Moving beyond observations, PBS challenges researchers to consider the acceptability of naturalistic observations, correlational analyses, and qualitative data, including case studies, interviews, subjective rating scales, logs, questionnaires, and self-report measures, many of which have already been described.

Flexibility in scientific practice was illustrated by Carr and Carlson (1993) who presented an approach for remediating severe problem behavior in three adolescents with ASD in a public community setting, specifically a supermarket. Here, the authors noted that traditionally, interventions for problem behavior would be evaluated using measures of frequency and time sampling. These measures are especially appropriate in home and school settings where parents or professional staff monitor the problems. In these settings, there is an understanding that problem behavior is likely to occur in baseline and must be tolerated, at least in the short run, for purposes of assessment. However, no such tolerance exists in a public supermarket. Instead, even a relatively small number of instances of property destruction or aggression against other patrons can result in expulsion from the store or police action. Also, caretakers who accompany individuals with disabilities to the store may be embarrassed by public displays of problem behavior and therefore unlikely to agree to monitor progress using frequency or time sampling measures. In light of these practical difficulties, Carr and Carlson (1993) suggested the need for alternative measures for use in public settings. Accordingly, they evaluated the utility of measures of latency to problem behavior and percentage of task com-

pletion as alternatives to measures of frequency and time sampling. The rationale for employing these measures was that, in the community, there would be less concern with overall rate or level of problem behavior and more concern with whether an individual could complete a shopping task in a reasonable amount of time and do so without engaging in problem behavior.

Multiple Theoretical Perspectives

While applied behavior analysis has played a major role in shaping the development of PBS, as PBS has evolved, other branches of psychology, including organizational management, community/ecological psychology, cultural psychology, biomedical science, and positive psychology, have made significant contributions as well (Carr, 2007). These branches of psychology deal with units that are larger than the individual (i.e., systems) and emphasize the importance of natural settings for research and intervention. Carr et al. (2002) identified three principles that have long characterized the above fields and have now become dominant within PBS as well. These are the following: (1) since people in community settings are interdependent, clinically significant change occurs in social systems and not just in individuals; (2) producing change is not simply a matter of implementing specific techniques; rather, change involves the reallocation of resources such as time, money, and political power; and (3) an individual's behavior is the result of a continuous process of adaptation, reflecting the interface between competence (a property of individuals) and context (a property of environments). Therefore, a successful intervention must modulate the goodness of fit between competence and context.

These principles are highlighted in a case study presented by Clarke, Worcester, Dunlap, Murray, and Bradley-Klug (2002) who used a multicomponent intervention to address the problem behavior of a 12-year-old student named Mindy. Mindy was diagnosed with ASD and attended a public school. During assessment, the student's intervention team identified specific pre-academic activities as well as transition routines involving

physically moving from one location to another location that were associated with the occurrence of problem behavior. The team developed a multicomponent intervention for each of the targeted activities and routines. For example, Mindy resisted a routine assembly activity that required her to place color-coded foam forms onto matching colored pegs. The intervention involved providing an alternate assembly activity that was more functionally relevant and meaningful to Mindy and could serve as a bridge to other, more functionally relevant activities. In this case, Mindy was given a new activity of assembling a McDonald's Happy Meal kit. This activity was then used as a bridge to the functional skill of matching (e.g., matching plastic chicken nuggets with their containers) and eventually to transitioning to the cafeteria. Additional components that were included in the intervention were minimizing distractions for 5 min before making the transition, inviting a preferred peer to assist Mindy with making the transition, including a preferred activity (a tape player) for Mindy to enjoy during the transition, and providing Mindy with a preferred object to hold while walking to the cafeteria. The results showed that problem behavior occurred during a mean of 44% of intervals across all activities during baseline, which decreased to a mean of 11% during intervention. For transitions, problem behavior decreased from an average of 75% during baseline to 31% during intervention. Follow-up data 1 year after the study was initiated were consistent with the levels of problem behavior achieved during intervention. Here, interventions for Mindy's problem behavior recognized that clinically significant change needed to occur in Mindy's school. Change involved the reallocation of resources such as time, money (items), and people (peers, school personnel). Ultimately, Mindy's progress came as the result of a continuous process of adaptation to better balance Mindy's level of competence with the complex contexts (e.g., work skills, cafeteria) that she encountered.

In a second example, Reichle et al. (1996) described a model for training early intervention staff who work with preschoolers who engage in challenging behavior. These authors noted that

staff tend to assume that the children will "out-grow" these behaviors. This can result in staff not addressing lower-level challenging behaviors, which may result in a worsening of these behaviors as the children grow older (Reichle et al., 1996). Noting the lack of preservice training for staff who will eventually work with individuals with challenging behavior, Reichle and his colleagues proposed a training program that focused on preventive intervention rather than reactive intervention strategies. This program emphasized the need for a transdisciplinary approach to addressing challenging behavior and described how universities and school districts could work collaboratively to improve services through longitudinal technical assistance, preservice and in-service coursework, and on-site training in the prevention of problem behavior.

