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Playfulness in Adulthood as a Personality Trait *A Reconceptualization and a New Measurement*

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Abstract

This research is part of a larger effort that integrates advances from personality research and playfulness research to develop a valid and reliable measurement of adult playfulness. We proposed a *latent network* trait conceptualization that focuses on the interconnected cognitive qualities central to playfulness, strictly distinguished from their state manifestations and personality correlates. A sequential multistudy design involving focus groups, expert review, conceptual back-translation, and survey studies was employed to develop, refine, and validate the Adult Playfulness Trait Scale (APTS). Adequate face validity and content validity were established through systematic conceptual evaluation. Higher-order factor analyses also confirmed the underlying hierarchical conceptual model of the APTS that comprises three sub-dimensions: *fun-seeking motivation*, *uninhibitedness*, and *spontaneity*, supporting the APTS' parsimonious unidimensional property.

Keywords: *adult playfulness; latent network trait conceptualization; measurement*

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Introduction

The study of playfulness as a personality trait stems from research about play behavior. As a response to the predicament of defining extremely heterogeneous play behavior and the call for a more parsimonious conceptualization, a group of researchers switched its focus from the diverse forms of play to the essential qualities of the player (Barnett, 1990, 1991a, 1991b; Millar, 1968; Lieberman, 1965, 1966, 1977; Schwartzman, 1978). Meanwhile, many psychologists have argued for the existence of a playful cognitive style or personality orientation that transcends situations and activities (e.g., Singer & Rummo, 1973; Singer, Singer, & Sherrod, 1980; Wolf & Grollman, 1982). These two forces have driven a line of research that focuses on the internal psychological qualities or attributes that make a person playful (e.g., Barnett, 1990, 1991a, 1991b, 2007; Bundy, 1993, 1997; Bundy, Nelson, Metzger, & Bingaman, 2001; Glynn & Webster, 1992; Guitard, Ferland, & Dutil, 2005; Lieberman, 1965, 1966, 1977; Neumann, 1971; O'Connell, Gerkovich, Bott, Cook, & Shiffman, 2000; Olsen, 1981; Schaefer & Greenberg, 1997; Staempfli, 2005).

Early playfulness research predominantly focused on children (Bundy, 1997). By comparison, studies of adult playfulness have been sporadic for two reasons: (a) social manifestations of playfulness are less acceptable among adults (Lieberman, 1977); and (b) playfulness lacks apparent practical usefulness, a presumably unappealing quality for the increasingly rational and pragmatic adult mind (Olsen, 1981; Piaget, 1951). Nevertheless, both lay observations and academic research suggest that playfulness is just as ubiquitous among grown-ups as it is among the young (Sutton-Smith, 1966). Furthermore, evidence suggests that playfulness becomes increasingly permeating as people grow older: (a) The forms of playful behavior expand from predominantly sensorimotor play to more frequent social, imaginative, and cognitive play (Lieberman, 1977; Weisler & McCall, 1976), and (b) the expression of playfulness increasingly crosses the boundaries of leisure and work (or required school activities [King, 1987]) and “extends to all life situations” (Guitard et al., 2005, p. 19).

The past three decades have seen a growing number of studies focused on the functions and benefits of playfulness in adulthood by associating it with health or productivity indicators, including tension release, increased group cohesion, boredom alleviation, and improved performance in the workplace (c.f., Bowman, 1987; Glynn & Webster, 1992, 1993; Guitard et al., 2005; Martocchio & Webster, 1992). While providing information about possible links between playfulness and well-being or productivity, the majority of these studies used a cross-sectional design that precludes causal inferences of the positive outcomes claimed about playfulness. A more pressing concern about this line of research is that it risks getting ahead of itself by studying playfulness' functions in the absence of a clear conceptualization and sound measure of the trait. Consequently, many functional studies of playfulness are prone to validity problems.

Our review suggests that the conceptualization and measurement problems encountered by playfulness researchers are largely due to the lack of a strong, coherent theoretical framework for studying playfulness as a personality trait. For several decades, personality research in leisure studies has been using an outmoded trait approach (Iso-Ahola, 1976, 1980), while more sophisticated frameworks and theories have been advanced in the broader personality research field. The primary goal of this research is two-fold: (a) to develop a sound conceptualization and a reliable, valid measurement of adult playfulness, and (b) to bridge the gap between personality research in leisure studies and the broader personality research field by introducing and applying theoretical development from the latter during our scale development and validation.

In order to achieve the above goal, we first conducted an extensive review of existing conceptualizations and measurements of playfulness in light of theories, perspectives, and recent

developments from personality research. On this basis, we then developed a playfulness definition and used it to guide the development of the Adult Playfulness Trait Scale (APTS) through systematic conceptual and empirical evaluation.

Literature Review

Conceptualization of Playfulness

By shifting attention from play behavior to the playful trait, playfulness research explicitly makes the internal dispositional qualities of players its main subject of investigation. Our review of existing conceptualizations of playfulness suggests, however, this focus easily gets lost in discussions of diverse characteristics related to playfulness. Frequently, inner psychological qualities (e.g., intrinsically motivated, curious, and open-minded) are indiscriminately mixed with overt behavioral or affective expressions (laughing, teasing, fantasizing, exaggerating, etc.) and little uniformity exists in how playfulness is conceptualized (see also Weisler & McCall, 1976). We attribute this fragmented state to the absence of a clear and coherent framework for the trait concept and the failure to incorporate theoretical developments from broader personality research. Below we introduce relevant theoretical background through a comparative review of major approaches to personality research, including the trait approach, social-cognitive theories, and interactionism, based on which we construct a conceptual framework for studying playfulness as a personality trait.

Theoretical framework

Over the past century, personality psychology has experienced deep divisions and great advancement, while our understanding of personality functioning and corresponding conceptualizations keeps evolving. The trait approach is perhaps the earliest established personality paradigm (see S. Kreitler & H. Kreitler, 1990). Assuming that individuals possess relatively stable dispositions that manifest themselves consistently across situations, trait researchers emphasize the person side of the person-environment interaction and use traits to predict and explain behaviors.

Two different views exist on how to define traits. Early trait theorists (e.g., Allport, 1931, 1961, 1966; Cattell, 1950; Guilford, 1959) view traits strictly as *latent dispositions* that *reside within the individual* and “*initiate and guide behavior*” (Allport, 1961, p. 373, emphasis added). This conceptualization is overshadowed by the more recent *summary view*, which defines traits grossly as internal psychological qualities and phenotypic tendencies or states. The summary approach has guided the development of many trait inventories, including the well-known Big Five model (McCrae & Costa, 1999)¹ and most playfulness studies (e.g., Barnett, 1990; Glynn & Webster, 1992; Lieberman, 1977).

Despite some evidence for the stability of traits over time and their ability to predict behaviors without reference to situations, this approach has been criticized on two levels. First, the trait construct as defined by the dominant summary view has been criticized for lacking explanatory power. Particularly, social cognitivists argue that by including behavioral tendencies in the conceptualization of traits, researchers subscribing to the summary trait concept commit circular reasoning when using traits to explain behaviors (Cervone & Mischel, 2002; Cervone, Shadel, & Jencius, 2001; Harré, 1998). In playfulness research, the missing trait-state distinction of the

¹As an example of the summary view, this model defines traits as “individual differences in tendencies to show consistent patterns of *thoughts, feelings, and actions*” (McCrae & Costa, 1995, p. 235, emphasis added).

summary approach may have led to the common practice of conflating characteristics of playful behavior with dispositional qualities of the player and confusing state-level variables (e.g., feeling happy) with trait-level variables (e.g., intrinsic motivation).

Second, as early as the 1920s, there have been questions about the core assumption of the trait approach (i.e., the cross-situational consistency of behavior [e.g., Hartshorne & May, 1928; Newcomb, 1929, cited in Mischel, 1999]). Mischel's (1968) well-known review confirmed the lack of empirical evidence for behavioral consistency (cross-situational correlations ranged from .01 to .71, with an average near .30) and set off extensive debates surrounding the "consistency paradox" (i.e., the discrepancy between the intuitive belief about the behavioral consistency and the lack of empirical evidence for it) that led to critical re-examination of the trait approach. Currently, the general consensus is that by focusing on a global decontextualized assessment of personality that averages tendencies across time and contexts, the trait approach entirely ignores the impacts of situations and cross-situational variations in behavior (Endler, 1993).

