Convergent Validity of the Engagement in Meaningful Activities Survey in a College Sample

By

Aaron M. Eakman

Aaron M. Eakman, PhD, OTR, Assistant Professor, Department of Occupational Therapy, Colorado State University, Fort Collins, Colorado, USA

Correspondence to:
aaron.eakman@colostate.edu

Key Words:

self determination, boredom, depression, human activities, psychometrics

Abstract

The Engagement in Meaningful Activities Survey (EMAS) (Goldberg, Brintnell, & Goldberg, 2002) demonstrated sufficient psychometric properties in sample (N = 122) of adults. The EMAS was found to have adequate test-retest (r = .71) and internal consistency reliability (α = .88), significant positive correlations between the EMAS and the subscales of the Basic Psychological Needs Scale and the Sources of Meaning Profile and negative zero-order correlations were found with short form versions of the Boredom Proneness Scale and the Depression, Anxiety and Stress Scales. Step-wise multiple regression analyses results showed the Sources of Meaning Profile, Boredom Proneness Scale, and Competence subscale of the Basic Psychological Needs scale best predicted the EMAS. These results lend additional construct validity evidence in support of the EMAS as a brief measure of meaningful activity participation.

Convergent Validity of the Engagement in Meaningful Activities Survey

Occupational therapy utilizes therapeutic occupation which is founded upon the use of purposeful activity, defined as, "…goal-directed behaviors or tasks…that the individual considers meaningful" (Hinojosa & Kramer, 1997, pg. 865). However, there is limited agreement regarding either the conceptualization or definition of what may be construed as "meaningful," thereby slowing knowledge growth for the profession. Hammell (2004) has asserted that occupational therapy has privileged goal-oriented purposeful occupations despite a lack of substantive evidence. Further, she argues that differing perspectives on activity purpose and meaning have hampered theory development in occupational therapy. As an example, Nelson (1988, 1996) has posited the critical importance of interpreting meaning from an occupational form as a basis for establishing the purpose of a given activity. However, Trombly (1995) has suggested that activity meaning is necessarily informed by its purpose and the perceived value of task accomplishment. According to Trombly, an activity with a clear therapeutic purpose may have no inherent meaning to an individual. Though Fisher (1998) had attempted to reconcile this discrepancy, empirical data explicating the differential functioning of activity meaning and purpose are limited (Ferguson & Trombly, 1997).

More recent perspectives in occupational therapy and occupational science contextualize meaningful activity within the life-course, and tend to favor sociocultural and phenomenological approaches to understanding human experience. For instance, Crabtree (1998) speculated that intrinsic motivation drives occupational performance, thereby imbuing activity with meaning. Additionally, Jackson, Carlson, Mandel, Zemke, and Clark (1998) support the importance of accessing personal values and experiences as critical constituents of activity meaning (i.e., Csikszentmihalyi, 1990; Kaufman, 1986; Schultz & Heckhausen, 1996). Further, Christiansen

(1999) proposed that competence, personal identity, and the social nature of a person's life serve to situate activity meaning within the life course thereby contributing to a sense of life purpose and meaning. Finally, attributing meaning to activity is considered to be dynamic and changeable, necessitating narrative and sociocultural perspectives to explain the complexity of the underlying processes (Jonsson & Josephsson, 2005).

By incorporating multiple theories from the fields of occupational therapy, nursing, social work, and psychology King (2004) has proffered a meta-model of meaning in life which includes three interrelated concepts: belonging, doing, and understanding self and world. According to King, belonging, doing, and understanding are three universal modes for acquiring meaning that operate at three interacting levels: 1) the micro level of experience and perception, 2) the middle level at which persons experience everyday events (the phenomenological level), and 3) the macro level of meaning in life. Deci and Ryan's (1985, 2002) perspective on self-determination (intrinsic motivation) is an example of the micro level of experience in which three basic psychological needs, interpersonal relatedness (belonging), competence (doing), and autonomy (understanding) are proposed to operate. This perspective on activity meaning is consistent with Hammell (2004) who had asserted a needs-based model of belonging, doing, being, and becoming built upon the work of Wilcock (1998).

It is evident from this brief review that substantial change has occurred regarding how activity meaning may be conceptualized. However, there remains a great need to substantiate the veridicality of extant propositions and models of activity meaning in occupational therapy and occupational science. Furthermore, given the present understanding that activity meaning is a dynamic process (Jonsson & Josephsson, 2005) it is essential that research methods be sensitive

to factors that might influence shifts in activity meaning over time. Critical to this end are measures that validly assess the construct of meaningful activity participation.

The Engagement in Meaningful Activities Survey (EMAS) (Goldberg et al., 2002) was used in the present study as a measure of meaningful activity. The items within the EMAS reflect a broad conceptualization of meaning, including the perceived capacity of one's activities to be congruent with one's value system and needs, provide evidence of competence and mastery, and have value in one's social and cultural group. In a sample of persons with persistent mental illness, the EMAS demonstrated adequate test-retest reliability and a low positive relationship with life satisfaction (Goldberg et al.). Scores for the EMAS have also been shown to vary as a function of pet ownership for persons with serious mental illnesses (Zimolag & Krupa, 2009). In a study involving older adults (Eakman, Carlson, & Clark, in press) convergent validity was evidenced by significant correlations between the EMAS and measures of meaning and purpose in life, depressive symptomology, life satisfaction, and health-related quality of life. Despite initial psychometric evidence supporting the EMAS additional validity studies are warranted (Pedhazur & Schmelkin, 1991; Streiner & Norman, 2003).

