Older-Adult Playfulness
An Innovative Construct and Measurement for Healthy Aging Research

Careen Yarnal and Xinyi Qian

Few studies of adult playfulness exist, but limited research on older adults and playfulness suggests that playfulness in later life improves cognitive, emotional, social, and psychological functioning and healthy aging overall. Older adults represent a rapidly growing segment of the U.S. population, underscoring the need to understand the aging process. In this article, the authors report on the first three steps of a four-step, multimethod approach to test the hypothesis that playfulness is an important component of healthy aging in older adults. Step 1 determines the characteristics of older-adult playfulness, extending Barnett's (2007) study of young-adult playfulness and recruiting participants from a different age group (older adults rather than younger adults). Based on findings from Step 1, in Step 2 the authors develop the Older Adult Playfulness (OAP) scale to measure playfulness in older adults. In Step 3, they validate the reliability of the OAP scale. A forthcoming manuscript will report on the relationship between older adult playfulness and healthy aging (Step 4). **Key words:** adult playfulness; child playfulness; Older-Adult Playfulness (OAP) scale; older adults

How do adults, sixty-five and older, characterize and define playfulness? Based on empirical evidence, Barnett (2007) conceptualized young-adult playfulness as a predisposition to transform situations in novel, flexible, creative, and humorous ways. Barnett's study led to the development of an instrument to measure playfulness in young adults. We do not know, however, if older adults characterize playfulness in the same way.

The paucity of research on older-adult playfulness is inopportune. Hendrie and several colleagues (2006) suggested ". . . characteristics that can help people maintain or enhance their cognitive and emotional health as they grow older [should be] a major public health goal for [the United States]" (13). Huppert (2004) noted, however, that the majority of research on Americans' health is "negative or disease oriented," particularly in studies of older adults (693). Yet, there is compelling evidence that positive factors in individual lives, such as favorable emotions, happiness, life satisfaction, and quality of life relate inti-

American Journal of Play, volume 4, number 1.
Contact Careen Yarnal at cmy122@psu.edu

mately to healthy aging (Fredrickson 2000; Keyes 2002; Lyubomirsky, King, and Diener 2005; Ong 2010; Ryan and Deci 2001).

Playfulness also holds great potential for contributing to healthy aging (Yarnal 2004, 2006). We know that playfulness fosters good health in childhood (Barros, Silver, and Stein 2009; Kuo and Faber Taylor 2004; Panksepp 2008; Pelligrini 2009). And, some researchers (Elder, Johnson, and Crosnoe 2003; Fredrickson 1998; Moen 2002) postulate that adult playfulness might be an important characteristic of cognitive functioning and emotional growth, both important components of healthy aging. To date, however, no empirical evidence exists to support a link between playfulness and healthy aging, nor does an age-appropriate definition and a measure of older-adult playfulness. Thus, this study attempts to characterize and define older-adult playfulness and to develop a reliable and valid measure of it.

What is Playfulness?

In this section, we review researchers' work in defining and measuring playfulness in individuals of different ages.

Childhood Playfulness

In our effort to understand playfulness, we found not only considerably more research about children than adults (Barnett 1990, 1991a, 1991b; Barnett and Kleiber 1982, 1984; Bundy et al. 2008; Lieberman 1965, 1966; Reid 2006; Singer and Rummo 1973), but also an ongoing debate about how to define it. We use three scales—the Playfulness Scale (Lieberman 1966, 1977), the Childhood Playfulness Scale (Barnett 1990, 1991a), and the Test of Playfulness (Bundy 1996)—to demonstrate how partial theorization, conceptual overlap, and methodological limitations lead to ongoing challenges in defining playfulness. In all three scales, the authors define children's playfulness as a relatively stable personality trait—a habitual pattern of thought, behavior, and emotion—present in all children but varying in intensity from one child to another (Bundy 1996). But—and this is an important point we return to later in this article—defining playfulness as a trait means it is relatively invariant to situational or state-based stimuli (Barnett 1991a; Barnett and Kleiber 1982; Singer and Rummo 1973).

Lieberman (1966, 1977) conducted extensive observations and interviews with school-age children and their teachers, resulting in the trait-based Play-

fulness Scale. Children with playful personalities demonstrate five dimensions: "physical, social, and cognitive spontaneity, manifest joy, and sense of humor" (1977, 3). To formulate his scale, Lieberman collaborated with the participants, which Lawrence-Lightfoot (1997) argues is sensible for creating an age-appropriate measuring instrument. Barnett and Kleiber (1982, 1984) used the Playfulness Scale to assess 106 children in day-care and kindergarten settings. Although their findings supported Lieberman's five dimensions of playfulness, Barnett and Kleiber and other researchers (Li, Bundy, and Beer 1995; Taylor and Rogers 2001) emphasized the correlates of playfulness rather than refinements of Lieberman's scale. Barnett and Kleiber found, for example, that personal attributes—including gender, intelligence, and divergent thinking—related to playfulness. Personal attributes associated with playfulness are, however, not components of playfulness per se (Guitard, Ferland, and Dutil 2005). In addition, some researchers note that the Playfulness Scale has low inter-rater reliability and limited applicability to other age groups and to different contexts and settings (Barnett 1990; Bundy et al. 2001).

