

Using a Multidimensional Model to Analyze Context and Enhance Personal Outcomes

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Abstract

This article describes a multidimensional model of context that identifies, defines, and explains three key properties of context: multilevel, multifactorial, and interactive. The use of this model to drive a context-based enhancement cycle is also described. The enhancement cycle involves four steps: (a) identifying current interactions that influence personal goals and outcomes; (b) targeting the interaction that will have the highest impact on selected outcomes for the individual; (c) manipulating the contextual factors that will positively influence the interaction; and (d) evaluating the impact of the manipulated interaction on personal outcomes. The article concludes with a discussion of the implications of using a multidimensional model of context to enhance personal outcomes.

Key Words: *context; multidimensional; personal outcomes; contextual analysis*

Introduction and Overview

Contextual analysis is a valuable analytic method that can be used to delineate the role that context plays in achieving disability policy goals and enhancing personal outcomes. In recent articles we have described how contextual analysis can be used to bring about change through unfreezing the status quo and driving valued outcomes (Shogren et al., 2018b), and to build contexts that enhance a system's responsiveness (Shogren et al., 2018a). In reference to bringing about change, contextual analysis involves analyzing five elements involved in "unfreezing" the current context and facilitating change. These five elements include (a) identifying the contextual factors that hinder change, (b) the discrepancies between where one is and where one wants to be, (c) the forces for change that will increase momentum and receptivity, (d) ways to promote adoption and application, and (e) ways to increase stakeholder participation in making change (Shogren et al., 2018b).

In reference to building contexts and strengthening a system's responsiveness, contextual analysis involves identifying critical factors that are part of an individual's context, including factors that can be manipulated or changed to enhance

valued outcomes for individuals with intellectual disability (ID; Shogren et al., 2018a). In brief, contextual factors include a variety of personal and environmental factors that are typically not manipulated but must be understood in order to design and deliver effective services and supports. Examples are age, language, culture and ethnicity, gender, family characteristics, and current personal goals. In contrast, other contextual factors can be manipulated or changed to enhance outcomes to achieve disability policy goals and enhance personal outcomes. These include community, organization, system, and societal policies and practices. Frequently contextual factors interact, and as will be discussed subsequently, these interactions need to be systematically considered in the analysis of context.

The purpose of the present article is to extend the application of contextual analysis by (a) describing a multidimensional model of context that identifies, defines, and explains three key properties of context, namely that it is multilevel, multifactorial, and interactive, and (b) using this multidimensional model to define a context-based enhancement cycle that enables users to target specific multilevel/multifactor interactions in the analysis of context to enhance personal outcomes.

Our goal is to provide a systematic framework for personal outcome enhancement based on the multidimensional model of context and a context-based enhancement cycle that can be used by researchers, policy makers, and practitioners to systematically understand, assess, and leverage contextual factors. Such work is needed, given the oft-cited importance of context (Shogren, Luckasson, et al., 2014) and its complexity. As Brooks (2018) observed,

life is longitudinal. Sometimes social policies are distorted by the tyranny of randomized controlled experiments. Everybody is looking for the one magic intervention that will have a measurable effect. But life isn't like that. Our actual lives are influenced by millions of events that interact in mysterious ways. (Opinion section, 10/08)

This article addresses the current lack in the field of context-based frameworks that define context and provide a means to systematically assess contextual factors influencing outcomes, and systematically intervene to change these factors to enhance personal outcomes and disability policy goals.

A Multidimensional Model of Context

A multidimensional model of context is needed for several reasons. First, such a model can play an important role in explaining the properties of context, sensitizing researchers, practitioners, and policy makers to the need for contextual analysis in research, policy, and practice. Second the model provides a framework for how to assess and classify contextual factors to effectively drive systems change and engage in outcomes evaluation. Third, by explaining, sensitizing, and providing a framework for contextual analysis, we can align efforts to promote change in contextual factors in the disability field; create transparency in the process used by researchers, practitioners, and policy makers to engage in contextual analysis; and enhance personal outcomes. The multidimensional model of context introduced in subsequent sections provides an efficient and transparent way to identify high impact interactions of contextual factors that have significant potential to impact the lives of people with disabilities, enabling the identification of high-value factors to target for

change so as to enhance personal outcomes. Further, by adopting a systematic process, people with disabilities and their family members can play a central role in identifying high impact interactions of contextual factors based on their own persona, values, and visions. This process can enhance communication among all stakeholders and enable a focus on personal outcomes aligned with the vision of the person and their family as well as the key goals of disability policy targeted by researchers, practitioners, and policy makers.

As depicted in Figure 1, our multidimensional model of context has three properties: (a) *multilevel*: context can be understood at the micro, meso, and macro levels; (b) *multifactorial*: there are many possible contextual factors that influence valued outcomes; and (c) *interactive*: different factors at different levels interact in different ways that can be more or less powerful based on changes in policy and practice over time to enhance personal outcomes, particularly if the highest impact interactions are identified by support teams in collaboration with the person and their family.

