

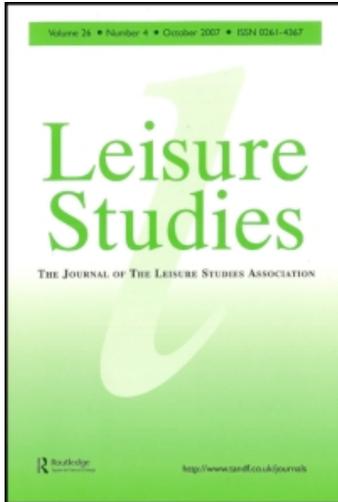
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### Daily experience of serious leisure, flow and subjective well-being of older adults

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## Daily experience of serious leisure, flow and subjective well-being of older adults

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The purpose of this study was to investigate how serious leisure and flow contribute to subjective well-being (SWB) in the daily lives of older adults. Twenty-two older adults were recruited from a local aging agency in a midwestern city in the USA. Experience Sampling Method was used to collect data on the daily experiences of the older adults. Hierarchical Linear Modelling was used to predict levels of SWB from experience variables (i.e. serious leisure, flow) and individual difference variables (i.e. gender, retirement). One-way analyses of variance, random coefficient, and intercepts and slopes-as-outcomes models were tested. Serious leisure was positively associated with positive affect (PA), and flow had a significant negative relationship with PA. The results of this study confirm previous findings that SWB is an important consequence of serious leisure in everyday life.

**Keywords:** subjective well-being; serious leisure; flow

### Introduction

This study examines how serious leisure and flow contribute to subjective well-being (SWB) of older adults. For several decades, SWB has been of interest to researchers in various disciplines such as psychology, gerontology and leisure studies. The concept of SWB involves the assessment by people of their own perceived quality of life (Pavot & Diener, 2004). According to Diener, Suh, Lucas, and Smith (1999), positive affect (PA), negative affect (NA), and general and domain-specific life satisfaction are the components of SWB. PA and NA refer to the emotional reactions to events that individuals experience on a daily basis. Diener and Lucas (1999) stated that people feel happy when they experience high levels of PA and low levels of NA. In turn, people are unhappy when low levels of PA and high levels of NA are experienced. These emotions are central to the concept of SWB. People with high levels of SWB often show positive outcomes in the myriad areas and circumstances of life. These people are likely to cope with stress well, succeed in building relationships and do well on the job (Pavot & Diener, 2004).

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Researchers have demonstrated the existence of relationships between SWB and involvement in leisure activities among older adults. According to Palmore (1979), having a variety of meaningful activities, maintaining good health habits, securing financial plans and living with an optimistic outlook are fundamental aspects of SWB. Participating in leisure activities is also important. Stathi, Fox, and McKenna (2002) reported that participating in physical activities contributes to SWB as well as mental health among older adults. Those physical activities are likely to buffer against negative mood states such as anxiety and depression (Blumenthal, Williams, Needels, & Wallace, 1982). Furthermore, Silverstein and Parker (2002) found that older adults who increase leisure activity participation are likely to maintain their quality of life. Specifically, being engaged in activities such as club meetings, watching movies and gardening is positively related to PA among older adults (Lawton, 1994).

Beyond a general relationship between SWB and leisure participation, studies have shown that individual characteristics such as age and gender are closely related to SWB among older adults (Han, 1988; Pinqart, 2001; Vitterso, 2003; Voelkl, 1990). Carstensen (1995) contended that older adults are more capable of regulating emotions than younger adults and middle-aged adults, thus suggesting that SWB may increase as people age. However, Diener and Suh (1998) found that satisfaction in life did not decline with age. They discovered that there is a slight increase in life satisfaction as people age, and there is little change in the experience of NA across the different age groups.

Furthermore, retirement may influence older adults' SWB. While previous studies do not refer to the association between retirement and SWB specifically, it can be inferred from some studies that there exists an impact of retirement on quality of experience of older adults. One important source of emotional satisfaction and psychological health is work because it gives individuals greater social support and networks (Drentea, 2002). Given the important role of work, individuals retiring from the workforce may face lower levels of psychological health due to the decrease in size of their social networks (Moen, 1996).

There are contradictory views on the impact of retirement in older adults. For example, Ross and Drentea (1998) reported that retired and employed people have similar scores of psychological distress. On the other hand, Ross and Mirowsky (1995) reported that being employed is associated with a better mental health than being unemployed. Reitzes, Mutran, and Fernandez (1996) found that retirement had a positive influence on self-esteem and a negative influence on depression. Evenson, Rosamond, Cai, Diez-Roux, and Brancati (2002) also noted that retirement was associated with a significant increase in participating in sport and exercise activities.

### *Serious leisure*

As mentioned, some leisure activities may require individuals to become committed, and those commitments to leisure activities are linked to a number of personal and social benefits which may contribute to SWB. Commitment to an activity is at the centre of serious leisure. Serious leisure is a systematic pursuit of amateur, hobbyist or volunteer activities that are sufficiently substantial and interesting for the participants to find a career through gaining special skills, knowledge and experience (Stebbins, 1992). Over the past two decades, serious leisure has been examined through a variety of leisure activities such as art and science (Stebbins, 2001), bass fishing (Yoder, 1997), shag dancing (Brown, 2007), lawn bowling (Heuser, 2005),

volunteer firefighting (Yarnal & Dowler, 2002) and stamp collecting (Gelber, 1992). From these studies, it was found that serious leisure is a part of the everyday life of many people. In serious leisure, participants are satisfied through gaining personal and social rewards. Examples of these rewards, according to Stebbins (2001), are 'self-actualization by developing skills and ability, linking with other serious leisure participants, and contributing to the maintenance and development of the group' (p. 13). Specifically, personal rewards include personal enrichment, regeneration, developing and expressing skills, enhanced self-image and enjoyment. On the other hand, a sense of being needed by others, an awareness of accomplishing a serious leisure project as a group and an appreciation of the interaction with other serious participants are notable social rewards.

Consistent with Stebbins' remark, other researchers have found that benefits from serious leisure are important contributors to SWB. For example, through interviews and observations of group tourists, Kane and Zink (2004) suggested that kayakers developed serious leisure identities associated with kayaking during the trip. The participants shared the kayaking ethos with other kayakers, and the benefits of serious leisure involvement included a sense of achievement, stress relief and skill acquisition. The central components of serious leisure were manifested among the kayakers because they identified strongly with activities as well as unique ethos was developed among them. In a study of serious runners, Major (2001) identified additional benefits of engaging in serious leisure. Serious runners expressed rewards such as sense of accomplishment and self-control, sense of power and control, health and fitness as well as stress relief.