Recognizing that the Playfulness Scale would benefit from further refinement, Barnett (1990, 1991) developed an alternative trait-based scale called the Children's Playfulness Scale (CPS). Based on teacher rankings of the behavior of 261 preschoolers, the CPS expands Lieberman's Playfulness Scale from twelve to twenty-three items. In addition to Lieberman's five dimensions of playfulness, Barnett (1991) also determined that playful children exhibit personal attributes of self-confidence, independence, active participation, aggression, positive affect, social and imaginative play, novelty seeking, self-expression, de-dramatization of difficult situations, and a tendency not to take themselves seriously. Inter-rater reliability of the CPS scale is high (Bundy et al. 2001). However, several researchers have suggested that the scale has limitations. Staempfli (2006), for example, observed that the CPS is "an observational tool [for teachers] predominantly used in small classroom contexts with children" (42), and thus does not allow for age-group differences, such as prekindergarten and kindergarten, an issue for scale development (Lawrence-Lightfoot 1997). Similarly, Bundy and her colleagues noted that including physicality as part of the spontaneity dimension makes the CPS unsuitable for physically challenged children (Ferland 1994).

Our third and final scale is the Test of Playfulness (ToP) (Bundy 1996), an observational measure used by teachers to assess playfulness in children with disabilities aged fifteen months to ten years. The conceptualization of playfulness involved a literature review (Bundy et al. 2001) but did not include subject input

to refine the conceptualization. Sixty-eight items measured the four elements of playfulness: suspension of reality, internal motivation, locus of control, and framing. Interestingly, Bundy and her colleagues measured internal motivation using the items that Barnett and Lieberman identified to measure joy although it is not theoretically or conceptually clear why the former substitute internal motivation for joy. One of the theoretical and conceptual strengths of the ToP, however, is that, by collapsing physical spontaneity into the more general category of spontaneity, it echoed Ferland's finding that physicality is not a prerequisite for playfulness.

In contrast to the relative stability of playfulness as a personality trait, other researchers defined childhood playfulness as a temporary positive motivational attitude or state. These researchers saw play as the behavioral manifestation of such an attitude or state (Dewey 1913). Miller (1968), for example, argued that central to playfulness is "an attitude of throwing off constraint," which enables any activity to become play (21). At the same time, social, physical, emotional, intellectual, and environmental factors can suppress playfulness in children and might lead to reduced capacity to experience positive emotions like joy or pleasure (Brown 2009; Sutton-Smith 1997). Interestingly, some trait-based researchers acknowledged that situational and state-based stimuli are important to playfulness. Take the trait-based ToP: if playfulness is relatively invariant to situational or state-based stimuli as Bundy and other trait-based researchers concur (Barnett 1991a; Barnett and Kleiber 1982; Singer and Rummo 1973), then playfulness should not be influenced by location or situation. Yet, the ToP is designed for administration "both indoors and outdoors" (279). Bundy appeared to suggest that playfulness is not invariant to situational or state-based stimuli, which counters playfulness as a trait.

It is important to note, however, that—whether trait-based or state-based—most definitions of children's playfulness are characterized by pleasure, spontaneity, imagination, curiosity, and a sense of humor (Guitard, Ferland, and Dutil 2005).

Adolescent Playfulness

Beyond childhood, research on playfulness is sporadic. Lieberman (1977), one researcher to connect playfulness to adolescents (see also Rogers et al. 2000; Staempfli 2006), and one of the few researchers to recognize that different age groups may require different conceptualizations of playfulness, suggests: "[I] see playfulness as behavior that goes beyond the childhood years. . . . It has major

implications for childrearing practices, educational planning, career choices, and leisure pursuits (xi)." Comparing structured with unstructured settings, Lieberman discovers two types of playfulness, "academic" and "socio-emotional" (5). Junior high and high school teachers encourage academic playfulness in the classroom, but they consider socio-emotional playfulness, more salient in unstructured contexts including leisure, disruptive. In contrast to her findings about childhood playfulness, Lieberman noted that adolescent playfulness is a "much more differentiated behavior" than she originally believed (Staempfli 2006, 5). Additionally, that Lieberman identified different types of playfulness in different settings implies that situational and environmental stimuli influence playfulness.

Staempfli, another researcher to examine adolescent playfulness, developed the Adolescent Playfulness Scale with three multimethod phases. First, Staempfli conducted semistructured interviews with students aged twelve to nineteen to obtain their perspectives on playfulness and to create an item pool of descriptors. A literature review, Lieberman's Playfulness Scale, and data from interviews with adolescents augmented the item pool. An expert panel checked the final item pool for content and face validity, an important step absent from many other studies of playfulness (John and Benet-Martinez 2000). During the second and third phases, Staempfli tested the self-administered scale with 130 adolescents and evaluated the psychometric qualities of the piloted scale, another important step frequently absent from other playfulness-scale construction. Staempfli's work resulted in a multidimensional scale composed of twenty items.

We note several concerns with Staempfli's scale, however. First, despite critiques by other researchers (Barnett 1990; Bundy et al. 2001), Staempfli used Lieberman's Playfulness Scale as the foundation for the Adolescent Playfulness Scale. Second, Staempfli's item pool consisted of sentences (e.g., "When I hang out with my friends, we usually like to play and joke around") rather than single-word descriptors of playfulness, a concern for scale construction (Nilam Ram, personal communication). Third, several items in Staempfli's scale were correlates rather than descriptors of playfulness, an issue that also plagued other playfulness scales (Li, Bundy, and Beer 1995; Taylor and Rogers 2001). Finally, Staempfli did not establish convergent and discriminant validity of the scale, an important step in scale construction (John and Benet-Martinez 2000).

Interestingly, Staempfli found parallels to Singer and Rummo's (1973) observations about children. Like playful children, playful adolescents are physically animated, socially engaged, mentally spontaneous, emotionally fluid, and

humorous. It should also be noted that although terminology is slightly different, adolescent playfulness reflects several characteristics of young-adult playfulness (Barnett 2006), including physical activity, social engagement, spontaneity, and humor, suggesting similarities between the two age groups.