The social-cognitive approach emerged out of a line of research starting with behaviorism (e.g., Skinner, 1963). For a short period of time during the 1960s, the behaviorist's stimulus-response model provided a conceptual counterpart to the trait approach by assigning primacy to situations and assuming behavior to be highly situation-specific rather than cross-situationally consistent. The predominance of situation was soon downplayed by social learning theorists (e.g., Bandura, 1969), who looked inside the black box between situations and behavior that was ignored by the radical behaviorists and proposed that internal cognitive variables mediated behavioral responses to situational stimuli. The mediating role of internal cognitive variables was greatly elaborated in ensuing social-cognitive theories,² which, by the early 1970s, had replaced behaviorism as the primary counterpart of the trait approach and has driven voluminous research (e.g., Bandura, 1977a, 1977b, 1986; Cervone & Shoda, 1999; Dodge, 1986; Mischel, 1973, 1979, 1990; Mischel & Shoda, 1995, 1998).

Social cognitivists advocate distinguishing between internal psychological qualities and overt behavior such that the relationship between the two can be examined (Cervone et al., 2001). A core assumption of this approach is that the activation levels of, and relationships among, a person's cognition and affect remain relatively stable over time, constituting the basic structure of the individual's personality (Cervone & Shoda, 1999; Mischel, 1973, 1999; Mischel & Shoda, 1995, 1998). Similar to its antecedent behaviorism, social-cognitive theories explicitly emphasize the role of situation in the function of personality: situational factors activate a given cognition or affect through the encoding process that in turn activates specific subsets of other mediating units through a stable network of pathways and generate distinctive cognitions, affects, and behaviors. Personality coherence is not embodied in cross-situational consistency of behavior, but in stable patterns of behavioral variability in relation to situations (i.e., the *if...then...* situation-behavior profiles that distinctively characterize each individual [Cervone et al., 2001; Cervone & Mischel, 2002; Shoda, 2004]).

Researchers reported methodological challenges in mapping multiple mediators and sometimes reciprocal mediation pathways in the cognitive-affective personality system (CAPS) proposed by social-cognitive theories. To date, the cognitive-affective mediation processes remains largely unexplored, and the best empirical evidence offered by social-cognitive studies is limited

²Social cognitivists proposed five types of personal variables that form a person's social-cognitive personality system (CAPS): construal of self, people, events, and situations; expectancies and beliefs; goals and values; affects; and self-regulatory strategies and plans.

to the observable *if...then...*situation-behavior profiles. The stability coefficients reported for these profiles ranged from .19 to .47 (e.g., Mischel & Shoda, 1995; Shoda et al., 1994). Compared to the wider range of cross-situational consistency findings from trait studies (.01 to .71), social cognitivists seemed to improve the precision of observations by introducing the situational modifier.

The interactionist approach stems from the understanding that both cross-situational consistency (i.e., traits) and variation (i.e., states) are integral aspects of personality coherence. This approach views behavior as the result of traits interacting with situational specifics and proposes that a comprehensive framework should account for both the person and environment as well as their interactions in order to fully understand the coherent functioning of personality (Bowers, 1973; Lewin, 1936; Magnusson, 1999).

This tenet of interactionism is widely endorsed by contemporary personality research community. It has also been advocated as a general approach to explaining leisure behavior and experience for some time (e.g., Iso-Ahola, 1980; Mannell, 1982; Mannell & Kleiber, 1997). Unfortunately, this call has elicited few responses partly because of the lagging theoretical development in leisure personality research, and partly due to the conceptual challenges (e.g., conceptualization of traits) and methodological difficulties associated with implementing the interactionist approach (Krahé, 1990). Our review suggests that, as the methodological tools and statistical techniques for implementing interactionism become increasingly available,³ the remaining real challenge faced by interactionists lies at the conceptual level, namely developing a conceptualization of personality constructs that can logically enter the person-environment interaction framework. In this research, we attempt to address this challenge by proposing a trait conceptualization based on an integrative evaluation of several approaches.

Specifically, rather than dismissing the trait construct all together like some social-cognitivists have suggested (e.g., Mischel & Shoda, 1998), we maintain that trait remains a useful construct in personality research as the fundamental concept of personality still revolves around the relatively stable and unique qualities that give consistency and individuality to a person's behavior. Instead of adopting the summary view that dominates existing playfulness studies, however, we refocus on the latent dispositional view and define trait strictly in terms of internal dispositional qualities. By excluding behavioral components from the trait conceptualization, we avoid the circular reasoning issue critiqued by social cognitivists. Such a latent trait construct can be logically used to predict and explain behavior.

We concur with the network view of social cognitive theories that the basic structure of personality consists of personal variables linked to one another through various pathways. We propose that, instead of being an individual, nonreducible quality, a trait is more likely to be a unique combination of several more general, interconnected cognitive qualities (e.g., motivations, values, and self-concepts) that often function together in certain contexts. This small set of interrelated qualities form an ad-hoc network and jointly drive a type of behavior (e.g., playful behavior, environmentally conscious behavior). Moreover, each cognitive component of a network may be linked with multiple different cognitions, forming various networks, each with a different "specialty" depending on its ad-hoc cognitive make-up (e.g., intrinsic motivation can combine with intellectual curiosity and lead to voluntary learning behavior). The trait of interest becomes active when the associated network is activated in relevant contexts.

³E.g., ecological assessment or experience sampling methods that allow researchers to collect intensive person-in-context information, and hierarchical linear modeling or multilevel modeling that allow researchers to conduct simultaneous analyses of individual differences and within-individual variations.

Integrating the above two ideas, we propose a *latent network* trait conceptualization and define a trait as a unique combination of several cognitive qualities that interact with each other to form a relatively stable network and jointly drive a type of behavior. It is worth noting that, unlike social-cognitive theories that focus on the dynamic mediation processes and aim to map out various cognitive pathways that lead to a specific behavior, we place our emphasis on the relatively stable qualities within a given trait network. The latent network trait conceptualization entails a more sophisticated view of a trait: a trait is no longer a simplistic attribute, but a composite construct that encompasses multiple (sub-)dimensions and relations. Finally, such a trait construct can be readily incorporated into the interactionist framework wherein situational factors are introduced and the interactions between the situation and the trait in producing behavior examined.

In the following section, we use the latent network trait conceptualization to inform our review in the substantive content area of play/playfulness research. Given the common mix of trait with state in play/playfulness literature, we make a conscious effort to delineate various playful characteristics at their corresponding conceptual level (i.e., trait or dispositional level that pertains to the inner attributes of players versus state or behavioral level that pertains to characteristics of observable playful behavior).

Definitions of Playfulness

Playfulness has been variously defined in terms of its situational antecedents (e.g., *feeling safe* and *basic needs satisfied*, Weisler & McCall, 1976), phenomenological concomitants (e.g., *uncertainty*, *mimicking*, and *illusion*, Henriot, 1969, cited in Guitard et al., 2005), and behavioral or affective consequences (e.g., *physical activity*, Knox, 1996; *joy*, Bishop & Chace, 1971). Considering the extremely heterogeneous theorizations surrounding playfulness and the fact that an agreed-upon definition does not exist, we decided to focus on previously identified characteristics of playfulness instead of individual theories and create a new definition based on common elements supported by emergent consensus (De Vaus, 2011). This approach allowed us to critically evaluate each characteristic in light of our proposed conceptual framework and derive a definition of playfulness from an integration of rich literature, which offers various explicit and implicit definitions from theories (e.g., the five-dimension model in Lieberman, 1971), reviews (e.g., Ellis, 1973), conceptual pieces (e.g., Csikszentimihaly, 1981), and empirical studies (e.g., Guitard et al., 2005).

