

DISSERTATION

MEASURING EXPERIENCED LEVELS OF PLEASURE, PRODUCTIVITY,
RESTORATION, AND SOCIAL CONNECTION DURING OCCUPATIONAL
PERFORMANCE

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ABSTRACT

MEASURING EXPERIENCED LEVELS OF PLEASURE, PRODUCTIVITY, RESTORATION, AND SOCIAL CONNECTION DURING OCCUPATIONAL PERFORMANCE

Background: The *Occupational Experience Profile* (OEP) is a new assessment tool designed to evaluate levels of pleasure, productivity, restoration, and social connection that people experience during their occupational performances. The OEP was based on a previously published assessment of occupational experience, the *Daily Experiences of Pleasure, Productivity, and Restoration Profile* (PPR Profile). Based on my review of the literature, I found that there was a need (a) to revise the PPR Profile rating scales and items, and (b) to add a scale of social connection. Consequently, the PPR Profile was revised and given a new name, the *Occupational Experience Profile*. No research has been conducted prior to this dissertation to examine the psychometric properties of the OEP. The overall aim of this dissertation, therefore, was to evaluate aspects of validity and reliability of the OEP.

Methods: This dissertation was comprised of three studies involving 58 occupational therapy students from a university in the Northeastern United States. Each study contributed in a different way to the validation of the OEP. In the first two studies, Rasch analyses were used to examine aspects of validity and reliability of (a) four discrete experience scales (pleasure, productivity, restoration, and social connection) and (b) a composite OEP scale comprised of the items from all four scales. In the third study, cluster analyses were used in an attempt to identify

subgroup patterns of occupational experiences described in terms of relative levels of pleasure, productivity, restoration, and social connection.

Results: The results of the first two studies provided preliminary evidence to support the use of the OEP to generate valid and reliable discrete and composite measures of occupational experiences. The discrete OEP scales demonstrated sound psychometric properties in terms of rating scale functioning, unidimensionality, and reliability. The composite OEP rating scale demonstrated effective rating scale functioning and the resulting measures were even more reliable than the discrete OEP measures. The results of the second study also identified a potential risk to unidimensionality of the composite OEP scale. The third study provided inconclusive evidence to support the use of the OEP for identifying subgroup patterns of occupational experiences. More specifically, results of the third study indicated the presence of two subgroups, but the subgroup patterns of occupational experiences were essentially parallel, differing merely by overall level of occupational experience.

Conclusion: This dissertation provided preliminary validity and reliability evidence to support the use of the OEP to generate discrete and composite measures of occupational experience, but inconclusive evidence that the OEP could be used to identify subgroup patterns of occupational experiences. The discrete OEP measures have the potential to be used to create profiles of occupational experiences that describe participants' relative levels of pleasure, productivity, restoration, and social connection experienced during their occupational performances.

Additionally, the composite OEP scale potentially could be used to generate even more sensitive measures. Considered together, with further research, the discrete and composite OEP measures have the potential to be used in occupational therapy practice and research.

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DEDICATION

I dedicate this dissertation to my wife, Tamie.

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CHAPTER 1: INTRODUCTION

The overall aim of this dissertation was to evaluate aspects of validity and reliability of a new assessment tool, the *Occupational Experience Profile* (OEP; Adler & Berg, 2018). Based on the *Daily Experiences of Pleasure, Productivity, and Restoration Profile* (PPR Profile; Adler, 2014), the OEP is a new time-use diary wherein people record, over 24-hour days, their occupational performances and their levels of experienced pleasure, productivity, restoration, and social connection during each of those occupational performances. Following recommendations to revise the format of the PPR Profile (Berg, Adler, & Fisher, 2017) and to consider additional experiences associated with occupational performances (e.g., social connection; Adler, 2015a), Adler and Berg (2018) revised the PPR Profile to develop the OEP.

In this first chapter, I¹ begin by describing the theoretical model upon which I based this dissertation. I follow this with a discussion of the development of the OEP, including a description of the PPR Profile and how the OEP evolved based on earlier research with the PPR Profile. Finally, I present the rationale for each of the three studies that comprise this dissertation and end this chapter with a summary of the overall aims of this dissertation. Then, in Chapters 2, 3, and 4, I present the three studies that focus on evaluating different aspects of validity and reliability of the OEP scales. I end this dissertation with a final chapter where I summarize the overall findings from the research represented in Chapters 2, 3, and 4, and discuss their overall implications for future research and practice.

¹ In this chapter and in Chapter 5, I refer to myself, the author of this dissertation, using first person singular. In Chapters 2, 3, and 4, I use first person plural to acknowledge my research collaborators in the research summarized in my dissertation.

The Transactional Model of Occupation

I used the *Transactional Model of Occupation* (Fisher & Marterella, 2019) to guide this dissertation. Fisher and Marterella developed the *Transactional Model of Occupation* based on a transactional perspective on occupation originally introduced into occupational science by Dickie, Cutchin, and Humphry (2006). Within the *Transactional Model of Occupation*, occupation, comprised of three interwoven elements: occupational performance, occupational experience, and participation, is viewed as a continual response to a situational context (see Figure 1.1). Moreover, the three occupational elements are inextricably intertwined with the elements of the situational context that both influence and are influenced by the occupational elements. Finally, the situational elements (physical and social environmental, sociocultural, geopolitical, temporal, task, and client) all mutually influence each other. In Figure 1.1, Fisher and Marterella have used dotted lines to depict how the interwoven occupational elements (i.e., occupational performance, occupational experience, and participation) are mutually influencing each other and the elements of the situational context, just as the situational elements are mutually influencing each other and the interwoven occupational elements.

This inextricably intertwined whole depicted in the *Transactional Model of Occupation* (Fisher & Marterella, 2019; see Figure 1.1) is unlike other conceptual models of occupation where occupation is viewed as being separate from the person and the environment or the surrounding context (cf. Baum, Christiansen, & Bass, 2015; Polatajko et al., 2013). Unique to the *Transactional Model of Occupation*, the client elements are considered part of, not separate from, the situational context. Thus, what have been commonly viewed as separate (i.e., the person, the environment or context, and occupation) are viewed in the *Transactional Model of Occupation* as being inextricably intertwined. Because the focus of this dissertation was on an

assessment of occupational experience, and occupational experience is one of the occupational elements of the *Transactional Model of Occupation*, I discuss each of these interwoven occupational elements in more detail below.

