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Personal Disability Identity Measurement: Self-Worth and Personal Meaning

By

Mercedes Zapata

A dissertation submitted in partial satisfaction of the

requirements for the degree of

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University of California, Berkeley

Committee in charge:

Professor Frank Worrell, Chair
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Personal Disability Identity Measurement: Self-Worth and Personal Meaning

Abstract

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by

Mercedes Zapata

Doctor of Philosophy in Education

University of California, Berkeley

Professor Frank Worrell, Chair

In this study, I examined validity evidence for a new disability identity scale, Personal Disability Identity Scale–Self-Worth and Meaning, in a sample of 525 adults with visual impairment (VI) or blindness. Personal disability identity (PDI) refers to feelings about having a disability as well as incorporation of disability status into overall self-concept (Dunn & Burcaw, 2013). Pre-existing measures of PDI (Darling & Heckert, 2010; Hahn & Belt, 2004) operationalize three factors of the PDI concept (i.e., Affirmation, Denial, Pride), which has been theorized to encompass more domains (Dunn & Burcaw, 2013; Forber-Pratt, Lyew, Samples, & Mueller, 2017). The Self-Worth and Meaning subscales were intended to capture previously unexplored PDI domains, including self-worth as a person with a disability (Putnam, 2005) and personal meaning found in the experience of disability (Dunn & Burcaw, 2013). Exploratory and confirmatory factor analyses supported the structural validity of Self-Worth and Meaning scores as well as an overarching four-factor structure of PDI scores composed of Pride/Affirmation, Acceptance (versus Denial), Self-Worth, and Positive Personal Meaning (i.e., Meaning). Correlational analyses between Self-Worth, Meaning, and existing PDI measures supported the convergent and divergent validity of Self-Worth and Meaning scores. Further correlational analyses between Self-Worth and Meaning subscales and indicators of well-being (i.e., satisfaction with life, anxiety/depression) offered support for the external validity of Self-Worth and Meaning. This dissertation contributes to the literature on disability identity by offering an expanded empirical model of PDI as well as a new PDI measure that is derived from models of disability identity that had not been explored empirically (Dunn & Burcaw, 2013; Putnam, 2005).

Keywords: disability identity, visual impairment, blindness, self-worth, personal meaning

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Personal Disability Identity Measurement: Self-Worth and Personal Meaning

Approximately 15% of the world's population has a disability, yet only 2–4% of those individuals self-identify as people with disabilities (Bogart, Rottenstein, Lund, & Bouchard, 2017). The International Classification of Functioning (ICF) recognizes disability as constructed through the intersection of impairment (i.e., personal factors) and context (i.e., environmental factors). Whereas the terms *impairment* and *health condition* denote chronic diseases, disorders, injuries, and congenital anomalies, the term *disability* refers to the intersection of an impairment and an individual's context-specific personal and environmental factors. Under the new ICF framework, which represents the social model, an impairment is not necessarily disabling in an accommodating personal and environmental context. Conversely, even a mild impairment can become disabling in a handicapping personal and environmental context. Disability has historically been viewed through the medical model, which conceptualizes disability as undesirable and stigmatized (e.g., Goffman, 1963) and holds individuals with disabilities responsible for adopting, as closely as possible, the norms of the able-bodied majority. In contrast to the medical model, the social model proposes that society has a responsibility to accommodate the differences of individuals with disabilities.

Considering the shared experience of stigma, prejudice, and discrimination faced by individuals with disabilities, disability has been conceptualized as a minority group status (Dunn & Burcaw, 2013; Siebers, 2011). Tajfel and Turner's (1979) social identity theory suggests that members of stigmatized minority groups attempt to restore and protect their well-being by adopting individualistic or collectivistic strategies. Individualistic strategies, as applied to disability status, include attempts to "pass" as non-disabled. In striving to appear and to function as normal, individuals who adopt individualistic strategies may deny their disability status and distance themselves from other people who have disabilities (Bogart, Rottenstein, Lund, & Bouchard, 2017).

Alternatively, individuals with disabilities may adopt collectivistic strategies that *affirm* their identity as a person with a disability, identifying with their minority group, adopting its values, and engaging in efforts to boost the social status of its collective membership. According to Bogart, Rottenstein, Lund, and Bouchard (2017), individuals who affirm their disability identity may pursue support or community groups with which to affiliate, cultivate disability pride, and find meaning in mentorship and disability rights advocacy. Disability affirmation, disability denial, and disability pride have been explored empirically as subconstructs of personal disability identity (PDI), a concept that describes valence of orientation to disability status as well as incorporation of disability status into overall self-concept (Olkin, 1999).

Researchers have begun to demonstrate empirically the theorized relationships between markers of well-being and PDI (i.e., disability affirmation, disability denial, and disability pride), but more research is needed to understand if PDI has implications for clinical practice with individuals who have disabilities. As members of a minority group, individuals with disabilities construct the meaning of disability in their lives and in society. As practitioners who serve individuals with disabilities and their families, school psychologists and rehabilitation counselors —among others— would benefit from specialized training on how to both assess disability identity and support the formation of disability identity that promotes highest quality of life. In order to train psychologists and counselors in disability competence and raise their sensitivity to what disability means for clients with disabilities, psychological research on disability identity

must first establish the structure of the disability identity construct and how it contributes to individual well-being.

Disability Identity

Identity is a conceptual tool for thinking about sameness and difference at both the individual level and the social level of group affiliation and social categorization (Hammack, 2015). Identity allows people to make sense of themselves as individuals and in relation to others (Oyserman, Elmore, & Smith, 2012). Identity can be focused on an individual's past experiences, present circumstances, or future sense of self involving hopes, fears, and expectations (Oysterman et al., 2012). In psychological research, identity development has been studied in the context of minority status and group affiliation. Identities can be based on such classifications as gender, race, ethnicity, and sexual orientation. Scholars have claimed that disability functions as an identity category because persons with disabilities are members of a group that encounters stigmatization, prejudice, and discrimination (Gill, 1997; Siebers, 2011). Additionally, disability is increasingly recognized as a form of diversity (Dunn, Fisher, & Beard, 2013; Dunn & Hammer, 2014; Olkin & Pledger, 2003). As members of a minority group that represents a category of diversity and faces stigmatization and prejudice, persons with disabilities must determine the extent to which they will assimilate into the nondisabled dominant culture versus affiliate with the disability culture and express pride in this group membership (Gill, 1997).

Disability identity refers to a positive self-concept as a person with a disability as well as feelings of connection to other members of the disability community (Darling, 2013; Dunn & Burcaw, 2013; Gill, 1997; Olkin & Pledger, 2003; Siebers, 2011). Hahn and Belt (2004) described disability identity as cognitive and emotive views of the self as a person with disability, and Putnam (2005) described disability identity as consisting of both cognitive and evaluative processes. Disability identity involves affirming one's status as a person with a disability and incorporating this group membership into one's identity.

Depending on the degree to which they maintain beneficial self-beliefs regarding their disability and have positive connections to other members of the disability community, people with disabilities will have lower or higher disability identities (Dunn, 2015). According to Dunn (2015), people with disabilities who have *low disability identity* do not identify with the disability community. For example, people with low disability identity who have invisible disabilities may choose to "pass" as not disabled. People with disabilities with *moderate to high disability identity* consider their disability as part of their self-concept and identify with the disability community. People with disabilities with *high disability identity* may include activists who advocate for the rights and welfare of other people with disabilities.

Disability identity represents only one aspect of an individual's identity and does not necessarily override other identities, such as parent, teacher, neighbor, friend, or employee (Dunn, 2015). Only some identities are accessible at a given time because identity is a complex and variable set of constructs (Santuzzi & Waltz, 2016). Therefore, disability identity is more likely to be more salient in some situations (e.g., socializing with other people with disabilities or facing a barrier to accessibility) than others (Dunn, 2015). Theoretically, disability identity can arouse negative or positive thoughts and emotions in people with disabilities; these reactions can result in either disruptive or coping behaviors (Dunn, 2015). Disability identity should guide people with disabilities toward what to do, what to value, and how to act in various

circumstances in which their disability is a salient aspect of their identity (Dunn & Burcaw, 2013). Disability identity has been theorized to help individuals adapt to disability and its related social stresses and daily hassles (Dunn & Burcaw, 2013). However, the role of disability identity in adaptation and coping with stress has not been extensively explored in empirical research (Forber-Pratt et al., 2017).

Models of Disability Identity

In a literature review of studies on disability identity, Forber-Pratt et al. (2017) identified seven models of disability identity, including two models developed on the basis of clinical experiences (Gibson, 2006; Gill, 1997) and five models that were based on theorizing and empirical investigations (Darling & Heckert, 2010; Dunn & Burcaw, 2013; Hahn & Belt, 2004; Forber-Pratt & Zape, 2017; Putnam, 2005).

Clinical models of disability identity. Psychologists developed two clinical models based on experience working with individuals who have disabilities. In the earliest psychological description of disability identity formation, Gill (1997, p. 45) proposed four types of disability identity integration that culminate in the person with an acquired or congenital disability "finding personal integrity, a proud identification with the group, and a readiness to construct improved relations in the mainstream." In Type 1, *belongingness,* the individual comes to recognize her membership within a larger society despite having a disability. In Type 2, *coming home*, the individual becomes integrated into the disability community and recognizes her shared experience with other people with disabilities. In Type 3, *coming together,* the individual integrates distinct features of having a disability with similarities she finds with nondisabled people (shared sameness). In Type 4, *coming out*, the individual integrates her private self with her public presence and can express, with confidence and clarity, her identity as a person with a disability. In her psychotherapy practice, Gill repeatedly encountered clients with disability who struggled with "psychological wholeness" (p. 43), a phenomenon Gill explained as follows:

> We have been split into good and bad selves, split from each other, and split from greater society literally through environmental impediments and symbolically through feelings of invalidity. (p. 46)

The second model based on clinical experience was explicitly intended to "promote a practitioner's understanding of a client's identity development by giving insight into their possible perceptions and struggles" (Gibson, 2006, p. 7). Gibson (2006) proposed a three-stage process of disability identity development for individuals with lifelong disabilities: passive awareness, realization, and acceptance. In the stage of *passive awareness*, individuals have no disability role models and are taught to deny social aspects of disability. In the stage of *realization*, individuals begin to see themselves as disabled and become concerned with how others perceive them. Individuals in the realization stage may wonder, "Why me," and experience self-hatred (p. 7). In the stage of *acceptance*, individuals begin to shift their negative conception of "being different" to a status that can be embraced (p. 7). Individuals in the acceptance stage begin to experience the following changes: (a) self-perception as "relevant" members of society and of equal worth to non-disabled people (p. 7), (b) incorporation of other

people with disabilities into their lives, (c) involvement in disability advocacy and activism, and (d) integration of self into the majority (able-bodied) world.

Gibson (2006) theorized that disability identity development is fluid in that individuals can return to an earlier stage of development when faced with disability-specific adversity, such as job discrimination or loss of a dating partner. Disability-specific adversity could lead to resurfacing of previously-held emotions, including anger and self-pity. Describing her model as a practical tool to promote multicultural sensitivity to the meaning of disability held by individual clients, Gibson noted the importance of integrating knowledge of other cultural factors, including gender, sexual orientation, and ethnicity, into treatment of individuals with disabilities.

Empirical models of disability identity. Five empirical models exist in the literature on disability identity (Forber-Pratt et al., 2017). First, Forber-Pratt and Zape's (2017) status model was based on qualitative research in a sample of emerging adults. These researchers interviewed 17 college students who had experienced disability for the majority of their lives and, based on qualitative evidence, proposed a four-status, psychosocial model of disability identity development: acceptance, relationship, adoption, and engagement. In the *acceptance* status, some individuals "struggle" to accept their status as disabled, but other individuals with disabilities may not struggle with acceptance, expressing a sentiment that "it is what it is" and "I don't know life any other way" (Forber-Pratt & Zape, 2017, p. 10). In the *relationship* status, individuals begin to build a network of relationships with people who have a disability: whereas some people feel an "instant connection," others need to "warm up" to their affiliations with other people with disabilities (Forber-Pratt & Zape, 2017, p. 11). Importantly, the relationship status does not necessarily involve distancing oneself from relationships with the able-bodied or reevaluating these relationships.