Our review documented a wide range of parameters, many of which pertain to play behavior or characteristics of play behavior, including *laughs*, *clowning*, *teasing*, *joking*, *relaxed*, *lighthearted*, *enthusiastic*, *naughty*, *mischievous* (Yarnal & Qian, 2011), *frivolous* (e.g., Maxwell, Reed, Saker, & Story, 2005; O'Connell et al., 2000; Schaefer & Greenberg, 1997), *silly* (e.g., Glynn & Webster, 1992; Schaefer & Greenberg, 1997), *exaggerating* (Hutt, 1977, cited in Schwartzman, 1978), and *novel* (Olsen, 1981). Other characteristics are associated with specific types of play, such as *imaginative* as in fantasy, day-dreaming, and role-playing (e.g., Knox, 1996), *metaphoric* as in verbal play involving metaphors (Glynn & Webster, 1992), *humorous* as in cognitive and verbal play that entails humor (e.g., Ferland, 1997; Guitard et al., 2005; Olsen, 1981; Schaefer & Greenberg, 1997), and *investigative* and *explorative* as in exploration (Ellis, 1973; Ferland, 1997; Knox, 1996)⁴.

⁴Controversies exist about whether exploration can be considered as play (c.f., Ellis, 1973; Olsen, 1981; Schwartzman, 1978; Weisler & McCall, 1976).

Still, a number of individual attributes have been linked with or labeled as defining characteristics of playfulness, the latter often being the case when researchers inadvertently superseded *essential qualities of the playful trait with characteristics of playful people* as the focus of inquiry (e.g., Barnett, 2007; Yarnal & Qian, 2011). Examples include the Big Five personality traits (Alexandra, 2009; FitzMedrud, 2008; Woszczyński, Roth, & Segars, 2002), *creativity* (e.g., Bishop & Chace, 1971; Ferland, 1997; Guitard et al., 2005; Knox, 1996; Truhon, 1983; Yarnal & Qian, 2011), *curiosity* (Barnett, 1991b; Guitard et al., 2005), *outgoing* and *sociable* (Barnett, 2007; Yarnal & Qian, 2011), *bright*, *active*, *aggressive*, and *confident* (Barnett, 1991b), and *open minded* (Yarnal & Qian, 2011).

The above literature provides information about the expressive features and personality correlates of playfulness. When defining playfulness, however, we recommend separating characteristics pertaining to overt behavioral concomitants, and as we proposed earlier, conceptualizing the playful trait exclusively in terms of inner dispositional qualities. Moreover, we recommend distinguishing essential qualities of playfulness from correlated personality characteristics to avoid corrupting the playfulness concept and jeopardizing its value as a distinctive construct for describing and explaining a unique set of phenomena (see Shen, 2010 for more discussions about constructs theoretically related to playfulness, e.g., creativity, humor, and self-as-entertainment). Examination of the diverse definitions of playfulness revealed considerable consensus around three characteristics: intrinsic motivation, freedom, and spontaneity. We offer an in-depth review of these concepts.

Intrinsic motivation is perhaps the most frequently identified attribute of playfulness, referring to the process-oriented quality in playful individuals who tend to focus on play itself rather than external outcomes that may be derived from play. In his classic analysis of play, Huizinga (1955), for example, emphasized the state of being devoid of “material interest” in the player (p. 13). Numerous researchers concur that players are self-motivated, concerned solely with the process and purpose inherent in play (e.g., Berlyne, 1960; Caillois, 1980; Hutt, 1970; Weisler & McCall, 1976).

Despite the general agreement on intrinsic motivation as an essential property of playfulness, Ellis (1973) argued that intrinsic motivation is too general because it also drives a broad set of behavior that is not necessarily playful (e.g., learning, exploration, competition, and work). Given our network conceptualization of trait (i.e., each component of a trait can function jointly with different sets of cognitions to produce different types of behavior), this “general” nature of intrinsic motivation does not pose a conceptual problem. Nevertheless, we believe that a specific form of intrinsic motivation can be identified to describe playfulness. In an analysis of different forms of positive affect in relation to various behavioral contexts, Podilchak (1991) noted that while other forms of positive affect (e.g., enjoyment, pleasure) are commonly experienced during play, *fun* is most characteristic of the active and intense affective experience in play. Similarly, Schaefer and Greenberg (1997) considered *fun-loving* as the most essential characteristic of playful individuals and developed a scale of playfulness centering on this very quality. Additionally, in a study of playfulness as a desirable trait in mate preference, Chick, Yarnal, and Purrington (2012) included fun-loving as a key quality characteristic of playful individuals. The above research suggests a way to fine-tune the intrinsically motivated aspect of playfulness by defining it around fun, the unique emotional outcome resulting from the trait. Accordingly, *fun-seeking*, as a specific form of intrinsic motivation, seems to provide a more precise term to capture the distinctive motive that defines playfulness.

Intrinsic motivation has been identified under different names, including joy, pleasure, fun, enjoyment, satisfaction and other positive affects that typically accompany play (e.g., Ferland,

1997; Glynn & Webster, 1992; Guitard et al., 2005; Liberman, 1977). Although the link between intrinsic motivation and positive affect is obvious, the two are not conceptually equivalent for three reasons: (a) intrinsic motivation initiates and sustains the pursuit of an activity for its own sake, but does not promise that positive affect will ensue; (b) intrinsic motivation can be a motivational style that remains relatively stable (Deci & Ryan, 2002), while positive affect is in essence emotional experiences associated with specific contexts; and (c) when we say “someone plays for fun” or “fun motivates someone to play,” we are referring to fun as a worthy goal or desirable outcome, the motivational forces that move the player still stem from the psychological quality residing within the person. Therefore it would be misleading to use intrinsic motivation and positive affect interchangeably while describing playfulness.

Freedom is another notion frequently retained in playfulness definitions, referring to the player’s mental state free of concerns about real-life consequences (e.g., Bishop & Chace, 1971; Bundy, 1993; Csikszentmihalyi, 1975; Ellis, 1973; Ferland, 1997; Olsen, 1981; Schwartzman, 1978). Neumann (1971), for instance, emphasized the freedom to suspend reality as one of the essential characteristics of play. We suggest that, in contrast to intrinsic motivation that *points toward* what is desired within play, freedom stems from the *disregard for* consequences external to play. Accordingly, the functioning of the two process-oriented qualities follows different mechanisms. Intrinsic motivation may be corroded if the fun source is removed, undermined, or superseded by external goals (e.g., rewards designed to elicit high performance may inadvertently reduce intrinsic motivation) and the perception of freedom may be breached if external constraints are imposed and cannot be successfully negotiated (e.g., negative expectations from others, expectant punishment or humiliation following poor performances may diminish the sense of freedom).

Freedom has been discussed primarily at the state level (i.e., the temporary free, uninhibited cognitive state that lends itself to experiments and random responses). Few playfulness researchers have extended inquiry to its underlying dispositional quality, here termed *uninhibitedness*, which may fuel the tendency to perceive more freedom and less constraint across life situations. Several relevant constructs are offered by social psychology theories. In self-determination theory (SDT), Deci and Ryan (1985, 2002) proposed various motivational orientations to describe individual differences in the tendency to orient toward environments. People with a higher level of *autonomy* tend to be less concerned with external environmental factors, which may lead to a stronger sense of freedom due to lower perceptions of outside constraint. Because SDT places a heavy emphasis on the awareness of the self and a sense of choice to act out one’s own will, it is instrumental to analyzing deliberate actions, but we do not know how well the theory applies to spontaneous behavior like play.