Multilevel

The multilevel property of context recognizes the layers of influence within which people live, learn, work, and recreate, and the impact these layers of influence have on human functioning and personal outcomes. These layers involve the *micro* or the immediate social setting including the person,

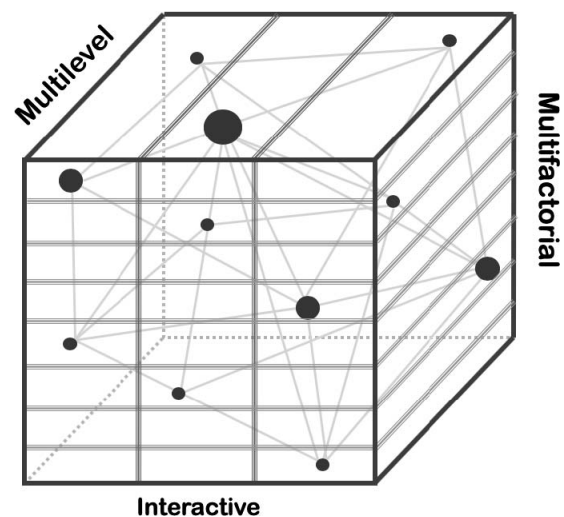


Figure 1. A multidimensional model of context.

family, close friends, and advocates; the *meso* that includes the neighborhood, community, and any organizations providing supports; and the *macro* that includes the larger policy context and supports delivery system, and the overarching pattern of culture, society, country, or sociopolitical influences (Bronfenbrenner, 1979).

The person and these system levels interact over time (i.e., the “chronosystem”; Bronfenbrenner, 2005) and thereby influence human functioning and personal outcomes differentially over time. For example, changes in society at the macro level, as reflected in the *United Nations Convention on the Rights of Persons with Disability* (United Nations, 2006), are leading to the emergence of systems of supports throughout the world that emphasize individualized supports and the creation of inclusive environments, which in turn enhance human functioning and personal outcomes. In reference to the model depicted in Figure 1, the micro, meso, and macro levels comprise the multilevel property of the model and organize the multiple contextual factors (i.e., “multifactorial”) that influence disability policy goals and personal outcomes.

Multifactorial

The multifactorial property of context recognizes the many potentially influential factors in the contexts within which people live, learn, work, and recreate. Analogous to the multilevel property, the model also recognizes that personal and environmental factors of influence can occur across the micro level (e.g., culture, language, family structures, choice opportunities) and meso/macro levels (e.g., availability and access to services and supports, alignment of supports to personal goals and support needs, community and organization policies that emphasize human dignity and autonomy, human endeavors, and human engagement). This property of the model further acknowledges that some personal and environmental contextual factors are typically not manipulated (e.g., age, language, gender) to enhance outcomes, but must be understood in order to design and deliver effective services and supports. Other factors, however, particularly at the meso and macro levels, can be manipulated or changed to achieve disability policy goals and enhance personal outcomes. In Table 1 we list some exemplary contextual factors across the micro, meso, and macro levels that have been identified as influencers of human functioning and personal outcomes and can be included in a

contextual analysis. The contextual factors listed in Table 1 are based on an extensive literature review and are organized across the three broad goals of disability policy that must drive the contextual analysis process: the promotion of human dignity and autonomy, personally satisfying human endeavor, and human engagement (Shogren et al, 2015). To effectively use contextual analysis, it is important to recognize the multiple contextual factors, across levels, that impact outcomes for each individual with ID and for the systems that support them. This complexity highlights the importance of ensuring that the person with a disability and their supporters are at the center of the contextual analysis process to identify the factors that are most relevant to their lives and enhancing their desired personal outcomes.

Interactive

The interactive property of context recognizes the variety of ways in which levels, factors, and supports interact to influence human functioning and personal outcomes. In that regard, we define an *interaction* as a reciprocal action or influence that occurs among levels, factors, and supports that are either provided or are available in one’s environment.

This interactive property of context is depicted in Figure 1 as “dots.” Each dot represents a potential multilevel/multifactorial/supports interaction. For example, a person’s level of productivity in employment can be influenced by accessing federally supported employment initiatives (a factor at the macro level; e.g., is there funding for job coaching?) and an organization-based supported employment program (a factor at the meso level; e.g., do job coaches receive needed training and supports?). Conversely, the level of the person’s community access and participation can be shaped by the interaction of the availability of accessible transportation (a factor at the macro level) and the extent of environmental accommodation (a factor at the micro level; e.g., are cognitive supports in place for navigating public transportation?).

As depicted in Figure 2, some interactions can have a greater influence on personal outcomes than others, necessitating careful attention to defining the “highest return” interactions from the perspective of the individual, their supporters including family members, as well as from the perspective of communities, organizations, and society. Analyzing the interactive property of context can enable prioritization of interactions to target for change

Table 1
The Goals of Disability Policy and Some Exemplary Contextual Factors That Influence Personal Outcomes

The Goals of Disability Policy	Micro Factors (Individual and Family Level)	Meso Factors (Community and Organization Level)	Macro Factors (System and Society Level)
1. Promotion of Human Dignity & Autonomy	<ul style="list-style-type: none"> • Personal factors (age, gender, race/ethnicity) • Culture 	<ul style="list-style-type: none"> • Available service providers • Locations available for support delivery 	<ul style="list-style-type: none"> • Disability perceptions and stigma
2. Promotion of Personally Satisfying Human Endeavor	<ul style="list-style-type: none"> • Language • Parenting practices • Family structure and involvement • Communication preferences and availability of augmentative communication systems 	<ul style="list-style-type: none"> • Access to community-based rehabilitation • Costs of supports and services 	<ul style="list-style-type: none"> • Community access and participation • Community-based alternatives
3. Promotion of Human Engagement	<ul style="list-style-type: none"> • Communication • Choices/opportunities • Environmental accommodation • Incentives • Information and assistive technology devices • Natural supports • Personal strengths/assets • Self-advocacy • Social networks • Supported decision making 	<ul style="list-style-type: none"> • Alignment of services and supports to personal goals and assessed support needs • Environmental accommodations • Organization and community policies that emphasize equity, empowerment, inclusion, and self-determination • Person-centered planning • Transition planning • Self-directed budgets 	<ul style="list-style-type: none"> • Employment supports • Human rights • Community living supports • Justice and fairness in legal system • Legal rights and protections • Postsecondary/adult education • Social capital • Transportation availability