In the *adoption* status, individuals assess and selectively adopt core values from disability culture. The adoption status is an intermediary status between forming relationships and engaging with the disability community. The *engagement* status involves becoming a role model for others and "giving back" to the disability community (Forber-Pratt & Zape, 2017, p. 14). Forber-Pratt and Zape described the engagement status as the site of true identity synthesis in which individuals both embrace their disability and immerse themselves in disability culture and community. Forber-Pratt and Zape proposed their model as an identity assessment tool but noted that individuals with disability would not necessarily fit into a given status. Two empirically-based models of disability identity have been operationalized in measurement of group disability identity (GDI; Hahn & Belt, 2004) or PDI (Darling & Heckert, 2013; Hahn & Belt, 2004).

GDI. GDI has been conceptualized as sense of belonging to the disability community (Dunn, 2015). Hahn and Belt (2004) developed a measure of GDI in order to examine attitudes towards a cure in a sample of disabled activists. Using principal components analysis, Hahn and Belt reported a two-factor model of GDI. The concept of GDI was based on an individual's relation to the disabled minority, wherein the group is the focus of the individual's behavior. Hahn and Belt's GDI factors included Disability Isolates and Disability Integrators. Integrators were described as having positive feelings about unifying with the disability community. On the other hand, Isolates were described as a vulnerable population due to their feelings of worthlessness and uselessness to other people with disabilities as well as their reluctance to try to become friends with non-disabled people. Hahn and Belt labeled the GDI model *communal attachment*.

PDI. Two empirical models have been operationalized as measures of PDI, one measuring disability affirmation and disability denial (Hahn & Belt, 2004) and another measuring disability pride (Darling & Heckert, 2010). Two additional empirical models of PDI were based on reviews of the literature on disability identity and have yet to be operationalized in measurement, personal meaning (Dunn & Burcaw, 2013) and self-worth (Putnam, 2005).

Affirmation and denial. The second component of Hahn and Belt's (2004) model of disability identity was based on the first measure of PDI. Hahn and Belt conceptualized PDI as an individual's cognitive and emotive views of self as disabled. Using principal components analysis, Hahn and Belt reported a two-factor model of PDI. PDI factors included affirmation and denial (versus acceptance). Hahn and Belt described disability denial and disability affirmation as representing "separate and independent" facets of disability identity and indicating "different perspectives" or feelings about having disability that may result from variation in disability experiences (p. 458). In order to maintain a consistent valence orientation when describing PDI factors, I will subsequently refer to denial as its inverse, *acceptance*.

Pride. Darling and Heckert (2010) operationalized PDI as feelings of pride versus shame as a person with disability. Darling and Heckert developed a measure of pride as part of a more comprehensive measure of disability orientation and participation, the Questionnaire on Disability Identity and Opportunity (QDIO). Darling and Heckert described disability pride as rooted in the Disability Rights Movement and as countering notions of disability as a stigma-based identity rooted in the medical model (i.e., disability shame). As described by Darling and Heckert, disability pride is rooted in the social model and associated with disability activism.

Self-Worth. The first model of PDI that has not yet been operationalized in measurement considers attitudes regarding self-worth as an individual with a disability. Putnam (2005) proposed a model of political identity development that included six identity domains: self-worth, pride, discrimination, common cause, policy alternatives, and engagement in political action. To Putnam, *self-worth* involves viewing oneself as a person of worth, as an equal in society. Putnam described self-worth as central to a positive minority group identity. Putnam proposed three components of self-worth: (a) the belief that individuals with disability are of the same worth as able-bodied individuals, (b) the belief that individuals with disabilities can be "productive contributors to society," and (c) the belief that individuals with disabilities are undervalued in society (p. 191).

In addition to conceptualizing self-worth as a person with a disability, Putnam (2005) described the central aspect of *pride* as claiming disability status and acknowledging that disability is a marker of difference in society. Putnam described four domains of pride: (a) claiming disability status; (b) believing that impairment and disability are common human conditions; (c) believing that impairment is not inherently negative but can become so in society; and (d) recognizing disability status as signaling membership in a cultural minority group. Putnam further described disability identity as connected to the disability-related *discrimination* experience of individuals. Subdomains of discrimination involve the following beliefs: (a) individuals with disabilities are subjected to negative stereotypes, (b) individuals with disabilities are typically treated differently from able-bodied individuals, and (c) discrimination results in inequality of opportunity and access to both social and economic resources. The final three domains of Putnam's model focus specifically on aspects of political identity, including solidarity, affiliation, and activism.

Personal meaning. The second empirical model of PDI that has not been operationalized in measurement involves finding positive personal meaning in disability. In a review of the

literature on disability identity including three of the aforementioned models (e.g., Gill, 1997; Hahn & Belt, 2004; Putnam, 2005), Dunn and Burcaw (2013) identified six domains of disability identity: communal attachments, affirmation, pride, discrimination, self-worth, and personal meaning. Communal attachments and affirmation were previously described in the current section (Hahn & Belt, 2004), as were pride (Darling & Heckert, 2010; Putnam, 2005), self-worth, and discrimination (Putnam, 2005). Drawing more broadly from literature on the social psychology of disability, Dunn and Burcaw introduced *personal meaning* as a domain of PDI.

Describing personal meaning as "searching for significance, engaging in sense-making, and finding benefits associated with disability," Dunn and Burcaw (2013) argued that personal meaning is important for identity development through its relationship with personal acceptance (p. 150). Dunn and Burcaw were influenced by Wright's (1983) description of disability coping, which involves both an emphasis on existing or potential assets as well as an effort to broaden values beyond what may have been lost or never realized due to disability. Dunn and Burcaw classified assets as follows: tangible (e.g., income, skills), achieved or attainable (e.g., education, future goals), social (e.g., family, friends, coworkers), or psychological (e.g., sense of humor, resilience). Processes of personal meaning found in the literature on adaptation to negative life events include (a) making favorable social comparisons (Taylor & Lobel, 1989), (b) reevaluating the event as positive, (c) finding side benefits, (d) imagining worse situations, and (e) forgetting negative aspects of the situation (Taylor, 1983). Dunn and Burcaw provided empirical support for their argument that individuals search for personal meaning following disability onset (see Bulman & Wortman, 1977; Dunn, 1994; Heinemann, Bulka, & Smetak, 1988; Shontz, 1982; Taylor, 1983; Taylor, Lichtman, & Wood, 1984). Moreover, Dunn (1996) found that positive meaning following acquired disability was associated with lower levels of depressive symptoms in a sample of adults with limb amputation. A summary of the models of PDI is displayed in Table 1.

Measurement of PDI

Reviewing empirical research on disability identity, Forber-Pratt, Lyew, Mueller, and Samples (2017) found four measures of disability identity in the literature. Since these authors published their review, a fifth measure (Gibson, 2018) has been added to the literature on disability identity. The earliest measure of disability identity is a 17-item Likert scale survey based on Gill's (1997) model of disability integration. The most recent measure of disability is Gibson's (2018) Disability Identity Development Scale. Gibson's measure is a 12-item Likert scale survey with four items representing each of Gibson's three proposed stages of disability identity development. The items on Gill and Gibson's measures are not available for review. Both measures operationalize disability identity as stages or statuses and do not distinguish group from personal disability identity.

The remaining three scales are attitudinal rather than developmental and they differentiate between PDI and GDI. There are two measures of PDI which include the domains of affirmation, acceptance (Hahn & Belt, 2004), and pride (Darling & Heckert, 2010. Hahn and Belt's eight-item PDI measure contains two factors: disability affirmation and disability acceptance. Hahn and Belt's measure of PDI was labeled the PDIS by Zapata (2018). The PDIS has been used three times since the original publication (Bogart, 2014, 2015; Zapata, 2018). Providing a second measure of PDI, Darling and Heckert (2010) developed a four-item measure of disability pride versus shame (QDIO–Pride), which encompassed one component of a broader

measure of disability orientation and participation (i.e., QDIO). The QDIO–Pride was used in a study by Bogart, Lund, and Rottenstein (2017). The QDIO–Pride will henceforth be referred to as Pride.

There is one measure of GDI and it has only been used in the original study (Hahn & Belt, 2004). The six-item GDI measure, which has not been used in subsequent research, contains two factors: disability integration and disability isolation. Hahn and Belt (2004) developed original measures of both GDI and PDI by drawing on Phinney's (1990) identity theory and self-esteem measurement by Major, Sciaccitano, and Crocker (1993).

Importantly, theoretical models of disability pride and disability affirmation suggest overlapping conceptualizations of these terms: both domains have been described as a process of "claiming" status and "coming out" as having disability, and each term has been invoked in defining the other (Dunn & Burcaw, 2013; Hahn & Belt, 2004; Putnam, 2005). For example, Hahn and Belt described positive PDI (i.e., high affirmation) as a movement from "denial and shame" to "dignity and pride" (p. 455). Although Dunn and Burcaw (2013) delineated affirmation and pride as distinct domains, and although researchers have operationalized their two measures using distinct terms, empirical evidence relating to divergent validity of Hahn and Belt's (2004) disability affirmation scale and Darling and Heckert's Pride scale is lacking.

In addition to administering the above measures, researchers have also used a single item (Bogart, Rottenstein, Lund, & Bouchard, 2017) or multiple items to capture aspects of disability identification, including group affiliation (Nario-Redmond, Noel, & Fern, 2013; Nario-Redmond & Oleson, 2016) and centrality (Nario-Redmond et al., 2013). Bogart, Rottenstein, Lund, and Bouchard (2017) assessed disability identification as extent of agreement or disagreement with a single item, "I identify as a person with a disability." Nario-Redmond and colleagues (2013) measured disability centrality as an average of two items and affective commitment to group membership as an average of three items. Nario-Redmond and Oleson (2016) operationalized disability identification as an average of two items related to the degree to which individuals define themselves as members of the disability community.   The current landscape of PDI measurement is displayed in Table 1.

Quantitative Support

In a literature review on the emerging field of disability identity, Forber-Pratt, Lyew, Mueller, and Samples (2017) found only nine quantitative studies on disability identity and only nine articles that included more than 100 participants from a total of 41 empirical studies on the construct. According to Olkin and Pledger (2003), empirical research on disability identity is an essential precursor to the development of clinical models to support individuals with disabilities and their families. Using the available measurement of disability identity, researchers have accumulated some support for the role of disability identity as a potential buffer against adversity. At present, the following psychological variables have been shown to be associated with more positive PDI: satisfaction with life (Bogart, 2014), lower anxiety and depression (Bogart, 2015), self-esteem (Bogart, Lund, & Rottenstein, 2017), and general self-efficacy (Zapata, 2018). More positive GDI has been associated with higher personal and collective self-esteem (Nario-Redmond et al., 2013).

Hahn and Belt (2004) conducted the first empirical investigation of disability identity using a sample of 156 disability activists with a variety of disabilities to explore the question of whether disability affirmation and group affiliation predicted rejection of a cure. They found

that higher affirmation of disability was a significant predictor of cure rejection but that higher disability acceptance, the second factor of PDI, and higher GDI were not similarly predictive.