The purpose of this study was to evaluate the convergent validity of the EMAS, a scale intended to reflect the construct of meaningful activity. A range of constructs were included in the present study to provide a nomological net within which to test the EMAS (Cronbach & Meehl, 1955). Drawing from the models of meaning proposed by King (2004) and Hammell (2004) it was hypothesized that the EMAS would be associated with needs-based intrinsic motivation incorporating aspects of belonging, doing, and self-understanding. It was also believed that an association would be found with life meaning given the intimate relationship shared with meaningful activity (F. Clark et al., 1991; Hasselkus, 2002; Wilcock, 1998). Finally,

given that negative affect tends to be associated with a loss of meaning and life purpose (Klinger, 1977; Zika & Chamberlain, 1992) it was hypothesized that the EMAS would demonstrate inverse relationships with depression, anxiety and stress.

Lastly, the construct of boredom was considered to be a promising perspective from which to evaluate the validity of the EMAS. A number of factors support this approach. First, boredom represents aspects of experience that may be considered antithetical to meaningful activity because of an absence of flow (Csikszentmihalyi, 1990), lack of stimulating activities and social experiences (Mikulas & Vodonovich, 1993), lack of clear or achievable goals (Bracke, Bruynooghe, & Verhaeghe, 2006) and perceived meaninglessness in activities (Barbalet, 1999). Second, boredom is receiving increased attention in occupational therapy and occupational science as a legitimate area for theoretical inquiry and a basis for treatment (Corvinelli, 2005, 2007; Farnsworth, 1998; Long, 2004). Finally, boredom, its antecedents and effects are highly salient issues for students engaged in college education (Belton & Priyadharshini, 2007; Pekrun, Goetz, Titz, & Perry, 2002).

Boredom has been associated with a variety of indicators that reflect aspects of meaningful activity engagement. Low levels of boredom have been associated with active volunteerism, internalized work values, flow, a sense of autonomy, a sense of purpose and positive interpersonal relationships, and job satisfaction (Farmer & Sundberg, 1986; Harris, 2000; Kass, Vodonovich, & Callander, 2001; Vodanovich, Weddle, & Piotrowski, 1997; Watt & Vodanovich, 1999; Weinstein, Xie, & Cleanthous, 1995), whereas higher levels of boredom were associated with inactivity or engagement in tasks that were repetitious, without intrinsic value and lacking clear end goals (Bracke et al., 2006; McGiboney & Carter, 1988). Qualitative reports have associated the experience of boredom with a lack of the following: commitments,

social stimulation, just-right challenge, or developed skills (Harris, 2000; Martin, Sadlo, & Stew, 2006). Further, it has been recognized that boredom may be experienced despite personal commitment to highly valued activities (Corvinelli, 2007). That is, though boredom and meaningful activity are related they represent distinct constructs. Given this brief review it is reasonable to suggest a negative relationship exists between meaningful activity and boredom.

Therefore, it was hypothesized that meaningful activity as measured by the EMAS would be: 1) positively associated with needs-based intrinsic motivation and life meaning; and 2) negatively associated with negative affect (e.g., anxiety) and boredom. Also, this study addressed the following questions: 1) which demographic, negative affect, and meaning-related variables best predict the EMAS? 2) does a relationship exist between changes in boredom and meaningful activity over time?

Method

Participants and Testing Procedures

A total of 122 surveys were completed by students enrolled at Idaho State University during March and April, 2009 following approval of the University Human Subjects Committee. To be included in the study participants were enrolled at the university and 18 years of age or older; there were no exclusion criteria. Personalized email invitations were sent to randomly selected students, followed by two reminder emails sent within a one-week timeframe. Participants were provided a link to a web-based survey hosted by Survey Monkey. Informed consent was established and participants completed one of five versions of randomly ordered survey instruments. Upon completion, participants were sent a $10 electronic gift certificate for Amazon.com and entered into a lottery for a $100 electronic gift certificate. A total of 700 study invitations were sent out, 141 surveys were initiated and 122 were completed resulting in a

17.9% survey response rate (122 / [700 - 19]). Approximately one to two weeks following completion of the survey, participants were sent an email invitation to complete select instruments (EMAS, Boredom Proneness Scale) to establish test-retest reliability. Persons completing the retest were entered into the $100 lottery a second time. A total of 58 persons completed the retesting resulting in a 47.5% (58 / 122) response rate.

Instruments

The Engagement in Meaningful Activities Survey (EMAS) is a 12-item scale purported to reflect the construct of meaningful activity participation (Goldberg et al., 2002). For this study, the exact item wording and five-point scale were maintained from the original article. However, the adjectival scaling was slightly revised, expanding to 1-Never, 2-Rarely, 3-Sometimes, 4-Usually and 5-Always (possible scale range 12-60) from the original "Never" and "Always" endpoints to provide greater clarity in response options (Streiner & Norman, 2003). Each of the 12 EMAS items begins with, "The activities I do…" and include respectively: help me take care of myself (e.g., keep clean, budget my money), reflect the kind of person I am, express my creativity, help me achieve something which gives me a sense of accomplishment, contribute to my feeling competent, are valued by other people, help other people, give me pleasure, give me a feeling of control, help me express my personal values, give me a sense of satisfaction, and have just the right amount of challenge.