aligned with the personal outcomes that the individual and their support system are seeking. Such analysis has the potential to also impact the broader goals of disability policy, targeted by communities, support provider organizations, and society. One of the goals of a disability support system should be to invest in the “highest return” multilevel/multifactorial interactions that lead to maximally enhanced personal outcomes consistent with those goals. For example, when macro-level policies that emphasize human and legal rights are combined with a meso-level organization’s person-centered practices, the two factors (policies and practices) at two levels (macro and meso) can interact to strongly enhance the individual’s self-determination, full citizenship, and well-being. However, if these factors are not aligned across levels, or if changes targeted to one level or factor are

not considered in light of the interactive property of context, enhanced outcomes may not result. Therefore a systematic approach to identifying the multilevel, multifactorial, and interactive elements of context is critical to enhancing personal outcomes in an efficient and equitable way.

A Context-Based Enhancement Cycle That Incorporates the Multidimensional Model of Context

Utilizing the multilevel, multifactorial, and interactive properties of context depicted in Figures 1 and 2 provides a framework to extend contextual analysis through the use of a context-based enhancement cycle. This cycle, which is depicted in Figure 3, includes the Assess-Plan-Do-Evaluate continuous quality improvement and change

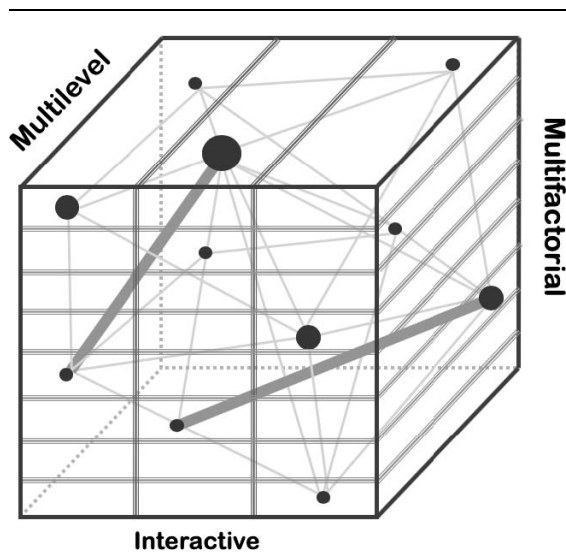


Figure 2. A multidimensional model of context: Strategically selected interactions for enhanced outcomes.

framework discussed and applied by Deming (2000), Meyers et al. (2012), and Schalock et al. (2018). As described in the following section, the enhancement cycle involves four steps: (a) identifying current interactions that influence personal

goals and outcomes; (b) targeting the interaction that will have the highest impact on targeted outcomes for the target person; (c) manipulating the contextual factors that will influence the interaction in the desired direction; and (d) evaluating the impact on personal outcomes. These four steps are presented graphically in the context-based enhancement cycle depicted in Figure 3.

Applying the Context-Based Enhancement Cycle

Step 1: Identify the Current Interactions

The first step in applying the context-based enhancement cycle is to identify the key current interactions in the life of the person. These key current interactions are represented via the “dots” in Figure 1. Table 2 provides examples that highlight how current interactions that potentially impact personal outcomes can be identified, with specific focus on the outcome domains of self-determination and well-being. For example, as noted in Table 2, the interaction of supported decision-making legislation (macro) with supports for decision making (meso) with growth in decision skills (micro) will impact the degree to which self-



Figure 3. Context-based enhancement cycle.

Table 2
A Framework to Understand How a Multidimensional Model of Context Aligned With Disability Policy Goals Can Impact Personal Outcome Domains: Examples of Two Personal Outcome Domains

Disability Policy Goals	Multidimensional Model of Context			Personal Outcome Domain
	Multilevel	Multifactoral	Interactions	
Promotion of Human Dignity & Autonomy	(1) Micro (2) Meso (3) Macro (4) Chrono	(1) Micro – Individualized supports to promote self-determination skills, including decision making and goal setting (2) Meso – Self-Advocacy Groups, Provider practices that emphasize involvement in IEP/ISP development (3) Macro – State and Federal Policies that enable supported decision-making, self-directed budgets, options and supports for living and working in the community (4) Chrono – Changes over time in public attitudes toward the right of people with disabilities to be included in society	Positive interactions across the Micro, Meso, Macro, and Chrono levels can result in positive enhancements in the self-determination personal outcomes domain. For example, a person with ID who is: <ul style="list-style-type: none"> • Living in a state that has supported decision-making legislation (e.g., Alaska; Macro) • Supported by a provider organization that works to facilitate systems of supports through effective person-centered planning and ISP development (Meso) • Receiving individualized supports (e.g., the Self-Determined Decision Making Model; Shogren et al., 2019) to learn to make decisions and request needed supports for decision making (Micro) 	Self-Determination
			will experience enhanced self-determination, one personal outcome associated with the promotion of human dignity and autonomy.	