Using Hahn and Belt's (2004) PDIS in a sample of 226 adults with mobility impairments, Bogart (2014) examined the hypothesis that individuals with congenital disabilities had higher satisfaction with life than individuals with acquired disabilities. Bogart obtained support for her hypothesis that congenital disability was associated with higher satisfaction with life and further identified the mediational role of higher disability self-concept, such that higher disability self-efficacy and more positive PDI mediated the relationship between congenital disability and satisfaction with life. In a sample of 106 adults with multiple sclerosis, Bogart (2015) also reported a positive association between more positive PDI and lower anxiety and depression, again using the PDIS. Importantly, Bogart (2014, 2015) used the PDIS as a single-factor tool rather than as the two-factor measure developed by Hahn and Belt. Obtaining support for the two-factor structure of the PDIS, Hahn and Belt operationalized PDI as two domains: disability acceptance and disability affirmation. The two-factor PDIS was employed by Zapata (2018) to investigate the association between general self-efficacy and both disability affirmation and disability acceptance. Identifying a positive association between disability acceptance and general self-efficacy but not between disability affirmation and general self-efficacy in a sample of 206 adults with retinitis pigmentosa, Zapata lent support to the implementation of the PDIS as a two-factor measurement tool. The PDIS subscales will henceforth be referred to as Affirmation and Acceptance in the current study.

Although the PDIS has been the most popular measure of PDI, the Pride scale has also been used in multiple correlational studies. Using their four-item Pride scale, Darling and Heckert (2010) reported a negative association between age and disability pride. Bogart, Lund, and Rottenstein (2017) used the Pride scale to explore predictors of disability pride in a sample of 710 adults with at least one impairment. Bogart, Lund, and Rottenstein found that disability pride partially mediated the relationship between stigma and self-esteem.

Although current quantitative evidence is beginning to support the hypothesis that disability identity may serve as a "buffer" against stresses of being a minority as well as "diversity-specific hassles" (Olkin & Pledger, 2003, p. 302), comprehensive measurement of the disability identity construct is an important precursor to sound empirical research (Forber-Pratt et al., 2017). In order to (a) evaluate claims regarding the benefit of such processes as disability pride and acceptance and (b) identify appropriate targets for clinical intervention, the field of disability identity needs tools that appropriately and comprehensively capture the PDI construct as it has been described in the theoretical literature. The current study responds to the need for more comprehensive measurement of PDI by attempting to develop and obtain validity evidence for a PDI instrument that captures theorized attitudinal domains of PDI that have not previously been operationalized in measurement, including self-worth and personal meaning in disability.

The Current Study

Preliminary measurement development. In a preliminary effort to develop and obtain validity evidence for a new measure of PDI, I initially designed a 41-item measure using item response theory, as described by Wilson (2005). Wilson described a process for developing an instrument in terms of four building blocks: the latent construct (e.g., PDI) as described in a construct map, the items of the assessment, the outcome space (or how the assessment will be scored), and the measurement model. Fifteen of the 41 items were designed to capture the

theorized PDI domain of personal meaning in disability, as conceptualized by Dunn and Burcaw (2013). Six of the 41 items were designed to capture the theorized PDI domain of disability self-worth, as conceptualized by Putnam (2005). The remaining 20 items, which were not included in the current study, were designed to measure ambivalent attitudes towards disability status and activism orientation as a person with a disability. In order to determine instrument viability based on evidence of validity and reliability, I administered the instrument to 75 adults with retinitis pigmentosa, a degenerative eye condition. Scores on the items retained for re-administration in the current study demonstrated evidence of internal reliability, internal structure, and fairness across gender.

Self-Worth. In the current study, four of the six self-worth items were retained. One of the four remaining self-worth items was revised through omission of the modifier "sometimes." To more comprehensively capture the concept of self-worth as described by Putnam (2005), four additional self-worth items were generated. Additionally, three new self-worth items were generated to represent feelings of self-worth in important relationships. The final version of the Worth subscale consisted of 11 items representing self-worth as a person with a disability.

Personal meaning. Seven of the 15 original personal meaning items were retained in the current study, including four that captured *negative* personal meaning. To explore the valence of negative personal meaning, I originally piloted four items that were intended to capture perceived personal losses or barriers imposed by disability. It is important to note that personal meaning was originally conceptualized as *positive* personal meaning (i.e., assets; Dunn & Burcaw, 2013) and the authors did not conceptualize a negative valence to their construct. To better represent positive personal meaning, seven additional items were generated. The final version of the Meaning subscale consisted of 14 items representing personal meaning of disability. See Table 2 for a description of the self-worth and personal meaning components with example items. See the Appendix for a comprehensive list of Self-Worth and Meaning items.

Research questions and hypotheses. In order to demonstrate evidence for the validity of new subscales of PDI (i.e., Self-Worth and Meaning), my five primary research goals were (a) to examine the psychometric properties of the Self-Worth and Meaning subscales, including the internal consistency and structural validity of the scores, (b) to examine the psychometric properties of scores on the existing PDI subscales (i.e., Affirmation, Acceptance, and Pride), (c) to examine the convergent and divergent validity of Self-Worth and Meaning with existing measures of PDI, (d) to investigate the external validity of Self-Worth and Meaning by examining the association between Self-Worth and Meaning and previously-linked outcome variables (e.g., satisfaction with life, anxiety/depression), and (d) to examine the relative contribution of Self-Worth and Meaning to the same outcome variables (i.e., satisfaction with life, anxiety/depression) through simultaneous and hierarchical regression methods.

Internal consistency and structural validity. I hypothesized that Self-Worth and Meaning scale scores would demonstrate acceptable reliability, yielding a Cronbach's alpha and McDonald's omega of .70 or greater. Second, I hypothesized that factor analysis would yield a two-factor solution (Self-Worth, Personal Meaning) with acceptable fit indices. Self-worth and personal meaning have been conceptualized as distinct domains of PDI (Dunn & Burcaw, 2013; Putnam, 2005).

Relationship with existing PDI variables. I had four hypotheses regarding the relationships among Self-Worth, Meaning, and other PDI variables. Based on theoretical conceptualizations of PDI (Dunn & Burcaw, 2013; Putnam, 2005), I first hypothesized that factor analysis would yield evidence for divergent validity of the Self-Worth and Meaning

subscales and the other measures of PDI (i.e., Affirmation, Acceptance, Pride), such that Self-Worth and Personal Meaning would load as separate factors from preexisting measures of PDI. Second, I hypothesized that Self-Worth and Meaning would demonstrate a significant positive correlation with Affirmation, Acceptance, and Pride. Affirmation, acceptance, pride, self-worth, and personal meaning have all been conceptualized as domains of a single construct, PDI, which represents positive feelings about having disability (Darling & Heckert, 2010; Dunn & Burcaw, 2013; Hahn & Belt, 2004; Putnam, 2005). Thus, the second hypothesis was intended to examine the convergent validity of the Self-Worth and Meaning subscales. Third, I hypothesized a very strong correlation between Pride and Affirmation. A close reading of the Pride and Affirmation items suggested that these PDI subscales share overlapping content on items related to importance of disability to the self and feelings of pride related to disability status.

   Relationship with psychological indicators of well-being. I had two hypotheses regarding the association between measures of PDI and the outcome variables in the study. First, I hypothesized a positive and significant correlation between the Self-Worth and Meaning subscales and satisfaction with life as well as a negative and significant correlation between the two subscales and anxiety/depression. Second, given previous research (Bogart, 2014, 2015), I hypothesized a positive and significant correlation between pre-existing PDI measures (i.e., Pride, Affirmation, and Acceptance) and satisfaction with life as well as a negative and significant correlation between pre-existing PDI measures and anxiety/depression.

   Relative contribution beyond existing PDI measures. I hypothesized that, after controlling for other PDI measures (i.e., Affirmation, Acceptance, and Pride), Self-Worth and Meaning would still account for a significant portion of the variance in participants' satisfaction with life and anxiety/depression scores.

Method

Participants

   Participants were recruited through online forums and mailing lists for people with visual impairment (VI) or blindness. A link to the study was posted to private Facebook groups of which the author —who has retinitis pigmentosa and related VI— is a member. A link to the study was also sent through mailing lists of the National Federation of the Blind, an American blindness organization. A target sample size of 500 was sought based on recommendations of Comrey and Lee (1992). The majority of participants self-identified as White or European American (76%, $n = 449$), with the other participants coming from a variety of racial/ethnic backgrounds: Black or African American (5%, $n = 30$), Native American or Alaska Native (1%, $n = 4$), Asian (5%, $n = 32$), Native Hawaiian or Pacific Islander (<1%, $n = 1$), Other (7%, $n = 43$), and Multiethnic (5%, $n = 25$). In response to a separate question, 10% of all respondents ($n = 62$) indicated that they were of Spanish, Hispanic, or Latino descent. Participants who reported their age had a mean age of 44 years ($n = 498$) and ages ranged from 18 to 99 years. Participants were 64% female ($n = 387$), 34% male ($n = 205$), and 2% non-binary ($n = 9$).

   Eighty percent of participants lived in the United States ($n = 479$); 41% of participants lived in an urban area ($n = 242$), 40% lived in a suburban area ($n = 235$), and 19% lived in a rural area ($n = 109$). Participants self-reported their total household income as follows: less than $19,999 (20%, $n = 112$), between $20,000 and $39,999 (19%, $n = 110$), between $40,000 and $59,999 (13%, $n = 72$), between $60,000 and $79,999 (14%, $n = 78$), between $80,000 and

$99,999 (11%, *n* = 64), between $100,000 and $119,999 (9%, *n* = 53), between $120,000 and $139,999 (4%, *n* = 22), or above $140,000 (10%, *n* = 57). Respondents self-reported their highest educational degree obtained: Two percent of respondents had less than a high school degree (*n* = 9), 10% were high school graduates (*n* = 61), 18% had some college but no degree (*n* = 108), 11% had an associate's degree (*n* = 65), 30% had a bachelor's degree (*n* = 178), 23% had a master's degree (*n* = 135), 4% had a doctoral degree (*n* = 21), and 4% had a professional degree (i.e., JD, MD; *n* = 21). Thirty-nine percent of participants were working full time (*n* = 232), 13% were working part-time (*n* = 76), 12% were not working and not looking for work (*n* = 75), 10% were not working and not looking for work (*n* = 60), and 15% were retired (*n* = 93).

Among participants who reported age at diagnosis and initial vision loss, mean age at diagnosis was 18 years (*n* = 376) and mean age at initial vision loss was 17 years (*n* = 512). Eighteen percent of respondents were totally blind (*n* = 98), 10% had only light perception (*n* = 57), 65% had partial vision (*n* = 360), and 7% had not yet experienced vision loss (n = 39). Fifty-seven percent of respondents reported using a guide dog (*n* = 11), cane (*n* = 258), or both (*n* = 46). Participant-reported cause of VI included the following: Stargardt disease (4%, *n* = 20), retinitis pigmentosa (23%, *n* = 128), macular degeneration (1%, *n* = 8), glaucoma (6%, *n* = 34), cataracts (1%, *n* = 4), diabetic retinopathy (2%, *n* = 9), stroke (<1%, *n* = 1), traumatic brain injury (1%, *n* = 6), other VI (33%, *n* = 185), two causes of vision loss (23%, *n* = 130), and three or more causes of vision loss (6%, *n* = 33). The most commonly reported causes of VI among participants who reported two causes included retinitis pigmentosa and cataracts (6% of total sample; *n* = 34), glaucoma and other (5% of total sample, *n* = 29), and glaucoma and cataracts (3% of total sample, *n* = 16). Additionally, 32% of participants reported that at least one person in their family has the same eye condition (*n* = 177) and 22% reported having at least one additional disability (*n* = 120).

Procedure and Measures

Data were collected through the online survey platform Qualtrics. Participants completed a cross-sectional online questionnaire containing questions related to demographic and attitudinal information. Participants were informed about study rationale, the voluntary nature of the survey, risks/discomforts, and benefits of participation. The study was reviewed by the Office for the Protection of Human Subjects at the University of California, Berkeley. This study was supported in part by a dissertation award from Division 22 of the American Psychological Association's Foundation for Rehabilitation Psychology.

PDI. Three PDI measures were administered in the current study, including the measure developed for this study.