Based on existing research evidence, it could be argued that serious leisure helps participants develop a sense of competence through the experience of positive feelings and enjoyment. Individuals may also develop personal identity and enhanced quality of life through serious leisure (Kleiber, 1999; Stebbins, 2001). Given the benefits of participating in serious leisure, it is important to explore why individuals make such a commitment and why those high-investment activities become central to individuals. Some insight is provided by examining the high quality of experience found in flow.

### *Flow*

Flow is the psychological state in which people are so intensely involved in an activity that nothing else seems to matter. In flow, people become absorbed in the activity, and they are also likely to develop themselves by learning new skills, thus increasing their self-esteem (Csikszentmihalyi, 1990). Flow is the experiential consequence of a perceived balance between personal skill and situational challenge. When individuals experience this balance during an activity, they may have an optimal experience. Thus, flow is one form of optimal experience, and it clarifies how and why the activity becomes meaningful. As Csikszentmihalyi (1990) noted, flow may be an important aspect of well-being because experiencing flow can protect against negative well-being.

Flow has been found to contribute to psychological well-being (Bryce & Haworth, 2002; Clarke & Haworth, 1994), reductions in stress (Csatari & Antheil, 1996) and improvements in the quality of daily life (Asakawa, 2004). The concept of flow offers insight into how individuals undergo optimal experiences in their daily lives. Optimal experience may also be produced in serious leisure activities because they provide substantial challenges, and the connection between flow and serious leisure has been

supported (Mannell, 1993; Stebbins, 2007). Kelly and Freysinger (2000) noted that serious leisure activities require high levels of commitment, which can lead people to experience flow. Based on studies of jazz musicians and barbershop singers, Stebbins (2001) discussed the close relationship between serious leisure and flow experiences, reporting that serious leisure likely engenders flow.

### ***Purpose of the study***

General findings from existing studies of serious leisure and flow indicate that both (serious leisure and flow) are essential components of SWB. As illustrated above, when individuals are involved in core activity as serious leisure pursuit, they gain rewards such as improvements in self-confidence, self-esteem and the strength of social networks. Stebbins (2001) suggested a theoretical link between serious leisure and well-being. Other researchers (Haworth, 1986; Mannell, 1993) have supported this by noting that well-being can be a product of serious leisure. The experience of flow is also associated with feelings of enjoyment, psychological well-being and quality of life. Although some studies have suggested that serious leisure is important in predicting SWB, only one study (Mannell, 1993) has empirically examined the relationship between serious leisure and SWB. Mannell empirically examined the link between serious leisure, flow and SWB and confirmed that experiencing flow during a high-investment activity is positively related to the SWB of older adults. In Mannell's study, volunteerism, home activities, family care and active leisure participation were identified as high-investment activities. While high investment – a significant characteristic of serious leisure – in an activity is one of the distinctive qualities of serious leisure, other qualities such as perseverance, strong identification and self-actualisation are also key components. Unlike Mannell's approach of identifying certain activities as serious leisure and investigating the percentage in which individuals experienced flow within those activities, the present study examined how serious leisure and flow emerge in daily life of older adults. In addition, the study focused on investigating whether or not serious leisure is indeed related to flow experiences. By exploring the moments in which participants are involved in serious leisure and flow, this study sought to determine what type of activities generate serious leisure and flow experiences at the same time. In order to address the limited attention given to these links in previous studies, the purpose of the present study was to investigate how serious leisure and flow contribute to SWB in the daily lives of older adults.

## **Methods**

### ***Sample***

Twenty-two participants were recruited from a midwestern city in the USA. Participants at a non-profit agency were approached at the agency's facility and asked to participate in a study concerning their daily life activities and emotions. The non-profit agency used in this study strives to improve the quality of life, health and independence of older adults by serving people in the region who are 50 years of age and older. A variety of programmatic offerings are presented to the individuals in the facility. For example, programmes such as one-on-one computer tutoring programs, intergenerational activities, support groups and volunteer opportunities were being offered to older adults at the time of data collection. The sample for this study was drawn from individuals who were enrolled in one of those programmes. Physical

disabilities were not a limitation for participation. Participants in this study were physically independent and relatively healthy because they were able to drive themselves to the aging agency and participate in activity classes. Furthermore, the participants were able to exercise by themselves. Three inclusion criteria were used in selecting participants for this study: (1) individuals with age 50 years and over, (2) participants with acceptable hearing capacity so that they could hear the beeping sound from the wristwatch, and (3) those with sufficient command of English language to comprehend and complete the questions.

The study sample consisted of 22 white Americans (8 males and 14 females) between the ages of 52 and 85 years (mean age = 69.41, SD = 8.68). Thirteen participants (59%) had a high school education and nine participants (41%) had college (i.e. undergraduate, masters, professional) degrees. Seventeen participants (77%) were married, with four participants (18%) being separated (divorced or widowed) and one participant indicated never have been married. The majority (81.8%) of participants reported that they were retired. The rest either worked full-time (9.1%) or part-time (9.1%). Eighteen participants (81.8%) lived with others, and four participants indicated that they lived alone.

### ***Procedures***

This study employed the Experience Sampling Method (ESM) developed by Csikszentmihalyi, Larson, and Prescott (1977). With this methodology, researchers are able to collect data about participants' feelings in naturally occurring situations. For example, during the present study, each respondent carried an electronic device and filled out a self-report form whenever the alarm sounded from the device. The advantage of using the ESM is that participants are able to record ongoing events and their immediate cognitive responses to these events. Another advantage of using the ESM is the minimisation of memory biases that often come from retrospective recall because of the short time interval between the signal and the response (Scollon, Kim-Prieto, & Diener, 2003). The ESM can provide estimates of frequency, distribution and intensity of psychological variables (Csikszentmihalyi & Larson, 1987). Furthermore, the ESM has proven to be successful with older adults in capturing everyday experience (Borrell, 1998).

Participants in this study carried pre-programmed watches for seven consecutive days. The watches were programmed to signal randomly seven times a day between the hours of 9:00 am and 9:00 pm. In response to the signal, participants were asked to fill out Experience Sampling Forms (ESF) to indicate what they were doing, who they were with and how they felt at the time they heard the signal. The investigators developed a template for the ESF, and the size of ESF was 6 × 4 inches. Each ESF had a total of 20 questions.