(Table 2 continued)

Table 2
Continued

Disability Policy Goals Human Endeavor	Multidimensional Model of Context		Personal Outcome Domain
	Multilevel	Interactions	
(1) Micro	Micro – Access to personal growth opportunities focused on building emotional and physical well-being	Positive interactions across the Micro, Meso, Macro, and Chrono levels can result in positive enhancements in well-being	Well-Being
(2) Meso	Meso – A safe community and home; access to needed health and mental health supports.	For example, a person with ID who is:	
(3) Macro	Macro – State and Federal Policies that fund evidence-based health and mental health supports; Strengths-based policies that promote flourishing and positive growth.	<ul style="list-style-type: none"> • Living in a country where the UNCRPD has been adopted and a focus on the inherent dignity and human rights of people with disabilities are integrated into policies and practices (Macro) 	
(4) Chrono	Chrono – Changes over time in the recognition of the inherent dignity of a person with an ID and the importance of all domains of life to promote mental and physical health and personal growth	<ul style="list-style-type: none"> • Accessing community-based, high quality mental health supports to engage in personal growth (Meso) • Using information from an assessment of personal strengths (e.g., the VIA Inventory, validated for adults with ID; Shogren, Shaw, et al., 2018) to build on strengths to flourish (Micro) 	
		<ul style="list-style-type: none"> • Supported over the lifespan by a community and society that values and funds health and mental health supports for all people including people with ID (Chrono) <p>will experience enhanced well-being, one personal outcome associated with the promotion of human endeavor.</p>	

Note. IEP = Individualized education plan; ISP = individualized service plan; UNCRPD = United Nations Convention on the Rights of Persons with Disabilities.

determination outcomes are achieved for a person. By targeting the interaction between supported decision-making supports offered in a community and instruction in decision-making skills targeting the person with a disability, support teams can identify a means of making change that has the potential to enhance personal outcomes. Similarly, when the focus is on enhancing well-being, possible interactions would include the integration of policies supportive of the rights of people with disabilities (macro) with available mental health supports (meso) with enhanced utilization of strengths informed by meaningful assessment (micro) over time (chrono). By identifying desired outcomes in partnership between the person with a disability and their supporters, the highest impact interactive factors can be identified and then changed in ways aligned with the specific personal outcome domain. An example would be that an organization may choose to adopt an assessment of strengths and build this into the development of Personal Supports Plans, thereby changing the interaction across these meso and micro level factors with the intent of enhancing personal well-being outcomes.

Due to page constraints, Table 2 shows only two examples (the personal outcome domains of self-determination and well-being). However, these two examples show how the multilevel and multifactorial properties of context interact to influence outcomes and how researchers, practitioners, policy makers, and people with disabilities and their supporters can work to identify the interaction between factors across levels that potentially have high impact for enhancing targeted outcomes for people with disabilities. Thus, the multidimensional model of context can be used by various stakeholders to begin to understand and align the multilevel, multifactorial, and interactive properties of the model with disability policy goals and personal outcome domains (Shogren et al., 2015). This approach can be used to unpack the complexity of context and its influence on personal outcomes, as well make teams more sensitive to the impact of context and create transparency in planning for change to enhance outcomes.

Step 2: Target the Interaction That Will Have the Highest Impact

The interactive property of the multidimensional model of context captures the variety of ways in

which levels and factors interact to influence disability policy goals and personal outcomes as highlighted in the interactions highlighted in Table 2. This interactive property of context was depicted in Figure 1 as “dots” of various sizes. The various sizes reflect the higher impact of some dots or interactions on personal outcomes. Each dot represents an interaction between multilevel/multifactor variables that can be potentially manipulated or changed, and it will be up to stakeholders to determine the potential impact of the various interactions that are present in the lives of the people with disabilities as some of the interactions have a greater impact or effect on goals and outcomes than others.

Additionally, Figure 2 depicts how a specific interaction can be systematically influenced by changes in policies and practices (see dark lines reflecting changes that can occur as multilevel or multifactors are manipulated, changing the interaction). For example, legislative changes over the last two decades have strengthened the relation between federally supported employment initiatives (factor at the macro-level) and organizations implementing increased employment opportunities for an individual with ID (factor at the mesosystem). This interaction has had high impact, leading to changes in employment opportunities (although ongoing work is needed) in the lives of people with ID. Analogously, as described in Table 2, introducing supported decision-making legislation (factor at the macro level) will interact with the implementation of new research-based programs for supported decision making by a support organization (factor at the meso-level), which will strengthen the opportunities for decisions to be made by the person rather than for the person (factor at the micro-level). Such changes have played out in states and providences that have introduced supported decision-making legislation leading to changes in practices adopted by communities and organizations subject to this legislation (Blanck & Martinis, 2015). Ultimately, this will lead to enhanced self-determination for the person, promoting the disability policy goal of the promotion of human dignity and autonomy (see Table 1). However, only by systematically identifying, raising awareness, and planning for change in the interactions that potentially have the highest impact in enhancing personal outcomes can effective decisions be made for changes to target across the contextual levels and actors involved in

the change process (researchers, practitioners, policy makers, people with disabilities, and their supporters and family members).

After exploring the interactions that are present in the life of the person with a disability or the systems that support them, Step 2 involves targeting the interaction(s) that will potentially have the highest impact on personal outcomes. Targeting this interaction involves addressing two critical issues. First, the interaction selected and the targeted change in personal outcomes should be (a) anchored in the person's values, personal goals, and personal desires; and (b) examined for its cultural sensitivity and technical feasibility. For example, enhancing the interaction between education/life-long learning and information and assistive technology devices may be limited if those devices are not available or not preferred by the person. Or the potential impact of a targeted interaction between productivity and supported employment could be lessened in those jurisdictions that do not legislatively mandate and support employment initiatives, or if service/support providers do not offer supported employment options. Awareness of these issues can inform the interactions selected as well as identify steps that need to be taken prior to targeting a high value interaction (e.g., investigating resources to promote access to assistive technology). Referring to Table 2, for example, in jurisdictions where there is not supported decision-making legislation, but where self-determination is identified as a critical goal and outcome, planning teams or communities/organizations may decide to target legislative support for supported decision making and/or embedding practices in supports provision that enhance opportunities to people with disabilities to engage in supported decision making even without legislation being present.