Another closely related construct is *self-monitoring*, referring to the ability and desire to regulate public expressiveness to fit the clues or requirements of the situation (Snyder, 1974). A high self-monitoring person monitors and adapts behavior to match the surroundings while a low self-monitor is inclined to rely on internal values and beliefs to guide behavior. It is likely that low self-monitors tend to perceive more freedom as a result of being less concerned with situational appropriateness. However, self-monitoring may not be conceptually equivalent to uninhibitedness because of its primary emphasis on behavioral regulation instead of the tendency to perceive freedom. Moreover, Snyder and Gangestad (2000) reported that the existing measure, the Self-monitoring Scale (Snyder, 1974), assesses several distinct concepts, rendering it a less likely candidate for the measure of uninhibitedness. We suggest that a valid measure of the uninhibited quality of playfulness should directly assess the cognitive detachment from con-

cerns about potentially constraining conventions, rules, or anticipated negative consequences in daily settings.

Spontaneity is most frequently identified as the quality that gives rise to the playful trait's unique, impulsive character. Csikszentmihalyi (1981) argued that at the core of playfulness is an attitude toward reality open to ambiguity and changes at any time. Harris (1981) noted that during play people alter their behavior out of whimsy in pursuit of more fun and Sutton-Smith (1976) compared players to "random generators" (p. 9). Spontaneity is inherently related to uninhibitedness, with the latter frequently creating an unconstrained mental state that allows spontaneity to be freely expressed. Like intrinsic motivation, spontaneity has been discussed under different terms too, including social and verbal flexibility (Knox, 1996), uncertainty and unpredictability (Henriot, 1969, cited in Guitard et al. 2005), informality (e.g., Shaefer & Greenberg, 1997), and liberty (Bishop & Chace, 1971).

Leiberman (1977) identified three levels of spontaneity—cognitive spontaneity, physical spontaneity, and social spontaneity—and conceived them as theoretically equal components of playfulness. Consistent with the latent dispositional view of trait, we maintain that we can gain greater conceptual clarity by focusing on the cognitive level of spontaneity when defining playfulness. As Piaget (1962, cited in Ellis, 1973) argued, play essentially takes place in the mind. Similarly, we believe that cognitive spontaneity is responsible for spontaneous expressions in physical behavior and social contexts that essentially amount to state manifestations of cognitive spontaneity.

Although spontaneity appears to be understood intuitively, it is not easy to define. The largest group of systematic studies of spontaneity are in psychotherapy, more specifically, psychodrama (e.g., Kipper & Christoforou, 2006; Kipper, Davelaar, & Herst, 2009; Kipper & Hundal, 2005). Moreno (1953, cited in Fox, 1987), one of the earliest psychologists who defined spontaneity as a mental disposition, stated that "spontaneity is a readiness...to respond" and "spontaneity propels a...response" (p. 42). This dispositional view was later replaced by a state view of spontaneity as a response when subsequent studies shifted the focus to spontaneity's behavioral expressions, presumably because studying the intangible underlying quality is difficult (Kipper & Hundal). This is an ill-advised conceptual mix that seemed to stem from a misunderstanding about the relationship between definition and measurement (or operationalization). As we will elaborate later, it is acceptable to infer a trait from its observable state manifestations, but the two are not to be confused at the conceptual level such that the trait is defined as a summary of states.

The concept of spontaneity in more recent psychodrama studies has evolved to include only a positive dimension because, as Kipper et al. (2009) stated, defining spontaneity as a neutral concept that conveys both positive (e.g., openness, honesty) and negative (e.g., uncontrolled, disregard to social boundaries) meanings makes it "a problematic clinical concept, one that lacks a clearer, one-sided meaning." (p. 229). The above *positive state* conceptualization has led to a definition of spontaneity as an "appropriate," "adequate," or "satisfactory" response to a situation (Kipper, 2007, cited in Kipper et al., 2009, p. 330). In this research, we use spontaneity in its original intuitive sense and define it as a mental propensity to give quick, prompt responses without deep thought or premeditation.

Measurement of Playfulness

Eight measures of playfulness are identified, including three designed to assess playfulness in children (Barnett, 1990; Bundy, et al., 2001; Lieberman, 1977), one in adolescents (Staempfli, 2005), three in adults (Glynn & Webster, 1992; O'Connell et al., 2000; Schaefer & Greenberg, 1997), and one in older adults (Yarnal & Qian, 2011). These instruments employ different con-

ceptual models with the exceptions of (a) the Playfulness Scale for Children (Lieberman, 1977) and the Children's Playfulness Scale (Barnett, 1990), both adopting Lieberman's (1965, 1977) five-component model, and (b) the Adolescent Playfulness Scale (Staempfli, 2005) and the Older Adult Playfulness Scale (Yarnal & Qian, 2011), both developed through a bottom-up inductive approach without a guiding theoretical model. In this section we evaluate the three measurements of adult playfulness.

The Playfulness Scale for Adults (PSA, Schaefer & Greenberg, 1997) consists of 28 items and five dimensions—*fun-loving*, *sense of humor*, *enjoys silliness*, *informal*, and *whimsical*—designed to measure “the tendency to engage in fun behaviors” among adults (p. 23). Supporting reliability evidence included high internal consistency (Schaefer & Greenberg) and test-retest reliability (Fix, 2003). Validity-wise, significant correlations were reported between the PSA and several theoretically related constructs, including humor (Schaefer & Greenburg), creativity (Fix, 2003), and the Big Five traits (Mixer, 2009). We caution, however, that the above evidence is dubious due to the authors' questionable use of the multidimensional PSA as a one-dimensional scale (more on this shortly). Most important, the PSA's validity is compromised by a weak conceptualization that narrowly focuses on only one aspect of playfulness, fun-seeking motivation. Its generalizability is also limited by the use of highly situation-specific behavioral indicators (e.g., “I would like a nerf basketball hoop in my bedroom” “I would rather go to Toys ‘R’ Us than browse the mall”).

Intended for studying playfulness in the workplace, the Adult Playfulness Scale (APS, Glynn & Webster, 1992) consists of 32 semantic differential pairs, many included for their ability to “differentiate play from work” (p. 86). Despite a theory-based playfulness conceptualization that encompassed “cognitive, affective, and behavioral components” being proposed (p. 85), the measurement was criticized as a major deviation from the above definition, raising serious questions about its construct validity (Guitard et al., 2005). The criterion for item selection—the ability to discriminate play from work—ignores the fact that playfulness, as a permeating trait, can function across the artificial boundary between play and work and extend to all life situations. Correspondingly, many scale items lack face validity and seem to assess different constructs variously related to playfulness (e.g., “calm-agitated,” “empty-full,” “emotional-intellectual,” and “competitive-cooperative”). Moreover, the developers reported a five-factor solution based on a subset of 25 items, which unsurprisingly failed to replicate in subsequent studies (Maxwell et al., 2005). Finally, the value of supporting reliability and validity evidence (Fix, 2003; Fix & Schaefer, 2005; Glynn & Webster, 1992, 1993) was unclear, again, due to the arguable use of the scale as unidimensional.

The Playfulness Scale (PS, O'Connell et al., 2000) is a three-item state measure⁵ developed as a subscale of a more global measure of telic/paratelic states, wherein *telic* or *serious* state refers to whether one is motivated by achievement and future goals and *paratelic* or *playful* state refers to whether one is motivated by the enjoyment of process in the moment (Cook, Gerkovich, Potocky, & O'Connell, 1993). This pair of states represents one of the four motivational domains identified in reversal theory that proposes that individuals regularly reverse between two opposition states (Apter, 2007). The authors reported acceptable internal consistency reliability but very limited empirical validation of the scale exists. Based on the PS's theoretical

⁵This measurement uses the summary trait approach. In this approach, the distinction between trait and state is largely temporal: the same personality test can be used to measure both states and traits by simply changing the instructions (e.g., “please describe how you feel/ behave now” to tap momentary state vs. “please describe how you usually feel/ behave” to tap general tendency).

definition and item make-up (“*feeling serious*” vs. “*feeling playful*,” “*wanting to do something important*” vs. “*wanting to do something frivolous*,” and “*trying to accomplish something*” vs. “*trying to have fun*”), we deduce that while capturing the process-oriented quality of playfulness to a certain degree, the PS may be overly simplistic and general by not probing deeply enough into the content of the playfulness construct.