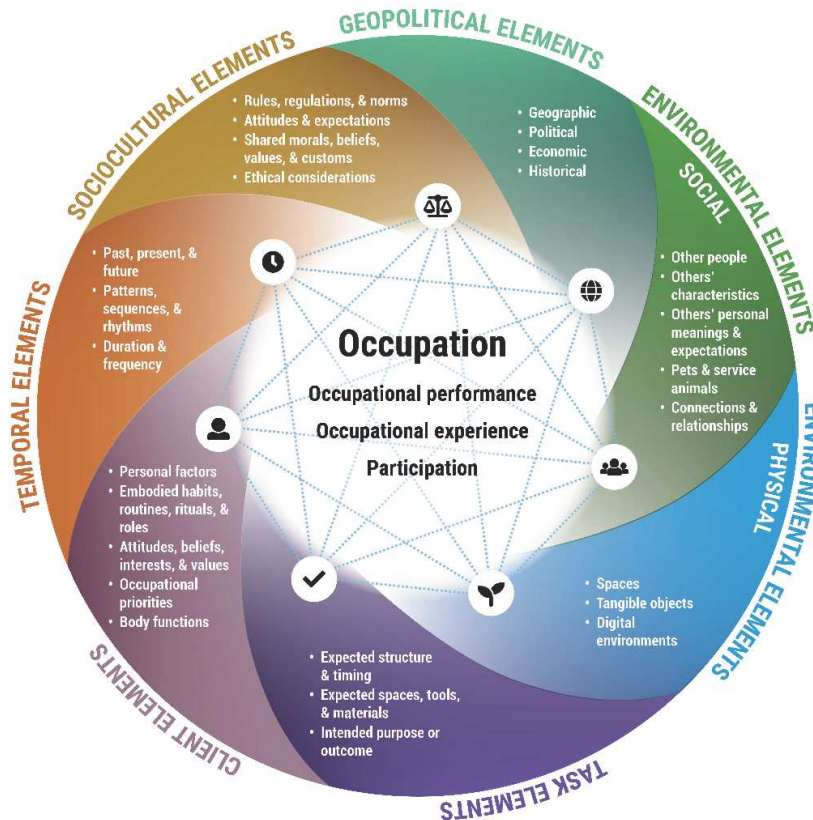


Figure 1.1. The Transactional Model of Occupation. From Fisher, A. G., & Marterella, A. (2019) *Powerful practice: A model for authentic occupational therapy*. Fort Collins, CO: Center for Innovative OT Solutions.

Occupational Performance

Fisher and Marterella (2019) defined occupational performance as the observable aspects of a person's doing (i.e., the outsider's perspective on the person's occupational performance). For example, consider a woman who was observed eating a meal with a friend. The outsider can report on whether the outsider observed any increased physical effort or time-space inefficiencies, if there was a safety risk, if the woman received assistance while eating, or if her

social interaction skills were effective when socially interacting with her friend (Fisher & Griswold, 2018; Fisher & Jones, 2012).

Occupational Experience

In contrast to occupational performance, Fisher and Marterella (2019) defined occupational experience as the insider's perspective on one's own occupational performances. Because it is the insider's perspective, the only way we can learn about a person's occupational experiences is to gather that information from the person. Thus, knowledge about a person's occupational experiences is based on the person's self-report, either verbal or nonverbal. For example, when reporting on her experiences while eating a meal with a friend, the woman expressed that she enjoyed spending time with her friend and that she felt socially connected to her friend as they ate together and engaged in casual conversation.

Participation

Fisher and Marterella (2019) referred to participation as being virtually synonymous with occupational engagement. Unlike other definitions of participation, they argued that participation is "more than simply taking part in or doing something, frequency of performance, or being able to perform tasks independently" (p. 21). Rather, in the *Transactional Model of Occupation*, they proposed that *participation* (occupational engagement) emerges when, during their occupational performances, people experience personal value in what they are doing.

Personal value is just one type of occupational experience, but one that is fundamental to participation. More specifically, personal value refers to experiencing that what one is doing is important or worthwhile to do. For example, people can experience personal value during an occupational performance when they feel that they are doing something that (a) is necessary or

compulsory; (b) is contributing to, making a difference for, or helping others; (c) is important simply because it seems like an ordinary or typical thing to do; (d) is important to do because doing it enables one to feel included, accepted, or socially connected; or (e) is important simply because of the experience of doing it (Fisher & Marterella, 2019; e.g., enjoying the smell of a freshly mowed lawn, feeling a sense of accomplishment in making a large quilt).

Further Reflection on the Relationship Among Occupational Experiences, Including Personal Value

In this dissertation, I assert that each type of occupational experience is unique and different from other types of occupational experiences. I also argue that personal value is a type of occupational experience that is different from occupational experiences evaluated when using the OEP (i.e., pleasure, productivity, restoration, and social connection). Finally, I assert that occupational experiences can be interrelated such that different types of occupational experiences (e.g., pleasure, social connection) may contribute to each other as well as to a sense of personal value (or vice versa). For example, people might experience that an occupational performance was important or worthwhile because it resulted in experiencing pleasure, social connection, or some other type of occupational experience.

Consider again the woman who was observed eating a meal and socializing with her friend. She expressed that she enjoyed spending time with her friend and experienced a sense of social connection during that occupational performance. Yet, her level of experienced pleasure or social connection does not explicitly indicate whether or not she felt that the occupational performance was worthwhile or important to do and, therefore, we do not know if, or to what extent she also experienced personal value. Moreover, we do not know if or how these various occupational experiences were interrelated. For example, she may have experienced a sense of

social connection with her friend because she was experiencing pleasure while sharing a meal with her friend. It also is possible that she personally valued being socially connected, and therefore experienced pleasure because she experienced social connection. As with all types of occupational experiences, the only way we can learn whether people experience personal value during their occupational performances is to ask them.

Further Reflection on a Need to Evaluate Occupational Experiences

Although Fisher and Marterella (2019) argued that occupational or situational elements of the *Transactional Model of Occupation* are inseparable, I assert that the only way to study (a) the interwoven relationship of the occupational elements, (b) how each of the occupational elements influences and is influenced by the situational elements, or (c) the relationship between the occupational elements and other variables such as well-being, is for researchers to be able to evaluate each occupational element separately. This means that researchers must be able to evaluate occupational performance, occupational experience, and participation using psychometrically sound measures of each. As I will discuss in more detail in the sections that follow, the OEP was developed to be used to evaluate one of the three interwoven occupational elements: occupational experience.