A range of scales were chosen to address constructs theoretically linked with meaningful activity. The Psychological Needs Scale (PNS) (Deci & Ryan, 2008) assesses the constructs of autonomy, competence and relatedness proposed by Deci & Ryan (2000; Ryan, 1995) and has been shown to have adequate psychometric properties including internal consistency reliability and construct validity (Gagne, 2003; Kashdan, Julian, Merritt, & Uswatte, 2006). The Sources

of Meaning Profile (SOMP) (Prager, 1996) includes 16 items reflecting personal values and actions, and is intended to capture sources and degree of personal meaning in life. Prager has supported the relative age- and gender-invariance of the majority of SOMP items. The 21-item short-form of the Depression, Anxiety and Stress scale (DASS-21) (Antony, Bieling, Cox, Enns, & Swinson, 1998) contains three seven-item subscales validated to measure depression, anxiety and stress respectively (Henry & Crawford, 2005). Prior research has supported the validity of the three-factor structure of the DASS-21 (Clara, Cox, & Enns, 2001; L. A. Clark & Watson, 1991). The short-form of the Boredom Proneness Scale (BPS) (Farmer & Sundberg, 1986; Vodanovich, Wallace, & Kass, 2005) is a validated 12-item measure that assesses the predisposition for experiencing boredom. Vodonovich (2003) reviewed 25 years of research on the BPS and indicated the scale is both a reliable and valid instrument for assessing boredom.

Data Management and Analyses

Data were downloaded from the web host site and saved in an electronic spreadsheet. Scores were calculated according to published algorithms. Descriptive statistics were calculated for the demographic and study variables. For each scale internal consistency reliability (Cronbach's alpha) and item-total correlations with item removed were evaluated. Test-retest reliability was calculated for the EMAS and BPS with a one-way random effects model intraclass correlation (ICC). Change scores for the BPS (BPS[T2: time two] - BPS[T1: time one]) and EMAS (EMAS[T2] - EMAS[T1]) were created. Zero-order correlations between the study variables were calculated with Pearson's *r*. Step-wise multiple regression analysis was employed to evaluate the differential influences of demographic, negative affect, and meaning-related variables upon the EMAS. Demographic variables included: age, gender (female, male), marital status (single, married, divorced/separated), race/ethnicity (White/Caucasian, other), and

year of study (freshman, sophomore, junior, senior, graduate program). The model predicting EMAS also included the subscales of the DASS-21 and PNS, the BPS and a revised version of the SOMP. A two-tailed alpha level of .05 was used for statistical tests. All data analyses were performed with SPSS version 15.0 (SPSS, 2006).

Results

Demographics

Table 1 presents the demographic characteristics of the sample. Participants were primarily Caucasian with an average age of 27.1 ± 8.0 years, and a slight majority being either female or single. There was a fairly even distribution of year of study though most were either seniors or in graduate school.

Reliability Statistics for the EMAS and Study Variables

Table 2 presents data on the mean (SD) and range of each of the study instruments. Cronbach's alphas (α) for the scales ranged from .67 to .91; the EMAS (α = .88) and BPS (α = .72) values were adequate for population-based research (Streiner & Norman, 2003). Test-retest reliability for the EMAS using an ICC model was r (58) = .71 (95% CI .55 - .82) and the BPS was r (58) = .67 (95% CI .51 - .79). Item-total correlations (with item removed) for the study scales were sufficient for measurement purposes with the exception of the SOMP which had 4 of 16 items below .2: "Taking part in religious activities" (.018), "Feeling financially secure" (.181), "Participation in 'hedonistic' activities (e.g., gambling, parties, etc.)" (-.047), and "Acquiring material possessions in order to enjoy the good life" (.179). For subsequent analyses these four items were removed resulting in an improved Cronbach's alpha from .79 to .87 for the revised SOMP (SOMP-R); use of a 12-item SOMP has been reported elsewhere (Prager, 1996).

Zero-Order Correlations between the EMAS and Study Variables

The EMAS was found to have correlation coefficients ranging in absolute value from .25 to .50 in full support of the study's hypotheses (see Table 3). Notably high correlation coefficients were obtained between the EMAS and the BPS (r = -.50), the Competence subscale of the PNS (r = .49) and the SOMP-R (r = .48). The next most substantial negative relationship was established between the EMAS and the Depression subscale of the DASS-21 (r = -.40).

Correlations between EMAS[T1] and EMAS[T2], as well as the BPS[T1] and BPS[T2] were moderately high, reflecting the test-retest ICCs. Further, paired t-tests indicated no significant differences existed between EMAS scores from T1 to T2 (t = 1.51, p = .14) or BPS scores from T1 to T2 (t = -1.56, p = .13). The BPS change score and EMAS[T2] demonstrated a low negative relationship r (58) = -.31, p < .001 indicating that decreases in boredom from T1 to T2 were associated with higher EMAS[T2] scores. However, there were no significant associations between the EMAS change score and BPS[T2] r (58) = -.03, p = .85, or the BPS and EMAS change scores r (58) = -.01, p = .96. These results are therefore equivocal in terms of establishing a clear association between changes in boredom and meaningful activity in the present sample.

Some interesting patterns between negative affect and meaning-related variables were also identified within Table 3. The EMAS and the SOMP-R, two approaches to assessing meaning, varied in their relationships with the DASS-21 subscales. The EMAS had three significant relationships compared to only one (Depression) for the SOMP-R, suggesting the EMAS is more sensitive to variation in negative affect. Further, the BPS had three moderate

negative correlations with the PNS subscales, higher in absolute value than the EMAS, thereby possibly reflecting the relative importance of intrinsic motivation to defining boredom.