### ***Instrumentation***

#### ***Subjective well-being***

Larson, Mannell, and Zuzanek (1986) suggested that items about PA and NA dimensions of enjoyment could reflect SWB. The items of PA and NA consist of specific words that describe participants' feelings and emotions at the time they were signalled (Watson, Clark, & Tellegen, 1988). The advantage of using PA and NA balance components for SWB was demonstrated by Pavot and Diener (2004). Unlike many

other measurements of SWB that are rather concerned with long-term or permanent emotions, PA and NA are especially useful when measuring transitory aspect of SWB (Diener et al., 1999). As utilised in the study by Larson et al. (1986), a total of eight items (i.e. happy, sad, cheerful, irritable, friendly, angry, sociable and lonely) were used in this study to measure SWB. Responses to the NA items were reverse coded and summed. Cronbach's alpha in this study was .87.

### Flow

In order to measure the experience of flow, perceived challenge of the activity and perceived skills in the activity were listed in the ESF. Questions include: 'How difficult was the activity?' and 'How well were you doing the activity?' With these questions, the challenge of the activity and the perceived skills of the individual were measured using a five-point Likert scale for challenge (1 = 'very easy' to 5 = 'very difficult') and for skills (1 = 'not well' to 5 = 'very well').

In this study, the operational definition of flow was determined through the use of raw scores associated with challenge and skill. As utilised in Csikszentmihalyi and LeFevre's (1989) study, flow state was determined for this study when challenge and skill were balanced and elevated above a critical threshold (i.e. above the mid-point of 3 for challenge and skill).

Scores of 3 and higher on challenge and skill questions were used to calculate a dichotomous variable: flow and non-flow states. In other words, a situation was considered a flow state when an individual experienced a medium-to-high challenge that was matched with a medium-to-high skill. Among the 25 combinations of challenge and skill, nine situations were considered flow (see Table 1). Answers on perceived challenge and perceived skill were cross-tabulated. As noted in Table 2, most participants indicated that the activities they were pursuing at the time they were signalled were relatively easy (i.e. they were facing a low challenge from the activity). On the other hand, most participants reported that they were doing the activities well or very well, which means they possessed high skill levels related to those activities. Therefore, most of their answers were placed in the upper-right quadrant of Table 1. As a result, 13.1% of the total observations were considered flow (italicised values indicate flow). While some studies utilised broadened models of flow that included eight channels (Csikszentmihalyi & Nakamura, 1989), the present study adopted Delle Fave, Bassi, and Massimini's (2003) four-channel model and attempted to capture flow state indicated by the balance between high challenge levels and high skill levels.

Table 1. Occurrence of flow experience.

		How well were you doing the activity? (%)				
		1 (not well)	2	3	4	5 (very well)
How difficult was the activity?	1 (very easy)	.8	.5	.7	7.1	35.8
	2	0	3.5	2.2	25.3	7.9
	3	0	.7	6.2	3.3	.6
	4	.3	1.4	.8	1.3	.1
	5 (very difficult)	1.4	.7	.7	0	.1

Note: The highlighted parts indicate the cells were conceptualised as flow. 13.1% of the total observations were qualified as flow.

Table 2. Descriptive statistics of challenge and skill.

Subject ID	Challenge		Skill	
	Mean	SD	Mean	SD
1	1.59	.92	4.38	1.03
2	1.55	.95	4.52	.92
3	1.98	.91	3.69	1.14
4	2.15	.75	3.72	.82
5	1.80	.94	4.36	.67
6	1.24	.43	4.52	.87
7	1.90	.46	4.14	.73
8	2.18	.75	4.31	.52
9	1.38	.77	4.78	.69
10	2.41	.74	2.78	.85
11	1.79	1.16	4.19	.93
12	2.32	.94	4.16	.76
13	1.58	1.10	4.46	1.03
14	1.63	1.19	4.23	.84
15	1.93	1.01	4.00	1.01
16	1.74	.81	4.59	.57
17	2.11	.31	3.96	.20
18	1.98	.75	3.73	1.23
19	1.16	.43	4.71	.51
20	1.44	1.02	4.23	1.08
21	1.84	1.19	4.16	.92
22	1.63	.79	4.39	.80

Note: Possible response ranges for challenge and skill were 1–5.

### *Serious leisure*

Items for measuring serious leisure consisted of four questions: (1) ‘The activity I was doing is very important in describing who I am’, (2) ‘I intend to accomplish this activity’, (3) ‘I regularly train for this activity’, and (4) ‘I believe I have the potential to be good at this activity’. To come up with measurement items, this study defined serious leisure in the following way: extent to which the respondents identify with the chosen activity, respondents’ perceptions about how much they invest effort and respondents’ perceptions about benefits gained through the activity. These serious leisure items were created based on Stebbins’ suggestions (R. Stebbins, personal communication, 20 April 2005). These items were measured using a four-point Likert-type scale ranging from ‘strongly agree’ to ‘strongly disagree’. Cronbach’s alpha for the serious leisure scale was .90.

### *Data analysis*

Data were collected both at the individual level (e.g. demographic variables) and at the episode level (e.g. measurements of serious leisure and flow were collected for each activity reported when the respondent was signalled). The data in this study represent over 800 repeated measures of experiences that were nested within 22

individuals. With the multi-level data, it is inappropriate to disaggregate between-person level variables and enter them into a regression equation at the within-person level (Raudenbush & Bryk, 2002). In order to handle the hierarchical levels in which each ESF is nested within a different person, Hierarchical Linear Modelling (HLM) was used.

All models were estimated using the most recent version of the modelling software (HLM 6.02). The HLM two-level model was used because the episode level (or experience level) is nested within the person level. The two Level 1 variables in this study were experience of serious leisure and flow. The Level 2 variables included demographic factors such as age, gender and retirement status.

To test the model, three steps were taken. First, a null model (one-way ANOVA model) without any predictors at both Level 1 and Level 2 was estimated. This null model gave preliminary information about how much variation in the outcome lies in the components of within-person and between-person (Raudenbush & Bryk, 2002). In other words, the null model partitioned the variance of SWB into within-person and between-person components in order to examine whether a hierarchical modelling approach was appropriate. Second, a random coefficient model was estimated. SWB was regressed on within-person level predictors: serious leisure and flow. In this step, Level 1 predictors were included in the equation, and regression lines for the 22 individuals were estimated. Given the estimated variability of the regression equations across individuals, the last step involved building an explanatory model to account for this variability (Raudenbush & Bryk, 2002). The model was expanded by incorporating the Level 2 predictors in the equation.