The Daily Experiences of Pleasure, Productivity, and Restoration Profile

Atler (2014) originally developed the PPR Profile as a time-use diary that was designed with three scales to evaluate three types of occupational experiences: pleasure (sense of enjoyment), productivity (sense of accomplishment or getting something done), and restoration (sense of energy renewal) that people experience during their occupational performances. When people completed the PPR Profile, they recorded, in writing, their occupational performances

during recent 24-hour days. They also recorded some elements of the situational context for each occupational performance (i.e., when, where, and with whom). Adler acknowledged that recording recent occupational performances and elements of the situational context for each occupational performance were important features of an assessment of occupational experiences because people are more likely to recall their experiences when they focus on recent occupational performances (Dockray et al., 2010) and when they are prompted to consider elements of the situational context of those occupational performances (Robinson & Clore, 2002).

Adler's (2014) preliminary research with the PPR Profile provided evidence to support aspects of content and response process validity of the PPR Profile. In the context of Adler's research, content validity pertained to the relationship between what the PPR Profile was designed to measure and the language of the test (e.g., instructions, items). Adler defined response process validity as the relationship between the constructs of interest (pleasure, productivity, and restoration) and what people were thinking when they recorded their occupational experiences. More specifically, Adler conducted cognitive interviews with participants who (a) were recruited from a variety of local community organizations and (b) completed an early version of the PPR Profile. In that version of the PPR Profile, the rating scales were designed to capture only positive experiences. The results of cognitive interviewing, however, suggested that the participants wanted, but were unable, to express negative levels of occupational experiences (e.g., displeasure).

Following expansion of the rating scales to capture the full range of occupational experiences (e.g., 1 = extreme displeasure to 7 = extreme pleasure), Adler and colleagues conducted several studies using a revised version of the PPR Profile with spousal caregivers

(Atler, Barney, Moravec, Sample, & Fruhauf, 2017; Atler, Moravec, Seidle, Manns, & Stephans, 2016; Watford, Jewell, & Atler, 2019) and custodial grandparents (Manns, Atler, & Fruhauf, 2017). Throughout these studies, Atler and colleagues proposed that examination of occupational experiences may help professionals better understand daily occupations (see Atler, Moravec, et al., 2016). Additionally, Atler et al. (2017) reported on the utility of the PPR Profile in occupational therapy practice. Perspectives of spousal caregivers and the occupational therapist indicated that the PPR Profile guided assessment and discussion of occupational experiences, which supported development of self-management interventions. A more recent pilot study by Watford et al. (2019) also demonstrated that the use of the PPR Profile with a guided reflection journal led to increased physical health and a clinically significant change in satisfaction with meaningful activities.

During the same approximate time frame as Atler began implementing studies with spousal caregivers and custodial grandparents, Atler and colleagues (Atler, Eakman, & Orsi, 2016; Berg et al., 2017) also studied additional aspects of validity of the PPR Profile scales based on data collected from college students. The results provided preliminary evidence to support convergent validity between the PPR Profile and a global assessment of occupational experience and assessments of well-being. More specifically, pleasure and productivity, but not restoration, were statistically significant predictors of a global assessment of occupational experience. Moreover, the PPR Profile shared only small amounts of variance with well-being (Atler, Eakman, et al., 2016). I summarize some of those findings later in this chapter, when I discuss the rationale for my second study.

In addition, Atler and colleagues (Atler, Eakman, & Orsi, 2018; Atler & Sharp, 2019) explored the participants' overall pattern of occupational experiences based on the types of

occupational performances they recorded. For example, the participants reported experiencing high levels of pleasure and productivity when reading and cooking; whereas, they reported experiencing music and virtual games as high in pleasure and low in productivity (Atler et al., 2018). When Atler and Sharp (2019) later considered the same group of participants' restoration experiences, they found that the participants were more likely to experience work and study with high levels of productivity and low restoration.

In a separate study involving the same sample of college students, Berg et al. (2017) used Rasch analysis methods to examine the psychometric properties of the PPR Profile scales. Rasch analyses are statistical methods for testing the psychometric properties of scales of human performance, attitudes, and perceptions against mathematical models of measurement (Bond & Fox, 2015). The advantages of using Rasch analysis methods pertain to the researcher's ability to evaluate how well the empirical data fit the pattern of responses expected by the Rasch measurement model the researchers have chosen to use (Bond & Fox, 2015; Wilson, 2005).

Linacre (2002b) recommended that researchers using Rasch analysis methods begin by examining if the rating scales demonstrate effective rating scale functioning. More specifically, he recommended that researchers examine (a) rating scale category frequency, (b) whether the rating scale category calibration estimates advance logically with the intended meaning of the rating scale categories, and (c) the degree to which the rating scale category calibration estimates fit the Rasch measurement model of the assessment tool.

Researchers using Rasch analysis methods also can examine the unidimensionality of a measurement scale and reliability of the resulting measures. Unidimensionality is a fundamental characteristic of measurement and refers to the idea that a scale must be designed such that it only measures one construct (Wright & Masters, 1982). Reliability refers to the degree to which

the results of a test (e.g., measures of occupational experience) are stable as demonstrated by low standard errors and high reliability coefficients (Haertel, 2006).

Berg et al. (2017) failed to find evidence to support effective rating scale functioning, unidimensionality of the PPR Profile scales, or acceptable reliability of the resulting measures. More specifically, they found that some PPR Profile rating scale categories had extremely low frequency and failed to demonstrate acceptable goodness of fit to the Rasch measurement model. Additionally, they found that the items did not work together to define unidimensional scales. They suggested that rating scales may have too many rating scale categories and that the items may have been poorly defined.

Berg et al. (2017), therefore, recommended that the PPR Profile be modified (a) to reduce the number of rating scale categories and (b) to include predefined test items (i.e., types of occupational performances). They argued that offering predefined test items was important to ensure that the participants, not the researchers, would categorize their own occupational performances. To clarify this latter recommendation, when the PPR Profile was used, researchers coded what the participants said they did (i.e., their recorded occupation performances; “Played soccer”) based on a more limited set of occupational categories adapted from the activity and participation domains of the *International Classification of Functioning, Disability and Health* (World Health Organization, 2001). For example, the researchers coded “Played soccer” as exercising. Berg et al. recommended that instead of the researchers coding the participants’ occupational performances, the participants should be allowed to categorize their own occupational performances. More specifically, they recommended that the participant be provided with a predefined list of types of occupational performances and then allow the participant to choose which one was the best match. Thus, a participant would be free to

categorize “Played soccer” as exercising, as socializing, or as some other prespecified category that the participant felt best matched what the participant had done.