Regression Models Predicting the EMAS

Step-wise hierarchical regression was employed to evaluate the differential effects of demographic, negative affect and meaning-related variables in predicting the EMAS (see Table 4). As a group, the demographic variables failed to predict the EMAS when entered first into the model (Step 1: Model Adjusted R^2 = -.03, p = .70). When the DASS-21 variables were added to the model, only the Depression subscale predicted the EMAS (Step 2: Model Adjusted R^2 = .13, p < .001, F Change (3, 113) = 7.74, p < .001). The final model incorporated the above variables in addition to the PNS subscales, the BPS and the SOMP-R. The inclusion of these variables resulted in a substantial increase in capacity to predict the EMAS (Step 3: Model Adjusted R^2 = .42, F change (5, 108) = 12.15, p < .001). The Competence subscale of the PNS, the BPS and the SOMP-R were found to predict the EMAS. Aside from these significant contributions, age (ß = -.17, t (108) = -2.12, p = .04) and race/ethnicity (ß = -.16, t (108) = -2.14, p = .04) contributed to the model, whereas depression was no longer significant (ß = -.15, t (108) = -1.30, p = .20). For regression analyses, assumptions for linearity and homoscedasticity were met and there were no substantial outliers (> 2.5) found in a review of studentized residuals.

Discussion

The EMAS demonstrated adequate psychometric properties as a measure of meaningful activity participation in this sample. Internal consistency and test-retest reliability coefficients approximated those from prior studies (Eakman et al., in press; Goldberg et al., 2002) and are considered to be adequate for population-based research (Streiner & Norman, 2003). Construct validity evidence is also growing for the EMAS given the positive relationships with measures of

meaning and self-determination (intrinsic motivation) and negative associations with measures of boredom and negative affect employed in this study. Further, the most salient concepts explaining the EMAS included life meaning, self-determination and boredom. A brief recap of these constructs and their theoretical links with meaningful activity are therefore warranted.

Of the meaning-related variables employed in this study, the SOMP-R had one of the highest zero-order correlations with the EMAS and it also offered the most substantial contribution to the prediction of the EMAS in the regression models. The finding of positive relationships between the SOMP-R and the EMAS underlines the intimate relationship between perceptions of activity meaningfulness and a sense of meaning and purpose in life (Christiansen, 1999; F. Clark et al., 1991; Frankl, 1959/1984; Hasselkus, 2002; Klinger, 1977; Wilcock, 1998). The SOMP-R approaches the measurement of life meaning by identifying personal beliefs, values, and goals intended to reflect sources of personal meaning such that the breadth and richness of an individual's personal meaning system contribute to a sense of meaning in life (Prager, 1996; Reker & Wong, 1988). In a related study, Eakman, Carlson and Clark (in press) found a positive relationship between the EMAS and the Purpose In Life Test (Crumbaugh & Maholick, 1969), a measure of life purpose and meaning. The positive associations found between the SOMP-R and the EMAS in this study offer additional convergent validity evidence in support of the scale.

Meaningful Activity and Boredom

A measure of boredom was found to have important relationships with the EMAS in this study suggesting that boredom may be, in part, antithetical to participation in meaningful activity. Presently, there is no coherent, universally accepted definition of boredom though there are aspects of boredom that are common across differing conceptualizations (Vodanovich, 2003).

Boredom has been characterized as an emotional experience that is uncomfortable and dissatisfying, awareness turns inward, time seems to slow and complaints about a lack of 'things to do' are common (Farmer & Sundberg, 1986; Farnsworth, 1998; Mikulas & Vodonovich, 1993; Stafford & Gregory, 2006). Further, boredom has been described as comprised of environmental and personal components that are sensitive to task demands (Harris, 2000; Martin et al., 2006; Nakamura & Csikszentmihalyi, 2005). Its presence may ultimately be detrimental to motivation and interest (Pekrun et al., 2002).

There are striking corollaries between the experiences of meaningful activity and boredom such that the presence of one may influence the other. Though theoretically nascent, the present data support the proposition that activity meaningfulness may be enhanced by purposefully decreasing levels of perceived boredom. This proposition arises from the finding that decreases in boredom over time (T1 to T2) were associated with greater levels of perceived activity meaningfulness at T2. A recent longitudinal study supports this position because lower levels of boredom over time predicted greater life purpose and meaning (Fahlman, Mercer, Gaskovski, Eastwood, & Eastwood, 2009). From a therapeutic perspective, it may be feasible to enhance meaningful life participation by employing occupation-based interventions targeted at decreasing the experiences of boredom. As an example, Corvinelli (2005) proposes an intervention to address occupational performance deficits associated with substance abuse and boredom. This approach focuses on facilitating intrinsic motivation and flow experiences by fostering, "…choice, control, competence, and interconnectedness with others, while providing activities that continue to match skills and challenges…" (pg. 4). Interventions with these aims should also impact the meaningfulness of activities. Continued exploration of boredom, its

constituents and effects as well as responsiveness to occupation-based interventions will offer needed perspectives on how our activities might be construed as meaningful.

Meaningful Activity and Human Needs Fulfillment

This study also found positive relationships between the three indicators of intrinsic motivation, autonomy, competence and relatedness (Ryan, 1995) and meaningful activity. Theoretical support for suspecting this relationship may be found from at least two sources. First, the model proposed by King (2004) indicates that human meaning may be constituted, in part, through a fundamental way of processing or experiencing the world. At this level of the model, the concepts of belonging, doing and understanding oneself and the world can be appreciated as fundamental human needs, such that their fulfillment may be associated with greater meaning. Similarly, Hammell (2004) has suggested that humans have an inherent need for fulfilling needs of belonging, doing, being, and becoming. These models are relatively congruent and reflect the importance of human need fulfillment in motivating and supporting active engagement in valued endeavors.