Second, the selected interaction should be evaluated for consistency with policy goals that have a high priority for an organization or society, and with desired personal outcomes for the individual being supported. The first two columns of Table 3 will assist in this selection/ process. For example, if an organization's priority disability policy goal is to enhance human dignity and autonomy, then it would likely prioritize and implement interactions that lead to enhancements in policies and practices that focus on enhancing a person's self-determination and full citizenship. Analogously, if the priority is on enhancing human endeavor, the supports provided would focus on

education/life-long learning, productivity, and well-being. Finally, if the priority is on human engagement, the focus of the organization's policies, practices, and supports would be on inclusion in society and community life and human relations. The disability policy goals listed in column 1 and the associated personal outcome domains listed in column 2 are those identified via an international literature review described in Shogren et al. (2015).

Step 3: Manipulate the Contextual Factors

After assessing the potential impact of the selected interaction on goals and outcomes, ensuring alignment with personal values, and facilitating cultural reciprocity and technical feasibility, specific contextual factors that will impact the interaction can be manipulated to unfreeze the status quo and drive valued personal outcomes. The manipulation may involve multiple change mechanisms, including adding elements to systems of supports (e.g., promoting inclusive environments, implementing professional interventions, and/or building community-based supports), advocating for policy changes, or changing personal circumstances and skills.

The third column of Table 3 provides an overview of contextual factors that can be manipulated or changed using a multidimensional understanding of context to enhance personal outcomes. For example, if the targeted outcome is enhancing well-being for people with disabilities and the person lives in a community where there are not mental health practitioners trained in disability, the manipulation/change may be to organize training for local mental health professionals on issues in supporting people with ID, as well as adding incentives for organizations supporting people with disabilities. Analogously, to promote citizenship, it may be useful to consider the interaction of voting supports for people with disabilities with access to information on candidates in an upcoming election. Efforts to promote accessible voting locations for people with disabilities, community forums focused on candidates' positions on disability issues, and accessible educational materials for people with disabilities could all be targeted factors (multifactorial) across levels (multilevel), consistent with our multidimensional model of context.

This third step of the context-based enhancement cycle needs to be sensitive to the organiza-

Table 3
Exemplary Contextual Factors That Influence Interactions and Impact Outcomes

Disability Policy Goal	Associated Personal Outcome Domain	Contextual Factors That Potentially Impact a Targeted Interaction
Human Dignity and Autonomy	Self-Determination	<ul style="list-style-type: none"> • Opportunities for choice and decision making • Supported decision making • Self-advocacy • Self-directed budgets • Augmentative communication systems
Human Dignity and Autonomy	Full Citizenship	<ul style="list-style-type: none"> • Policies that assure human rights, justice, and fairness in the legal system and legal rights protections • Practices that emphasize equity, inclusion, and community participation • Supports for voting and civic engagement
Human Endeavor	Education/Life-Long Learning	<ul style="list-style-type: none"> • Protection and advocacy services • Information and assistive technology devices • Transition planning • Inclusive education • Postsecondary education programs
Human Endeavor	Productivity	<ul style="list-style-type: none"> • Continuing adult education opportunities • Employment initiatives • Career planning • Supported employment • Avocational activities • Paid sheltered employment
Human Endeavor	Well-Being	<ul style="list-style-type: none"> • Opportunities to volunteer • Person-centered/holistic planning • Stable, predictable environments • Social networks • Personal possessions • Family involvement • Control over environment • Incentives • Environmental accommodation • Personal safety • Health and wellness
Human Engagement	Inclusion in Society and Community Life	<ul style="list-style-type: none"> • Respect and privacy • Home and community-based supports • Independent living options • Inclusive education • Supported employment • Natural supports • Availability of transportation • Club/church groups

(Table 3 continued)

Table 3
Continued

Disability Policy Goal	Associated Personal Outcome Domain	Contextual Factors That Potentially Impact a Targeted Interaction
Human Engagement	Human Relations	<ul style="list-style-type: none"> • Social networks • Family involvement • Circle of friends • Social capital • Natural supports • Close friendships/marriage

tion’s receptivity and responsiveness to building contexts that enhance human functioning and promote valued outcomes for people with ID (Shogren et al., 2018a). To fully implement the context-based enhancement cycle there may need to be organization/community-wide efforts to enhance understanding of contextual analysis and its role in enhancing personal outcomes. In addition, the successful implementation of Step 3 depends on the degree to which organization personnel see the enhancement as providing value to the organization’s stakeholders and is easily understood and taught via consultation and learning teams, but within the constraints of organization resources (Schalock et al., 2018). Specifically, organizations and supporters looking to embed contextual analysis and the context-based enhancement cycle should explore means to adopt and provide training and supports on the framework described in this article.

Step 4: Evaluate Impact

The final step of the context-based enhancement cycle is to evaluate the impact of the manipulation on the targeted interaction. To accomplish this, we propose that this evaluation can be done at one of two levels, depending on the evaluation capability of the organization or system. At the simplest level, the evaluation would focus on determining the effect of the manipulated contextual factor on one or more desired personal outcomes. This level of evaluation assumes that the manipulation of the contextual factor will impact the interaction, which in turn will influence the desired outcome. Guidelines for assessing personal outcomes are that the personal outcome indicator is (a) based on a well-formulated and valid conceptual model; (b) culturally sensitive; (c) assessed via a reliable and valid instrument, generally using a 4 to 6 point

Likert scale; and (d) assessed using an instrument that permits either a self-report or a report of others on the same items (Gómez & Verdugo, 2016). Information should be gathered from multiple informants, including the person with a disability.