Development of the Occupational Experience Profile

Based on the findings of Berg et al. (2017), Adler and Berg (2018) made revisions to the PPR Profile and published the new version of the assessment tool as the *Occupational Experience Profile* (OEP). The OEP did retain several of the key characteristics of its predecessor, the PPR Profile. For example, the OEP remained a time-use diary, and the people completing the OEP continued to record both what they did (e.g., “Played soccer”) as well as elements of the situational context (e.g., when, where, with whom) for each recorded occupational performance.

The changes involved a total revision of items and the reduction of the rating scales from seven- to six-category rating scales. The revision of the items was based on focus group discussions with adults and older adults with diverse backgrounds who were recruited from a variety of community settings (Berg, Sample, & Adler, n.p.). Adler and Berg (2018) then built on that research to develop a list of 15 predefined occupational categories (see Table 1.1). When participants complete the OEP, they indicate which of these 15 occupational categories best fit each of their recorded occupational performances. Second, when the participants rate the OEP items, they use the six-category rating scales displayed in Table 1.2. The middle categories of the PPR Profile seven-category rating scales (e.g., neither pleasure nor displeasure) were omitted because neutral categories can “provoke irrelevant and evasive responses” (Lopez, 1996, p. 482).

Table 1.1

Categories of Occupational Performances (Items) of the OEP

Caring for self	Socializing	Enriching/learning
Caring for home	Volunteering	Maintaining health
Having fun	Doing nothing	Meeting obligations
Experiencing spirituality	Caring for others	Working
Relaxing	Getting goods/services	Traveling

Table 1.2

OEP Rating Scale Categories

Rating	Pleasure	Productivity	Restoration	Social Connection
6	Strong sense of pleasure	Strong sense of accomplishment	Strong sense of energy renewal	Strong sense of social connection
5	Moderate sense of pleasure	Moderate sense of accomplishment	Moderate sense of energy renewal	Moderate sense of social connection
4	Little sense of pleasure	Little sense of accomplishment	Little sense of energy renewal	Little sense of social connection
3	Little sense of displeasure	Little sense of non-accomplishment	Little sense of energy drain	Little sense of social isolation
2	Moderate sense of displeasure	Moderate sense of non-accomplishment	Moderate sense of energy drain	Moderate sense of social isolation
1	Strong sense of displeasure	Strong sense of non-accomplishment	Strong sense of energy drain	Strong sense of social isolation

Another major change was the inclusion of a fourth scale to measure another type of occupational experience: social connection. As defined in the OEP, social connection refers to feeling connected with other people (Cacioppo, Cacioppo, & Boomsma, 2014). In part, the inclusion of social connection was based on a review of the literature both within and outside of occupational therapy and occupational science. Previous studies have demonstrated that people

who expressed that they felt socially disconnected were at higher risk for negative physical and psychological health (Coyle & Dugan, 2012; Hagerty & Williams, 1999; Poey, Burr, & Roberts, 2017; Wilson et al., 2007). Additionally, feeling socially connected with other people is an important aspect of personal value (Eakman & Eklund, 2011), meaning in occupation (Eakman et al., 2018), and lifestyle balance (Matuska & Bass, 2016). Moreover, social connection has been identified as an important experience for occupational therapy and occupational science (Atler, 2015a; Hammell, 2009; Rebeiro, Day, Semeniuk, O'Brien, & Wilson, 2001; Reed, Hocking, & Smythe, 2010; Wilcock & Hocking, 2015).

Introduction to the Studies Included in this Dissertation

Validity and Reliability of the Four OEP Scales

As I mentioned above, this dissertation is comprised of three studies. Each study focused on different aspects of validity and reliability of the OEP scales. In the first study, the focus of Chapter 2, I evaluated aspects of validity and reliability of the pleasure, productivity, restoration, and social connection scales of the OEP using Rasch analysis methods. More specifically, I designed the first study to evaluate the effectiveness of the new six-category rating scales shown in Table 1.2 and the unidimensionality of each of the four OEP scales. I also designed the first study to evaluate the reliability of the four OEP measures.

A Composite Measure of Occupational Experience for Use in Research

In my second study, I addressed whether the items of the OEP could be used to generate a composite OEP measure of overall occupational experience. I assert that a composite OEP measure, based on combining the pleasure, productivity, restoration, and social connection items

into a single scale, might be more robust than any of the four discrete OEP measures of occupational experiences (e.g., pleasure). I based this assertion on my review of the research that studied relationships between discrete or composite measures of occupational experiences and well-being.

More specifically, as presented in Table 1.3, researchers have found generally weak relationships between occupational experience and well-being when they used an assessment tool that was designed to evaluate discrete measures of occupational experiences. In contrast, researchers found moderate to strong relationships between occupational experience and well-being when they used assessment tools such as the *Occupational Value Assessment with predefined items* (OVal-pd; Eklund, Erlandsson, & Persson, 2003) and the *Engagement in Meaningful Activities Survey* (EMAS; Goldberg, Brintnell, & Goldberg, 2002) that were designed as composite measures of occupational experience (e.g., a combination of accomplishment, importance, and enjoyment; Adler, Eakman, et al., 2016; Eakman & Eklund, 2012; Eklund et al., 2003).

Table 1.3

Relationships Between Discrete and Composite Occupational Experiences and Measures of Well-Being

Authors	Occupational experiences	Measure of well-being	<i>r</i>	Strength of relationship
<i>Discrete occupational experiences</i>				
Atler, Eakman, & Orsi, 2016	Pleasure	Life satisfaction	.28	Weak
	Pleasure	Meaning in life	.25	Weak
	Productivity	Life satisfaction	.24	Weak
	Productivity	Meaning in life	.36	Moderate
	Restoration	Life satisfaction	.19	Weak
	Restoration	Meaning in life	.17	Weak
<i>Composite occupational experience</i>				
Atler, Eakman, & Orsi, 2016	Value	Life satisfaction	.49	Moderate
	Value	Meaning in life	.43	Moderate
Eklund, Erlandsson, & Persson, 2003	Value	Quality of life	.55	Strong
	Value	Self-reported health	.40	Moderate
Eakman & Eklund, 2012	Value	Life satisfaction	.60	Strong
	Value	Meaning in life	.45	Moderate
	Meaning	Life satisfaction	.62	Strong
	Meaning	Meaning in life	.44	Moderate

While the composite measures of occupational experience generated using the OVal-pd and the EMAS appear to be more robust in research examining relationships between occupational experience and well-being, these assessment tools differ from the OEP in two

important ways. When the OVal-pd and the EMAS are administered, people report on their general occupations, not specific and recent occupational performances. Additionally, the OVal-pd and the EMAS were not designed to collect information about the situational context related to people's occupational performances. Yet, I assert that recording specific and recent occupational performances along with elements of the situational context of those occupational performances are important characteristics of the design of an assessment of occupational experiences. As I noted earlier, I base this assertion on evidence that people are more likely to recall how they experienced an occupational performance when they are prompted to focus on a specific, recent occupational performance and related contextual elements (Dockray et al., 2010; Robinson & Clore, 2002).