Young-Adult and Adult Playfulness

Barnett's (2007) inductive study of young-adult playfulness used a two-phase multimethod design with a sample of undergraduate students. Required as part of class participation, which we consider a shortcoming of data collection (Bolger, Davis, and Rafaeli 2003), the two phases consisted of asking focus groups of students to describe characteristics of highly playful and nonplayful individuals and instructing the students to rate themselves and other students (N=649) on playfulness and the descriptors of playfulness. Barnett did not, however, discuss the reliability of the scale. Nor did she validate scale structure or establish convergent and discriminant validity, a concern mentioned previously (John and Benet-Martinez 2000). In addition, the convenience sample age range (eighteen to thirty years) lacks theoretical justification. Arnett (2000), for example, defines individuals aged eighteen to twenty-five as "emerging adults" and notes that they have motivation and behavior patterns—which may include playfulness (Qian and Yarnal 2011)— distinct from adults aged twenty-five and older and from adolescents aged seventeen and younger.

Barnett found that playful young adults possess fifteen playful characteristics: Playful young adults are active, adventurous, cheerful, energetic, friendly, funny, happy, humorous, impulsive, outgoing, sociable, spontaneous, and unpredictable. In addition, they clown around, joke, and tease. Adventurousness, impulsiveness, and spontaneity parallel Glynn and Webster's work with adult playfulness (1992 1993), and active, cheerful, and impulsive parallel Barnett's (1991a) work with children. Barnett also found that creativity and seriousness, identified as components of childhood playfulness (Lieberman 1977), relate to but are not part of the young-adult playfulness. The finding calls into question the importance of creativity and seriousness as markers of playfulness for young adults.

The limited studies of adult playfulness focused largely on industrial and organizational outcomes from playfulness rather than on the characteristics of playfulness. Outcomes included productivity (Bozionelos and Bozionelos 1999; Glynn and Webster 1992, 1993; Webster and Martocchio 1992), the alleviation of boredom, the release of tension, the increase of group cohesion, and the decrease

of anxiety towards new technologies. In one of the few studies of adult playfulness, Guitard, Ferland, and Dutil (2005) concluded that characteristics of adult playfulness include creativity, curiosity, pleasure, and a sense of humor. We note that these characteristics share some conceptual similarities with adolescent and childhood playfulness, though they are also different.

Finally, we should mention that there exists a measure of adult playfulness: the Adult Playfulness Scale (APS) (Glynn and Webster 1992). The thirty-two items on the APS reflect five factors: spontaneity, expressiveness, fun, creativity, and silliness. Glynn and Webster's cognitive spontaneity derived from Lieberman's earlier scale. Items under their expressive, fun, creative, and silly categories were obtained from a review of the literature on playfulness, a concern we noted previously about their methodology. Several researchers who subsequently used the APS (Bozionelos and Bozionelos 1999; Rogers et al. 2000) suggest four criticisms (Kruger 1995). First, the APS was designed to measure playfulness in the work environment, limiting its applicability in other contexts (Staempfli 2006). Second, application of the scale in the work environment also assumed that play is the opposite of work, an assumption refuted in the literature (Csikszentmihalyi and Lefevre 1989). Third, Lieberman's spontaneity scale, based on a study of college students, may not apply to adult perspectives on playfulness. Lawrence-Lightfoot (1997), for example, argued that the only sensible way to create an age-appropriate measuring instrument is to collaborate with the subjects of the study and obtain their conceptual input. Fourth, Glynn and Webster noted that the APS is a "theory-based" (84) framework. The authors, however, failed to articulate what theory guided their scale development.

Figure 1 summarizes the tools to measure playfulness in age groups ranging from preschoolers to older adults, including what components of playfulness were measured, how they were measured, and the proposed audience. Clearly, efforts to refine age-appropriate methodologies for creating scales on playfulness, to apply playfulness scales in different contexts and settings, and to examine similarities and differences in playfulness across age groups have been inconsistent. There is, however, scattered yet tantalizing evidence that markers of playfulness change over the life-span, suggesting that different age groups require different playfulness scales (Lieberman 1977; Staempfli 2006). There is also evidence of similarities in playfulness across age groups, suggesting the need for further refinement of existing playfulness scales. A scale for older adults, and what it might contribute to crystallizing the playfulness literature, is noticeably absent from the research literature.

Characteristic	Playfulness Scale (Lieberman 1977)	Children's Playfulness Scale (Barnett 1991b)	Test of Playfulness (Bundy 1996)	ALB and IIP (Ferland 1997)	Adolescent Playfulness Scale (Staempfli 2006)	Young-Adult Playfulness Scale (Barnett 2007)	Older-Adult Playfulness Scale (Yarnal and Qian 2010)
Components of playfulness measured	•Physical spontaneity	•Physical spontaneity	•Intrinsic motivation	•Curiosity	•Physical animation	•Gregarious	•Upbeat
	•Social spontaneity	•Social spontaneity	•Internal control	•Sense of humor	•Social engagement	•Uninhibited	•Impish
	•Cognitive spontaneity	•Cognitive spontaneity	•Freedom to suspend reality	•Pleasure	•Mental spontaneity	•Comedic	•Spontaneous
	•Sense of humor	•Sense of humor	•Framing	•Spontaneity	•Emotional fluidity	•Dynamic	•Humorous
	•Joy	•Joy		•Initiative	•Humorous perspective		
				•Challenge			
Items	12 items	23 items	68 items: 34 items observed inside and another 34 outside	In each of these tests, 6 items pertain to playfulness	20 items	15 items	15 items
Intended population	School-age children	School-age children	Children from 15 months to 10 years of age with a disability	Preschool-age children with a disability	Adolescents age 12–19	Young adults, age 18–30	Older adults, age 65 and over

*The first four instruments are adapted from Guitard, Ferland, and Dutil (2005).