Overall, existing adult playfulness measurements share a weak theoretical basis.⁶ Their construct validity suffers from either a relatively narrow conceptualization or poor fidelity when translating the definition to measurement. The conceptualizations behind all three adult playfulness scales do not differentiate inner dispositional qualities from overt behavior. By comparison, the practice of including both psychological and behavioral indicators in the item make-up is less of a problem. As Suen (in press) points out, it is acceptable to include observable indicators when developing a measurement for an intangible concept as long as the inferential leap from the observed score to the unobserved construct is justified. Methodologically, current playfulness scale development and validation studies often treat a multidimensional scale as one dimensional without testing for the existence of an overarching “playfulness” factor. According to Brown (2006), if a scale is multidimensional, then computing the reliability coefficient or composite scores for the entire scale is not meaningful because it results in interpretational ambiguities.

Guided by the latent network conceptualization of trait and centering on the three central characteristics of playfulness emergent from our review, we define playfulness as a personality trait that underlies the individual’s tendency to be intrinsically motivated, with a clear fun orientation, and to engage oneself spontaneously in an unconstrained manner. Specifically, the trait consists of three interconnected motivational and (nonmotivational) cognitive qualities: (a) a strong *fun-seeking motivation* that drives the individual to actively derive fun from his or her internal and/or external environment; (b) *uninhibitedness*, an ability to subdue potentially constraining situational factors and create a free, uninhibited mental state; and (c) *spontaneity*, a mental propensity to respond promptly without deep thought or premeditation. This model will guide the subsequent steps of scale development. Moreover, we hypothesize that the above three qualities intertwine and interact with each other to form a relatively stable network that defines the individual’s level of playfulness. This hypothesis will be tested by examining correlations among the three (sub-)dimensions and the existence of a general dimension (i.e., the overarching playfulness factor), which essentially specifies a two-level hierarchical construct model.

Methods

We employed a multimethod design and conducted four studies to develop a measurement of adult playfulness as defined above. Two focus groups were first conducted to explore lay people’s views on playfulness. These data were analyzed in relation to existing literature to provide a basis for initial item generation. Two studies—expert review and conceptual back-translation—were conducted to conceptually evaluate initial items, followed by empirical evaluation via two

⁶The same problem existed to a larger degree in measurement studies that took a bottom-up inductive approach, which is predominantly data-driven in the absence of a clear theoretical framework prior to the scale development (e.g., Staempfli, 2005; Yarnal & Qian, 2011). This approach is prone to the problem of garbage in, garbage out (GIGO). Given the intrinsically correlated nature of constructs in social sciences, nomological “validity” evidence offered by this type of studies is of little value and at most amounts to a correlation matrix of a hodge-podge of measures.

survey studies. These permitted the selection of best-performing items to form the final scale and examine its psychometric properties. Presented here are the methods of the above studies, except for the second survey study, which is reported in Shen, Chick, and Zinn (in print).

Focus Groups

The purpose of the focus group (FG) study was to explore the concept and characteristics of adult playfulness from lay people's perspectives and collect part of the data that would facilitate initial scale item generation. The existing literature on playfulness has primarily centered on scholars' theoretical reasoning or personal insights. We feel that more input from outside academia is needed. This FG study was useful in filling the blank, as the unique group dynamic afforded by focus groups made it possible to create a cueing context that helped extract opinions/emotions that people do not express or articulate frequently (Crabtree, Yanoshik, Miller, & O'Connor, 1993). People typically do not analyze their own psychological state during spontaneous playful behavior. In a group discussion, however, hearing others talk about playful experiences may trigger people's memory and make them more aware of their own thoughts and feelings during play (Morgan & Krueger, 1993).

Two groups that consisted of 5 and 9⁷ volunteer participants, respectively, were recruited from undergraduate students, graduate students, and visiting scholars from social science departments at a large northeastern university. The sample ranged in age from 22 to 40 years, with approximately equal numbers of males and females. Guided by a semi-structured protocol, the two focus groups (FG) discussed defining qualities of playfulness, characteristic cognitive and behavioral indicators of playfulness in adults, and two other topics included as part of a larger study. Each session was tape-recorded and lasted about 90 minutes. A total of eight single-spaced pages of abridged notes were developed shortly after the two sessions. We chose this format of transcription because the key task at this step was to identify important ideas and experiences, which could be best facilitated by transcribing and analyzing "only those comments that will be useful in analysis" (Krueger & Casey, 2009). We then content analyzed the abridged notes using the proposed playfulness definition as an organizing frame. Theoretical saturation was achieved as indicated by reoccurring themes from the second session (Bluff, 1997; Morse 1995).

The FG data confirmed the three proposed (sub-)dimensions. An iterative examination of the notes and existing literature led to the elaboration of four subdimensions under the fun-seeking motivation, including *fun belief*, believing in the value of fun in life; *initiative*, actively creating fun activities; *reactivity*, being responsive to fun stimuli; and *consciousness*, knowingly choosing a light-hearted approach to life events (Csikszentmihalyi, 1981; Shen, 2010). This elaborated definition expanded the proposed two-level construct to a three-level one and was used as the operational definition to guide the initial item generation.

Items in the form of statements were derived from the FG notes and literature to assess each proposed (sub-)dimension. Careful considerations were paid to (a) basic face validity (i.e., each item appeared to assess the construct that it purported to measure); (b) content validity (i.e., each subset of items has adequate breadth to ensure proper coverage of the corresponding [sub-]dimension's content domain); and (c) sufficient length (i.e., multiple [3-4] versions were developed for each item to provide a comfortable margin for selecting an optimum combination of items in subsequent steps). A total of 73 items were developed and submitted for the following two-step conceptual evaluation.

⁷Krueger and Casey (2009) recommended that the ideal size of a focus group for most noncommercial topics is 6-8.

Expert Review

The primary purpose of the expert review was to have an independent panel of experts to evaluate the entire conceptualization and rate the quality of initial items developed from the FG study. Following the general procedure suggested by Morey (2003), we collected expert opinions using a format resembling the Delphi technique (without iterations) wherein the first author acted as a monitor through which all communications were exchanged via e-mail. This method has the advantages of being flexible (e.g., experts can respond at their own convenience) and cost-efficient compared to other group communication techniques (e.g., face-to-face panel discussion, conference telephone call). Anonymity was assured when structuring the communication process (i.e., responses from individual experts were summarized, sources not revealed, before shared with the group) in order to reserve greatest individuality and avoid domination by quantity or strength of personality (i.e., bandwagon effect, Linston & Turoff, 2010).

We invited 11 experts in play/playfulness research, some also experienced in scale development. The entire review process lasted two months. Eight experts consented to participate and provided feedback in three major areas: (1) the overall conceptualization of playfulness; (2) the face validity of initial items, content validity of each subset of items, and potential language bias; and (3) technical issues related to scaling (item ordering, scale format). The proposed latent network trait conceptualization was generally confirmed. Based on the experts' specific feedback, items were reworded, added, or removed to improve face validity and content validity while striving for a balance between adequacy and parsimony. Thirty two items were retained, each (sub-)dimension assessed by 5 to 7 items, and subjected to the second step of conceptual evaluation: back-translation.

Conceptual Back-Translation

The purpose of conceptual back-translation was to further evaluate the 32 items resulting from expert review. Back-translation or retranslation in scale construction shares a similar idea and procedures with back-translation in cross-cultural research wherein translated materials are retranslated into the original language by independent translator(s) to ensure accuracy (Smith & Kendall, 1963). In this research, back-translation was performed by asking independent judges to assign items back to the conceptual category they purported to assess to ensure face validity.

Two graduate students familiar with play/playfulness theories but not involved in item writing were recruited from the same university to serve as independent judges. All 32 items were randomly ordered before they were presented to judges. Only items that survived the back-translation would be retained. Where "misallocation" occurred, judges were inquired about their reasons, followed by a discussion of ways to rephrase the item. One judge assigned all items back to the construct that they were designed to measure. The other judge misallocated one item and suggested potential ambiguity in two others. After deliberation with the two judges, we slightly reworded the three items in question to improve their face validity. One item was reassigned and no item was eliminated. The revised 32 items formed the preliminary Adult Playfulness Trait Scale (P-APTS), each (sub-)dimension assessed by 4 to 7 items, and submitted for the subsequent empirical evaluation through a survey study.