Based on the results of the studies summarized in Table 1.3, I hypothesized that if the items from all four OEP scales also could be combined into a single, psychometrically sound scale of overall occupational experience, then the resulting composite OEP measures might be even more robust than any of the discrete OEP measures. The focus of Chapter 3, therefore, was to examine the possibility of using the items from all four OEP scales to generate a composite OEP measure of overall occupational experience.

Patterns of Occupation as Important for Occupational Science

In my third study, I examined whether the OEP could be used to study patterns of occupational experiences. Occupational patterns, regular and discernable forms or sequences of actions (Pattern, n.d.), have been of interest to the profession since its early years. For example, Meyer (1922) proposed that people need occupational patterns that he described as a healthy balance of work, play, rest, and sleep. "The only way to attain balance in all this is actual doing,

actual practice, a program of wholesome living as the basis of wholesome feeling and thinking and fancy and interests” (Meyer, 1922, p. 6).

Researchers who study occupation have used the term *occupational pattern* interchangeably with *occupational profile*. In this dissertation, I refer to an individual’s unique form or sequence of occupations as an *individual profile* and *occupational patterns* to describe the occupations of groups or subgroups that consist of individuals who share similar profiles.

In the following paragraphs, I synthesize the literature on occupational patterns. Researchers primarily have focused on patterns of occupational performances, one of the three interwoven elements of occupation as viewed in the *Transactional Model of Occupation* (Fisher & Marterella, 2019; see Figure 1.1). A few also have focused on patterns of occupational experiences. I found no studies exploring patterns of participation as defined in the *Transactional Model of Occupation*.

Patterns of occupational performances. One of the first quantitative studies describing occupational patterns was conducted by Smith, Kielhofner, and Watts (1986) with a sample of 60 older adults. More specifically, they used the *Occupational Questionnaire* to evaluate how much awake time that the older adults spent in four types of occupational performances: work, daily living tasks, recreation, and rest. They also asked participants to report on their level of life satisfaction. Smith et al. found that a subgroup of older adults who reported higher life satisfaction spent more of their awake time in recreation and work, and less time in activities of daily living and rest than did the subgroup who reported lower life satisfaction.

Ellegård (1999) introduced time-geographic methods for studying patterns of occupational performances described in terms of (a) how often and how long people engaged in occupational performances and (b) elements of the situational context. For example, Orban,

Ellegård, Thorngren-Jerneck, and Erlandsson (2012) studied patterns of occupational performances of 30 parents of obese children, 4 to 6 years old. They identified four subgroup patterns of occupational performances based on how much time the parents within each subgroup spent (a) with their children and (b) together as a couple. They described four subgroup patterns as follows: *togetherness focused* (parents spent time with children and together), *child focused* (parents spent time with children, but minimal time together), *individual focused* (parents spent minimal time with children or together), and *parent-child focused* (only one parent spent time with children and the parents spent moderate time together).

In a series of studies involving a group of 100 working mothers, Erlandsson and colleagues (Erlandsson & Eklund, 2001, 2006; Erlandsson, Rognvaldsson, & Eklund, 2004) studied patterns of occupational performances based on the level of temporal complexity in their individual profiles of occupational performances. They described levels of temporal complexity based on the number of changes (i.e., starting or restarting) in occupational performances during a 24-hour day. Erlandsson et al. (2004) identified three subgroup patterns wherein the participants in each subgroup shared similar individual profiles of occupational performances based on whether their individual profiles reflected low, medium, or high temporal complexity. To illustrate a highly complex profile of occupational performances, consider a segment of one participant's day: After returning home from running errands, "she started to prepare dinner, started the washing machine, made a phone call, sat down, and ate with the family. She interrupted the eating and went to get a son at his football training, but continued eating when they came back" (Erlandsson et al., 2004, p. 10).

Erlandsson and Eklund (2006) found that as the complexity of their participants' occupational patterns increased, the participants tended to report lower quality of life. They

proposed that these results might be explained by the subjective experience of occupational overload (Wilcock, 1998). They, therefore, recommended that future research explore occupational patterns from other perspectives, and that “focusing on experiential aspects might have yielded other results” (Erlandsson & Eklund, 2006, p. 34).

Patterns of occupational experiences. The recommendation from Erlandsson and Eklund (2006) to focus on experiential aspects of occupational patterns is consistent with the *Transactional Model of Occupation* (Fisher & Marterella, 2019) wherein the three interwoven elements of occupation are viewed as mutually influencing each other. Only a few researchers, however, have studied patterns of occupational experiences. All of them focused on overall group patterns; no researchers have focused on subgroups of participants who shared similar profiles of occupational experiences.

Patterns of occupational experiences described in terms of perceived skill and challenge. In one study of patterns of occupational experiences, Jonsson and Persson (2006) conducted a secondary analysis of data collected using experiential sampling methods (Moneta, 2012) in Italy, the United States, and Sweden. More specifically, they created individual profiles of occupational experiences for each participant based on how much time the participant spent engaging in occupational performances experienced as *flowing* (matched challenge and skill), *exacting* (high challenge, low skill), and *calming* (low challenge, high skill). Jonsson and Persson proceeded to describe the overall pattern of occupational experiences for each sample. For example, the overall pattern of occupational experiences for the Italian sample was 27% *flowing*, 27% *exacting*, and 46% *calming*.

Jonsson and Persson (2006) did not examine if there were subgroups of participants who shared similar profiles of occupational experiences, but they reported a few individual profiles.

For example, the individual profile of occupational experiences for an Italian female adolescent was described as 2% *flowing*, 29% *exacting*, and 69% *calming*. We do not know, however, if this profile, which was quite different from the overall group pattern from the Italian sample, was unique or if there was a subgroup within the Italian sample with similar profiles.

Patterns of occupational experiences described in terms of pleasure, productivity, and restoration. Other researchers used the PPR Profile to study occupational patterns described by how participants experienced their occupational performances. As mentioned above, Adler et al. (2018) identified which types of occupational performances that a sample of 264 college students experienced with high productivity and pleasure (e.g., exercising), low productivity and pleasure (e.g., commuting), high pleasure and low productivity (e.g., eating), and low pleasure and high productivity (e.g., working). In a follow-up study, Adler and Sharp (2019) found that the same college students experienced studying, working, and attending class with low levels of pleasure and restoration, but eating, relaxing, and reading with high levels of pleasure and restoration. Similar to Jonsson and Persson (2006), Adler and colleagues only looked at overall group patterns. They did not explore subgroups of their participants who might have shared similar profiles of occupational experiences.