Personal Disability Identity Scale: Self-Worth and Personal Meaning. The domains of disability self-worth and personal meaning were measured using the PDI scale designed for the current study. The instrument included 25 items intended to capture the domains of disability self-worth (11 items) and personal meaning (14 items). A mean score was calculated based on each of the two domains, with higher numbers indicating higher self-worth as a person with a disability or more positive personal meaning of disability. Responses for both domains were on a 5-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Appropriate items were reverse scored. Disability self-worth items included "I have as much to offer the world as people without a disability" and "Because of my disability, I feel worthless." Personal meaning in disability items included "My disability gives me perspective on what matters in life" and

"My disability prevents me from living a life that feels meaningful." To address the issue of question order bias, Self-Worth and Meaning items were presented to participants in random order using a randomization algorithm in Qualtrics.

   Personal Disability Identity Scale: Affirmation and Acceptance. The domains of disability affirmation and acceptance were measured using an eight-item instrument (Hahn & Belt, 2004). A mean score was calculated for each of two subscales, including affirmation of disability (4-item) and acceptance of disability (4-item; Hahn & Belt, 2004). Disability affirmation items included "Being a person with a disability is an important reflection of me" and "I feel proud to be a person with a disability." Disability acceptance items included "I do not feel good about a being a person with a disability" and "My disability sometimes makes me feel ashamed." Higher scores on disability affirmation indicated higher disability affirmation. Responses for both factors were on a 5-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Items on acceptance were reverse scored, such that lower scores on items targeting disability denial represented higher disability acceptance. In previous studies, Cronbach's alphas have ranged from .29 to .85 for affirmation of disability scores and from .50 to .91 for acceptance of disability scores (Hahn & Belt, 2004; Zapata, 2018). Zapata (2018) reported modest to moderate internal consistency estimates for affirmation of disability ($\alpha = .65$; $\omega = .71$) and acceptance of disability ($\alpha = .74$; $\omega = .79$) scores. Results further indicated that the single-factor scale had moderate internal consistency ($\alpha = .78$, $\omega = .83$). Internal consistency reliability was not reported by Hahn and Belt (2004). Previous research has not examined the concurrent validity of Affirmation and Acceptance, such that these scales have not been used alongside other measures of PDI.

   Questionnaire on Disability Identity and Opportunity–Pride. The domain of disability pride was measured using a four-item instrument of disability pride versus shame (Darling & Heckert, 2010). Items were rated using a five-point Likert scale, with higher scores indicating higher disability pride and lower disability shame. Example items included "I am proud of my disability" and "My disability is an important part of who I am." Cronbach's alphas on pride items have ranged from .53 to .71 (Darling & Heckert, 2010). The alpha coefficient for the four items was .78, indicating moderate internal consistency (Darling & Heckert, 2010). Previous research has not examined the concurrent validity of Pride, such that this scale has not been used alongside other measures of PDI.

   Psychological indicators of well-being. In order to examine the role of disability self-worth and personal meaning in psychological well-being, I administered two instruments measuring well-being indicators that were previously found to be associated with higher or more positive PDI: satisfaction with life and lower anxiety/depression. The following instruments are being used as indicators of external validity of the Self-Worth and Meaning subscales and may replicate previous findings regarding the role of PDI (e.g., Affirmation, Affirmation, Pride) in psychological well-being.

   The Patient Health Questionnaire-4 (PHQ-4). Anxiety and depression symptoms were measured using a 4-item instrument. A mean score based on seven-point Likert-scale responses was calculated for anxiety and depression items, with higher scores indicating higher anxiety/depression. Anxiety items included "Feeling nervous, anxious, or on edge" and "Not being able to stop or control worrying." Depression items included "Feeling down, depressed, or hopeless" and "Little interest or pleasure in doing things." Appropriate items were reverse-scored. Evidence has been found for the reliability and construct validity of the PHQ-4 (Kroenke,

Spitzer, Williams, & Lowe, 2009) but, to my knowledge, no studies had yet examined validity evidence for using the PHQ-4 with adults who have VI.

   Satisfaction With Life Scale (SWLS). Conceptualizing satisfaction with life as quality of life from the perspective of the person with disability, Bogart (2015) used satisfaction with life as a proxy for adaptation, which she described as the ultimate goal of rehabilitation. Consistent with Bogart, I measured satisfaction with life using the five-item SWLS, which consisted of seven-point Likert-scale responses (Diener, Emmons, Larsen, & Griffin, 1985). A mean score was calculated, with higher scores indicating higher satisfaction with life. Example items included "In most ways my life is close to the ideal" and "I am satisfied with my life." Evidence for the reliability and construct validity of the SWLS has been reported (Pavot & Diener, 1993).

   Post-hoc analyses: Group Disability Identity Scale (GDIS). Although not originally included in hypotheses, GDI was examined in post-hoc analyses using the six-item GDIS (Hahn & Belt, 2004). A mean score was calculated, with higher scores indicating higher GDI. Hahn and Belt (2004) found structural validity evidence for a two-factor model of GDI. The emergent factors were labeled Disabled Integrators and Disabled Isolates. Items on Integrators included "People with disabilities have a great deal in common," "I want to learn more about the history of people with disabilities," and "How others feel about people with disabilities is important to me." Items on Isolates included "I don't have much to offer people with disabilities," "I don't try to become friends with people who aren't disabled," and "I feel useless to people with disabilities." Factor loadings for items on the Integrators subscale ranged from .60 to .79 and factor loadings for items on the Isolates subscale ranged from .65 to .85 (Hahn & Belt, 2004). Omega internal consistency estimates based on factor coefficients were calculated and were .57 for Integrators and .60 for Isolates. Concurrent validity regarding the GDIS is not currently available.

Results

Preliminary Analyses

   MPlus (Version 8) was used for factor analysis and Stata (Version 16) was used for all other analyses. All variables in the study had fewer than 5% missing values. I conducted Little's Missing Completely At Random (MCAR) test and determined that missing values were missing at random with the exception of the SWLS, χ^2 (74) = 248.368, p < .001. I then used the expectation maximum likelihood algorithm to replace missing values. Means and standard deviations for all the variables in the study are presented in Table 3. All variables were generally normally distributed; results regarding skewness and kurtosis are also presented in Table 3.

   Internal consistency. To address the hypothesis that scores on Self-Worth and Meaning would have acceptable reliability, I calculated internal consistency estimates using Cronbach's alpha. Three items on Self-Worth were removed due to low item-total correlations, which indicated that the items were not contributing substantially to internal consistency. All three items included a reference to people with disabilities being "undervalued." I then calculated internal consistency estimates derived from Cronbach's alpha and McDonald's omega for the final model. Internal consistency estimates of the Worth and Meaning scores were in the acceptable range (i.e., above .70), thereby supporting the first hypothesis. Internal consistency was also calculated for scores on existing PDI measures. Analyses indicated acceptable reliability for Affirmation, Acceptance, and Pride scores. Scores on a combined Pride/Affirmation factor obtained acceptable reliability coefficients. Results regarding internal

consistency are displayed in Table 4. Internal consistency estimates for all outcome variable scores were also found to be acceptable and are presented in Table 3.

I performed *t*-tests to examine whether there were statistically significant gender differences on the final PDI factors (Acceptance, Pride/Affirmation, Positive Personal Meaning, Self-Worth), satisfaction with life, and anxiety/depression). To control for Type I error, the Bonferroni adjustment was used, yielding a critical alpha of .01. Men and women did not differ significantly on Acceptance ($p = .87$), Pride/Affirmation ($p = .42$), Self-Worth ($p = .27$), Personal Meaning ($p = .14$), satisfaction with life ($p = .26$), or GDI ($p = .03$). Women —on average— reported higher anxiety/depression ($p < .001$).

Primary Analyses

Exploratory factor analyses on Self-Worth and Meaning. In order to examine the hypothesis that Self-Worth and Meaning made up two factors, I conducted a series of exploratory and confirmatory factor analyses. Approximately 40% of the sample was selected at random for exploratory factor analyses ($n = 201$) and the remaining cases were reserved for confirmatory factor analyses ($n = 325$). I first conducted a set of exploratory factor analyses of the Self-Worth and Meaning items. Factorability of the scores was determined using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Barlett's test of sphericity. The scores yielded acceptable statistics on both measures: Bartlett's test of sphericity was significant, χ^2 $(231) = 2705.57$, $p < .001$, and Kaiser's measure of sampling adequacy was .92 (i.e., $> .60$), both indicating that the correlation matrix of the Self-Worth and Meaning item scores was factorable. Principal axis extractions with oblique rotations were used for the exploratory factor analyses because the factors were hypothesized to correlate with one another (Floyd & Widaman, 1995).

Parallel analysis and the underlying theoretical model suggested the extraction of two factors. An initial two-factor extraction of Self-Worth and Meaning items yielded an interpretable structure. The first factor accounted for 42% of the variance and the second factor accounted for an additional 10% of variance. Factor coefficients and communality estimates for the two-factor Self-Worth and Meaning solution are presented in Table 5. The first factor consisted of the Self-Worth items and all the negatively-worded items from Meaning. Negatively-worded items on Meaning were intended to reflect perceived personal losses or barriers associated with disability. The second factor consisted of the positively-worded Meaning items. Positively-worded items on Meaning were intended to capture perceived personal gains or benefits associated with disability. The first factor was labeled *Self-Worth* and the second factor was labeled *Positive Personal Meaning*. Importantly, personal meaning was originally conceptualized as positive personal meaning (i.e., assets; Dunn & Burcaw, 2013); items reflecting negative personal meaning (i.e., losses and barriers) were developed in the current study for exploratory purposes. Subsequent confirmatory factor analyses were conducted to verify that the derived two-factor model of Self-Worth and Positive Personal Meaning, which will also be referred to as Meaning, was the best factor solution for the data.

Exploratory factor analyses using other PDI measures. I conducted exploratory factor analyses on other PDI scale scores (i.e., Affirmation, Acceptance, and Pride) and external variables (i.e., life satisfaction, anxiety/depression; $n = 201$) in order to establish evidence for their structural validity in subsequent analyses.

Pride. I conducted an exploratory factor analysis of Pride items (one factor) using principal axis extraction. The correlation matrix of the Pride item scores was factorable: Bartlett's test of sphericity was significant, $\chi^2 (6) = 328.64$, $p < .001$, and Kaiser's measure of

sampling adequacy was .77. The single Pride factor accounted for 56% of the variance in Pride scale scores and factor coefficients ranged from .57 to .87.

Affirmation and Acceptance. I conducted an exploratory factor analysis of Affirmation and Acceptance items using principal axis extraction with oblique rotation and Kaiser normalization. The correlation matrix of the Affirmation and Acceptance item scores was factorable: Bartlett's test of sphericity was significant, $\chi^2(28) = 946.84$, $p < .001$, and Kaiser's measure of sampling adequacy was .88. In the two-factor extraction of Affirmation and Acceptance scale items, the first factor accounted for 54% of the variance and the second factor accounted for an additional 8% of the variance. Factor coefficients on Affirmation ranged from .14 to .82. Factor loadings on Acceptance ranged from .53 to .89. Given the low loading on one Affirmation item, the Affirmation subscale was subsequently run as a single factor model. Factor loadings ranged from .45 to .88, indicating that all of the items were contributing meaningfully to the factor. The single Affirmation factor accounted for 57% of the variance in Affirmation scores.

Satisfaction with life. I examined a one-factor structure of SWLS items using principal axis extraction. The correlation matrix of the SWLS item scores was factorable: Bartlett's test of sphericity was significant, $\chi^2(10) = 701.90$, $p < .001$, and Kaiser's measure of sampling adequacy was .88. The one-factor extraction accounted for 68% of the variance of SWLS scale scores with factor coefficients ranging from .65 to .92.

Anxiety/depression. I also examined a one-factor structure of the anxiety/ depression items using principal axis extraction: Bartlett's test of sphericity was significant, $\chi^2(6) = 393.83$, $p < .001$, and Kaiser's measure of sampling adequacy was .78. The anxiety/depression factor accounted for 62% of the variance with factor loadings ranging from .73 to .85.