Survey Study

The purpose of this study was to collect quantitative data for evaluating preliminary items and selecting best-performing items for the APTS. The survey also provided data for evaluating the psychometric properties of the APTS (e.g., dimensionality, reliabilities, and validity), most of which are reported in Shen et al. (in print).⁸

⁸This paper reported evidence that supported the APTS' predictive validity, concurrent validity, and convergent validity.

Participants

Adult participants (18 years or older) were recruited from (a) subscribers to the Staff/ Faculty Newswire at the above-mentioned university, (b) members of a local historical society, and (c) people on the first author's private mail-list. A total of 473 adults participated in the survey. The effective sample size for different sets of variables varied due to missing responses from attrition and skipping. High missing rates (34.6%-37.6%) existed for socio-demographic variables surveyed at the end of the questionnaire. Among the respondents who provided demographic information, the majority were female (49.6% vs. 15.2% males⁹), white (57.4%) and educated (over 50% had a bachelors or higher degree), with an average age of 40.7 years and household income between \$15,000 and \$74,999.

Procedure

A 15–25 minute on-line survey was set up using SurveyMonkey® and remained open for five weeks. Volunteer participants were recruited through a solicitation published on the above-mentioned Newswire or an email sent through corresponding mailing lists.

Measures

The 32 P-APTS items were randomly ordered using seven-point Likert-type scales with all points labeled (1= *strongly disagree*, 7= *strongly agree*). The questionnaire also included extensive questions designed to assess the scale's validity (to be reported in Shen et al., in print).

Data Analysis Strategies

Data Preparation

A dataset that contained the 32 P-APTS variables was first created. A quick inspection of the dataset suggested a deviation from normal distribution and a small to moderate number of missing responses (1 to 56 per variable). In order to compensate for item non-responses and produce unbiased parameter estimates, we handled the missing data with the imputation by matching method (Jöreskog, 2002) in PRELIS, a data processing function in LISREL 8.72. This method imputes values on specified variables based on the missing pattern of matching variables. It does not require missing at random (MAR) and is appropriate for ordinal variables and non-normally distributed data. The effective sample size after imputation was 437, with the number of missing values per variable ranging from 1 to 18.

Item Selection

We first conducted exploratory factor analysis (EFA, oblique rotation, principal axis factoring)¹⁰ of the imputed dataset in SPSS 16.0. The primary purpose of this step was to examine the properties of preliminary items and select best-performing items. In the meanwhile, the pattern of factor loadings was examined to see if proposed (sub-)dimensions were supported by the data.

⁹We recommend against assuming strong sex bias based on these numbers because no information is available for inferring the gender composition of the remaining 35.2% missing responses. Moreover, existing research demonstrates that the sex composition of online survey samples is usually relatively balanced and compares favorably to traditional paper-and-pencil personality research, which shows a strong female bias (Fraleigh, 2007).

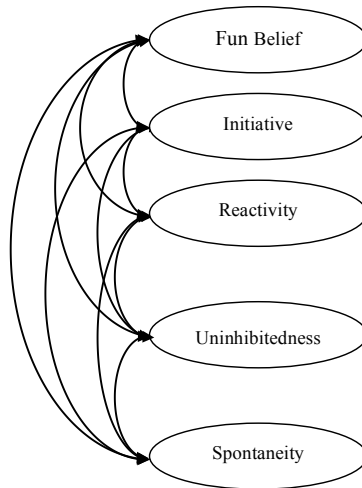
¹⁰Principal axis factoring, (a.k.a. principal factor analysis or common factor analysis) is a correlation-focused approach seeking to reproduce the inter-correlations among variables. It is generally preferred when the research purpose is detecting data structure (i.e., latent constructs or factors) or causal modeling, as opposed to another commonly used method, principal components analysis, a variance-focused approach aimed at data reduction (Brown, 2006).

In initial diagnostics, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were used to see if the data were likely to factor well based on the correlation matrix. Provided satisfactory sample adequacy, items would be evaluated and selected based on factor loadings and reliability estimates. Ambiguous items with high cross-loadings ($> .30$) or a low loading ($< .40$) on the primary factor were removed (Brown, 2006). The number of factors was determined based on three criteria: (a) Kaiser criterion, i.e., keeping only factors with an eigenvalue above 1.0; (b) comprehensibility, i.e., selecting a solution with clearly comprehensible factors; and (c) reasonable residual correlation matrix, i.e., reasonably small differences between the reproduced correlations and actual correlations (Brown, 2006).

APTS Model Testing

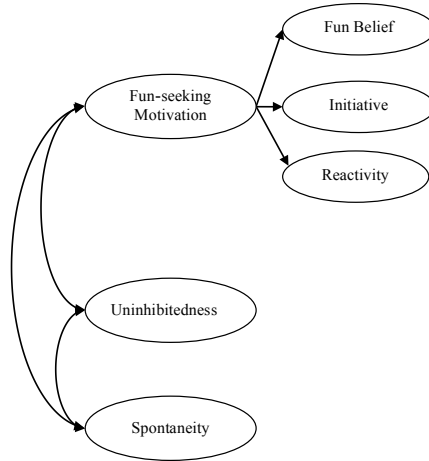
Items and factors resulted from the EFA were further evaluated in LISREL 8.72 through confirmatory factor analyses (CFA). Specifically, in order to test the hypothesized three-level construct structure, we conducted higher-order CFA, a theory-driven procedure that "imposes a more parsimonious structure to account for the interrelationships among factors" (Brown, 2006, p. 320). The analysis included four steps: (1) developing a well-behaved (i.e., good-fitting, conceptually valid) first-order CFA solution that allows the correlations among the factors to be freely estimated (Figure 1, a); (2) inspecting the magnitude and pattern of correlations among factors in the first-order solution for evidence of the empirical feasibility of the higher-order model (i.e., the factors explained by a common overarching factor are more highly interrelated than any of them is with other factors); (3) fitting the second-order factor model (Figure 1, b) as justified on conceptual and empirical grounds; and (4) proceeding to the third order (Figure 1, c) and beyond if it is desired (Brown, 2006).

Robust Maximum Likelihood estimators (MLM) were used in the above analysis with input variance matrix and asymptotic covariance matrix generated by PRELIS. MLM provides parameter estimates with standard errors and a mean-adjusted χ^2 test statistic, often referred to as the

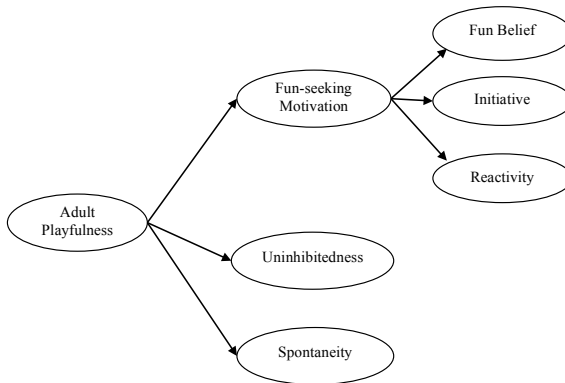


(a) The First-order APTS Conceptual Model

Figure 1. Hierarchical Conceptual Models of APTS (cont.)



(b) The Second-order APTS Conceptual Model



(c) The Third-order APTS Conceptual Model

Figure 1. Hierarchical Conceptual Models of APTS

Satorra-Bentler Scaled χ^2 (SB χ^2 ; Satorra & Bentler, 1994), which are robust to non-normality. Following Hu and Bentler's (1999) two-index strategy (i.e., reporting standardized root mean square residual or SRMR along with one of the other fit indices) and suggestions from others (e.g., Brown, 2006; Lei & Wu, 2007; Kline, 2005), we used four fit indices to evaluate model fit: SB χ^2 ,¹¹ SRMR, Normed Fit Index (NFI), and Comparative Fit Index (CFI). Lei and Wu (2007) noted that high values (in the .90s or more recently $\geq .95$) of NFI/CFI and low values of SRMR ($< .08$ or more liberal $< .1$) are generally accepted as indications of good fit. Changes in SB χ^2

¹¹The more commonly reported χ^2 fit index is sensitive to violations of the multivariate normality assumption, thus is not used here (Satorra & Bentler, 2001).