Given that (a) it is possible to identify subgroups of participants who share similar profiles of occupational performances, and (b) there is some research exploring overall group patterns of occupational experiences; it is likely that researchers could identify subgroups that share similar profiles of occupational experiences. Ultimately, I believe that there is a need to examine if and how patterns of occupational experiences influence and are influenced by patterns of occupational performances. Before such research can be conducted, there is a need to determine whether it is possible to identify subgroup patterns of occupational experiences.

Therefore, I designed the third study in my dissertation (Chapter 4) to determine if the OEP could be used to identify subgroup patterns of occupational experiences described by reported levels of pleasure, productivity, restoration, and social connection.

Aim of this Dissertation

The overall aim of this dissertation was to examine aspects of validity and reliability of the OEP. More specifically, the focus of Chapter 2 is on the psychometric properties of the Pleasure, Productivity, Restoration, and Social connection scales of the OEP. The focus of Chapter 3 is on whether all of the OEP items from the Pleasure, Productivity, Restoration, and Social connection scales can be used to generate a psychometrically sound composite OEP measure of overall occupational experience. Finally, the focus of Chapter 4 is on whether the OEP can be used to identify subgroup patterns of occupational experiences. To address my overall aim, the overarching research questions of this dissertation are as follows:

1. What is the evidence supporting validity and reliability of the Pleasure, Productivity, Restoration, and Social connection scales of the OEP?
2. Is it possible to generate a psychometrically sound composite OEP measure of overall occupational experience based on all of the Pleasure, Productivity, Restoration, and Social connection items?
3. Can the OEP be used to identify subgroup patterns of occupational experiences?

CHAPTER 2: STUDY 1 — VALIDITY AND RELIABILITY OF THE OCCUPATIONAL EXPERIENCE PROFILE

The purpose of this study was to examine aspects of validity and reliability of a new occupational therapy assessment tool, the *Occupational Experience Profile* (OEP; Adler & Berg, 2018). We derived our definition of occupational experience from the *Transactional Model of Occupation* (Fisher & Marderella, 2019; see Chapter 1, Figure 1.1). Within this model, based on a transactional perspective on occupation (Aldrich, 2008; Cutchin & Dickie, 2012; Dickie et al., 2006), Fisher and Marderella (2019) defined occupational experience as what people experience while engaged in occupational performances.

More specifically, within the *Transactional Model of Occupation*, Fisher and Marderella (2019) described occupation as being comprised of three interwoven elements: occupational performance, occupational experience, and participation. Fisher and Marderella defined occupational performance as the observable aspects of a person's doing (e.g., quality of occupational performance). They defined occupational experience as the insider's perspective on the person's own occupational performances that can only become known when people self-report their experiences of their doings using verbal or nonverbal methods.

Fisher and Marderella (2019) defined participation as synonymous with occupational engagement. Importantly, they argued that participation is “more than simply taking part in or doing something, frequency of performance, or being able to perform tasks independently” (p. 21). They proposed that people are engaged in occupation (i.e., participating) when one of the things that they experience is value in what they are doing.

Fisher and Marderella (2019) asserted that occupational experience encompasses more than just a sense of personal value. That is, people can perceive many different types of

occupational experiences during an occupational performance (e.g., level of safety, physical effort, satisfaction, pleasure, value). Moreover, each type of occupational experience can range along a continuum from being strongly positive (e.g., experiencing an occupational performance as very safe) to being strongly negative (e.g., experiencing an occupational performance as very unsafe).

As illustrated in Chapter 1, Figure 1.1, the three occupational elements of the *Transactional Model of Occupation* are interwoven and mutually influence each other. They also mutually influence and are influenced by the elements of the situational context (e.g., sociocultural elements, geopolitical elements, environmental elements) that are mutually influencing each other. While the elements of occupation are inextricably interrelated, there remains a need to be able to evaluate each occupational element separately and empirically study their interrelationships as well as their relationships with the situational elements. Thus, one reason for developing the OEP was to be able to evaluate occupational experience, and, in the future, study if and how occupational experience is influenced by and influences other occupational and situational elements.

The OEP (Atler & Berg, 2018) was based on the *Daily Experiences of Pleasure, Productivity, and Restoration Profile* (PPR Profile; Atler, 2014). Atler (2014) developed the PPR Profile to enable occupational therapy researchers and practitioners to evaluate experiences associated with specific and recent occupational performances. The PPR Profile is a time-use diary. When completing the PPR Profile, people use their own words to record their occupational performances during 24-hour days. Because people are more likely to accurately recall their occupational experiences when they also recall the situational context (Robinson & Clore, 2002), the PPR Profile respondents record selected elements of the situational context associated with

each occupational performance (i.e., when, where, with whom). They next record their experienced levels of pleasure, productivity, and restoration for each occupational performance using 7-category rating scales (e.g., 1 = extreme displeasure to 7 = extreme pleasure).

Qualitative studies involving cognitive interviewing of PPR Profile respondents provided empirical support for content and response process validity (Atler, 2014, 2015b, 2016). In an additional study involving the use of Rasch analysis methods, Berg et al. (2017) evaluated the psychometric properties of the PPR Profile scales and identified the need for revisions to the PPR Profile rating scales and test items.

Based on recommendations by Berg et al. (2017), Atler and Berg (2018) published a new version of the assessment tool and named it the *Occupational Experience Profile*. One change was the addition of a fourth scale designed to evaluate the experience of social connection during occupational performances. A primary reason for adding social connection was because researchers studying occupation had identified social connection as an important occupational experience (Atler, 2015a; Hammell, 2009; Rebeiro et al., 2001; Reed et al., 2010; Wilcock & Hocking, 2015), one that reflects a person's subjective experience of feeling connected with other people (Cacioppo et al., 2014; Coyle & Dugan, 2012). Additionally, other studies had demonstrated that people who reported feeling socially disconnected were at higher risk for negative physical and psychological health (Coyle & Dugan, 2012; Hagerty & Williams, 1999; Poey et al., 2017; Wilson et al., 2007).