Cultural Sensitivity and PBS

While cultural sensitivity has not been formally identified as a "critical feature" of PBS, as PBS is applied to a wider variety of ethnic, racial, social, and religious groups, there has been a call for increased consideration of cultural diversity in the development and application of PBS interventions (Carr, 2007). Carr (2007) identified three sets of cultural issues that are relevant to the future of PBS: cultural relativism, cultural values, and cross-cultural competence. Each of these will be described in turn.

In terms of cultural relativism, Carr (2007) noted that problem behavior cannot be fully understood without considering such things as the values, beliefs, and norms of the ethnic, racial, religious, or social groups to which an individual belongs. Draguns (1997) stated that abnormal behavior concepts vary across cultures. This implies that a challenging behavior needs to be assessed in relation to its cultural context. Since the way problem behavior is defined can vary across cultures, failure to examine the cultural context and how a particular culture defines the problem behavior can lead to ineffective interventions and low consumer acceptability of the intervention. As an example, Delgado Rivera

and Rogers-Adkinson (1997) described how withholding eye contact when interacting with a person in authority is typically seen as respectful in Hispanic-American and African-American groups. Similarly, among Asian-American groups, eye contact with strangers may be seen as disrespectful (Delgado Rivera & Rogers-Adkinson, 1997). Therefore, promoting eye contact in certain situations when working with these cultural groups may be seen as going against cultural norms.

Regarding cultural values, Carr (2007) described how the PBS approach has largely been developed within English-speaking Western culture. This would suggest that PBS interventions might reflect the values of this culture, such as autonomy, self-reliance, and independence. If these goals are ascribed to an individual from a different culture where values such as group identity and mutual dependency are valued, these goals may be seen as going against what the culture values. This could then result in low consumer satisfaction with the goals. In a description of culturally sensitive person-centered planning, Callicott (2003) stated that self-determination, which is a hallmark of person-centered planning, may be an unfamiliar concept to another culture and may be in opposition to putting family first. In such situations, person-centered planning can provide an opportunity to discuss expectations and discuss the belief systems of the target individual, the family, and the community (Callicott, 2003).

Lastly, Carr (2007) emphasized the need to have competence in working with a wider variety of cultures other than White, middle-class groups, and such things as family structure, customs, and child-rearing practices will come to play a more important role in determining PBS interventions. For example, when working with a family from a culture where extended families rather than nuclear families may be the norm, interventions will need to consider including extended family members in assessment and intervention. Using semistructured interviews, Zions, Zions, Harrison, and Bellinger (2003) found that African-American parents of children with disabilities wanted sensitivity training for teachers working with children from low socioeconomic levels. They reported that they wanted teachers to spend time in the communities

where the children reside in order to better understand what the families' lives and challenges are outside of school (Zions et al., 2003).

To illustrate the role of cultural factors, while summarizing the critical features of PBS, a final case study will be presented. Magito McLaughlin, Mullen James, Anderson Ryan, and Carr (2002) presented a case study of Christos, a Greek immigrant in his early twenties who was multiply diagnosed with autism spectrum disorder, seizure disorder, and bipolar disorder. Christos was unique in that he was of European descent and not a native speaker of the English language. In addition, he experienced medical and psychiatric illnesses, in addition to ASD. Christos was born in Greece, and as a young child, he lived with his family in a Greek enclave in Queens, NY. At the age of 19, the intense nature and severity of Christos' problem behaviors resulted in his placement in a residential treatment center out of state. At the center, Christos was heavily medicated and provided with two staff at all times to address his intense tantrums and destruction of property. At age 23, Christos returned to New York for adult services due to changes in funding regulations that no longer allowed him to remain in an out-of-state placement.

Christos moved to a temporary crisis home on Long Island with 15 other individuals who had severe problem behavior. While living at the residence, his problem behaviors became more intense and more frequent. Staff attempted to exert control over Christos' behavior by bribing him with food to gain his cooperation. This resulted in serious health issues, including becoming overweight and developing high cholesterol. Physical and mechanical restraint procedures were also used several dozen times per month to keep Christos and others safe from harm. His problem behavior prevented him from engaging in classroom activities at his day program and from accessing the community at large.

A year later, Christos moved into a smaller community residence with six other men who also had a history of autism and severe problem behavior. His behaviors remained intense, and this became more and more of a concern since Christos was now living in an otherwise quiet

neighborhood. A neighbor eventually filed a complaint with the state office on developmental disabilities, and the state office mandated that Christos be removed from the home.