## Results

As noted above, the 22 participants were asked to complete the ESF seven times a day over seven consecutive days. This sampling frequency should have yielded 49 ESM reports per respondents, and a total of 1078 ESM responses ( $N = 22$ ). However, only 897 ESFs were completed as only two respondents completed all reports. Response rates varied significantly among the respondents. Of the 897 surveys, 15 reports were discarded because they were not completed within the required 15 minutes. Therefore, a total of 884 reports were used in the analysis which yielded a useable response rate of 82%.

Descriptive statistics for one of the predictor variables (i.e. serious leisure) and the dependent variable by each subject are shown in Table 3. When aggregated across the participants, mean score for serious leisure was 13.20 ( $SD = 2.30$ ) and mean score for affect was 20.41 ( $SD = 5.52$ ). Mean score for serious leisure for the 22 respondents ranged from 9.89 to 15.95. Individual Cronbach's alphas for serious leisure ranged from 0.48 to 0.99 across subjects. The mean score for affect ranged from 9.58 to 27.16, while Cronbach's alpha for affect across subjects ranged from 0.49 to 0.97 (see Table 3).

According to Csikszentmihalyi (1975), individuals are likely to experience flow when there is a match between challenge and skill. It was later found that flow is more likely to occur when individuals perceive both high challenge and high skill (Csikszentmihalyi & Csikszentmihalyi, 1988). In this study, the mean score for challenge ranged from 1.16 to 2.41 and the mean score for skill ranged from 2.78 to 4.78. When aggregated across the participants, the mean score for challenge was 1.79 ( $SD = .09$ ) and the mean score for skill was 4.16 ( $SD = .96$ ). Therefore, challenge was

Table 3. Descriptive statistics of serious leisure and SWB.

Subject ID	Serious leisure		SWB	
	Mean	SD	Mean	SD
1	12.14	2.40	19.35	4.78
2	12.81	2.63	11.79	5.83
3	12.31	2.04	21.40	4.21
4	13.51	1.65	22.77	3.36
5	11.58	1.09	18.60	2.81
6	12.84	1.62	27.16	2.32
7	12.67	1.46	24.98	3.89
8	13.79	2.00	26.21	3.50
9	15.95	.30	12.40	3.67
10	14.44	1.97	9.58	3.99
11	12.79	1.77	21.90	3.67
12	9.89	1.85	19.16	3.00
13	15.46	1.68	22.21	5.69
14	13.58	2.32	19.33	2.26
15	12.33	1.49	17.30	3.19
16	15.04	1.48	21.48	3.42
17	12.02	.14	23.33	2.62
18	14.67	1.86	24.86	3.96
19	12.26	1.70	19.62	2.84
20	12.77	3.02	20.00	2.84
21	13.97	1.94	19.28	2.67
22	12.28	2.99	19.89	3.51

Note: Possible response ranges for serious leisure were 4–16 and for SWB were 4–28.

generally low, whereas skill level was relatively high among the participants. According to Delle Fave et al. (2003), high skill and low challenge can lead to boredom. While a significant portion (over 75%) of the challenge–skill balance in the present study would be considered boredom, it is beyond the scope of this study.

Table 4 displays the intercorrelations among the predictors and dependent variables at the aggregate level. Data points represented the mean across seven days for each individual. Correlation analysis revealed that all relationships were statistically significant ( $p < .05$ ). Positive correlation was found between serious leisure and affect. Interestingly, flow was negatively correlated with both serious leisure and affect. The perceived challenge was negatively correlated with skill level, serious leisure and affect. The statistical analysis also revealed that skill level was positively correlated with serious leisure and affect.

The HLM was used to estimate levels of SWB from experience variables (serious leisure and flow) and individual difference variables (age and gender). As suggested by Raudenbush and Bryk (2002), several steps were taken to find out whether there was a significant between-individual variance in SWB. First, a null model (one-way ANOVA model) without any predictors was estimated. This model is a function of the grand mean of the outcome, random effect of experience and random effect of the

Table 4. Intercorrelations of predictors and dependent variables.

Variables	Mean	SD	1	2	3	4	5
1. Challenge	1.79	.90	—	-.62** (-.98 to .31)	-.18** (-.85 to .27)	-.09** (-.63 to .29)	.52** (.32 to .81)
2. Skill	4.16	.96		—	.15** (-.50 to .88)	.13** (-.54 to .65)	-.33** (-.68 to .43)
3. Serious leisure	13.20	2.30			—	.06* (-.17 to .71)	-.07* (-.58 to .13)
4. SWB	19.64	6.63				—	-.08** (-.41 to .26)
5. Flow	.12	.321					—

Note: The correlation coefficients in the top part of each cell are aggregate-level correlations, taken to the between-person level. Each observation is the mean across the seven days for each individual. Therefore, within-person level variances are ignored in these correlations. The correlation coefficients in the bottom part of each cell (the ones in the parenthesis) indicate ranges taken from each individual.

\* $p < .05$ ; \*\* $p < .01$ .

individual. It provides preliminary information about how much variation in each of the outcome lies within and between individuals.

The variance of the outcome was partitioned into within-person variability and between-person variability. There was significant between-person variability ( $\tau = 26.18, p < .001$ ). The interclass correlation (ICC) represented the proportion of the variance in the between-person variability in SWB. The ICC suggested that 59.58% of the variance in SWB was between-person, and the remaining 40.42% of the variance resided within-person. In other words, differences in outcome were largely the result of individual differences rather than the result of differences in the experience. Given the substantial ICC, the use of HLM was justified because the cases in this study were not independent and were clustered by individuals (Luke, 2004). The estimate for  $\gamma$  is interpreted as the average value of the dependent variable across all individuals. As shown in Table 5, the  $\gamma$  value in this model was 19.76, meaning that a typical older adult was expected to have had an average affect score of 19.76 (ranging from 4 to 28).

Second, the random coefficient model that included only Level 1 predictors was estimated. The random coefficient model tested the unique influence of serious leisure and flow on SWB. In this model, each of the 22 individuals had a separate regression equation on Level 1. Slopes for both flow and serious leisure in this model varied significantly across individuals. This means that the relationship between the within-person level predictors and SWB differed significantly among the 22 individuals. The study included an estimated Level 1 model with serious leisure and flow variables, with no predictors specified for the Level 2 model. As reported in Table 5, with the addition of within-person level variables, the random coefficient model was able to reduce the Level 1 variance in the outcome by 12.5%. Thus, by adding serious leisure and flow as predictors of SWB, 12.5% of the within-person variance was explained. Specifically, serious leisure ( $\gamma = .56, p < .001$ ) had a significantly positive relationship with SWB, and flow ( $\gamma = -1.12, p < .001$ ) had a significantly negative relationship with SWB (Table 5).