(SB $\Delta\chi^2$) was used to compare model fit. A small, non-significant SB $\Delta\chi^2$ value indicates that the higher order model does not produce a significant degradation in fit relative to the first-order solution. Reliabilities (internal consistency) of the entire APTS (if applicable) and its subscales were estimated using the Cronbach's α .

Results

EFA Results

The KMO measure (.85) and Bartlett's tests ($\chi^2 = 3443.632$, $p < .001$) indicated sample adequacy. The pattern of factor loadings, correlations (item-total correlations and residual correlation matrix), and reliability estimates supported the retention of 19 items, explained by five clearly interpretable factors: *fun belief*, *initiative*, *reactivity*, *uninhibitedness*, and *spontaneity*. The pattern was generally consistent with the proposed factor-item relationships with the exception of the hypothesized subdimension *Consciousness*, which failed to emerge after eliminating related items with high cross-loadings (>.3). Table 1 presents the basic descriptive information of the 19 items included in the final scale.

Higher-Order CFA Results

The first-order model that included the retained 19 items fit the data well (Table 2). An inspection of the factor correlation matrix (Table 3) suggested that the three factors hypothesized to fall under fun-seeking motivation (i.e., fun belief, initiative, and reactivity) correlated with each other more strongly ($r = 0.51$ to 0.68 , highlighted in bold, Table 3) than any of them correlated with the other two factors (i.e., uninhibitedness and spontaneity, $r = 0.34$ to 0.45), supporting empirical feasibility of higher-order models. Moreover, the correlations between the five first-order factors are smaller than .80, indicating good discriminant validity of these latent factors (i.e., each factor measures a distinct aspect of the playfulness construct, Brown, 2006).

Results from higher-order model testing suggested that both the second-order model and the third-order model fit the data well (Table 2). In particular, the third-order model presented a more parsimonious solution by using one overarching factor and a smaller set of higher-order factor loadings to account for multiple factor correlations in the first-order model without significantly degrading the model fit (compared to the first-order model, SB $\Delta\chi^2 = .005$, $\Delta df = 4$, $p > .5$). This result supported the proposed three-level construct structure of playfulness and indicated good structural validity of the new scale. Figure 2 presents factor loadings (complete standardized solution) and reliability estimates of the third-order model.

Discussion and Conclusions

In this research, we developed a self-report measurement of adult playfulness guided by a theory-based conceptualization of the construct. An extensive literature review helped us clarify the conceptual framework for studying playfulness as a personality trait and delimit its content domain. Data from two focus groups substantiated our initial conceptualization by identifying additional subdimensions and characteristic cognitive and behavioral indicators for initial item generation. The subsequent systematic conceptual and empirical evaluation led to the development of a 19-item final scale.

¹²May be obtained by (a) estimating the corresponding factor score or (b) summing/(c) averaging across the entire set of items. Note that (a) accounts for relative weights of subscales. In (b), the relative weight of each subscale is affected by its number of items. (c) assumes equal weight of all subscales.

Table 1
Basic Descriptive Information of the 19 APTS Items

Dimension	Items	Min.	Max.	Mean	SD
Fun Belief	FB1. I believe in having a good time.	1	7	6.15	0.90
	FB2. I think fun is a very important part in life.	1	7	6.32	0.83
Initiative	I1. I try to have fun no matter what I am doing.	1	7	5.68	1.15
	I2. I am often the person who starts fun things in a situation.	1	7	4.27	1.40
	I3. I can make almost any activity fun for me to do.	1	7	4.71	1.32
	I4. I can find fun in most situations.	1	7	5.19	1.10
Reactivity	R1. I appreciate fun things started by others	1	7	5.75	1.03
	R2. When someone else starts something that is fun, I'm happy to follow along.	1	7	5.49	1.04
	R3. I enjoy fun activities that others people initiate.	1	7	5.64	0.97
Uninhibited-ness	U1. I understand social rules but most of the time I am not restricted by them.	1	7	3.85	1.59
	U2. I don't always follow rules	1	7	4.24	1.71
	U3. Sometimes I can do things without worrying about consequences.	1	7	3.88	1.74
	U4. If I want to do something, I usually don't let what other people may think stop me.	1	7	4.81	1.49
	U5. I don't fear losing anything by being silly.	1	7	4.37	1.60
Spontaneity	S1. I often do things on the spur of the moment.	1	7	4.48	1.56
	S2. I often do unplanned things.	1	7	4.65	1.63
	S3. I often act upon my impulses.	1	7	4.45	1.43
	S4. I often pursue my spur-of-the-moment THOUGHTS.	1	7	4.53	1.39
	S5. I often follow my spur-of-the-moment FEELINGS.	1	7	4.30	1.40

Note: Min., minimum value; Max., maximum value; SD, standard deviation

Table 2
Goodness-of-Fit of Three APTS Hierarchical Models

Model	Normal theory						
	WLR χ^2	SB χ^2	<i>df</i>	SB $\Delta\chi^2$ ^a	SRMR	NFI	CFI
1 st order model	974.926***	5.465	142	--	.077	.999	1.000
2 nd order model	997.701***	5.207	147	.040	.097	.999	1.000
3 rd order model	978.318***	5.111	146	.005	.087	.999	1.000

Note: Normal theory WLR χ^2 , Normal Theory Weighted Least Squares Chi-Square; SB χ^2 , Satorra-Bentler Scaled Chi-Square; *df*, degree of freedom; SB $\Delta\chi^2$, change of SB χ^2 compared to the base model, i.e., the 1st order model; SRMR, standardized root mean square residual; NFI, Normed Fit Index; CFI, Comparative Fit Index

^a Calculated manually following the procedures suggested by Satorra & Bentler (2001).

*** $p < .001$

Table 3

Correlation Matrix of First-Order APTS Factors

	Fun Belief	Initiative	Reactivity	Uninhibitedness	Spontaneity
Fun Belief	1.00				
Initiative	0.65	1.00			
Reactivity	0.68	0.51	1.00		
Uninhibitedness	0.45	0.34	0.35	1.00	
Spontaneity	0.45	0.34	0.35	0.74	1.00

Note: All correlations are significant at the .01 level.

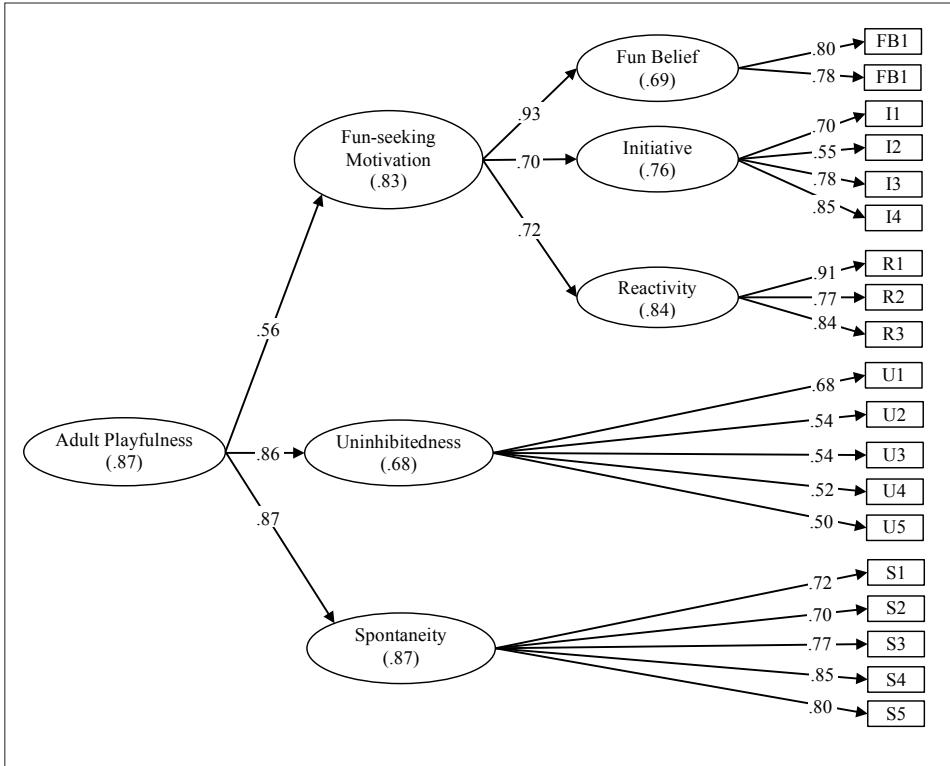


Figure 2. Factor Loadings and Reliabilities (in parentheses) of the Third-Order APTS Model