Table 4 has been developed to assist the reader in seeing the relation among personal outcome domains, contextual factors that potentially impact a targeted interaction, and personal outcome domain indicators to assist with the assessment of personal outcomes. The first two columns of Table 4 are the same as found in Table 3 that was described earlier in the article; the third column contains those domain-referenced personal outcome domain indicators presented in Shogren et al. (2015) that can guide outcome evaluation.

The evaluation of the impact of a targeted interaction can also be done at a higher, more complex level by aggregating data across individuals within organizations, communities, states, countries, and cultures. This more complex level of evaluation is used to evaluate the impacts of those strategically selected interactions depicted in Figure 2. Such analyses can not only inform evaluation of the impact of contextual manipulations, but also provide guidance on the most effective strategies to enhance personal outcomes and achieve the goals of disability policy. To enable such analyses, data would need to be aggregated from multiple sources or secondary data analyses of large, existing resources undertaken with a specific focus on exploring contextual factors, their interactions, and possible relationships to outcomes. For example, Shogren and colleagues have used data from the *National Longitudinal Transition Study-2* (SRI International, 2000), which collected data over a 10-year period from students with disabilities, their families, teachers, and schools, on in-school supports and

Table 4
Alignment of Personal Outcome Domains, Contextual Factors, and Personal Outcome Indicators

Personal Outcome Domain	Contextual Factors that Potentially Impact a Targeted Interaction ^a	Personal Outcome Domain Indicators
Self-Determination	<ul style="list-style-type: none"> • Opportunities for choice and decision making • Supported decision making • Self-advocacy • Self-directed budgets • Augmentative communication systems 	<ul style="list-style-type: none"> • Freely engages in choice-making • Participates in decisions • Exercises control over one's resources • Sets and works to obtain goals
Full Citizenship	<ul style="list-style-type: none"> • Policies that assure human rights, justice, and fairness in the legal system and legal rights protections • Practices that emphasize equity, inclusion, and community participation • Protection and advocacy services 	<ul style="list-style-type: none"> • Respect • Privacy • Rights (human and civil) • Freedom from exploitation • Liberty and security • Freedom of expression • Liberty of movement • Fair legal treatment and justice
Education/Life-Long Learning	<ul style="list-style-type: none"> • Information and assistive technology devices • Transition planning • Inclusive education • Post-secondary education programs • Continuing adult education opportunities 	<ul style="list-style-type: none"> • Postsecondary education • Vocational education • Ongoing education • Personal growth and development
Productivity	<ul style="list-style-type: none"> • Employment initiatives • Career planning • Supported employment • Avocational activities • Paid sheltered employment • Opportunities to volunteer 	<ul style="list-style-type: none"> • Work/employment • Economic self-sufficiency • Volunteering • Meaningful engagement in activities
Well-Being	<ul style="list-style-type: none"> • Person-centered/holistic planning • Stable, predictable environments • Social networks • Personal possessions • Family involvement • Control over environment • Incentives • Environmental accommodation • Personal safety • Health and wellness • Respect and privacy 	<ul style="list-style-type: none"> • Emotional well-being • Physical well-being • Personal safety • Health and wellness • Integrity of the person

(Table 4 continued)

Table 4
Continued

Personal Outcome Domain	Contextual Factors that Potentially Impact a Targeted Interaction ^a	Personal Outcome Domain Indicators
Inclusion in Society and Community Life	<ul style="list-style-type: none"> • Home and community-based supports • Independent living options • Inclusive education • Supported employment • Natural supports • Availability of transportation • Club/church groups 	<ul style="list-style-type: none"> • Community living • Affiliation • Community inclusion • Membership in community • Social inclusion • Participation
Human Relations	<ul style="list-style-type: none"> • Social networks • Family involvement • Circle of friends • Social capital • Natural supports • Close friendships/marriage 	<ul style="list-style-type: none"> • Meaningful relations • Friendships • Social networks • Interdependency • Romance

^aContextual factors can act as a mediator to influence the relation between an independent and dependent variable through indirect causation, connection, or relation. The interactive property of context modifies the form or strength of the relation between variables, and thus can act as a moderator (Gómez et al., 2018).

services and postschool outcomes to explore the impact of multilevel (e.g., student, family, school program) factors on student self-determination (Shogren et al., 2016; Shogren, Kennedy, et al., 2014). Using multilevel longitudinal modeling, they explored the impact of self-determination, after accounting for contextual factors, on post-school outcomes (e.g., employment, community participation, lifelong learning) demonstrating that the relationship between self-determination and postschool outcomes as influenced by multiple contextual factors, including disability label, school program, and parent expectations (Shogren & Shaw, 2016, 2017). Potentially, through aggregating data from multiple sources, it may be possible to further explore the impact of multiple contextual factors on outcomes informing research, policy, and practice at the individual, organization, and policy level.

Implications of Using a Multidimensional Model of Context to Enhance Personal Outcomes

Context is an important, yet poorly defined concept in the field of ID (Shogren, Luckasson, et

al., 2014). Using a multidimensional model of context to engage in contextual analysis has the potential to more clearly identify key properties of context, sensitize the field to the importance of a multidimensional understand of context, and provide a framework for assessing and identifying contextual factors that can be manipulated to enhance personal outcomes.