Another change pertained to how the items of the OEP were conceptualized. The items of both the PPR Profile and OEP represent occupational performances as recorded by people in their own words. However, when the PPR Profile was used in research, people wrote what they did (e.g., "Played soccer") and the researchers categorized what the people wrote (e.g.,

exercising; Atler et al., 2018). In contrast, based on recommendations by Berg et al. (2017), when the OEP is administered, people choose which of 15 predefined occupational categories listed in Chapter 1, Table 1.1 best fit what they did.

The reason for this change was that people might differ in how they classify their occupational performances (e.g., categorizing “Played soccer” as socializing) compared to how researchers would classify the same occupational performances (e.g., categorizing “Played soccer” as exercising). Moreover, the same person may classify the same type of occupational performance differently over time. For example, at one point in time, a person may define “Played soccer” as socializing, but at another time that same person might classify “Played soccer” as exercising.

The final change pertained to reducing the number of rating scale categories from seven to six (see Chapter 1, Table 1.2). More specifically, Atler and Berg (2018) omitted the middle category of PPR Profile rating scales (e.g., neither pleasure nor displeasure). They omitted the middle category because (a) neutral categories can “provoke irrelevant and evasive responses” (Lopez, 1996 p. 482) and (b) previous research revealed that the PPR Profile rating scales did not demonstrate effective rating scale functioning (Berg et al., 2017).

The OEP was developed based on Rasch measurement methods (Linacre, 2002a). When researchers use Rasch measurement methods to develop an assessment tool, they first conceptualize a unidimensional scale and a pattern of responses to the items that define the scale. Next, they administer the assessment tool to a group of people and elicit their responses. The researchers then evaluate the degree to which the gathered data fit the pattern of responses expected by the Rasch model the researchers have chosen to use (Wilson, 2005). The expected pattern of responses is based on assertions of the prespecified Rasch model.

In this study, we evaluated the degree to which empirical OEP data fit the pattern of responses expected by a many-facet Rasch (MFR) measurement model. MFR measurement models are described more fully elsewhere (Linacre, 1993; Linacre & Wright, 2002). As it relates to the expected pattern of responses predicted by the MFR measurement model of the OEP, people who have more positive occupational experiences (e.g., pleasure) are more likely to assign higher ratings on all OEP test items (i.e., the categories of occupational performance listed in Chapter 1, Table 1.1), and all people are more likely to assign higher ratings to easier OEP items than harder items (Bond & Fox, 2015). In the case of the OEP, easier items refer to the idea that an occupational performance is easier to endorse as being experienced in a highly positive manner (e.g., *Strong sense of pleasure*; see Chapter 1, Table 1.2).

The purpose of this study, therefore, was to determine if the OEP scales demonstrated sound psychometric properties as evidenced by the degree to which empirical OEP data conformed to the assertions of the MFR measurement model of the respective OEP scale. More specifically, based on recommendations from Bond and Fox (2015), we asked the following four research questions:

1. Do the OEP rating scale categories demonstrate effective rating scale functioning?
2. What are the OEP item difficulty hierarchies of Pleasure, Productivity, Restoration, and Social connection?
3. Do the OEP items demonstrate acceptable goodness of fit to the MFR measurement model of the respective OEP scale?
4. Do the items of the OEP work together to define a single unidimensional construct for each of the four OEP scales?
5. Do the OEP measures provide reliable estimates of occupational experience?

Study 1 — Methods

Study 1 — Participants, Context, and Data Collection Procedures

We invited first year occupational therapy students ($n = 61$) at a university in the Northeastern United States to participate in this study. During the first week of an occupational therapy theory course, the course instructors introduced the students to a semester-long assignment designed to help the students better understand their own occupations and appreciate the occupations of their future clients. As part of the assignment, the course instructors asked the students to complete the OEP (Atler & Berg, 2018) for 3 days at the beginning of the semester. The instructors also asked the students to establish personal goals, track progress toward those goals, and complete the OEP for another 3 days at the end of the semester. All aspects of the assignment were collected at the end of the semester. This study focused on the students' OEPs from the beginning of the semester.

When the instructors introduced the assignment, they told the students about this study and distributed consent forms. The consent forms offered students the ability to choose whether or not they permitted researchers to use their assignments in this study. The consent forms indicated that only the assignment documents would be shared with occupational therapists implementing research on the OEP. The course instructors informed the students that participation in the study would not impact their course grades. The institutional review boards at the students' and the authors' universities deemed the study exempt.

Study 1 — Data Preparation and Analyses

Based on recommendations for ensuring the quality of time-use data (Fisher & Gershuny, 2013), we evaluated each OEP for the number of reported activities, the number of data

recording errors, and the percent of missing time (i.e., awake time where no occupational performances were recorded). We planned to omit OEPs from this study if (a) the number of reported activities was two or more standard deviations outside the mean number of activities reported by all participants, (b) there were four or more recording errors (e.g., overlapping time sequences), or (c) more than 90 minutes of their awake time was missing. Because this study focused on the students' OEPs from the beginning of the semester, we also planned to omit OEPs if the participant did not indicate whether the OEPs were completed at the beginning or the end of the semester.

Although large sample sizes (i.e., $n \geq 100$) are needed to establish stable item difficulty estimates, Rasch analyses with smaller sample sizes are recommended for exploratory purposes (Chen et al., 2014; Linacre, 1994). A general rule for exploratory studies is to strive for a test length of at least 20 items to ensure sufficient confidence about making decisions related to individuals (Kruyen, Emons, & Sijtsma, 2012). The same logic can be applied when making decisions about items (i.e., at least 20 people must respond to each item to ensure that decisions about the items can be made with confidence; Linacre, 1994). We, therefore, planned to omit an OEP test item from our analyses if that item was used by the participants fewer than 20 times.

To implement our Rasch analyses, we used *Facets* version 3.83 (Linacre, 2019a) to estimate linearized measures of each participant's experienced levels of pleasure, productivity, restoration, and social connection based on that participant's ratings on the OEP items. OEP measures of occupational experiences are expressed in *logits* (log-odds probability units; Linacre & Wright, 1989). The MFR analyses of the OEP data adjusted participants' linearized measures for the difficulty of each item, enabling the direct comparison of two OEP measures on the same

scale (e.g., the Pleasure scale) despite the participants engaging in different types of occupational performances (Bond & Fox, 2015).

To avoid the need to average ratings across the 3 days of data collection or to rely on the data for only 1 day, we accounted for day as a facet in our MFR analyses. When adding day as a facet in MFR Rasch analyses, the elements of the facet (e.g., Sunday, Monday, Tuesday) either can be (a) anchored at zero, with day becoming a dummy facet; or (b) allowed to vary according to the impact of the day on the final measures (i.e., with day becoming an active measurement facet; Linacre, 2019b). Because the results of our MFR analyses were essentially the same whether day was a dummy facet or an active measurement facet, we implemented our analyses with day as a dummy facet.