Table 5. Hierarchical Linear Modelling results for SWB.

Variable	Null model	Within-person level predictors	Between-person level predictors
Level 1			
Intercept	19.76**	19.90**	22.50**
Serious leisure		.56**	1.27**
Flow		-1.12**	-1.56*
Level 2			
Age			.30*
Gender			.20
Retirement			-3.26
Within-person residual variance	17.75	15.54	15.59
$R^2$ within-person		.12	
$R^2$ between-person			.07
Model deviance	4937.12	4850.66	4841.89

\* $p < .05$ ; \*\* $p < .01$ .

In the final model including all the Level 1 and Level 2 predictors, the intercept and slopes obtained from Level 1 were regressed on the measure of individual level variables: age, gender and retirement. This model is estimated to understand why some individuals have higher means than others and allows for the investigation of the association between SWB and Level 1 variables (i.e. serious leisure and flow). As Table 5 indicates, age ( $\gamma = .30, p < .01$ ) demonstrated a significant relationship with SWB after the within-person level predictors were accounted for. However, gender and retirement did not have significant relationships with SWB. As a group, the specified individual-level variables accounted for a further explanation of 7.6% of the variance in the dependent variable.

With regard to the slopes, the flow slope in Table 6 shows that there is a negative relationship between flow and SWB ( $\gamma = -1.56, p < .05$ ). In other words, there was a tendency for participants who did not report experiencing flow to have had larger slopes than those who had reported experiencing flow. However, the slope was not influenced by any of the Level 2 variables (see Table 6). For the serious leisure–SWB slope, there was a significantly positive between-person relationship ( $\gamma = 1.27, p < .001$ ). Specifically, there was a significant difference between those who were retired and those who were not. As Table 6 demonstrates, the influence of serious leisure on SWB was smaller among those who were retired ( $\gamma = -.67, p < .05$ ).

## Discussion

The purpose of this study was to investigate how serious leisure and flow contribute to the SWB in the daily lives of older adults. The results illustrated that serious leisure was positively associated with affect, which suggests that serious leisure contributes to the SWB of older adults. In addition, the findings revealed that experiences that were coded as flow had a significant negative relationship with PA, which suggests that challenge–skill balance is not necessarily conducive to older adults' SWB. The

Table 6. Results from the final model.

Fixed effects	Coefficient	SE	<i>t</i> ratio	
Model for flow–SWB slopes				
Intercept	–1.56	.65	—	
Gender	–.04	.62	–.07	
Age	.00	.03	.29	
Retirement	.54	.66	.81	
Model for serious leisure–SWB slopes				
Intercept	1.27	.31	4.09**	
Gender	–.40	.22	–1.82	
Age	.00	.01	.51	
Retirement	–.67	.27	–2.47*	
Random effects	Variance component	d.f.	$X^2$	<i>p</i> value
Intercept	24.19	13	633.46	.000
Flow–SWB slope	.31	13	6.91	>.500
Serious leisure–SWB slope	.26	13	44.03	.000
Level 1 effect	15.59			

\* $p < .05$ ; \*\* $p < .01$ .

study's results confirmed previous findings that SWB is an important consequence of serious leisure in everyday life (Haworth, 1986; Mannell, 1993). However, unlike previous studies that did not account for influences from other levels (i.e. experience level, individual level), this study modelled the structure of multi-level data by using HLM and tested effects of predictors at within-individual and between-individual levels on SWB. Therefore, this study represents a significant extension of previous studies examining the SWB of older adults.

Variance in SWB existed both within-person and between-person levels, and experiential factors (serious leisure and flow) and an individual factor (age) explained a moderate amount of this variance in SWB. Some longitudinal studies have indicated that NA decreases as people age (Diener, Sandvik, & Larsen, 1985; Gross et al., 1997). What decreased in those studies were both frequency and intensity of the NA. Other studies have shown that older adults are more likely to experience PA than younger adults (e.g. Charles, Reynolds, & Gatz, 2001). The findings from this study revealed that older respondents were more likely to report a more positive affective state as compared to younger respondents. This is consistent with the assertion by Carstensen, Isaacowitz, and Charles (1999) that aspects of SWB may change as people grow older. It also coincides with McNeil, Teague, McGuire, and O'Leary's (1987) suggestion that positive experience in leisure may be associated with positive adjustment in later life.

An important contribution of this study to a deepening understanding leisure experience, in general, is the finding of the relationship between serious leisure and SWB. In the present study, a considerable proportion of older adults reported their levels of 'seriousness' towards the activities in which they participated at the time of the electronic watch signal. Participation in an activity that respondents perceived to be serious leisure was found to be a significant predictor of SWB. Thus, this study confirmed the fact that there was a positive relationship between serious leisure and SWB ( $\gamma = 1.27, p < .001$ ).

Furthermore, unlike previous studies (e.g. Goff, Fick, & Oppliger, 1997) that treated serious leisure as a trait-like construct, this study provided the opportunity to investigate serious leisure as an experience of the moment. By employing ESM, a determination could be made regarding how the experience of serious leisure emerged in the daily lives of older adults. Consistent with Stebbins' (1992) classification of serious leisure, participants in the present study identified practicing music with a group, playing volleyball at a club, volunteering at an event and participating in the choir as momentary serious leisure experiences.

In addition to the association between serious leisure and SWB, retirement was found to be a significant factor in predicting the SWB of older adults. Retirement is an important transitional period for most people, and the positive role of leisure in the daily lives of older adults has been documented by McGuire, Boyd, and Tedrick (1999). Studies of leisure and retirement have been conducted over the past decades, and activity patterns often change as a result of retirement (Evenson et al., 2002). For example, King (1991) reported that the decline in occupational demands changed activity patterns after retirement. Caspersen and Merritt (1995) supported this by noting that participation in light and moderately intense activities tend to increase after the retirement. The present study revealed that employed participants had a tendency to score higher on serious leisure and SWB than retired participants (see Figure 1).