Figure 1. Description of eight instruments used to measure playfulness across the lifespan*

Why an Older Adult Playfulness Scale?

Older adults are an important segment of America's population. Not only do they represent a large and growing number, they are living longer and are more active than previous generations of elders (Federal Interagency Forum on Aging-Related Statistics 2008; U.S. Bureau of the Census 2005). The majority of research on the health of older adults, however, continues to focus on problems and diseases (Huppert 2004; Keyes 2002). Yet, Sadler (2000) argued that in the second half of life "new interests, talents, and different aspects of our intellectual capacity, such as emotional, interpersonal, and creative intelligence [blossom]" (12). Elder, Johnson, and Crosnoe (2003) also stressed that playfulness and having fun in later life may contribute to the maintenance of cognitive functioning, emotional growth, and healthy aging overall, which they define as the "process of

adaptation to physical and psycho-social changes across the life course to attain optimal physical, mental and social well being in old-age" (Bartlett and Peel 2005, 100). Yet, there is no measure of older-adult playfulness to test empirically the potential contribution of playfulness to healthy aging.

Interestingly, slim evidence suggests connections between adult playfulness and good health. First, Mannell (1984) speculated that adults inclined to playfulness would deal with daily stressors better and would have better mental health than individuals not so inclined to playfulness. There is no empirical evidence to support his assertion, but studies of playful women aged fifty and over have documented numerous benefits of playfulness including fostering positive emotions, facilitating positive coping, enhancing personal growth and development, and strengthening social bonds (Hutchinson et al. 2008; Son et al. 2007; Yarnal 2006; Yarnal, Chick, and Kerstetter 2009). Yarnal and Mitas (2008) recently argued that older-adult playfulness could be a crucial component of healthy aging, particularly if associated with a positive affective state. They also hypothesized that playfulness could be an antecedent of and component of psychological resilience and that interventions to increase levels of playfulness in older adults should be explored.

In sum, scattered but exciting evidence links playfulness and adult health. To examine this relationship between playfulness and healthy aging among older adults, we will first examine how older adults characterize playfulness. We do this to ensure that our operational definitions of playfulness are consistent with the way older adults view play, which will also help ensure that our measurement of playfulness merits further research (Lawrence-Lightfoot 1997). In the following section, we document the multiple steps used to establish the Older Adult Playfulness Scale.

Methods

Step 1: Determine the Characteristics of Older-Adult Playfulness

Determining the characteristics of older-adult playfulness involved two phases of data collection. We used focus groups composed of older adults in the first phase and generated eighty-six descriptors of playfulness meaningful to them. Focus groups help obtain emic—or participant—perspectives on constructs (Morgan and Krueger 1998), which is crucial to developing a sound instrument (Lawrence-Lightfoot 1997). In the second phase of data collection, we gathered the same focus groups, an important contribution to reliability (DeVallis 2003),

and asked them to rate the eighty-six descriptors of older-adult playfulness and to provide feedback on the descriptors (Babbie 2004). Subsequent data analyses reduced the number of descriptors from eighty-six to fifty-five. Details of each phase of data collection follow.

The first phase of data collection spanned three weeks in fall 2008, when we held six focus groups of six to ten participants. Our only eligibility requirement for the focus groups was that each participant be sixty-five years old or older. Because we were interested in developing a scale for older adults, we imposed no eligibility requirement based on gender, race, ethnicity, disability, or socio-demographic factors. According to Morgan and Krueger (1998), optimum size for focus groups is six to twelve individuals, and data saturation usually occurs with four to six focus groups. Altogether, forty-six older adults participated in the six focus groups. We recruited participants from two older-adult organizations. We visited a senior center, where we gave a short talk and distributed flyers about our research project to potential participants. Twenty older adults, twelve of them women, agreed to contribute to the study, and they formed two focus groups. We also contacted the local chapter of a national senior-learning organization whose director helped us send email invitations to members. We recruited twenty-six participants, eighteen of them women, to form the other four groups for a total of six focus groups. All three forms of participant recruitment (short talk, flyer, email, and invitation) included an introduction to the research study, a rundown of focus-group procedures, information about confidentiality, and a description of the incentive to participate. The focus groups were conducted in the facility of the organizations from which we recruited participants. Before each focus group began, we obtained informed consent from the participants. Upon completing participation in the focus group, each senior received twenty-five dollars as an incentive.

At the start of each focus group, we invited participants to introduce themselves and describe the leisure activities they regularly enjoy, because sharing experiences is a valuable tool for effective data collection with focus groups (Morgan and Krueger 1998). Then, replicating Barnett (2007), we asked participants to describe the characteristics of a playful individual, an individual they know who is playful, and an individual they know who is not playful. Finally, we asked each participant to provide explanations of the descriptors they offered. We also extended Barnett's work by recording all conversations and by writing notes on a flip chart during all focus groups, both valuable methods for data verification (Morgan and Krueger 1997). After each focus group, we transcribed

the recording verbatim and typed the written notes into a computer. The data were then coded using NVivo, a software program for qualitative data analysis. Saturation of data, the point at which no new information is being obtained, (Strauss and Corbin 1998), was achieved upon completion of the six focus groups. Altogether, eighty-six descriptors of playfulness were offered.