Following the mandated change in placement, the agency responsible for providing services made a decision to intervene using a positive behavior support (PBS) approach. A support team including Christos and his family, clinical staff, and direct staff workers who had a positive rapport with Christos convened to create solutions based on Christos' needs. The team recommended that Christos temporarily return to the crisis residence, so they could conduct an intensive assessment of his behavior. Central to the team's approach was a reframing of Christos' problem behavior: his "noncompliant" behavior was viewed as having "unmet needs." Instead of trying to exert power over Christos' behavior, a functional behavior assessment (FBA) was conducted to identify specific contexts that supported and maintained problem behavior. By addressing these contexts, a multicomponent intervention plan could be developed to reduce problem behavior and improve his overall quality of life.

As an initial part of the PBS approach, a functional behavior assessment interview was completed, and it indicated that the primary motivation for problem behavior was escape from unwanted events. The next priority addressed by the team was to identify the contexts and environments that Christos was looking to escape. Using a method similar to that described by Carr et al. (1994), the team identified five general contexts in which problem behaviors were most likely to occur. These included (1) group situations/crowded environments, (2) traditional staffing patterns (wherein the staff's role was to guard and protect, rather than teach and befriend), (3) physical and chemical restraints, (4) limitations to physical mobility, and (5) lack of access to community activities (Magito McLaughlin et al., 2002). The team utilized person-centered planning to brainstorm solutions to each of the five contexts identified. The results of this process are summarized in the table below.

Problem behavior context	Solution
Group situations/ crowded environments	Have Christos live alone and work with a small group of support staff
	Have Christos engage in individualized community-based supports instead of traditional day program supports
Traditional staffing patterns	Hire staff from the local Greek community who could engage Christos in cultural activities (e.g., speaking in Greek, cooking/eating Greek food)
Physical and chemical restraints	Encourage communication to express needs
	Develop a positive rapport with staff
	Increase opportunities to exercise self-control (e.g., take a shower to cool down when angry)
	Implement medication changes to decrease side effects (e.g., sedation, hunger)
Limitations to physical mobility	Support verbal communication (e.g., to leave a situation, to be alone)
	Provide healthy snack options that were freely available
Lack of access to community activities	Use of a photo communication board so Christos could choose preferred community activities
	Develop a community presence with staff support by introducing Christos to local community destinations (e.g., churches, parks, Greek restaurants)
	Facilitate ongoing contacts with family members who are still living in the Greek community
	Create respected roles (e.g., part-time work, strengths-based activities, preferred activities)

Prior to these interventions, Christos demonstrated episodes of aggression, self-injury, and property destruction between 350 and 1,100 times per month. After PBS was implemented to address specific problem behavior contexts, Christos' problem behavior episodes decreased to as few as 100 episodes per month. In addition, time spent in the community following the person-centered plan increased significantly (Magito McLaughlin et al., 2002).

Magito McLaughlin et al. (2002) pointed out that Christos' story illustrated how individuals with problem behavior might not benefit from large groups or system-oriented services. The authors showed how "thinking outside the box" and utilizing positive behavior support strategies that address problem contexts could meet the unique needs of this complex young man. Furthermore, Christos' story highlights the critical features of PBS. Comprehensive lifestyle change was accomplished by way of a planned move out of the group home and to a home of his own. In addition, there was a renewed emphasis on culturally relevant community membership. Christos was a young man who was forced to transition from an out-of-state school where he was in a highly controlled environment to an adult service placement in New York that was ill-prepared to manage him. A lifespan perspective necessitated the provision of different treatments under different circumstances. Christos' PBS plan was ecologically valid in that the interventions were matched to hypothesized variables. Relevant stakeholders, including Christos' parents, family members, and support staff, participated in a person-centered planning process to identify relevant contexts and solutions. Social validity was ensured in that interventions were readily able to be carried out by staff. Multicomponent intervention was accomplished through a simultaneous effort to adjust staffing, housing, communication, coping skills, and medication. An emphasis on prevention was illustrated by the use of creative scheduling (Brown, 1991), choice (Dunlap et al., 1994), and communication (Carr et al., 1994), as opposed to crisis management and physical restraint. Flexibility with respect to scientific practices was evidenced by designing teaching

strategies that were simple and user-friendly. Multiple theoretical perspectives were achieved by carefully weaving cultural factors (i.e., Greek staff, food, community) throughout the PBS intervention plan. Despite many layers of complex needs, PBS stood as a beacon of hope for Christos and his family. This new approach to intervention illustrated a broader lifestyle perspective; it was more responsive to Christos' needs and more in line with the community-based support efforts that were underway. As a result of PBS, Christos continues to live in the community today and participates in self-directed services to further improve his quality of life.

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