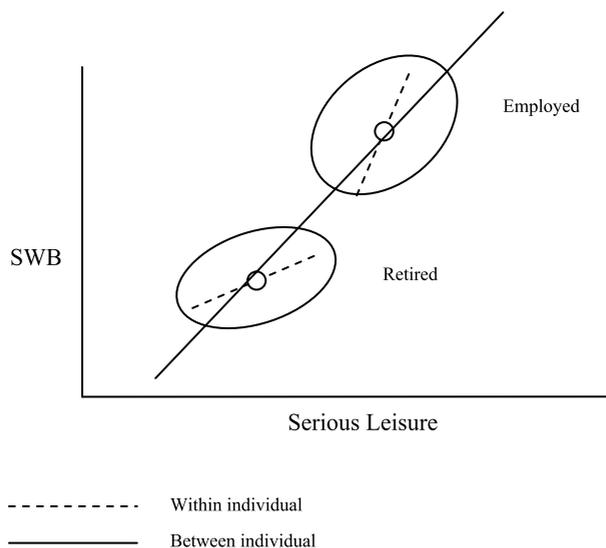


Figure 1. Cross-level interaction of SWB and serious leisure.

Perhaps, even more noteworthy are the findings regarding cross-level interaction, which provide results regarding the inter-relationships between experience factors and individual factors. By employing HLM, this study extends previous SWB and serious leisure studies, none of which were found to have accounted for influences from other levels. While serious leisure was positively related to SWB (between individuals) in this study, differences of relationship between serious leisure and SWB were found when retirement was considered (see Figure 1). As mentioned above, people who were not retired had higher scores on SWB. Additional insight is provided when the within-individual factor (serious leisure) is taken into consideration. As the graph in Figure 1 illustrates, the slope of those who were employed is steeper than those who were retired (within individuals). This pattern could be interpreted to mean that the influence of serious leisure on SWB among the employed participants is stronger than those who were retired.

The influence of flow on SWB also warrants discussion. In the model for the flow–SWB slopes, a negative relationship existed between the experience characterised as flow and SWB ( $\gamma = -1.56, p < .05$ ). However, no Level 2 variables in the model were found to be contributing to the score on affect. In theory, SWB and flow should be positively related (Bryce & Haworth, 2002; Clarke & Haworth, 1994). Csikszentmihalyi and Larson (1984) also reported that activities that produce flow are essential to achieve satisfaction in life among older adults. Contrary to previous findings, the present study revealed that the presence of flow was negatively associated with SWB. In order to understand why the experience of flow was negatively associated with SWB, it is important to understand perceived challenge and skill among older adults in this sample. Perhaps, the balance between challenge and ability level of skill did not play an important role in experiencing flow among the individuals in this study. In other words, other dimensions of flow (i.e. sense of control over the activity, distorted sense of time, high degree of concentration) might be better indicators of flow. While the ratio of challenge and skill has been widely used in flow studies, no evidence exists that average or above-average levels of challenge and skill are

required to experience flow. Therefore, it is possible that other dimensions of flow might be more influential than the level of challenge and skills. Perhaps, as suggested by Jones, Hollenhorst, and Perna (2003), it can be argued that multi-faceted factors should have been considered to predict flow, and flow as measured by the skill–challenge ratio may not be critical for SWB among older adults.

The older adults in this study demonstrated comparatively lower challenges and higher skills in the majority of activities, which resulted in fewer flow experiences in their daily lives. The significant difference between the findings in this study and the results of previous studies might have been caused by the nature of sample. Participants in this study lived comparatively independent lifestyles and were physically active. Furthermore, they might have been involved in activities that required low challenge levels.

An examination of two Level 1 variables (i.e. serious leisure and flow) revealed a negative relationship. In theory, individuals may experience flow when they are engaged in serious leisure. The results of this study, however, are counter-intuitive to Kelly and Freysinger's (2000) conceptualisation that serious leisure would generate flow. In the present study, approximately 13% of the reported experiences were characterised as flow. Upon closer examination of the types of activities that generated flow, it was found that a significant portion (36%) of the activities came from doing chores such as cleaning the house or watering the plants. Relaxing activities such as listening to music, watching television and reading accounted for another 20% of their flow experience. These activities have been categorised as casual leisure (Stebbins, 2001), which might have contributed to flow among older adults. As opposed to serious leisure, Stebbins noted that casual leisure involves immediate, intrinsically rewarding activities that require 'little or no special training to enjoy it' (p. 58). In fact, Stebbins (2007) suggested that experiencing flow is not limited to serious leisure participation because the enjoyment component in casual leisure is just as important as serious leisure. As Hutchinson and Kleiber (2005) noted, casual leisure could be meaningful to participants because of benefits such as buffering immediate stress, buffering the impact of negative life events and sustaining coping efforts.

Overall, this study expands the research into flow, serious leisure and SWB. Nezelek, Richardson, Green, and Schatten-Jones (2002) noted that many studies of older adults have relied on single, retrospective reports which could possibly pose threats to validity. By using the ESM, however, the present study addressed the limitations associated with the retrospective measures used in previous research. Regarding the use of HLM, as Sibthorp, Witter, Wells, Ellis and Voelkl (2004) noted, the use of HLM may be beneficial in recreation and tourism research that involves ESM. In the present study, more accurate relationships between the variables were established because of the use of HLM.

Despite new insights generated by this study, some limitations must be considered when interpreting the findings. First, while there exists several constructs that are relevant to SWB (i.e. dispositional optimism, global life satisfaction, self-esteem), the present study is limited by assessing SWB through positive affectivity and negative affectivity. Because SWB is a broad and multi-faceted domain (Pavot & Diener, 2004), it is arguable that the affective component might not show a complete picture of SWB. Additionally, two contradictory propositions exist among researchers regarding the measurement of SWB as to whether SWB is best measured by the sum of momentary experiences or by retrospective reconstruction (Diener, 2000; Kahneman,

1999). By employing ESM, the present study supports the proposition that momentary experiences might give a better picture of SWB. As suggested by Diener et al. (1999), both PA and NA are useful in measuring transient emotions, and it was assumed that affective components well represent SWB. Perhaps, addressing life satisfaction along with PA and NA will portray a better picture of SWB.

Secondly, this study did not use an instrument designed to measure serious leisure. It could be argued that the use of measurement instruments that better represent the variables would increase confidence when explaining serious leisure. The range of individual Cronbach's alphas for the serious leisure item was large across the subjects, and some participants reported low Cronbach's alpha scores (as low as .48). Perhaps, a future study could implement Gould, Moore, McGuire, and Stebbins' (2008) recently developed Serious Leisure Inventory and Measure if this inventory proves to be compatible with the ESM approach.