For the second phase of data collection, we developed a questionnaire, which included the eighty-six descriptors and several demographic questions concerning age, gender, marital status, and educational achievement. In spring 2009, we assembled the six focus groups again using the same participants. Each participant rated himself or herself, a playful older adult he or she knew, and a nonplayful older adult he or she knew on each of the eighty-six descriptors using a 10-point Likert-type response format, like that used by Barnett (2007) where 1 equals "not at all" and 10 equals "very much." Altogether, thirty-six participants provided three sets of ratings on the eighty-six descriptors, creating a total of 108 cases. After participants completed the questionnaire, we solicited their feedback on the descriptors, and no participant took issue with any particular descriptor, a step not taken by Barnett. Again, we offered twenty-five dollars as an incentive to each senior for participating in a focus group.

In this phase of data analyses, we extended Barnett's work by using two criteria to identify and exclude poor items from the original list. First, we ran *t*-tests on all descriptors using participant ratings of playful older adults and ratings of nonplayful older adults. Using a *p*-value of 0.01, twenty-one descriptors failed to differentiate between high and low playfulness ratings and were excluded from further data collection. Second, we entered the eighty-six descriptors into the online *Roget's Thesaurus* to examine overlap in meaning among the descriptors, an acceptable method for semantic differentiation and a step absent from other measures of playfulness (Nilam Ram, personal communication). Twenty-two descriptors overlapped in meaning with at least three other descriptors. Among them, twelve also met the first criterion of item exclusion. Therefore, thirty-one descriptors (21+22-12) were excluded from further data collection. The remaining fifty-five descriptors included thirty-three positive and twenty-two negative items.

Step 2: Development of the Older-Adult Playfulness (OAP) Scale

In step 2, we developed the Older-Adult Playfulness (OAP) Scale. We contacted a regional older-adult volunteer group whose director sent an email invitation to its members. Interested members completed an online questionnaire, which

asked them to rate themselves, a playful older adult they knew, and a nonplayful older adult they knew on the fifty-five descriptors and the term *playful*. We also collected demographic information. Upon completion of data collection, we conducted a lucky draw in which four participants each won a fifty-dollar gift card.

Within one month in summer 2009, 115 participants sixty-five years or older (aged sixty-five to ninety-three and 69.6 percent female) provided usable data. Due to the small number of male participants, which was a limitation of the study, we refrained from examining gender differences. Taking the data self-rated by participants, we performed exploratory factor analysis using principal axis factoring with promax rotation (Hayes, Glynn, and Shanahan 2005). Four criteria guided factor extraction (Barnett 2007; Hayes et al. 2005): Kaiser criterion (eigenvalue>1), the amount of common variance explained by the factors, reliability (Cronbach's alpha > 0.70), and the psychological meaningfulness of the extracted factors. Four factors consisting of twenty-three positive descriptors resulted from the analysis, collectively explaining 52.85 percent of the total sample variance (figure 2). All twenty-three remaining positive descriptors had factor loadings higher than .40 with large item-corrected correlations with the scale score. Two other criteria were used to determine if the twenty-three descriptors would remain: correlation with the descriptor "playful" (figure 3) and the ability to differentiate between high and low playfulness using participants' ratings of playful and nonplayful older adults (figure 4). All twenty-three descriptors met the two additional criteria and remained. Seven of the twenty-two negative descriptors formed two factors. However, neither factor explained more than 3 percent of common variance, nor was their reliability score higher than 0.70. Therefore, the factors were not included. All remaining twenty-five descriptors (ten positive, fifteen negative) were excluded because they either failed to have high loading on any of the four factors or had high loadings on more than one factor.

Step 3: Validating the Reliability and Establishing the Validity of the Older Adult Playfulness Scale

The initial development of the Older Adult Playfulness (OAP) scale yielded a twenty-three-descriptor, four-factor measure that can produce reliable data using internal consistency as the criterion. To examine for redundant descriptors and to establish the validity (Carver and White 1994) of the OAP scale, we collected more data in a third step of the study sample and performed confirmatory

Descriptor	Factor 1	Factor 2	Factor 3	Factor 4
Happy	.935			
Joyful	.842			
Lighthearted	.839			
Optimistic	.820			
Positive	.810			
Cheerful	.740			
Laughs	.699			
Relaxed	.680			
Outgoing	.656			
Fun	.560			
Enthusiastic	.507			
Spontaneous	.479			
Carefree	.448			
Open minded		.830		
Creative		.785		
Whimsical		.477		
Naughty			.929	
Mischievous			.846	
Clowning			.573	
Teasing			.482	
Joking			.412	
Funny				.754
Humorous				.670
Eigenvalues	11.49	3.48	2.22	1.68
% of common variance	33.82	9.37	5.63	4.03
Cumulative % explained variance	33.82	43.18	48.82	52.85
Alpha Reliability Coefficients	0.931	0.625	0.821	0.919

Figure 2. Principal axis factor loadings for 23 positive descriptors and alpha reliability coefficients for the resulting factors

Descriptor	Correlation with *playful*
Happy	.439**
Joyful	.584**
Lighthearted	.509**
Optimistic	.371**
Positive	.587**
Cheerful	.489**
Laughs	.489**
Relaxed	.396**
Outgoing	.458**
Fun	.596**
Enthusiastic	.489**
Spontaneous	.581**
Carefree	.405**
Open-minded	.350**
Creative	.340**
Whimsical	.505**
Naughty	.262*
Mischievous	.441**
Clowning	.525**
Teasing	.240*
Joking	.296*
Funny	.517**
Humorous	.484**

*$p<0.01$
**$p<0.001$

Figure 3. Correlations between 23 descriptors and *playful* using self-rating data