GDI. I conducted an exploratory factor analysis of the GDIS items using principal axis extraction. The correlation matrix of the GDIS item scores was factorable: Bartlett's test of sphericity was significant, $\chi^2(15) = 293.39$, $p < .001$, and Kaiser's measure of sampling adequacy was .73. First, I ran a single-factor extraction of GDIS items. The six GDIS items loaded on the single factor, with coefficients ranging from .38 to .82, and accounted for 34% of the variance. Because Hahn and Belt (2004) reported a two-factor model of GDI, Integrators and Isolates, I also ran a two-factor extraction of GDIS items. The first factor (i.e., Integrators) accounted for 36% of the variance in GDIS scale scores and the second factor (i.e., Isolates) explained an additional 12% of variance. Factor coefficients ranged from .40 to .59 on Integrators and from .43 to .81 on Isolates. The two factors had a correlation of .44. Despite the structural validity evidence in support of the two-factor model of GDI, reliability estimates for the Integrators factor were low ($\alpha = .64$, $\omega = .66$). Thus, I used the single GDIS factor in subsequent analyses ($\alpha = .73$, $\omega = .74$).

Confirmatory factor analyses. Following the exploratory factor analyses, confirmatory factor analyses were performed on the other 325 participants. Criteria used to assess goodness of fit included the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), the 90% confidence interval for RMSEA, and the standardized root mean square residual (SRMR). An acceptable fit was determined based on a CFI and TLI value at or greater than .90, an RMSEA value equal to or less than .08, and an SRMR value of less than .08 (Kline, 2005; MacCallum, Browne, & Sugawara, 1996; Marsh et al., 2004). Two models comprised of 22 Self-Worth and Meaning scale items were examined: the original two-factor model based on theory and the two-factor model derived from the exploratory factor analysis. Results from confirmatory factor analyses are presented in Table 6.

Self-Worth and Positive Personal Meaning. The original two-factor model of Self-Worth and Meaning, which was based on theory, had a poor fit (See Table 6). The two-factor solution derived from the exploratory factor analysis yielded better fit indices than the original model, but the fit was still poor. This latter model was then modified based on sources of poor fit as indicated by the modification indices. Two items were removed due to low coefficients ("Considering the challenges I've faced as a person with disability, I have a lot of respect for myself"; "I deserve to be valued as much as non-disabled people") and error terms related to six pairs of similar items were correlated: "I have found benefits to having disability" with "There are good things about having disability"; "My disability has made me a stronger person" with "I have grown as a person because of my disability"; "My disability gives me perspective on what matters in life" with "My disability has given me an appreciation for life"; "Because of my disability, I will never become the person I want to be" with "Because of my disability, I will never achieve my goals in life"; "Because of my disability, I don't pursue my dreams" with "Because of my disability, I will never achieve my goals in life." The final model, which consisted of 20 items (8 on Self-Worth and 12 on Meaning), had acceptable fit (see Table 6). Table 7 contains the factor loadings of each item in the final model.

Pre-existing subscales: Affirmation, Acceptance, and Pride. To explore the question of whether Self-Worth, Positive Personal Meaning, Affirmation, Acceptance, and Pride are separate PDI factors, I ran a series of confirmatory factor analyses on previous measures of PDI.

First, previous measures of PDI were run as a three-factor model consisting of Affirmation, Acceptance, and Pride. Fit indices did not support a three-factor model (see Table 6). Next, the two-factor model of Acceptance and Affirmation was supported by analyses (see Table 6). Factor loadings on Affirmation were in the range of .54 to .86. Factor loadings on Acceptance were in the range of .43 to .90. Considering the theoretical similarity between the domains of Pride and Affirmation, I then ran Pride and Affirmation as a single factor. Prior to running analyses, one item from the Pride ("I am a better person because of my disability") was dropped due to poor psychometric properties. Error terms related to two sets of similar items were correlated: "My disability is an important part of who I am (Pride)" with "Being a person with a disability is an important reflection of me (Affirmation)"; "I am proud of my disability (Pride)" with "I feel proud to be a person with a disability (Affirmation)." The single-factor model of Pride/Affirmation yielded generally acceptable fit indices (see Table 6).

Finally, Pride/Affirmation and Acceptance were run as a two-factor solution, given previous findings supporting the two-factor model of Affirmation and Acceptance (Hahn & Belt, 2004; Zapata, 2018). The same modifications were performed as in the previous Pride/Affirmation model. The two-factor model of Pride/Affirmation and Acceptance yielded generally acceptable fit indices (see Table 6). Table 8 contains the factor loadings of each item in the model.

Final four-factor model of PDI: Pride/Affirmation, Acceptance, Self-Worth, and Positive Personal Meaning. To examine the factor structure of the PDI construct, as operationalized by previous measures of PDI and in the new Self-Worth and Meaning subscales, all four factors were run together as a four-factor solution. The same modifications were performed as in the previous models. The final four-factor model of Pride/Affirmation, Acceptance, Self-Worth, and Positive Personal Meaning yielded generally acceptable fit indices (see Table 6). Table 9 contains the factor loadings of each item in the model.

Relationships among PDI subscales and external variables. Correlations and effect sizes were used to examine the relationships between Self-Worth, Meaning, Acceptance,

Pride/Affirmation, and external PDI variables (i.e., satisfaction with life, anxiety/depression). Although not included in the final four-factor model of PDI, the original Pride and Affirmation subscales were also included in correlational analyses. To control for Type I error, the Bonferroni adjustment was used, yielding a critical alpha of .01. I used the following criteria to interpret correlation strength: .00 to .29 is regarded as weak, .30 to .49 as medium, .50 to .69 as large, and above .70 as a very large correlation (Cohen, 1988). Correlations among scores are presented in Table 10.

Relationships among PDI subscales. I hypothesized that Self-Worth and Meaning would have significant positive correlations with other subscales of PDI (i.e., Affirmation, Pride/Affirmation). As indicated in Table 10, Self-Worth had medium or higher correlations with all other variables, including a very large correlation with Acceptance. Meaning had medium or higher correlations with all other variables, including a very large correlation with Pride/Affirmation. Additionally, Pride/Affirmation and Acceptance had a significant, large positive correlation. Lee and Preacher's (2013) test of significance determined that the correlation between Positive Personal Meaning and Pride/Affirmation was significantly larger than the correlation between Positive Personal Meaning and Self-Worth ($z = 8.32$, $p < .001$) as well as between Positive Personal Meaning and Acceptance ($z = 8.27$, $p < .001$). Additionally, Lee and Preacher's test of significance determined that the correlation between Self-Worth and Acceptance was significantly larger than the correlation between Self-Worth and Positive Personal Meaning ($z = 9.37$, $p < .001$) as well as between Self-Worth and Pride/Affirmation ($z = 10.09$, $p < .001$). These findings indicate particularly strong associations between Self-Worth and Acceptance and between Positive Personal Meaning and Pride/Affirmation.

I hypothesized that the original Pride and Affirmation subscales would have the highest correlation among all PDI intercorrelations. Results indicated that Pride and Affirmation were very highly correlated ($p < .001$), sharing approximately 72% of variance in scores. This correlational finding is consistent with results from factor analysis, which supported a single-factor model of Pride/Affirmation.

Relationships with external PDI variables. I hypothesized that higher satisfaction with life (i.e., SWLS) would have significant positive correlations with all PDI factors and that anxiety/depression (i.e., PHQ-4) would have significant negative correlations with all PDI factors. As indicated in Table 10, satisfaction with life had medium or higher positive correlations with PDI subscales, and anxiety/depression had small or higher negative correlations with PDI subscales. Considering that life satisfaction, anxiety, and depression have been empirically linked to PDI (Bogart, 2014; Bogart, 2015), these results supported the concurrent validity of the Self-Worth and Meaning scores.

Post-hoc analyses: Relationship with GDI. GDI and PDI have been theorized as representing two distinct sub-constructs of disability identity (Dunn, 2015; Hahn & Belt, 2004). I predicted that the correlation between Self-Worth and GDIS would be weaker than the correlations between Self-Worth and both Pride/Affirmation and Acceptance. I also predicted that the correlation between Meaning and GDIS would be weaker than the correlations between Meaning and both Pride/Affirmation and Acceptance. Correlations between the GDIS scores and the PDI subscales are displayed in Table 10.

To explore the question of whether scores on PDI factors would be more highly intercorrelated than correlated with GDI scores, I performed Lee and Preacher's (2013) significance test regarding the difference between two dependent correlations with one common variable. Results indicated the following: (a) the correlation between Self-Worth and GDI was

significantly smaller than the correlation between Self-Worth and Acceptance ($z = 4.98$; $p <$ .001) and not significantly larger than the correlation between Self-Worth and Pride/Affirmation ($z = .35$; $p = .36$); (b) the correlation between Positive Personal Meaning and GDI was significantly smaller than the correlation between Positive Personal Meaning and Pride/Affirmation ($z = 4.39$, $p < .001$) and not significantly larger than the correlation between Positive Personal Meaning and Acceptance ($z = .00$; $p = .50$). This finding partially supported my prediction that the Self-Worth and Meaning would have a stronger association with existing measures of PDI than an existing measure of GDI, thereby providing some additional evidence for the divergent validity of the Self-Worth and Meaning subscales.

Relative contribution beyond existing PDI measures. In assessing the potential contribution of Self-Worth and Meaning to the PDI literature, I hypothesized that, after accounting for Acceptance and Pride/Affirmation, Self-Worth and Meaning would still contribute a significant portion of the variance in participant-reported satisfaction with life as well as anxiety/depression. A series of hierarchical multiple regressions were performed to address this hypothesis, with two regressions performed for each of the two correlates. To control for Type I error, the Bonferroni adjustment was used, yielding a critical alpha of .01. Results are reported in Tables 11 through 16.

In each case, Self-Worth and Positive Personal Meaning predicted additional variance in each dependent variable. When the model was reversed and Self-Worth and Positive Personal Meaning were entered first, the addition of Pride/Affirmation and Acceptance added significant explanatory power in accounting for variance in anxiety/depression but not life satisfaction. Standardized beta coefficients and standard deviations for each hierarchical regression are displayed in Tables 11 through 16.

PDI and life satisfaction. In the first hierarchical multiple regression, life satisfaction was entered as the dependent variable, Pride/Affirmation and Acceptance were entered in Block 1, and Self-Worth and Positive Personal Meaning were entered in Block 2 (see Table 11). Pride/Affirmation and Acceptance accounted for a significant amount of variance in life satisfaction, adjusted $R^2 = .29$, $F(2, 522) = 108$, $p < .001$. Life satisfaction was significantly associated with Acceptance ($p < .001$) but not Pride/Affirmation ($p = .51$). When Self-Worth and Positive Personal Meaning were added to the model, the amount of variance accounted for in life satisfaction increased, adjusted $R^2 = .48$, $F(4, 520) = 121$, $p < .001$. Self-Worth and Positive Personal Meaning accounted for an additional 19% in variance of life satisfaction scores, a significant increase, $F(2, 520) = 96$, $p < .001$. In the final model, life satisfaction was significantly correlated with Self-Worth ($p < .001$) but not with Acceptance ($p = .54$) or Pride/Affirmation ($p = .33$). Positive Personal Meaning was correlated with life satisfaction but not at the 1% significance level ($p = .01$). The contribution of Acceptance was no longer statistically significant with the inclusion of Self-Worth and Positive Personal Meaning.

I then ran a second hierarchical multiple regression, reversing the order of independent variables: Self-Worth and Positive Personal Meaning were entered in Block 1, and Pride/Affirmation and Acceptance were entered in Block 2 (see Table 12). Self-Worth and Positive Personal Meaning accounted for a significant amount of variance in life satisfaction, adjusted $R^2 = .48$, $F(2, 522) = 243$, $p < .001$. Life satisfaction was significantly correlated with Self-Worth ($p < .001$) and Positive Personal Meaning ($p < .01$). When Pride/Affirmation and Acceptance were added to the model, the amount of variance accounted for in life satisfaction did not increase significantly, adjusted $R^2 = .48$, $F(4, 520) = 121$, $p < .001$. Pride/Affirmation and Acceptance accounted for <1% additional variance in life satisfaction scores, $F(2, 520) =$

.50, $p = .61$. Thus, the Self-Worth and Meaning subscales subsumed all of the variance the Acceptance and Pride/Affirmation subscales.