Second, self-determination theory (Deci & Ryan, 1985, 2002) considers three universal psychological needs, competence, relatedness, and autonomy that when fulfilled support motivation, participation and well-being. As an example, when people are autonomously motivated, they experience volition and authorship over their actions. When the needs of competence and relatedness are supported through autonomous pursuit of valued life tasks, well-being is maximized and motivation for future involvement is instilled (Cantor & Sanderson, 1999; Carlson, 1996; Kielhofner, 2002; Ryff & Keyes, 1995). Further, an intimate association exists between the capacity of a person's activities to support competence, relatedness, and autonomy needs and the perception of those activities as being valued and meaningful

(Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). Occupational therapy is beginning to directly employ aspects of self-determination theory in support of intrinsic motivation and occupational performance (Corvinelli, 2005; Wu, Chen, & Grossman, 2000) and continued knowledge growth in this area is surely warranted (Yerxa et al., 1989).

An interesting comparison should also be made between the support of these three needs, meaningful activity, and boredom. Results from this study showed moderate positive relationships between the EMAS and the PNS scales, suggestive of the mutually beneficial roles played by these constructs. This was especially the case for the Competence subscale of the PNS, which aided in explaining the EMAS. That is, of the three needs-based variables, beliefs of competence in one's day to day life had the most impact upon perceiving one's activities as meaningful. However, moderate negative associations were found between the PNS scales and the BPS. This finding highlights the potential interrelationships between boredom and lack of fulfillment of the basic psychological needs proposed by Deci and Ryan (1985). Additional regression analyses conducted on this sample (not reported here) found that lower levels of both meaningful activity and competence best predicted higher levels of boredom. Therefore, it is feasible to suggest that perceived competence and the strength or weakness of the occupational performance capacities that undergird this belief play pivotal roles in finding meaning in daily activities or conversely, experiencing boredom.

Study Limitations and Future Research

Generalization of the study findings may be limited because of the low response rate (17.9%); a problem common to web-based survey designs. Internet-based survey administration, as employed in this study, is becoming increasingly popular due to lower costs, quick response cycles, increased flexibility and minimal data errors compared to paper-pencil surveys (Andrews,

Nonnecke, & Preece, 2003; Umbach, 2004). This study employed methods shown to maximize response rates, including provision of a gift, enrollment in a lottery, in addition to two reminder emails (Deutskens, Ruyter, Wetzels, & Oosterveld, 2004). Nonetheless, web-based and email survey methods have seen a consistent decline in response rates over the past few decades (Kaplowitz, Hadlock, & Levine, 2004; Sheehan, 2001).

As validity evidence for the EMAS continues to accumulate, it may be possible to explore and further develop the concept of meaningful activity. Studies involving the EMAS have made possible the explication of important concepts that have theoretical ties to activity meaning such as life purpose and meaning, self-determination (intrinsic motivation) and boredom. Studies have also found important correlates to meaningful activity such as life satisfaction and health-related quality of life when activity meaningfulness is high, and depression, stress, and anxiety when lower levels of meaning are ascribed to activity participation (Eakman et al., in press; Goldberg et al., 2002). Future studies involving the EMAS could investigate how the relationships between these concepts change over time, thereby capturing a glimpse of the temporal dynamics of meaning. The EMAS might also be refined through Rasch analysis to better understand the underlying functioning of the scale items (Bond & Fox, 2007). Studies might also involve related concepts, such as interest (Silva, 2006) and meaning-based coping (Park & Folkman, 1997) which could advance the utility of the EMAS.

Finally, the ubiquity of the profession's use of the term "meaningful" activity clearly belies the challenges of defining and explaining meaning and the complex dynamics underlying its role in maximizing occupational performance. Despite conceptual models of therapeutic occupation that have contributed greatly to this understanding (Nelson, 1996) and notable developments related to activity meaning much work lie ahead (King, 2004; Persson,

Erlandsson, Eklund, & Iwarsson, 2001). Growing interest and commitment to this area of research in both occupational therapy and occupational science will offer valuable resources towards this endeavor (Eklund, Erlandsson, Persson, & Hagell, 2009; Hammell, 2004; Hasselkus, 2002; Ikiugu, 2005; Jonsson & Josephsson, 2005).

References

Andrews, D., Nonnecke, B., & Preece, J. (2003). Conducting research on the internet: Online survey design, development and implementation guidelines. *International Journal of Human-Computer Interaction, 16*, 185-210.

Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales (DASS) in clinical groups and a community sample. *Psychological Assessment, 10*, 176-181.

Barbalet, J. M. (1999). Boredom and social meaning. *British Journal of Sociology, 50*, 631-646.

Belton, T., & Priyadharshini, E. (2007). Boredom and schooling: a cross-disciplinary exploration. *Cambridge Journal of Education, 37*, 579-595.

Bond, T. G., & Fox, C. M. (2007). *Applying the Rasch model: Fundamental measurement in the human sciences* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associated.

Bracke, P., Bruynooghe, K., & Verhaeghe, M. (2006). Boredom during day activity programs in rehabilitation centers. *Sociological Perspectives, 49*, 191-215.

Cantor, N., & Sanderson, C. A. (1999). Life task participation and well-being: The importance of taking part in daily life. In D. Kahneman, E. Diener & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology*. New York: Sage.