The complexities or nuances of context are only beginning to be “unpacked.” In our work thus far (Shogren, Luckasson, et al., 2014; Shogren et al., 2015; Shogren et al., 2018a, 2018b), we have attempted to define context, describe how contextual analysis can be used to bring about change through unfreezing the status quo and driving valued outcomes, and elucidate how systems can build contexts that enhance their cultural reciprocity. In this article we further describe how using a multidimensional model of context defined by three properties (multifactor, multilevel, and interactive) can enhance personal outcomes through enabling the identification, prioritization, and manipulation of high impact contextual interactions, aligning understandings of contextual factors, creating transparency in decision making regarding manipulations of con-

textual factors, and enhancing personal outcomes. Further, using a context-based enhancement cycle provides a systematic framework for identification, prioritization, manipulation, and evaluation of contextual changes. Using such a model can help a team, organization, community, system, or society strategically identify efforts, focus its resources, and responsibly communicate to individuals, families, providers, and funders the what, where, and why of context-related choices. The descriptions of interactions, such as those provided in Table 2 and Figure 2, can be used to promote effective communication and collaboration in order to understand, identify, and manipulate the highest impact interactions and evaluate their impacts. Tables 3 and 4 can be used to explore the anticipated relation between specific manipulations and disability goals and personal outcome domains. Ultimately, the focus of impact evaluation should be the extent to personal outcome domains have been influenced by manipulations of prioritized interactions. Further, through collecting systemic data about the impact of manipulations at the individual level, further evidence can be collected on broader impacts across communities, organizations, societies, and cultures informing ongoing research, policy, and practice decisions in nuanced ways.

Ultimately, contextual analysis should be viewed as a continuous cycle. If changes consistent with desired enhancements in self-determination, for example, are not achieved, then different individualized supports at the micro, meso, or macro level should be considered to determine if there are different ways to enhance outcomes or identify different interactions to target. Ultimately, by using the context-based enhancement cycle, a more systematic focus on (a) contextual factors, (b) interactions between the properties of context defined by a multidimensional model of context, and (c) and the impacts of manipulating these interactions to enhance outcomes can be further understood. In doing so, a quality improvement framework is incorporated into contextual analysis, which enables a more systematic examination and integration of context with efforts to promote personal outcomes in the disability field. In doing so, communities, organizations, and systems that provide supports can meet their responsibility to build contexts that enhance human functioning and promote valued outcomes for persons with ID (Shogren et al., 2018a). Responsivity to contextual

factors enables a greater understanding of factors that can be changed to enhance the design and delivery of effective support strategies that enhance personal outcomes as well as meet the broad goals of disability policy.

Contextual analysis can also promote a movement toward transparent team and organization decision making and maximization of resources toward change that are aligned with personal outcomes that are important to the individual and align with disability policy goals. A context-based enhancement cycle based on the multidimensional model of context depicted in Figure 1, can sensitize team members and enable greater communication and collaboration as well as a shared vision, not only for valued outcomes but also for action steps that can be undertaken to enhance personal outcomes. This context-based enhancement cycle can create shared language, a stronger relationship between individuals, families, other supporters, and organizations and systems, as well as greater team-level buy-in for change strategies as a shared vision for the reasons and outcomes of change strategies are specified. For example, if there is clarity around a targeted outcome and high impact interactions that will be manipulated (e.g., targeting enhance self-determination by providing increased decision-making supports), then teams can work more effectively together to implement the content-based enhancement cycle and communicate and problem-solve with the barriers that are encountered. Further, by collecting data over time, systems can better understand the impact that such manipulations have on aggregated outcomes, enabling effective decision making both at the individual and the community, organization, and society level.

We believe that a model depicted in Figure 1 and extended in Figure 2 will help advance the field's thinking about context. A multidimensional model of context has global potential and should be useful in a variety of social settings. Advanced work on attempting to understand context in various disability arenas is ongoing. Recent research in South Africa, for example, explored contextual factors in low- and middle-income countries (Gulere et al., 2018). Researchers conducted qualitative focus groups and interviews with caregivers of young children with autism spectrum disorders (ASD) in a low-resource community and identified eight important contextual factors: culture, language, location of treatment, cost of treatment, type of service

provider, support, parenting practices, and stigma. Although they did not distinguish between contextual factors that could be manipulated for change and personal factors that may interact with these factors, the researchers did identify and analyze contextual factors, and urged that caregiver preferences regarding contextual variables be considered in the development of low-cost and scalable caregiver-mediated early ASD interventions. Thus, an analysis of context is important in considering interventions, and this process is relevant globally including in high-, middle-, and low-income countries.

There are multiple reasons why a multidimensional model of context (Figure 1) and a context-based enhancement cycle such as depicted in Figure 3 that is based on that model should be considered for adoption in the intellectual disability field. First, such a model is consistent with person-environment fit models of disability in that it explicitly recognizes the interaction of personal and environmental factors in shaping outcomes (Schalock et al., 2010; World Health Organization, 2001). Second, such a model and cycle create a systematic means to define and manipulate contextual factors that impact personal outcomes, consistent with the goals of disability policy. Third, the use of the model to advance contextual analysis recognizes that thinking only about one level or one contextual factor in isolation does not accurately reflect the interactive nature of the person and the environment in context (Bronfenbrenner, 2005). Fourth, the integration of the multidimensional model and the context-based enhancement cycle expands previous work on contextual analysis (Shogren, Luckasson, et al., 2014; Shogren et al., 2015; Shogren et al., 2018a, 2018b) and quality enhancement (Deming, 2000; Gómez & Verdugo, 2016; Schalock et al., 2018). In our opinion, the definition and component aspects of the term *context* must be deeply analyzed, viewed from all angles, and understood in order to further develop its potential in the disability field. We hope that our work contributes to this understanding.

References

Blanck, P., & Martinis, J. G. (2015). The right to make choices: The National Resource Center

for Supported Decision-Making. *Inclusion*, 3, 24–33. <https://doi.org/10.1352/2326-6988-3.1.24>

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.