PDI and anxiety/depression. In the third hierarchical multiple regression, anxiety/depression was entered as the dependent variable, Pride/Affirmation and Acceptance were entered in Block 1, and Self-Worth and Positive Personal Meaning were entered in Block 2 (see Table 13). Pride/Affirmation and Acceptance accounted for a significant amount of variance in anxiety/depression, adjusted $R^2 = .19$, $F(2, 522) = 64$, $p < .001$. Anxiety/depression was significantly correlated with both Acceptance ($p < .001$) and Pride/Affirmation ($p < .01$). When Self-Worth and Positive Personal Meaning were added to the model, the amount of variance accounted for in anxiety/depression increased, adjusted $R^2 = .29$, $F(4, 520) = 54$, $p < .001$. Self-Worth and Positive Personal Meaning accounted for an additional 10% in variance of anxiety/depression scores, a significant increase ($F(2, 520) = 36$, $p < .001$). In the final model, lower anxiety/depression was significantly correlated with Acceptance ($p < .01$) and Self-Worth ($p < .001$) but not with Pride/Affirmation ($p = .02$) or Positive Personal Meaning ($p = .63$).

A fourth hierarchical multiple regression reversed the order of independent variables: Self-Worth and Positive Personal Meaning were entered in Block 1, and Pride/Affirmation and Acceptance were entered in Block 2 (see Table 14). Self-Worth and Positive Personal Meaning accounted for a significant amount of variance in anxiety/depression, adjusted $R^2 = .28$, $F(2, 522) = 103$, $p < .001$. Anxiety/depression was significantly correlated with Self-Worth ($p < .001$) but not Positive Personal Meaning ($p = .06$). When Pride/Affirmation and Acceptance were added to the model, the amount of variance accounted for in anxiety/depression increased, adjusted $R^2 = .29$, $F(4, 520) = 54$, $p < .001$. Acceptance and Pride/Affirmation accounted for an additional 1% in variance of anxiety/depression scores, a small but significant increase, $F(2, 520) = 4$, $p < .01$.

Post-hoc analyses: PDI and GDI. Additional analyses were conducted for exploratory purposes. In the fifth hierarchical multiple regression, GDI was entered as the dependent variable, Pride/Affirmation and Acceptance were entered in Block 1, and Self-Worth and Positive Personal Meaning were entered in Block 2 (see Table 15). Pride/Affirmation and Acceptance accounted for a significant amount of variance in GDI, adjusted $R^2 = .38$, $F(2, 522) = 159$, $p < .001$. Higher GDI was significantly correlated with both Acceptance ($p < .001$) and Pride/Affirmation ($p < .001$). When Self-Worth and Positive Personal Meaning were added to the model, the amount of variance accounted for in GDI increased, adjusted $R^2 = .43$, $F(4, 520) = 99$, $p < .001$. Self-Worth and Positive Personal Meaning accounted for an additional 5% in variance of GDI scores, a significant increase, $F(2, 520) = 25$, $p < .001$. In the final model, higher GDI was significantly correlated with Pride/Affirmation ($p < .001$), Self-Worth ($p < .001$), and Positive Personal Meaning ($p < .01$), but not with Acceptance ($p = .73$).

A sixth hierarchical multiple regression reversed the order of independent variables: Self-Worth and Positive Personal Meaning were entered in Block 1, and Pride/Affirmation and Acceptance were entered in Block 2 (see Table 16). Self-Worth and Positive Personal Meaning accounted for a significant amount of variance in GDI, adjusted $R^2 = .39$, $F(2, 522) = 166$, $p < .001$. Higher GDI was significantly correlated with Self-Worth ($p < .001$) and Positive Personal Meaning ($p < .001$). When Pride/Affirmation and Acceptance were added to the model, the amount of variance accounted for in GDI increased significantly, adjusted $R^2 = .43$, $F(4, 520) = 99$, $p < .001$. Acceptance and Pride/Affirmation accounted for an additional 4% in variance of GDI scores, a small but significant increase, $F(2, 520) = -2$, $p < .001$.

Discussion

In this study, I examined validity evidence for the Personal Disability Identity Scale–Self-Worth and Meaning in a sample of 525 adults with VI or blindness. Exploratory and confirmatory factor analyses supported the structural validity of Self-Worth and Meaning scores as well as an overarching four-factor structure of PDI scores (e.g., Pride/Affirmation, Acceptance, Self-Worth, and Positive Personal Meaning). Correlational analyses between Self-Worth, Meaning, and existing PDI measures supported the convergent and divergent validity of Self-Worth and Meaning scores. Further correlational analyses between Self-Worth and Meaning subscales and indicators of well-being (i.e., satisfaction with life, anxiety/depression) offered support for the external validity of Self-Worth and Meaning. Findings from hierarchical linear regression indicated that Self-Worth and Meaning contributed a significant portion of variance in participant-reported life satisfaction and anxiety/depression, beyond the variance explained by Pride/Affirmation and Acceptance.

Reliability of Scores

The first hypothesis regarding the internal consistency of Self-Worth and Meaning scale scores was supported, as the two-factor model of Self-Worth and Positive Personal Meaning was found to have reliability coefficients (i.e., Cronbach's alpha, McDonald's omega) greater than .70. Internal consistency estimates for all other variables used in the study were at or above .73, indicating that the findings of the current study can be interpreted as meaningful.

Structural Validity

The final factor solution selected to represent Self-Worth and Meaning was a two-factor solution composed of 20 items. Self-Worth consisted of eight items that were both positively and negatively-worded. Meaning consisted of 12 items that were positively-worded. Exploratory and confirmatory analyses partially supported the hypothesized factor structure of Self-Worth and Meaning. A two-factor model of Self-Worth and Meaning emerged through exploratory factor analysis, but items did not always load on the expected factor. For example, items that described disability as an obstacle or barrier to finding personal meaning, which were originally intended for Meaning, loaded on the Self-Worth factor. Items reflecting an individual's sense of personal gains or benefits related to disability loaded on the Meaning factor, which was subsequently reclassified as Positive Personal Meaning. These findings indicate that perceived personal losses and barriers related to disability are more closely associated with feelings of self-worth than with perceived personal gains or benefits related to disability. In other words, positive personal meaning (i.e., perceived personal gains and benefits) was not demonstrated to reflect the opposite of negative personal meaning (i.e., perceived personal losses and barriers) as represented by a single Meaning factor. In their conceptualization of personal meaning, Dunn and Burcaw (2013) did not describe obstacles or barriers presented by disability but rather emphasized finding positive meaning, or assets, in disability. Thus, the derived model of personal meaning in disability is consistent with the PDI domain originally theorized by Dunn and Burcaw.

Items on Positive Personal Meaning included attitudinal statements regarding personal growth or gains associated with disability, such as how disability is a positive life experience, has given appreciation for life, has led to growth as a person, has made a person stronger, and has given perspective on what matters in life. Items on Self-Worth included attitudinal statements regarding perceived value to others and in society as well as how people value their

lives and potential in relation to disability. Self-worth related to others and society included statements of having as much to offer the world as people without disability, having plenty to offer friends and family, believing that people with disability can be productive contributors to society, feeling like a burden to others, and not feeling good enough in relationships. Self-worth related to how people value their lives and potential included statements of never achieving goals, never becoming the person they want to be, being prevented from living a meaningful life, and never pursuing dreams because of disability.

   Landscape of PDI measurement. Findings from exploratory and confirmatory factor analyses supported a four-factor model of PDI: Pride/Affirmation, Acceptance, Self-Worth, and Positive Personal Meaning. As evidenced by acceptable fit indices yielded by the four-factor model, Self-Worth and Positive Personal Meaning emerged as distinct factors from Pride/Affirmation and Acceptance.

   Pride and Affirmation were found to function best as a single factor of PDI rather than as two distinct factors. Findings further indicated that Pride and Affirmation were highly correlated, sharing 72% of variance in scale scores. These findings are consistent with the observation that both the Pride and Affirmation contain items related to feeling "proud" and perceiving disability as an "important" part of the self. In conceptualizing the domain of Affirmation, Hahn and Belt (2004) described their factor as "pride" (p. 455). Similarly, Darling and Heckert (2010) described their Pride domain as an extension of an "affirmation" model (p. 133). Further supporting the use of Pride/Affirmation as a single factor of PDI, the authors of both studies referenced the disability rights movement and disability activism in developing their concepts, and neither set of authors differentiated between the concepts of pride and affirmation.

   Results from factor analysis provided further support for the two-factor model of Pride/Affirmation and Acceptance. As stated by Hahn and Belt (2004), Pride/Affirmation and Acceptance are not "opposites" but rather "appear to indicate different perspectives that may be the outcome of varied experiences in the process by which people develop feelings about their own disabilities" (p. 458).

Convergent and Divergent Validity

   Findings from the current study supported hypotheses regarding convergent and divergent validity of Self-Worth and Meaning subscales. Supporting the convergent validity of the new PDI instrument, Self-Worth and Positive Personal Meaning had significant positive correlations with pre-existing measures of PDI (i.e., Affirmation, Acceptance, Pride), after Pride and Affirmation were collapsed into a single factor alongside Acceptance. Intercorrelations among PDI factors were generally in the medium to large range, suggesting that —on average— respondents who generally reported more positive attitudes on one PDI factor also reported more positive attitudes on other factors of PDI.

   Unique among correlational findings related to PDI factors, results indicated a very strong relationship between Positive Personal Meaning and Pride/Affirmation as well as between Self-Worth and Acceptance. Finding positive personal meaning or personal gains associated with disability appears to be uniquely related to feelings of disability pride or affirmation. Feelings related to self-worth as a person with disability appear to be uniquely related to feelings of acceptance versus denial regarding disability status.

   Providing further convergent validity evidence for Self-Worth and Meaning, results supported the hypotheses that higher satisfaction with life would be significantly and positively correlated with all PDI factors and that anxiety/depression would be significantly and negatively

correlated with all PDI factors. Correlations were in the medium to large range for life satisfaction and in the small to large range for anxiety/depression. On average, respondents who reported more positive attitudes related to disability acceptance, pride/affirmation, self-worth, and positive personal meaning also reported higher life satisfaction and lower anxiety/depression.

In post-hoc analyses, I explored the correlation between scores on the GDIS and scores on the four PDI scales. Results indicated that GDI had significant, medium-to-large positive correlations with all PDI factors. Given that group and personal disability identity have been theorized as distinct domains of disability identity (Dunn 2015; Hahn & Belt, 2004), I predicted that correlations between GDI and PDI scores would be weaker than intercorrelations among PDI scores. Results indicated that the correlation between Self-Worth and GDI was significantly smaller than the correlation between Self-Worth and Acceptance and not significantly larger than the correlation between Self-Worth and Pride/Affirmation. The correlation between Positive Personal Meaning and GDI was significantly smaller than the correlation between Positive Personal Meaning and Pride/Affirmation and not larger than the correlation between Positive Personal Meaning and Acceptance. Considering that correlations between GDI and PDI factors were either smaller than or not significantly different from intercorrelations among PDI factors, my prediction was partially supported and these correlational results supported the divergent validity of PDI measures.

Relative Contribution Beyond Existing PDI Measures

Results supported the final hypothesis that, after accounting for other PDI factors (i.e., Pride/Affirmation, Acceptance), Self-Worth and Meaning would contribute a significant portion of variance in participant-reported life satisfaction and anxiety/depression. Self-Worth and Positive Personal Meaning added significant explanatory power in accounting for variance in both dependent variables. When the model was reversed and Self-Worth and Positive Personal Meaning were entered first, the addition of Pride/Affirmation and Acceptance added significant explanatory power in accounting for variance in anxiety/depression but not life satisfaction. Supporting the value of scholarly and practical consideration of positive personal meaning in disability and self-worth among individuals with disability, findings of the current study suggested that Self-Worth and Meaning have potential to add insight into well-being among individuals with visual disability.