Carlson, M. (1996). The self-perpetuation of occupations. In R. Zemke & F. Clark (Eds.), *Occupational science: The evolving discipline* (pp. 143-157). Philadelphia: F. A. Davis.

Christiansen, C. H. (1999). Defining lives: occupation as identity: an essay on competence, coherence, and the creation of meaning. *American Journal of Occupational Therapy, 53*, 547-558.

Clara, I. P., Cox, B. J., & Enns, M. W. (2001). Confirmatory factor analysis of the depression-anxiety-stress scales in depresses and anxious patients. *Journal of Psychopathology and Behavioral Assessment, 23*, 61-67.

Clark, F., Parham, D., Carlson, M. E., Frank, G., Jackson, J., Pierce, D., et al. (1991). Occupational science: Academic innovation in the service of occupational therapy's future. *American Journal of Occupational Therapy, 45*, 300-310.

Clark, L. A., & Watson, D. (1991). Tripartate model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology, 100*, 316-336.

Corvinelli, A. (2005). Alleviating boredom in adult males recovering from substance use disorder. *Occupational Therapy in Mental Health, 21*(2), 1-11.

Corvinelli, A. (2007). An emerging theory of boredom in recovery for adult substance users with HIV/AIDS attending an urban day treatment program. *Occupational Therapy in Mental Health*, *23*(2), 27-49.

Crabtree, J. L. (1998). The end of occupational therapy. *American Journal of Occupational Therapy, 52*, 205-214.

Cronbach, L., & Meehl, P. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52,* 281-302.

Crumbaugh, J. C., & Maholick, L. T. (1969). *Manual of Instruction for the Purpose in Life Test*. Munster, IN: Psychometric Affiliates.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper & Rowe.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11,* 227-268.

Deci, E. L., & Ryan, R. M. (2008). Basic psychological needs scales. Retrieved 10/31/08, 2008, from http://www.psych.rochester.edu/SDT/measures/needs_scl.html

Deci, E. L., & Ryan, R. M. (Eds.). (2002). *Handbook of self-determination theory*. Rochester, NY: University of Rochester Press.

Deutskens, E., Ruyter, K. D., Wetzels, M., & Oosterveld, P. (2004). Response-rate and response quality of internet-based surveys: An experimental study. *Marketing Letters, 15,* 21-36.

Eakman, A. M., Carlson, M. E., & Clark, F. A. (in press). Factor structure, reliability and convergent validity of the engagement in meaningful activities survey for older adults. *OTJR: Occupation, Participation and Health*.

Eklund, M., Erlandsson, L.-K., Persson, D., & Hagell, D. (2009). Rasch analysis of an instrument for measuring occupational value: Implications for theory and practice. *Scandinavian Journal of Occupational Therapy, 16,* 118-128.

Fahlman, S. A., Mercer, K. B., Gaskovski, P., Eastwood, A. E., & Eastwood, J. D. (2009). Does a lack of life meaning cause boredom? Results from psychometric, longitudinal, and experimental analyses. *Journal of Social and Clinical Psychology, 28,* 307-340.

Farmer, R., & Sundberg, N. D. (1986). Boredom proneness: The development and correlates of a new scale. *Journal of Personality Assessment, 50*(1), 4-17.

Farnsworth, L. (1998). Doing, being, and boredom. *Journal of Occupational Science, 5,* 140-146.

Ferguson, J. M., & Trombly, C. A. (1997). The effect of added-purpose and meaningful occupation on motor learning. *American Journal of Occupational Therapy, 51,* 508-515.

Fisher, A. B. (1998). Uniting practice and theory in an occupational framework. *American Journal of Occupational Therapy, 52,* 509-521.

Frankl, V. E. (1959/1984). *Man's search for meaning*. New York: Simon & Schuster.

Gagne, M. (2003). The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and Emotion, 27,* 199-223.

Goldberg, B., Brintnell, E. S., & Goldberg, J. (2002). The relationship between engagement in meaningful activities and quality of life in persons disabled by mental illness. *Occupational Therapy in Mental Health, 18*(2), 17-44.

Hammell, K. W. (2004). Dimensions of meaning in the occupations of daily life. *Canadian Journal of Occupational Therapy, 71,* 296-305.

Harris, M. B. (2000). Correlates and characteristics of boredom proneness and boredom. *Journal of Applied Social Psychology, 30*, 576-598.

Hasselkus, B. R. (2002). *The meaning of everyday occupation*. Thorofare, NJ: SLACK.

Henry, J. D., & Crawford, J. R. (2005). The short-form of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 44,* 227-239.

Hinojosa, J., & Kramer, P. (1997). Fundamental concepts of occupational therapy: occupation, purposeful activity, and function. *American Journal of Occupational Therapy, 51,* 864-866.

Ikiugu, M. N. (2005). Meaningfulness of occupations as an occupational-life-trajectory attractor. *Journal of Occupational Science, 12,* 102-109.

Jackson, J., Carlson, M., Mandel, D., Zemke, R., & Clark, F. (1998). Occupation in lifestyle redesign: the well elderly study occupational therapy program. *American Journal of Occupational Therapy, 52,* 326-336.

Jonsson, H., & Josephsson, S. (2005). Occupation and meaning. In C. H. Christiansen & C. M. Baum (Eds.), *Occupational therapy: Performance, participation, and well being.* (pp. 116-132). Thorofare, NJ: Slack.

Kaplowitz, M. D., Hadlock, T. D., & Levine, R. (2004). A comparison of web and mail survey response rates. *Public Opinion Quarterly, 68,* 94-101.