Bronfenbrenner, U. (Ed.). (2005). *Making human beings human: Bioecological perspectives on human development*. Sage.

Brooks, D. (2018, Oct. 8). A really good thing is happening in America. *The New York Times*. *The New York Times*. <https://www.nytimes.com/2018/10/08/opinion/collective-impact-community-civic-architecture.html>

Deming, W. E. (2000). *Out of crisis*. First MIT Press.

Gómez, L. E., Schalock, R. L., & Verdugo, M. (2018). *The role of logic models and moderator and mediator variables in disability policy and practice*. Manuscript submitted for publication.

Gómez, L. E., & Verdugo, M. A. (2016). Outcomes evaluation. In R. L. Schalock & K. D. Keith (Eds.), *Cross-cultural quality of life: Enhancing the lives of persons with intellectual disability* (pp. 71–80). American Association on Intellectual and Developmental Disabilities.

Guler, J., de Vries, P. J., Seris, N., Shabalala, N., & Franz, L. (2018). The importance of context in early autism intervention: A qualitative South African study. *Autism*, 22(8), 1005–1017. <https://doi.org/10.1177/1362361317716604>

Meyers, D. C., Durlak, J. A., & Wandersman, A. (2012). The quality implementation framework: A synthesis of critical steps in the implementation process. *American Journal of Community Psychology*, 50, 462–480. <https://doi.org/10.1007/s10464-012-9522-x>

Schalock, R. L., Borthwick-Duffy, S. A., Bradley, V. J., Buntinx, W. H. E., Coulter, D. L., Craig, E. M., Gomez, S. C., Lachapelle, Y., Luckasson, R., Reeve, A., Shogren, K. A., Snell, M. E., Spret, S., Tassé, M. J., Thompson, J. R., Verdugo-Alonso, M. A., Wehmeyer, M. L., & Yeager, M. H. (2010). *Intellectual disability: Definition, classification, and systems of supports* (11th ed.). American Association on Intellectual and Developmental Disabilities.

Schalock, R. L., Verdugo, M. A., & van Loon, J. (2018). Understanding organization transformation in evaluation and program planning. *Evaluation and Program Planning*, 67, 53–60.

- <https://doi.org/10.1016/j.evalprogplan.2017.11.003>
- Shogren, K. A., Garnier Villarreal, M., Dowsett, C., & Little, T. D. (2016). Exploring student, family, and school predictors of self-determination using NLTS2 data. *Career Development and Transition for Exceptional Individuals*, 37, 23–33. <https://doi.org/10.1177/2165143414546685>
- Shogren, K. A., Kennedy, W., Dowsett, C., Garnier Villarreal, M., & Little, T. D. (2014). Exploring essential characteristics of self-determination for diverse students using data from NLTS2. *Career Development and Transition for Exceptional Individuals*, 37, 168–176. <https://doi.org/10.1177/2165143413486927>
- Shogren, K. A., Luckasson, R., & Schalock, R. L. (2014). The definition of context and its application in the field of intellectual disability. *Journal of Policy and Practice in Intellectual Disabilities*, 11, 109–116. <https://doi.org/10.1111/jppi.12077>
- Shogren, K. A., Luckasson, R., & Schalock, R. L. (2015). Using context as an integrative framework to align policy goals, supports, and outcomes in intellectual disability. *Intellectual and Developmental Disabilities*, 53, 367–376. <https://doi.org/10.1352/1934-9556-53.5.367>
- Shogren, K. A., Luckasson, R., & Schalock, R. L. (2018a). The responsibility to build contexts that enhance human functioning and promote valued outcomes for people with intellectual disability: Strengthening system responsiveness. *Intellectual and Developmental Disabilities*, 56, 287–300. <https://doi.org/10.1352/1934-9556-56.5.287>
- Shogren, K. A., Luckasson, R., & Schalock, R. L. (2018b). The use of a context-based change model to unfreeze the status quo and drive change to enhance personal outcomes of people with intellectual and developmental disabilities. *Journal of Policy and Practice in Intellectual Disabilities*, 15, 101–109. <https://doi.org/10.1111/jppi.12233>
- Shogren, K. A., & Shaw, L. A. (2016). The role of autonomy, self-realization, and psychological empowerment in predicting early adulthood outcomes for youth with disabilities. *Remedial and Special Education*, 37, 55–62. <https://doi.org/10.1177/0741932515585003>
- Shogren, K. A., & Shaw, L. A. (2017). The impact of personal factors on self-determination and early adulthood outcome constructs in youth with disabilities. *Journal of Disability Policy Studies*, 27, 223–233. <https://doi.org/10.1177/1044207316667732>
- Shogren, K. A., Shaw, L. A., Raley, S. K., Wehmeyer, M. L., Niemiec, R. M., & Adkins, M. (2018). Assessing character strengths in youth with intellectual disability: Reliability and factorial validity of the VIA-Youth. *Intellectual and Developmental Disabilities*, 56(1), 13–29. <https://doi.org/10.1352/1934-9556-56.1.13>
- Shogren, K. A., Wehmeyer, M. L., Martinis, J., & Blanck, P. (2019). *Supported decision-making: Theory, research and practice to enhance self-determination and quality of life*. Cambridge.
- SRI International. (2000). *National Longitudinal Transition Study-2 (NLTS2): Study design, timeline and data collection plan*. Author.
- United Nations. (2006). *Convention on the rights of persons with disability*. United Nations. <http://www.un.org/disabilities/default.asp?navid=14&pid=150>
- World Health Organization. (2001). *International classification of functioning, disability, and health*. Author.
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