In post-hoc analyses, I explored the explanatory power of scores on the four PDI factors (i.e., Acceptance, Pride/Affirmation, Positive Personal Meaning, Self-Worth) in accounting for participant-reported GDI. In the final model, with the four PDI factors entered as independent variables, PDI scores collectively explained 43% of the variance in GDIS scores. Higher GDI was significantly correlated with Pride/Affirmation, Self-Worth, and Positive Personal Meaning, but not with Acceptance. Findings indicated that sense of belonging to the disability community is predicted by (a) disability pride rather than shame, (b) higher self-worth as a person with disability, and (c) positive personal meaning in disability. In contrast, disability acceptance versus denial was not found to be meaningfully predictive of sense of belonging to the disability community. These correlational findings support the multi-factor structure of the PDI construct.

Support for Use of External Variables in Adults with VI or Blindness

To the best of my knowledge, researchers had not previously evaluated the viability of using the PHQ-4 and SWLS with adults who have VI or blindness. The current study provided support for the use of the PHQ-4 and SWLS with adults who experience VI or blindness, as indicated by evidence for structural validity and internal consistency of these instruments. In post-hoc analyses, I evaluated the only psychometric instrument measuring GDI that exists in the literature on disability identity, the GDIS (Hahn & Belt, 2004). Prior to the current study, Hahn and Belt's (2004) GDIS had not been evaluated or used to conduct research since the authors' initial development of the measure. In the current study, factor analysis supported the two-factor model of the GDIS, but one factor, Integrators, was found to have low internal consistency (see Table 4). Considering that group and personal disability identity have been proposed as distinct sub-constructs of disability identity, and considering the evidence for the divergent validity of PDI and GDIS scale scores, continued development of GDI measurement is warranted.

Limitations and Future Work

This study had a number of limitations as well as opportunities for future investigation of PDI. With respect to selection bias, participants constituted a convenience sample that may not be representative of the population of adults with VI or blindness. Participants were recruited through private Facebook groups related to VI and through an email list of the National Federation for the Blind, an American blindness organization. Attitudes towards disability, including GDI and PDI, may differ based on membership, or lack thereof, in a disability group or organization. Furthermore, it is possible that attitudes towards disability are shaped by specific organization affiliation. Different organizations may engender distinct philosophies, missions, and visions regarding the status and future of individuals with blindness and VI. Notably, participants in the current study were recruited through the National Federation of the Blind but not, for example, the American Foundation for the Blind or the American Council of the Blind, other leading blindness organizations in the United States.

In order to address question order bias, I presented items on Self-Worth and Meaning in random order. Given that item presentation was randomized, question order was not part of validation in the current study. Because research indicates that question sequence influences participant responding (Perreault, 1975), future work involving Self-Worth and Meaning will require consideration of item presentation.

GDI has been theorized as a sub-construct of disability identity, alongside PDI. To my knowledge, there is only one measure of GDI, the 6-item GDIS, or communal attachments, scale of Hahn and Belt (2004). Although factor analyses supported the structural validity of the two-factor model of GDI, Integrators and Isolates, the two-factor GDIS did not demonstrate acceptable internal consistency. In order to advance scholarly understanding of disability identity, the GDIS would benefit from future item development and validation efforts.

The majority of participants (75%) identified as White. Future studies would benefit from recruitment of larger numbers of participants representing each ethnic group. Additionally, 80% percent of participants reported living in the United States. Thus, the attitudes expressed in the current study reflect the perspectives and experiences of predominantly White–identified adults living in the United States. Participant experiences of disability, attitudes towards disability, and responses on measures of disability identity and well-being may vary as a function of ethnicity or other cultural context. Surveying the landscape of disability research in psychology, Olkin and Pledger (1999) observed that most studies on disability in psychology emphasized the biological, psychological, and social level of analysis and infrequently explored

economic, legal, policy, and political factors. Advancing the notion that disability research is both personal and political, Olkin and Pledger cautioned against examining disability-related constructs as purely personal phenomena. Excluding the political and societal context of disability, the authors argued, perpetuates stigma and discrimination. Investigations of PDI at the intersection of, for example, ethnicity and disability have potential to inform scholarly understanding of the sociocultural and sociopolitical embeddedness of disability identity. Intersectional disability research is an essential endeavor if researchers are to prevent the emergence of disability identity as a Eurocentric construct.

Measurement development is an ongoing and iterative process. The results of the present study are promising but preliminary. Considering consequential validity, the current Self-Worth and Meaning subscales represent the next stepping stone on the path towards understanding PDI rather than the doorstep. In their current iteration, Self-Worth and Meaning are not intended for use in a clinical setting or to inform individual-level analysis or decision-making. However, the field of disability identity would benefit from further academic investigation involving the Self-Worth and Meaning subscales. As one opportunity, Self-Worth and Meaning would benefit from further evaluation using item response theory, which can account for participant item responses.

In order to refine both theory and measurement of PDI, future work should explore the association between Acceptance and Self-Worth, on the one hand, and Pride/Affirmation and Positive Personal Meaning, on the other. While continuing to conduct item-level analyses of these scales, researchers can begin to explore causal mechanisms underlying the above relationships. Correlational analyses do not offer answers to causal questions. For example, does higher disability acceptance influence higher self-worth as a person with disability, does self-worth influence acceptance, or do these factors represent simultaneous and separate processes of disability identity formation? Similarly, does finding positive personal meaning associated with disability influence higher disability pride, does pride influence positive personal meaning, or are these PDI processes operating side-by-side? Mixed methods and longitudinal design could be employed to corroborate, clarify, and elaborate on extant findings and provide insight into causal mechanisms of disability identity.

Individuals with disability constitute a heterogeneous population and represent the largest minority group worldwide (Waterstone, 2010). The current study explored PDI in adults with VI and blindness, a category representing one disability subset (i.e., visual disability) while also constituting membership in a more general disability subset (i.e., sensory disability). Additionally, individuals with visual disability have unique and varied experiences of vision and vision loss and may also be categorized at the level of condition or impairment label, such as person with retinitis pigmentosa, individual with Stargardts, or adult with glaucoma. Considering the numerous levels of disability categorization, the field of disability identity requires both replication studies in various disability populations and expansion studies exploring the global versus impairment-specific nature of the disability identity construct.

Disability identity has been proposed as a buffer against disability-related hassles and adversity. The current study found associations between various PDI factors and previously explored well-being indicators, thereby providing new evidence for the protective role of PDI. Supporting the multi-factor structure of PDI, the four factors of PDI were differentially related to indicators of well-being. For example, life satisfaction was significantly associated with Acceptance but not Pride/Affirmation. Future studies should continue to examine the associations between distinct domains of PDI and various outcome variables, including yet-

unexplored well-being indicators. To better understand contributors to disability identity, research on disability identity should also explore PDI as an outcome variable. Research on both predictors and outcomes of disability identity can inform targets as well as mechanisms of interventions with the goal of improving the lives of individuals with disability.

Conclusions

Based on the findings of the current study, a new four-factor PDI model of Pride/Affirmation, Acceptance, Self-Worth, and Positive Personal Meaning was found to have merit. The current study introduced two factors of PDI (i.e., Self-Worth and Positive Personal Meaning) that were supported empirically with evidence for internal consistency, structural validity, divergent validity, and convergent validity. Post-hoc analyses involving the GDIS then added evidence for divergent validity. All four factors of PDI were positively and moderately intercorrelated. Pride/Affirmation was highly correlated with Positive Personal Meaning and Acceptance was highly correlated with Self-Worth. Self-Worth and Positive Personal Meaning accounted for substantial variance in scores on both indicators of well-being, including life satisfaction and anxiety/depression. Moreover, Acceptance and Pride/Affirmation did not contribute additional variance in life satisfaction beyond the variance accounted for by Self-Worth and Positive Personal Meaning. Self-Worth and Positive Personal Meaning, as distinct factors of PDI, should be invited into conversation regarding disability identity.

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Table 1

Models of Disability Identity

	Clinical		Empirical				
Model	Disability Identity Integration	Disability Identity Development	Disability Identity Development	Personal Disability Identity & Group Disability Identity	Disability Identity	Political Disability Identity	Personal Disability Identity
Author(s)	Gill (1997)	Gibson (2006)	Forber-Pratt & Zape (2017)	Hahn & Belt (2004)	Darling & Heckert (2010)	Putnam (2005)	Dunn & Burcaw (2013)
Components or Factors	Belongingness Coming home Coming together Coming home	Passive awareness Realization Acceptance	Acceptance Relationship Adoption Engagement	*PDI* Affirmation Denial (vs. acceptance) *GDI* Integration Isolation	Pride (vs. shame)	Self-Worth	Personal Meaning
Model type	Status	Stage	Status	Attitudinal	Attitudinal	Attitudinal	Attitudinal
Measure	Gill's (1997) Disability Identity Scale	Gibson's (2018) Disability Identity Development Scale		Hahn and Belt's (2004) PDIS-Affirm. & Denial	Darling and Heckert's (2010) QDIO-Pride	*Current study: PDIS- Self-Worth*	*Current study: PDIS-Meaning*

Note. Clinical models refer to theoretical models derived from clinical experience; empirical models refer to theoretical models that have been examined empirically.

Table 2

Self-Worth and Meaning Construct Map and Example Items

Factor	Components	Example Items
Self-Worth	Belief that individuals with disability are of the same worth as able-bodied individuals (Putnam, 2005)	I have as much to offer the world as people without a disability I deserve to be valued as much as non-disabled people Because of my disability, I feel worthless
	Belief that individuals with disabilities can be productive contributors to society (Putnam, 2005)	People with disability can be productive contributors to society As a person with disability, I have plenty to offer my family or friends Because of my disability, I feel that I don't have anything to offer others
	Belief that individuals with disabilities are undervalued in society (Putnam, 2005)	People with disability are undervalued in society As a personal with disability, I am undervalued in society
Personal Meaning	Positive Personal Meaning (Dunn & Burcaw, 2013)	My disability has made me a stronger person My disability has given me an appreciation for life I have grown as a person because of my disability Having a disability is a positive life experience
	Negative Personal Meaning (for exploratory purposes)	My disability prevents me from living a life that feels meaningful Because of my disability, I will never become the person I want to be Because of my disability, I will never achieve my goals in life

Table 3

Descriptive Statistics for Variables in the Study (N = 525)

Variables	*M*	*SD*	*S*	*K*
Personal Disability Identity Scale–Self-Worth	2.12	0.82	.57	2.51
Personal Disability Identity Scale–Meaning	2.46	0.78	.37	2.70
Personal Disability Identity Scale–Affirmation	2.95	0.90	-.10	2.59
Personal Disability Identity Scale–Acceptance	3.20	1.03	<-.01	2.19
Questionnaire on Identity & Orientation–Pride	2.91	0.92	-.05	2.50
Pride/Affirmation Factor	2.96	0.91	-.11	2.47
Satisfaction With Life Scale	3.02	1.34	.73	3.12
Patient Health Questionnaire-4	1.85	0.80	.93	3.14
Group Disability Identity Scale	2.24	0.62	.20	2.77

Note. S = skewness; K = kurtosis.