Kashdan, T. B., Julian, T., Merritt, K., & Uswatte, G. (2006). Social anxiety and posttraumatic stress in combat veterans: Relations to well-being and character strengths. *Behavior Research and Therapy, 44,* 561-583.

Kass, S. J., Vodonovich, S. J., & Callander, A. (2001). State-trait boredom: Its relationship to absenteeism, tenure and job satisfaction. *Journal of Business and Psychology, 16,* 317-327.

Kaufman, E. R. (1986). *The ageless self: Sources of meaning in late life*. Madison, WI: University of Wisconsin Press.

Kielhofner, G. (2002). *A model of human occupation: Theory and application*. Baltimore, MD: Lippincott, Williams & Wilkins.

King, G. A. (2004). The meaning of life experiences: Application of a meta-model to rehabilitation sciences and services. *American Journal of Orthopsychiatry, 74*, 72-88.

Klinger, E. (1977). *Meaning & void*. Minneapolis, MN: University of Minnesota.

Long, C. (2004). On watching paint dry: An exploration of boredom. In M. Molineux (Ed.), *Occupation for occupational therapists* (pp. 78-89). Oxford: Blackwell Publishing.

Martin, M., Sadlo, G., & Stew, G. (2006). The phenomenon of boredom. *Qualitative Research in Psychology, 3,* 193-211.

McGiboney, G. W., & Carter, C. (1988). Boredom proneness and adolescents' personalities. *Psychological Reports, 63,* (395-398).

Mikulas, W. L., & Vodonovich, S. J. (1993). The essence of boredom. *Psychology and Behavioral Sciences, 43,* 3-12.

Nakamura, J., & Csikszentmihalyi, M. (2005). The concept of flow. In C. R. Snyder & E. M. Lopez (Eds.), *Handbook of positive experience* (pp. 89-105). Oxford: Oxford University Press.

Nelson, D. L. (1988). Occupation: form and performance. *American Journal of Occupational Therapy, 42,* 633-641.

Nelson, D. L. (1996). Therapeutic occupation: a definition. *American Journal of Occupational Therapy, 50,* 775-782.

Park, C. L., & Folkman, S. (1997). Meaning in the context of stress and coping. *Review of General Psychology, 1,* 115-144.

Pedhazur, E. J., & Schmelkin, L. P. (1991). *Measurement, design, and analysis: An integrated approach*. Hillsdale, NJ: Lawrence Erlbaum.

Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic emotions in students' self-regulated learning and achievement: A program of qualitative and quantitative research. *Educational Psychologist, 37,* 91-105.

Persson, D., Erlandsson, L.-K., Eklund, M., & Iwarsson, S. (2001). Value dimensions, meaning, and complexity in human occupation - a tentative structure for analysis. *Scandinavian Journal of Occupational Therapy, 8,* 7-18.

Prager, E. (1996). Exploring personal meaning in an age-differentiated Australian sample: Another look at the Sources of Meaning Profile (SOMP). *Journal of Aging Studies, 10*, 117-136.

Reis, H. T., Sheldon, K. M., Gable, S. L., Roscoe, J., & Ryan, R. M. (2000). Daily well-being: The role of autonomy, competence, and relatedness. *Personality and Social Psychology Bulletin, 26*, 419-435.

Reker, G. T., & Wong, P. T. P. (1988). Aging as an individual process: Toward a theory of personal meaning. In J. E. Birren, V. L. Bengston & D. E. Deutchman (Eds.), *Emergent theories of aging* (pp. 214-246). New York: Springer Publishing Company.

Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality, 63*, 397-427.

Ryff, C. D., & Keyes, L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69*, 719-727.

Schultz, R., & Heckhausen, J. (1996). A lifespan model of successful aging. *American Psychologist, 51*, 702-714.

Sheehan, K. B. (2001). E-mail survey response rates: A review [Electronic Version]. *Journal of Computer-Mediated Communication, 6*. Retrieved 5/14/2009, from http://jcmc.indiana.edu/vol6/issue2/sheehan.html

Silva, P. J. (2006). *Exploring the psychology of interest*. Oxford: Oxford University Press.

SPSS. (2006). SPSS 15 for Windows. Chicago, IL: SPSS Inc.

Stafford, S. P., & Gregory, W. T. (2006). Heidegger's phenomenology of boredom, and the scientific investigation of conscious experience. *Phenomenology and the Cognitive Sciences, 5*, 155-196.

Streiner, D. L., & Norman, G. R. (2003). *Health measurement scales* (3rd ed.). Oxford: Oxford University Press.

Trombly, C. A. (1995). Occupation: purposefulness and meaningfulness as therapeutic mechanisms. *American Journal of Occupational Therapy, 49,* 960-972.

Umbach, P. D. (2004). Web surveys: Best practices. *New Directions for Institutional Research, 121,* 23-38.

Vodanovich, S. J. (2003). Psychometric measures of boredom: A review of the literature. *Journal of Psychology, 137,* 569-595.

Vodanovich, S. J., Wallace, J. C., & Kass, S. J. (2005). A confirmatory approach to the factor structure of the boredom proness scale: Evidence for a two-factor short form. *Journal of Personality Assessment, 85,* 295-303.

Vodanovich, S. J., Weddle, C., & Piotrowski, C. (1997). The relationship between boredom proneness and internal and external work values. *Social Behavior and Personality, 25,* 259-264.

Watt, J. D., & Vodanovich, S. J. (1999). Boredom proneness and psychosocial development. *The Journal of Psychology, 133,* 303-314.