Although using ESM has strengths of capturing daily life experience, some limitations of this methodology should be noted. As Scollon et al. (2003) discussed, a number of alarms during the day can be very disruptive to participants. Completing identical questionnaires during the study period could be burdensome to respondents. This may result in dropout of participants. In addition, it can be argued that those who conscientiously complete the questionnaires may possess a personality that is more agreeable or patient than those who would refuse to participate. Such possible limitations could have biased the sampling.

It is arguable that measuring flow using only challenge and skill may be revealing only a small portion of flow. While using the optimal balance between perceived challenge of an activity and skill level can be a restricted view of flow (Csikszentmihalyi, 1992), it is still known as an important precondition for the flow experience (Whalen, 1997). Researchers have demonstrated the importance of the optimal balance approach on flow experience, and Hektner and Csikszentmihalyi (1996) indicated that optimal balance is a prerequisite of maintaining the enjoyment of flow, and this optimal balance will lead to success at a given task (Egbert, 2003). Because the experience of flow was a negative indicator of SWB in this study, future research could shed light on other dispositions of SWB such as optimism, internal locus of control and creativity. In addition, a closer look into what they did for leisure or worked on prior to and after the retirement may help understanding SWB.

To summarise, through the use of ESM data, this study provides insights into the influence of two important constructs of leisure experience – serious leisure and flow – on the SWB of older adults. This study expands the knowledge base in the field of leisure studies by testing a unique effect of serious leisure on SWB, and also calls for further investigations of the relationship between flow and SWB.

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## References

- Asakawa, K. (2004). Flow experience and autotelic personality in Japanese college students: How do they experience challenges in daily life? *Journal of Happiness Studies*, 5, 123–154.
- Blumenthal, J.A., Williams, R.S., Needels, T.L., & Wallace, A.G. (1982). Psychological changes accompany aerobic exercise in healthy middle-aged adults. *Psychosomatic Medicine*, 44, 529–536.
- Borrell, K. (1998). Using the Experience Sampling Method in gerontological social work. *Journal of Gerontological Social Work*, 30(3–4), 183–189.
- Brown, C. (2007). The Carolina Shaggers: Dance as serious leisure. *Journal of Leisure Research*, 39(4), 623–647.
- Bryce, J., & Haworth, J. (2002). Wellbeing and flow in sample of male and female office workers. *Leisure Studies*, 21, 249–263.
- Carstensen, L. (1995). Evidence for a life-span theory of socio-emotional selectivity. *Current Directions in Psychological Science*, 4, 151–155.
- Carstensen, L., Isaacowitz, D.M., & Charles, S.T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, 54, 165–181.
- Caspersen, C.J., & Merritt, R.K. (1995). Physical activity trends among 26 states, 1986–1990. *Medicine and Science in Sports and Exercise*, 27(5), 713–720.
- Charles, S.T., Reynolds, C.A., & Gatz, M. (2001). Age-related differences and change in positive and negative affect over 23 years. *Journal of Personality and Social Psychology*, 80(1), 136–151.
- Clarke, S.G., & Haworth, J.T. (1994). Flow experience in the daily lives of sixth-form college students. *British Journal of Psychology*, 85(4), 511–523.
- Csatari, J., & Antheil, K. (1996). The secret of peak performance. *Men's Health*, 11(9), 58–58.
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety: Experiencing flow in work and play*. San Francisco: Jossey-Bass.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper & Row.
- Csikszentmihalyi, M. (1992). The flow experience and its significance for human psychology. In M. Csikszentmihalyi & I.S. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 15–35). New York: Cambridge University.
- Csikszentmihalyi, M., & Csikszentmihalyi, I.S. (1988). *Optimal experience: Psychological studies of flow in consciousness*. New York: Cambridge University.
- Csikszentmihalyi, M., & Larson, R. (1984). *Being adolescent*. New York: Basic Books.
- Csikszentmihalyi, M., & Larson, R. (1987). Validity and reliability of the experience sampling method. *The Journal of Nervous and Mental Disease*, 175(9), 526–536.
- Csikszentmihalyi, M., Larson, R., & Prescott, S. (1977). The ecology of adolescent activity and experience. *Journal of Youth and Adolescence*, 6, 281–294.
- Csikszentmihalyi, M., & LeFevre, J. (1989). Optimal experience in work and leisure. *Journal of Personality and Social Psychology*, 56(5), 815–822.
- Csikszentmihalyi, M., & Nakamura, J. (1989). The dynamics of intrinsic motivation: A study of adolescents. In R. Ames & C. Ames (Eds.), *Handbook of motivation theory and research* (Vol. 3, pp. 45–71). New York: Academic Press.
- Delle Fave, A., Bassi, M., & Massimini, F. (2003). Quality of experience and risk perception in high-altitude rock climbing. *Journal of Applied Sport Psychology*, 15, 82–98.
- Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*, 55, 34–43.
- Diener, E., & Lucas, R.E. (1999). Personality and subjective well-being. In D. Kahneman, E. Diener, & N. Schwarz. (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 213–229). New York: Sage.
- Diener, E., Snadvik, E., & Larsen, R.J. (1985). Age and sex differences for emotional intensity. *Developmental Psychology*, 21, 542–546.