	Cell means		
Descriptors	High playfulness	Low playfulness	Significance of sign paired-sample *t*
Happy	8.07	6.13	**
Joyful	7.48	5.45	**
Lighthearted	7.24	5.28	**
Optimistic	8.03	5.90	**
Positive	8.05	5.86	**
Cheerful	7.94	6.07	**
Laughs	8.15	6.15	**
Relaxed	7.11	5.23	**
Outgoing	8.48	6.32	**
Fun	8.25	6.04	**
Enthusiastic	8.42	6.18	**
Spontaneous	7.00	4.83	**
Carefree	6.42	4.85	**
Open minded	7.23	5.75	**
Creative	7.29	5.60	**
Whimsical	5.99	4.16	**
Naughty	3.01	2.61	*
Mischievous	4.64	3.55	**
Clowning	6.12	4.39	**
Teasing	5.59	4.34	**
Joking	5.50	3.89	**
Funny	7.60	5.52	**
Humorous	7.51	5.68	**

*$p<0.05$

**$p<0.001$

Figure 4. Cell means for high and low playfulness on 23 positive descriptors and significance of paired-sample *t*-tests

factor analyses. In order to access a pool of adults sixty-five and older—and given financial and time limitations—we contacted the alumni association of a large public university in the northeastern United States. The email invitation included an introduction to the research study, a note of eligibility for participation (age sixty-five and older), a description of the length and content of the questionnaire, information about confidentiality, and a mention of the incentive.

Interested members completed an online questionnaire, which asked them to rate themselves on the twenty-three descriptors of playfulness and to answer several demographic questions about age, gender, marital status, and educational achievement. Participants also completed the Positive Affect and Negative Affect Scale (PANAS), a measure of the participants' current self-reported feelings or basic predispositions (Watson, Clark, and Tellegen 1988), and the fun and drive subscales of the Behavioral Activation Scale (BAS-Fun and BAS-Drive). The Behavior Activation Scale measures approach behavior including sensitivity to reward and escape from punishment and the capacity to "experience positive feelings such as hope, elation and happiness" (Carver and White 1994, 319). The BAS-Fun subscale measures "a desire for new rewards and a willingness to approach a potentially rewarding event on the spur of the moment" (319). The BAS-Drive subscale measures the persistent pursuit of desired goals. Upon completion of data collection, we conducted a lucky draw in which six participants each won a fifty-dollar gift card.

We included the PANAS and BAS scales for theoretical and methodological reasons. At the theoretical level, we included the positive affect subscale of PANAS, because playfulness is variously defined as containing, causing, or arising from positive emotions. Barnett (2007), for example, contended that positive emotions overlap with playfulness. Fredrickson (1998) stated that joy (a high-arousal positive emotion) causes playfulness. And Henriot (1969) suggested that joy is an outcome of playfulness. Also at the theoretical level, we included the fun and drive subscales of BAS because playfulness may share conceptual space with approach behavior. When people act in mischievous, naughty, clowning, and teasing ways, for example, we can view them as not only taking specific actions to make good things happen but as also providing a mechanism for interacting with others.

In short, the PANAS and the two BAS subscales measure constructs (positive emotions and approach behavior) that theoretically should be related to playfulness; thus, we should be able to demonstrate a convergence or correspondence between playfulness, PANAS, and BAS. We call this convergent validity.

At the methodological level, we used the PANAS and BAS scales to test the discriminant validity of the OAP scale, a step to determine if the factor structure of playfulness is conceptually distinct from the indicators of positive emotions (PANAS) and distinct from the indicators of approach behavior (BAS). We provide evidence for both convergent and discriminant validity, which taken together provide evidence for the validity of a construct (Carver and White 1994)—in this case, of playfulness.

During one month in spring 2010, 349 older adults, 237 of which were women, completed the online questionnaire. First, we performed confirmatory factor analysis (CFA) to examine the fit of the factor structure (i.e., to check for redundant descriptors and for descriptors loading highly on more than one factor) and to test the significance of factor loadings. All error covariances were fixed to zero, and all factor loadings were freely estimated by constraining the factor variance to 1. The resulting modification indices indicated that three of the descriptors under Factor 1—*fun, spontaneous*, and *carefree*—had high regression weights (highest modification indices scores) on the other three factors, meaning that the three descriptors loaded highly on more than one factor. Therefore, the three factors were excluded from the CFA model. We then ran the revised CFA model and found that three other descriptors under Factor 1—*laughs*, *lighthearted*, and *outgoing*—had the same problem as the above three excluded descriptors. We removed these as well from the CFA model. We ran this further revised CFA model and identified a descriptor under Factor 3, *open-minded*, as having extremely high regression weight on Factor 1. After removing *open-minded* from the CFA model, the resulting modification indices indicated that no descriptor had high regression weight on any factor to which it did not belong. The finalized CFA model (figure 5) shows a four-factor, fifteen-descriptor structure of the Older-Adult Playfulness scale with good model fit (Brown 2003; Hayes, et al. 2005; Kline 2005; Lei and Wu 2007): Chi-square=297.1; df=100; CMIN/DF=2.97; CFI=0.946; RMSEA=0.075; and SRMR=0.06.

After finalizing the factor structure of the OAP scale, we assessed its discriminant and convergent validity using data from the positive affect subscale of PANAS, the BAS-Fun scale, and the BAS-Drive scale, three constructs that are, as we have mentioned, theoretically linked to, yet conceptually distinct from, playfulness. To illustrate the process of assessing validity, take the BAS-Fun scale as an example. We first tested a single-factor solution, i.e., forcing the fifteen OAP descriptors and the four BAS-Fun items to load on a single factor by fixing the intercorrelation between the two latent factors (i.e., playfulness and BAS-

Scale/Item		Beta*
Playfulness		
Factor 1		0.51
	Happy	0.80
	Optimistic	0.85
	Cheerful	0.81
	Joyful	0.82
	Positive	0.86
	Relaxed	0.69
	Enthusiastic	0.71
Factor 2		0.88
	Mischievous	0.79
	Naughty	0.66
	Clowning	0.88
	Teasing	0.74
Factor 3		0.93
	Creative	0.45
	Whimsical	0.80
Factor 4		0.92
	Funny	0.92
	Humorous	0.88

*All significant at 0.001 level.