Weinstein, L., Xie, X., & Cleanthous, C. C. (1995). Purpose in life, boredom, and volunteerism in a group of retirees. *Psychological Reports, 76,* 482.

Wilcock, A. A. (1998). Reflections on doing, being and becoming. *Canadian Journal of Occupational Therapy, 65,* 248-256.

Wu, C.-Y., Chen, S.-P., & Grossman, J. (2000). Facilitating intrinsic motivation in clients with mental illness. *Occupational Therapy in Health Care, 16*(1), 1-14.

Yerxa, E. J., Clark, F., Frank, G., Jackson, J., Parham, D., Pierce, D., et al. (1989). An introduction to occupational science: a foundation for occupational therapy in the 21st century. *Occupational Therapy in Health Care, 6*(1), 1-17.

Zika, S., & Chamberlain, K. (1992). On the relation between meaning in life and psychological well-being. *British Journal of Psychology*, *83*, 133-145.

Zimolag, U., & Krupa, T. (2009). Pet ownership as a meaningful community occupation for people with serious mental illness. *American Journal of Occupational Therapy, 63,* 126-137.

Table 1
Demographic Characteristics (N = 122)

Characteristics	Frequency	%
Gender		
Female	71	58
Male	51	42
Marital Status		
Single	61	50
Married	55	45
Divorced/Separated	6	9
Race/Ethnicity		
White/Caucasian	107	88
Other	15	12
Year of Study		
Freshman	15	12
Sophomore	23	19
Junior	22	18
Senior	30	25
Graduate Program	32	26

Note. Mean age: 27.1 ± 8.0, median: 25 years.

Table 2

Descriptive Statistics for the Engagement in Meaningful Activities Survey and Study Variables

Variables	Mean	SD	Range	Cronbach's Alpha
Engagement in Meaningful Activities Survey	45.3	5.80	30 - 60	0.88
DASS-21: Depression	3.4	4.04	0 - 21	0.91
DASS-21:Anxiety	2.7	3.29	0 - 20	0.81
DASS-21:Stress	5.5	3.81	0 - 20	0.83
PNS: Autonomy	5.1	0.90	2 - 7	0.67
PNS: Competence	5.3	0.95	3 - 7	0.68
PNS: Relatedness	5.8	0.75	3 - 7	0.71
Boredom Proneness Scale-Short Form	24.2	8.04	15 - 53	0.72
Sources of Meaning Profile-Revised*	54.6	10.07	21 - 72	0.87

Note. DASS-21 = 21-Item Depression, Anxiety and Stress Scale; PNS = Psychological Needs Scale; * Sources of Meaning Profile (16 items): Mean 66.9 ± 11.12; Range 24 - 88; α = .79.

Table 3

Zero-Order Correlations Between the Engagement in Meaningful Activities Survey and Study Variables

Variables	1	2	3	4	5	6	7	8	9	10	11
1) EMAS	1										
2) DASS-21: Depression	-.40***	1									
3) DASS-21:Anxiety	-.25***	.67***	1								
4) DASS-21:Stress	-.28***	.69***	.71***	1							
5) PNS: Autonomy	.40***	-.44***	-.29**	-.38***	1						
6) PNS: Competence	.49***	-.47***	-.24**	-.38***	.51***	1					
7) PNS: Relatedness	.40***	-.37***	-.25**	-.29**	.66***	.50***	1				
8) BPS	-.50***	.38***	.24**	.31**	-.50***	-.58***	-.48***	1			
9) SOMP-R	.48***	-.21*	-.09	-.11	.21*	.25**	.32***	-.32***	1		
10) EMAS [T2]‡	.71***	-.24	-.24	-.32*	.31*	.41**	.26*	-.51***	.26*	1	
11) BPS [T2]‡	-.64***	.34**	.43**	.53***	-.33*	-.35**	-.32*	.68***	-.24	-.70***	1

Note. EMAS = Engagement in Meaningful Activities Survey; DASS-21 = 21-Item Depression, Anxiety and Stress Scale; PNS = Psychological Needs Scale; BPS = Boredom Proneness Scale; SOMP-R = Sources of Meaning Profile - Revised; *$p < .05$, **$p < .01$, *** $p < .001$; T2 = time 2 (retest); ‡ $N = 58$.

Table 4

Summary of Step-Wise Hierarchical Regression Analysis of Demographic, Negative Affect, and Meaning-Related Variables Predicting the Engagement in Meaningful Activities Survey

	Step 1		Step 2		Step 3	
Variables	*ß*	*p*-value	*ß*	*p*-value	*ß*	*p*-value
Age	-.13	.22				
Gender	.05	.61				
Marital Status	.14	.19				
Race / Ethnicity	-.04	.66				
Year of Study	.02	.81				
DASS-21: Depression			**-.42**	**.001**		
DASS-21:Anxiety			.04	.78		
DASS-21:Stress			-.03	.82		
PNS: Autonomy					.09	.36
PNS: Competence					**.20**	**.04**
PNS: Relatedness					-.02	.87
BPS					**-.21**	**.03**
SOMP-R					**.36**	**<.001**
Model Adjusted R^2	-.03	$p = .81$	.13	$p < .001$	.42	$p < .001$

Note. *ß* = standardized beta; DASS-21 = 21-Item Depression, Anxiety and Stress Scale; PNS = Psychological Needs Scale; BPS = Boredom Proneness Scale; SOMP-R = Sources of Meaning Profile - Revised; Significant model contributions are in bold.