Table 4

Reliability Estimates for Independent Variables in the Study (N =525)

Variables	α	ω
Personal Disability Identity Scale–Self-Worth	.92	.92
Personal Disability Identity Scale–Meaning	.87	.87
Personal Disability Identity Scale–Affirmation	.82	.83
Personal Disability Identity Scale–Acceptance	.81	.82
Questionnaire on Identity & Orientation	.83	.82
Pride/Affirmation Factor	.91	.90
Satisfaction With Life Scale	.89	.88
Patient Health Questionnaire-4	.86	.87
Group Disability Identity Scale	.73	.74
Group Disability Identity Scale–Integrators	.64	.66
Group Disability Identity Scale–Isolates	.76	.78

Table 5

Two-Factor Structure Coefficients from Principal Axis Extraction and Oblimin Rotation of Self-Worth and Meaning Scores

Self-Worth items	F1	F2	h^2	Positive Personal Meaning items	F1	F2	h^2
"as much to offer world"	.599	*.398*	.519	"gives me perspective on what matters"	*.372*	.547	.510
"feel worthless"	.786	*.459*	.681	"have skills and strengths that non-disabled people do not"	*.521*	.552	.362
"feel like burden to others"	.665	*.302*	.489	"have found benefits to having"	*.437*	.674	.618
"don't have anything to offer others"	.773	*.432*	.628	"there are good things about having"	*.491*	.626	.607
"don't feel good enough in my relationships"	.641	*.419*	.487	"has made me a stronger person"	*.433*	.821	.688
"can be productive contributors to society"	.483	*.424*	.403	"given me an appreciation for life"	*.412*	.640	.549
"have plenty to offer my family or friends"	.715	*.528*	.615	"have grown as a person"	*.433*	.870	.727
"prevents me from living life that feels meaningful"	.816	*.488*	.707	"a positive life experience"	*.595*	.668	.641
"will never become the person I want to be"	.838	*.406*	.758				
"will never achieve my goals in life"	.785	*.402*	.718				
"don't pursue my dreams"	.822	*.388*	.754				
"nothing worse than having"	.558	*.407*	.443				

Note. $n = 201$; h^2 refers to the extraction communality estimates.

Table 6

Fit Indices for the Final PDI Models Derived from Confirmatory Factor Analyses (Maximum-Likelihood Robust)

	Model	$\chi2$	*df*	CFI	TLI	RMSEA	(90% CI)	SRMR
1.	Self-Worth & Meaning Original	1290.34*	208	.68	.64	.13		.11
2.	Self-Worth & Meaning from EFA	811.12*	208	.82	.80	.09		.09
3.	Self-Worth & Meaning from EFA Modified	433.35*	165	.91	.90	.07	[.063, .079]	.066
4.	Pride, Affirmation, & Acceptance	387.50*	53	.86	.82	.14		.07
5.	Acceptance & Affirmation	89.16*	19	.99	.98	.11		.05
6.	Pride/Affirmation	33.61	18	.99	.98	.05	[.023, .078]	.02
7.	Pride/Affirmation & Acceptance	167.74*	51	.95	.93	.08	[.070, .098]	.057
8.	Four-Factor Model of PDI	963.21*	420	.91	.90	.063	[.058, .068]	.075

Note. n = 325. CFI = comparative fit index, TLI = Tucker Lewis index; RMSEA = root-mean-square error of approximation; CI = confidence interval; SMRM = square root mean square residual

*p < .001.

Table 7

Two-Factor Standardized Coefficients from Confirmatory Factor Analysis of Self-Worth and Meaning Scale Scores

Self-Worth	Factor 1	Positive Personal Meaning	Factor 2
"as much to offer world"	.65	"gives me perspective on what matters"	.48
"feel worthless"	.79	"have skills and strengths that non-disabled people do not"	.63
"feel like burden to others"	.69	"have found benefits to having"	.72
"don't have anything to offer others"	.78	"there are good things about having"	.74
"don't feel good enough in my relationships"	.70	"has made me a stronger person"	.69
"can be productive contributors to society"	.57	"given me an appreciation for life"	.63
"have plenty to offer my family or friends"	.68	"have grown as a person"	.70
"prevents me from living life that feels meaningful"	.81	"a positive life experience"	.74
"will never become the person I want to be"	.77		
"will never achieve my goals in life"	.78		
"don't pursue my dreams"	.77		
"nothing worse than having"	.46		

Note. n = 325

Table 8

Two-Factor Standardized Coefficients from Confirmatory Factor Analysis of Pride/Affirmation and Acceptance Scale Scores

Pride/Affirmation	Factor 1	Acceptance	Factor 2
"an important part of who I am"	.58	"sometimes makes me feel ashamed"	.54
"proud of my disability"	.85	"do not feel good about being a person with"	.86
"enriches my life"	.85	"regret that I am a person with"	.87
"glad to be a person with"	.90	"do not have sense of belonging to disability community"	.64
"an important reflection of me"	.71		
"clear sense of what my disability means to me"	.42		
"proud to be a person with"	.87		

Note. n = 325

Table 9

Four-Factor Standardized Coefficients from Confirmatory Factor Analysis of PDI Scale Scores

Self-Worth	Factor 1	Positive Personal Meaning	Factor 2
"as much to offer world"	.63	"gives me perspective on what matters"	.41
"feel worthless"	.80	"have skills and strengths that non-disabled people do not"	.60
"feel like burden to others"	.71	"have found benefits to having"	.75
"don't have anything to offer others"	.77	"there are good things about having"	.78
"don't feel good enough in my relationships"	.71	"has made me a stronger person"	.60
"can be productive contributors to society"	.56	"given me an appreciation for life"	.56
"have plenty to offer my family or friends"	.66	"have grown as a person"	.63
"prevents me from living life that feels meaningful"	.80	"a positive life experience"	.81
"will never become the person I want to be"	.77		
"will never achieve my goals in life"	.77		
"don't pursue my dreams"	.77		
"nothing worse than having"	.47		

Pride/Affirmation	Factor 3	Acceptance	Factor 4
"an important part of who I am"	.59	"sometimes makes me feel ashamed"	.58
"proud of my disability"	.84	"do not feel good about being a person with"	.88
"enriches my life"	.86	"regret that I am a person with"	.83
"glad to be a person with"	.90	"do not have sense of belonging to disability community"	.63
"an important reflection of me"	.71		
"clear sense of what my disability means to me"	.43		
"proud to be a person with"	.86		

Note. n = 325

Table 10

Correlations Matrix of Self-Worth and Meaning with Existing PDI Variables

Variables	1	2	3	4	5	6	7	8	9
1. PDIS–Self-Worth	1.00								
2. PDIS–Meaning	.49**	1.00							
3. PDIS–Acceptance	.76**	.54**	1.00						
4. Pride/Affirmation	.52**	.74**	.69**	1.00					
5. Satisfaction with life	.69**	.41**	.54**	.39**	1.00				
6. Anxiety/depression	-.53**	-.20**	-.43**	-.21**	-.52**	-1.00			
7. Group disability identity	.54**	.54**	.54**	.59**	.33**	.21**	1.00		
8. QDIO–Pride	.48**	.80**	.60**	.94**	.37**	.16*	.57**	1.00	
9. PDIS–Affirmation	.53**	.70**	.70**	.97**	.41**	.22**	.57**	.85**	1.00

*p < .01. **p < .001.

Table 11

Hierarchical Multiple Regression of Life Satisfaction with PDI Factors (N = 525)

		B	*SE*	β	R^2	ΔR^2
Step 1	Constant	5.02**	.40		.29**	.29
	Pride/Affirmation	.05	.08	.03		
	Acceptance	-.67	.07	-.52**		
Step 2	Constant	.69	.47		.48**	.48
	Pride/Affirmation	-.08	.08	-.05		
	Acceptance	-.05	.07	-.04		
	Self-Worth	1.03	.08	.63**		
	Positive Personal Meaning	.21	.08	.12		

*p < .01. **p < .001.

Table 12

Hierarchical Multiple Regression of Life Satisfaction with PDI Factors- Order Reversed (N = 525)

		B	SE	β	R^2	ΔR^2
Step 1	Constant	.38*	.15		.48**	.48
	Self-Worth	1.05	.06	.64**		
	Positive Personal Meaning	.17	.06	.10*		
Step 2	Constant	.69	.47		.48**	.48
	Self-Worth	1.03	.08	.63**		
	Positive Personal Meaning	.21	.08	.12*		
	Pride/Affirmation	-.08	.08	-.04		
	Acceptance	-.05	.07	-.05		

*p < .01. **p < .001.

Table 13

Hierarchical Multiple Regression of Anxiety and Depression with PDI Factors (N = 525)

		B	SE	β	R^2	ΔR^2
Step 1	Constant	3.63**	.26		.20**	.19
	Pride/Affirmation	-.15	.05	-.17*		
	Acceptance	-.42	.04	-.54**		
Step 2	Constant	1.75**	.33		.30**	.29
	Pride/Affirmation	-.13	.06	-.15		
	Acceptance	-.14	.05	-.18*		
	Self-Worth	.47	.06	.48**		
	Positive Personal Meaning	-.03	.06	-.03		

*$p < .01$. **$p < .001$.

Table 14

Hierarchical Multiple Regression of Anxiety and Depression with PDI Factors- Order Reversed
(N = 525)

		B	SE	β	R^2	ΔR^2
Step 1	Constant	.88**	.10		.28**	.28
	Self-Worth	.55	.04	.57**		
	Positive Personal Meaning	-.08	.04	-.08		
Step 2	Constant	1.75**	.33		.30**	.29
	Self-Worth	.47	.06	.48**		
	Positive Personal Meaning	-.03	.06	-.03		
	Pride/Affirmation	-.13	.06	-.15		
	Acceptance	-.14	.05	-.18*		

$*p < .01.$ $**p < .001.$

Table 15

Hierarchical Multiple Regression of Group Disability Identity with PDI Factors (N = 525)

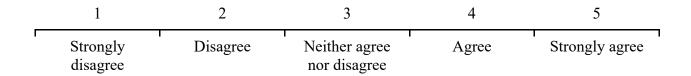|		B	SE	β	R^2	ΔR^2
Step 1	Constant	1.87**	.18		.38**	.37
	Pride/Affirmation	.29	.03	.42**		
	Acceptance	-.15	.03	-.25**		
Step 2	Constant	.89	.23		.43**	.43
	Pride/Affirmation	.21	.04	.31**		
	Acceptance	-.01	.04	-.02		
	Self-Worth	.22	.04	.29**		
	Positive Personal Meaning	.12	.04	.15*		

*p < .01. **p < .001.

Table 16

Hierarchical Multiple Regression of Group Disability Identity with PDI Factors- Order Reversed (N = 525)

		B	SE	β	R^2	ΔR^2
Step 1	Constant	.95**	.08		.39**	.39
	Self-Worth	.28	.03	.37**		
	Positive Personal Meaning	.28	.03	.35**		
Step 2	Constant	.89	.23		.43**	.43
	Self-Worth	.22	.04	.29**		
	Positive Personal Meaning	.12	.04	.15*		
	Pride/Affirmation	.21	.04	.31**		
	Acceptance	-.01	.04	-.02		

*$p < .01$. **$p < .001$.

Appendix

Please answer from 1 (Strongly Disagree) to 5 (Strongly Agree) for the following set of
statements:

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

Disability Self-Worth

1. I have as much to offer the world as people without a disability*
2. Because of my disability, I feel like a burden to others*
3. Because of my disability, I feel that I don't have anything to offer others*
4. Because of my disability, I feel worthless**
5. People with disability can be productive contributors to society
6. People with disability are undervalued in society
7. As a personal with disability, I am undervalued in society
8. I deserve to be valued as much as non-disabled people
9. As a person with disability, I have plenty to offer my family or friends
10. As a person with disability, I am undervalued in my relationships
11. Because of my disability, I don't feel good enough in my relationships

Personal Meaning in Disability

1. My disability prevents me from living a life that feels meaningful*
2. Because of my disability, I will never become the person I want to be*
3. Because of my disability, I will never achieve my goals in life*
4. My disability gives me perspective on what matters in life*
5. Considering the challenges I've faced as a person with a disability, I have a lot of respect for myself*
6. As a person with a disability, I have skills and strengths that nondisabled people do not have*
7. Because of my disability, I don't pursue my dreams*
8. There is nothing worse than having a disability
9. I have found benefits to having a disability
10. There are good things about having a disability
11. My disability has made me a stronger person
12. My disability has given me an appreciation for life
13. I have grown as a person because of my disability
14. Having a disability is a positive life experience

*Indicates item retained from preliminary version of PDIS–Self-Worth and Personal Meaning
**Indicates items revised from preliminary version of PDIS–Self-Worth and Personal Meaning