Figure 5. Finalized factor structure of OAP scale based on confirmatory factor analysis result

Fun) to 1. We then let the descriptors and items load on their respective factors while allowing the two latent factors to correlate. If the OAP scale is a redundant measure of BAS-Fun (i.e., both scales measure the same construct), the single-

Constructs	Correlation with OAP	Single-factor model ^{2} CFI RMSEA	Two-factor model ^{2} CFI RMSEA	Improvement in fit from single- to two-factor model ^{2} (df=1) CFI RMSEA
	0.37	1000.86	658.99	341.87
Positive Affect	0.828	0.904	0.076	
	0.099	0.074	-0.025	
	0.54	528.45	392.22	136.23
BAS-Fun	0.91	0.943	0.033	
	0.08	0.063	-0.017	
	0.31	675.14	357.96	317.18
BAS-Drive	0.875	0.952	0.077	
	0.094	0.058	-0.036	

All correlations and changes in ^{2} are statistically significant at $p<0.001$.

CFI = Confirmatory fit index.

RMSEA = Root mean squared error of approximation.

Figure 6. Results of validity tests

factor solution should fit significantly better than the two-factor solution. Since the single factor solution is "a nested version of the two-factor solution," we can statistically compare their model fit with "a chi-square difference test with one degree of freedom" (Hayes et al. 2005, 315). We also used confirmatory fit index (CFI, with higher value indicating better fit) and the root mean squared error of approximation (RMSEA, with lower value indicating better fit) as additional fit indices (Hayes et al. 2005).

As demonstrated in figure 6, the two-factor model in all three situations had better fit than a single-factor model, indicating significant improvement in chi-square, higher CFI, and lower RMSEA. Put simply, the OAP scale, rather than being a redundant measurement of any of the three constructs, is distinguishable from them. Note that our focus is on the relative fit of the single-factor versus two-factor models, not on the absolute model fit. The results in figure 6 indicate that a two-factor model in which the constructs are treated distinctly from each other fit the data much better than a single-factor model in which the constructs are

treated as unidimensional. At the same time, the OAP scale has moderate positive correlations with all three constructs, indicating that older-adult playfulness, while different from the three constructs, also has conceptual links with them.

Discussion and Future Directions

We began by drawing attention to limited research on adult playfulness in general and to older-adult playfulness in particular. We noted that this conceptual gap was odd, given the size of the older-adult population and mounting evidence that positive factors in individuals' lives, which may include playfulness (Elder, Johnson, and Crosnoe 2003; Yarnal 2004; 2006), are linked to healthy aging (Lyubomirsky, King, and Diener 2005). We also noted the existence of scales to measure playfulness in childhood, adolescent, young-adult, and adult populations (see figure 1). At the same time, we highlighted theoretical, conceptual, and methodological concerns with some playfulness scales (Ferland 1984; Kruger 1995; Staempfli 2006). We also noted that the absence of a scale to measure older-adult playfulness means that we do not know if older adults characterize playfulness similarly to younger populations. Thus, the purpose of our study was to characterize and define older-adult playfulness and to develop a reliable and valid measure of it.

To achieve our purpose, we used a rigorous three-step process. Step 1 determined the characteristics of older-adult playfulness, Step 2 developed the Older Adult Playfulness (OAP) scale to measure playfulness in older adults, and Step 3 validated the reliability and established discriminant and convergent validity of the OAP scale. The study identified fifteen qualities of a playful older adult, yielding a multidimensional four-factor measure and the following definition: "Playful older adults are happy, optimistic, cheerful, amusing, positive, enthusiastic, and relaxed. In everyday exchanges, they tend toward mischief, naughtiness, clowning, joking, and teasing; they embody fun and humor in ways that translate into laughter and amusement in others. Although impish, they are circumspect about their behavior in ways that teenagers have not yet mastered. Nevertheless, again, they continue to approach the world with a measure of creativity and whimsy." Some descriptors appeared in previous scales examining playfulness in other age groups, while others are new. We also note that the definition incorporates trait-based and state-based elements, an extension of most other definitions of playfulness and a contribution of our study.

Playful older adults are psychologically upbeat: they are happy, optimistic, cheerful, joyful, positive, relaxed, and enthusiastic individuals. The descriptors under this factor are a mix of high arousal (cheerful, joyful, enthusiastic), low arousal (relaxed), and generic (happy, optimistic, positive) psychological status (Tugade and Fredrickson 2004). Numerous studies document that balance between positive and negative emotional states fosters emotional health (Gross and Munoz 1995; Ong, Bergeman, and Bisconti 2006; Staudinger, Marsiske, and Baltes 1993; Zautra 2003). We also know that: frequently emotionally positive individuals build emotional resources, becoming more resilient to hardship (Cohn, et al. 2009); specific positive emotions (such as joy, interest, contentment, and love) are particularly important to emotional health (Fredrickson 2000, Ong 2010); and individual levels of positive emotions can be substantially increased (Fredrickson et al. 2008; Sheldon and Lyubomirsky 2004). What we do not know, however, is the role of playfulness in emotional health. Preliminary findings from our study suggest that this may be an avenue worth pursuing.