The resultant APTS consists of three subdimensions: fun-seeking motivation, uninhibitedness, and spontaneity, wherein fun-seeking motivation includes three subdimensions: fun belief, initiative, and reactivity. Aside from adequate face validity and content validity established through multiple steps of conceptual evaluation, initial corroborative evidence was found for the scale’s reliability and structural validity. In particular, the proposed hierarchical construct structure was confirmed, which supports the interpretation of a general “playfulness” factor underlying all subscales (i.e., unidimensionality of the APTS). There-

fore when applying the APTS, it is meaningful to compute not only separate scores for each playfulness subdimension, but also a composite “playfulness” score for the entire scale.¹²

This notion is important given the wide-spread use of multi-index measurement in this field and the broader social science. As mentioned in our review, a common misleading practice is to treat a multidimensional measurement as if it is unidimensional without verifying the existence of an overarching dimension. This type of practice, including summing or averaging item scores across dimensions into a single composite score (which compares to combining oranges and apples) and correlating it with a criterion variable, may lead to ambiguous interpretation of the relationships among constructs (DeVellis, 2003, Brown, 2006).

The patterns of correlations among the playfulness subdimensions indicate that these components are distinct yet interrelated ($r = .34$ to $.74$). At the second-order level, fun-seeking motivation serves as a driving engine, providing oriented momentum behind every playful attempt. Uninhibitedness ensures a free cognitive context that sets the mental stage for pursuing fun. By quickly responding to the above two process-oriented qualities, spontaneity gives the playful trait its unique, spur-of-the-moment whimsical form. It is worth noting that the above three qualities do not always coexist (e.g., a fun-loving person is not necessarily uninhibited or spontaneous, and vice versa). Moreover, both logical deductions and lay observations suggest that each quality, if examined individually, may be observed in non-playful individuals (e.g., a fun-loving person is not necessarily playful. Similarly, someone can be uninhibited or spontaneous without being playful). In other words, possessing any one or two of the above qualities does not guarantee a playful trait. Only when all three qualities are abundantly present within an individual, there is a good chance to observe a playful person. This is consistent with our latent network conceptualization, which dictates that each component of a trait network contributes a necessary but insufficient subdimension to the trait. Together, they jointly define a trait.

Similarly, the three fun-seeking motivation subdimensions uncovered in this research suggest three indispensable and closely intertwined qualities that determine the intrinsically motivated aspect of playfulness. A person with a strong drive for fun not only cognitively places great value in fun as an important aspect of life, but also actively creates and responds to fun stimuli across life situations. Notably, the hypothesized subdimension consciousness did not emerge from our data. The initial inclusion of this concept was based on Csikszentmihalyi's (1981) proposition that awareness of alternative goals or rules and the ability to actively construct reality during play define adult playfulness. The high cross-loadings of preliminary consciousness items suggest that consciousness may conceptually overlap with the other three subdimensions under fun-seeking motivation. Alternatively, consciousness may not be a constituent component of adult playfulness, in which case, factor analysis could not create a valid dimension since none existed in the input data (please refer to Shen, 2010 for discussions about controversies surrounding this notion).

Theoretically, by focusing on inner dispositional qualities and excluding behavioral and affective expressions from the trait concept, we offer a playfulness construct that can be logically used to predict and explain behavior. Such a conceptualization provides a solution for the circular reasoning fallacy and conceptual confusion created by the dominant summary view of the trait concept. Moreover, the conceptual and measurement tools offered by this research can be easily incorporated into the interactionist framework, in which researchers are equipped to move beyond correlational designs to experimental or quasi-experimental designs that address important “why?” and “so what?” questions related to playfulness. Examples of research focusing on the playful trait-environment interactions include examining how individuals with different levels of playfulness perceive and react to the same situation differently (or more precisely,

whether individuals with the same overall playfulness score but different APTS subscale scores interact with environment differently), investigating if (and how) situational factors influence the functioning or expression of playfulness, and studying the short-term and long-term effects of environmental changes related to playfulness. Findings from this line of research may inform high-impact interventions aimed to induce or suppress playful behavior, depending on the goal of the intervention (e.g., inducing playfulness in group therapy to increase spontaneous interactions among members, or discouraging playfulness in research labs or hospital operation rooms to reduce distraction for consequential experiments).

Although the APTS was developed with a normal adult population in mind, we believe the guiding conceptualization, with its emphasis on internal cognitive qualities, applies to other populations (e.g., children, specially challenged individuals). An emerging tradition in this field is to study playfulness in different age groups separately. We believe such a practice is useful given the distinctive trait-related behaviors and research implications associated with each age group (e.g., older women may find it easier to relax and have a good time when connected with other women; accordingly, researchers may suggest using social contexts to encourage playful behavior for this particular group). That said, we maintain that it would be inappropriate to propose a separate playfulness conceptualization for each group. As Shen (2010) noted, “developmental stages are simply one of many dimensions (e.g., gender, culture, education, and occupation) along which a wide spectrum of playful expressions may exist” (p. 15). Proposing a distinct definition for each group defined by the above parameters is not much different than suggesting a different playfulness concept for each individual on the basis of individual differences in playful expressions, which is obviously senseless. We suggest that focusing on the underlying dispositional qualities can help us identify the connections between seemingly different play phenomena across diverse groups. The current fragmented theorization and empirical research about playfulness can benefit from a parsimonious conceptualization that captures the essential elements of playfulness common to different populations.

On the measurement level, notice that the APTS includes behavioral indicators. This should not be interpreted as contradictory to the latent disposition view of trait. As noted in our review, during operationalization, it is common to make inferential leaps by using observable behavioral indicators to infer abstract constructs. In fact, such a practice is an integral part of scale development and justifying inferential leaps lies at the heart of all sorts of scale validation that examine, from various angles, the same question: Does an indicator/scale measure what it claims to measure? To reiterate, including behavioral indicators in a trait measure is legitimate, but it does not negate the necessity and importance to make clear trait-state distinctions at the conceptual level. Trait-state distinction is a longstanding, central tenet in personality research, and failing to make the distinction in playfulness research has led to tremendous conceptual confusion and miscategorizations.

It is desirable and sometimes necessary to develop a tailored instrument that (a) embodies the same conceptualization but taps the unique behavioral or affective indicators of a specific population and (b) accommodates group-specific characteristics that may affect assessment (e.g., the ability to read). Modifications may be warranted when applying the APTS to other populations (e.g., developing observational scales or replacing statements with pictures for children). The bottom line is, an instrument’s external validity (i.e., the degree to which it applies to different populations) depends on the extent to which it comprises group-specific indicators. We have deliberately avoided including such indicators during scale development to maximize its generalizability. Nevertheless, the results from this research may be limited by the study samples which consisted of a possibly large number of well-educated participants (among the near 2/3

participants who provided sociodemographic information, over 50% had a bachelor's degree or higher degree). We invite interested researchers to use the APTS in future playfulness studies, therefore providing continual validation of its internal and external validity.

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