- Diener, E., & Suh, E.M. (1998). Age and subjective well-being: An international analysis. *Annual Review of Gerontology and Geriatrics, 17*, 304–324.
- Diener, E., Suh, E.M., Lucas, R.E., & Smith, H.L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125*, 276–302.
- Drentea, P. (2002). Retirement and mental health. *Journal of Aging and Health, 14*(2), 167–194.
- Egbert, J. (2003). A study of flow theory in the foreign language classroom. *The Modern Language Journal, 87*(4), 499–518.
- Evenson, K.R., Rosamond, W.D., Cai, J., Diez-Roux, A.V., & Brancati, F.L. (2002). Influence of retirement on leisure-time physical activity. *American Journal of Epidemiology, 155*(8), 692–699.
- Gelber, S.M. (1992). Free market metaphor: The historical dynamics of stamp collecting. *Comparative Studies in Society and History, 34*(4), 742–769.
- Goff, S.J., Fick, D.S., & Oppliger, R.A. (1997). The moderating effect of spouse support on the relation between serious leisure and spouses' perceived leisure-family conflict. *Journal of Leisure Research, 29*(1), 47–60.
- Gould, J., Moore, D., McGuire, F., & Stebbins, R. (2008). Development of the serious leisure inventory and measure. *Journal of Leisure Research, 40*(1), 47–68.
- Gross, J.J., Cartensen, L.L., Pasupathi, M., Tsai, J., Skorpen, C.G., & Hsu, A.Y.C. (1997). Emotion and aging: Experience, expression, and control. *Psychology and Aging, 12*, 590–599.
- Han, S. (1988). The relationship between life satisfaction and flow in elderly Korean immigrants. In M. Csikszentmihalyi & I.S. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 138–149). New York: Cambridge.
- Haworth, J.T. (1986). Meaningful activity and psychological models of non-employment. *Leisure Studies, 5*, 281–297.
- Hektner, J.M., & Csikszentmihalyi, M. (1996). *A longitudinal exploration of flow and intrinsic motivation in adolescents*. Paper presented at the annual meeting of the American Educational Research Association, New York.
- Heuser, L. (2005). We're not too old to play sports: The career of women lawn bowlers. *Leisure Studies, 24*, 45–60.
- Hutchinson, S.L., & Kleiber, D.A. (2005). Gifts of the ordinary: Casual leisure's contributions to health and well-being. *World Leisure Journal, 47*(3), 2–16.
- Jones, C.D., Hollenhorst, S.J., & Perna, F. (2003). An empirical comparison of the four channel flow model and adventure experience paradigm. *Leisure Sciences, 25*, 17–31.
- Kahneman, D. (1999). Objective happiness. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 25–33). New York: Sage.
- Kane, M.J., & Zink, R. (2004). Package adventure tours: markers in serious leisure careers. *Leisure Studies, 23*(4), 329–345.
- Kelly, J.R., & Freysinger, V.J. (2000). *21st century leisure: Current issues*. Needham Heights, MA: Allyn & Bacon.
- King, A. (1991). Community intervention for promotion of physical activity and fitness. *Exercise and Sport Sciences Review, 19*, 211–259.
- Kleiber, D. (1999). *Leisure experience and human development: A dialectical interpretation*. New York: Basic Books.
- Larson, R., Mannell, R., & Zuzanek, J. (1986). Daily well-being of older adults with friends and family. *Psychology and Aging, 1*(2), 117–126.
- Lawton, M.P. (1994). Personality and affective correlated of leisure activity participation by older people. *Journal of Leisure Research, 26*(2), 138–157.
- Luke, D.A. (2004). *Multilevel modeling*. Thousand Oaks, CA: Sage.
- Major, W.F. (2001). The benefits and costs of serious running. *World Leisure Journal, 43*(2), 12–25.
- Mannell, R.C. (1993). High investment activity and life satisfaction among older adults: Committed, serious leisure, and flow activities. In J.R. Kelly (Ed.), *Activity and aging* (pp. 125–145). Newbury Park, CA: Sage.
- McGuire, F.A., Boyd, R.K., & Tedrick, R.E. (1999). *Leisure and aging: Ulyssean living in later life*. Champaign, IL: Sagamore.

- McNeil, R., Teague, M., McGuire, F., & O'Leary, J. (1987). Aging and leisure. In L.B. Szwak (Ed.), *A literature review: The President's Commission on Americans Outdoors* (pp. S103–SS111). Washington, DC: U.S. Government Printing Office.
- Moen, P. (1996). A life course perspective on retirement, gender, and well-being. *Journal of Occupational Health Psychology, 1*(2), 131–144.
- Nezlek, J.B., Richardson, D.S., Green, L.R., & Schatten-Jones, E.C. (2002). Psychological well-being and day-to-day social interaction among older adults. *Personal Relationships, 9*, 57–71.
- Palmore, E. (1979). Predictors of successful aging. *The Gerontologist, 19*, 427–431.
- Pavot, W., & Diener, E. (2004). The subjective evaluation of well-being in adulthood: Findings and implications. *Ageing International, 29*(2), 113–135.
- Pinquart, M. (2001). Age differences in perceived positive affect, negative affect, and affect balance in middle and old age. *Journal of Happiness Studies, 2*, 375–405.
- Raudenbush, S.W., & Bryk, A.S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Newbury Park, CA: Sage.
- Reitzes, D.C., Mutran, E.J., & Fernandez, M.E. (1996). Does retirement hurt well-being? Factors influencing self-esteem and depression among retirees and workers. *The Gerontologist, 36*(5), 649–656.
- Ross, C.E., & Drentea, P. (1998). Consequences of retirement activities for distress and sense of personal control. *Journal of Health and Social Behavior, 39*, 317–334.
- Ross, C.E., & Mirowsky, J. (1995). Does employment affect health? *Journal of Health and Social Behavior, 36*, 230–243.
- Scollon, C.N., Kim-Prieto, C., & Diener, E. (2003). Experience sampling method: Promises and pitfalls, strengths and weaknesses. *Journal of Happiness Studies, 4*, 5–34.
- Sibthorp, J., Witter, E., Wells, M., Ellis, G., & Voelkl, J. (2004). Hierarchical linear modeling in park, recreation, and tourism research. *Journal of Leisure Research, 36*(1), 89–100.
- Silverstein, M., & Parker, M. (2002). Leisure activities and quality of life among the oldest older in Sweden. *Research on Aging, 24*(5), 528–547.
- Stathi, A., Fox, K.R., & McKenna, J. (2002). Physical activity and dimensions of subjective well-being in older adults. *Journal of Aging & Physical Activity, 10*(1), 76–92.
- Stebbins, R.A. (1992). *Amateurs, professionals, and serious leisure*. Montreal: McGill-Queen's University.
- Stebbins, R.A. (2001). *New directions in the theory and research of serious leisure*. Lewiston, NY: The Edwin Mellen.
- Stebbins, R.A. (2007). *Serious leisure*. New Brunswick, NJ: Transaction.
- Vittersø, J. (2003). Flow versus life satisfaction: A projective use of cartoons to illustrate the difference between the evaluation approach and the intrinsic motivation approach to subjective quality of life. *Journal of Happiness Studies, 4*, 141–167.
- Voelkl, J.E. (1990). The challenge skill ratio of daily experiences among older adults residing in nursing homes. *Therapeutic Recreation Journal, 24*(2), 7–17.
- Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063–1070.
- Whalen, S. (1997). *Assessing flow experiences in highly able adolescent learners*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Yarnal, C.M., & Dowler, L. (2002). Who is answering the call? Volunteer firefighting as serious leisure. *Leisure/Loisir, 27*(3–4), 161–189.
- Yoder, D.G. (1997). A model for commodity intensive serious leisure. *Journal of Leisure Research, 29*(4), 407–429.