Playful older adults are also behaviorally impish: they act in mischievous, naughty, clowning, and teasing ways. Yet, the physical rigor evident in childhood playfulness is not a must for older-adult playfulness, confirming Ferland's (1994) research. We also support Staempfli's and Barnett's findings that clowning and joking are not only personally satisfying to playful individuals but also provide mechanisms for interacting with others. Our research also demonstrates that clowning and joking are important characteristics of playfulness across the adult lifespan. It is interesting to note, however, that the "disruptiveness" (Lieberman 1971, 5) associated with adolescent playfulness in structured contexts disappears with older adults. Perhaps older adults have learned which contexts are appropriate for playfulness. Or perhaps older adults have learned "playfulness regulation," which, paralleling the research on emotion regulation (Gross 1998; Urry and Gross 2010), we define as the ability to enhance or reduce playfulness as the situation dictates. This finding also provides evidence that playfulness is not invariant to situational or state-based stimuli. We do not know, however, the role of different contexts in facilitating or inhibiting playfulness, which is a topic worthy of future study.

Playful adults are cognitively spontaneous: they are creative and whimsical. While some playfulness scales for younger age groups include curiosity and imagination (Ferland 1997), the two descriptors in the OAP scale demonstrate that older adults take playfulness a step further. Playful older adults are primed to initiate something novel, unexpected, or quirky. This finding also adds sup-

port to Miller's (1968) contention that playfulness is more than a trait. It is, as he says, "an attitude of throwing off constraint" (21).

Finally, playful adults are amusing: they are observably funny and humorous, which, in turn, solicits positive responses from others. While funny and humorous relate closely to the second factor (behaviorally impish), older adults distinguish between the two. Indeed, items in the second factor involve taking actions, while funny and humorous refer more to the cognitive capacity to cause laughter and amusement. Both impishness and humor demonstrate conceptual overlaps with approach behavior including the "desire for new rewards and a willingness to approach a potentially rewarding event on the spur of the moment" (Carver and White 1994, 319).

Descriptors identified by this study and evident in previous work on playfulness with children, adolescents, young adults, and adults (Barnet 2007; Glynn and Webster 1992; Guitard, Ferland, and Dutil 2005; Staempfli 2006) include cheerful, happy, clowning, mischievous, and teasing. Evident from research on childhood playfulness are joy, spontaneity, and a sense of humor. We note, however, that there are marked differences in the way the descriptors were used in various scales of playfulness and in the meanings they impart. In Barnett's Young Adult Playfulness Scale, for example, *spontaneous* refers to the cognitive dimension of playfulness. In contrast, Glynn and Webster's (1992) use of *spontaneous* in the Adult Playfulness Scale refers to the behavioral dimension, whereas *spontaneity* in the Childhood Playfulness Scale (Lieberman 1977) cuts across physical, social, and cognitive dimensions. It is not clear, however, whether difference from one scale to another is due to a lack of consensus on the definition of terms, to an inconsistency in scale application, to a lack of specificity about the level of analysis, or to changing relevance of markers of playfulness across time.

Lieberman for instance, is adamant that observable joy is an enduring component of playfulness across time. Interestingly, however, the word *joy* disappears from playfulness scales after childhood, only to reemerge as the term *joyful* in the Older Adult Playfulness scale. Does joy disappear because it is folded into a broader construct, as Bundy and her coauthors suggest (2001)? Or, does joy disappear because visible manifestation of high-arousal positive emotion is discouraged in adulthood (Lieberman 1977; Yarnal, Son, and Leichty 2011)? Or, does joy shift from the behavioral to the cognitive dimension over time? Again, these questions pose sizeable theoretical, conceptual, and methodological possibilities for future playfulness research.

New descriptors of playfulness that emerge from the OAP scale include relaxed, enthusiastic, positive, optimistic, and naughty. Although we concur with Ferland's (1994) finding that physicality is not a prerequisite for playfulness, the new descriptors nonetheless suggest a bodily component to playfulness that remains surprisingly unexplored—and absent from the behavioral activation literature. Perhaps if we uncouple playfulness from its fascination with physicality and instead embrace broader concepts like embodiment, we might be able to examine how playfulness shapes personal identity, gives public meaning to the body, and situates the body within culture (Yarnal, Son, and Leichty 2011).

Finally, and this is the main contribution of our research, we established that the Older Adult Playfulness scale is a valid and reliable measure of playfulness. Scale development (Step 2) and validation (Step 3) demonstrate that the OAP scale is related to but distinguishable from three other well-established scales—BAS fun, BAS drive, and PANAS. In short, the OAP scale, rather than being a redundant measurement of any of the three constructs, is distinguishable from them. Given the preliminary evidence of the link between playfulness and positive emotions and the rich empirical evidence that positive emotions contribute to good health (Fredrickson et al. 2008; Ong 2010; Steptoe and Wardle 2006; Tugade and Fredrickson 2004), we hope that Step 4 (Qian and Yarnel 2011) in our four-part study will forge the link between playfulness and good health.

While our study developed a reliable and valid scale that measures playfulness among older adults, it is not without limitations. First, our sample size was limited. Barnett, for example, had more than six hundred participants in her study. We encourage studies with larger samples to further validate the scale. Second, our research participants are predominantly Caucasians. We recommend future studies to test the scale with more diversified samples. Third, the sample (alumni) that we used to validate the scale in Step 3 consisted of individuals who had an undergraduate degree at least. While the participants in Steps 1 and 2 are more diversified in terms of educational level, we urge future study on participants with more diverse socio-demographic backgrounds to better understand playfulness in older adulthood.

To conclude, we agree with Lieberman's (1977) assertion that playfulness has "major implications for childrearing practices, educational planning, career choices, and leisure pursuits" (xi). We also agree with her contention that playfulness is a complex construct. We are, however, excited and encouraged that future study of older adults may also enable researchers to provide playfulness the level of scientific credibility we suspect it richly deserves.

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