We used Linacre's (2002b) guidelines to evaluate if the OEP rating scales were valid in terms of effective rating scale functioning. More specifically, we first judged whether each rating scale category (e.g., *Moderate sense of pleasure*) included a minimum of 10 observations for precise estimation of the rating scale category calibration estimates. Next, we examined whether the rating scale category calibration estimates logically increased with the intended meaning of the category labels of the respective rating scale. For example, we expected that the category *Moderate sense of pleasure* would represent more pleasure than *A little sense of pleasure* and, therefore, we expected its calibration estimate to be higher on the rating scale. Finally, we evaluated the degree to which rating scale category calibration estimates fit the MFR measurement model of the respective OEP scale (e.g., the Pleasure scale). We judged acceptable goodness of fit to the model by comparing the mean-square fit statistics (MS) for each rating scale category calibration estimate against a criterion of $0.5 \leq MS \leq 1.5$ based on recommendations for productive measurement (Wright & Linacre, 1994).

If any of the rating scale categories included fewer than 10 observations, did not advance logically with the intended meaning of the rating scale categories, or did not demonstrate acceptable goodness of fit to the MFR measurement model of the respective OEP scale, we planned to combine adjacent rating scale categories per recommendations from Stone and Wright (1994). Otherwise, our goal was to retain as many rating scale categories as possible so as to maximize the amount of information provided by the participants.

To address our research question related to the item hierarchies (Question 2), we examined the item difficulty estimates for each scale in relation to the theoretical construct that the items were designed to measure. For example, we expected that the *Having fun* item would be easier for students to endorse as pleasurable than the *Meeting obligations* item and, therefore, we predicted that *Having fun* would appear higher than *Meeting obligations* on the item difficulty hierarchy of the Pleasure scale.

To answer our third research question, we evaluated the degree to which the items demonstrated acceptable goodness of fit to the MFR measurement model of the respective OEP scale ($0.5 \leq MS \leq 1.5$). We would expect that 5% of the items in each scale might fail to demonstrate acceptable goodness of fit (i.e., misfit) by chance alone (Smith, 1991; Wilson, 2005). For the OEP, this would effectively mean that 1 of 15 items might be expected to misfit. If any of the items demonstrated misfit, we planned to explore patterns in the OEP data to explain any identified item misfit. For example, we planned to look for patterns between a misfitting item and (a) particular participants, (b) the participants' responses describing their occupational performances (e.g., "Played soccer"), and (c) elements of the situational context related to each occupational performance (i.e., when, where, and with whom).

Unidimensionality is a fundamental characteristic of measurement and refers to the degree to which the items of a scale work together to define one and only one construct (Wright & Masters, 1982). To test for unidimensionality (Question 4), we conducted principal components analyses (PCA) of the residuals using *Winsteps* version 4.4.7 (Linacre, 2019c) for each participant's first OEP. We focused on one OEP per participant because PCA of residuals cannot account for a third facet (e.g., day) and are based on analyses of only two facets (e.g., persons and item). We recognized that this was a limitation of using PCA to examine unidimensionality. PCAs are based on the assertion that empirical data consist of (a) data explained by the Rasch model (e.g., level of experienced pleasure) and (b) the residuals that are not explained by the Rasch model (Bond & Fox, 2015). We expect that the residuals would be random, and any item-correlated residual activity would not be large enough to indicate the presence of a secondary dimension (Wright, 1996).

There is some disagreement about the best criterion for detecting a secondary dimension (cf. Linacre, 2003; Raîche, 2005). Therefore, before we implemented our PCAs, we chose to follow Linacre's (2019d) recommendations and conducted five PCA simulations of randomly-generated, Rasch-fitting OEP data sets. Eigenvalues from these simulations ranged as follows: Pleasure: 1.8 to 2.3, Productivity: 2.0 to 2.5, Restoration: 2.0 to 2.4, and Social connection: 1.9 to 2.2. These eigenvalue ranges became our criteria for identifying a possible secondary dimension. More specifically, the eigenvalues represent the magnitude of the item-correlated residual activity in terms of the number of items. For example, an eigenvalue of 2.0 indicates that the residual activity has the strength of two items (Linacre, 2019d). If we found evidence of a secondary dimension, we planned to explore and describe that dimension.

Our final research question pertained to the reliability of the OEP measures. We examined two common reliability indices: the average standard error (*SE*) of the measures and the reliability coefficient (Haertel, 2006). There are no guidelines for evaluating the size of the *SE*, but the smaller the *SE*, the more reliable the measure and the more sensitive is the measure when used to detect change. Rasch reliability coefficients (*R*) are similar to Cronbach's alpha. When a Rasch reliability coefficient is at least $R = .67$, participants can be separated into two groups (e.g., high vs. low) with 95% confidence. As the reliability coefficient increases, so does the number of distinct groups that can be distinguished. For example, a reliability coefficient of $R = .80$ is generally considered good and suggests that the items can separate the participants into three distinct groups (Fisher, 2008).

Study 1 — Results

All 61 students (participants) agreed to participate in the study. Their OEPs met minimum data quality standards, but we omitted the OEPs for three participants who did not indicate which OEPs were from the beginning of the semester. When we examined their OEPs more closely, we found that the 58 participants in our final sample used two items fewer than 20 times: *Experiencing spirituality* ($n = 13$) and *Volunteering* ($n = 2$). We, therefore, omitted these two items from further analyses.

With regard to our first research question, we found that the participants used each of the OEP rating scales at least 10 times. Moreover, all rating scale category calibration estimates (a) advanced logically with the intended meaning of the rating scale category labels and (b) fit the MFR measurement model of the respective OEP scale (*MS* values ranged from 0.8 to 1.4). We concluded that the OEP rating scales were valid in terms of effective rating scale functioning.

When we examined the hierarchical order of items, we generally found that items we expected to be easier appeared higher on the respective OEP scale than did the items we expected to be harder. The OEP item difficulty hierarchies for each scale and the number of times that participants chose each item (i.e., each category of occupational performance as listed in Chapter 1, Table 1.1) are displayed in Table 2.1.

When we addressed our third research question, we found that 12/13 (92%) of the Pleasure items, 13/13 (100%) of the Productivity items, 12/13 (92%) of the Restoration items, and 12/13 (92%) of the Social connection items demonstrated acceptable goodness of fit to the respective measurement model. The items that did not fit the respective model were as follows: Pleasure scale: *Maintaining health*, Restoration scale: *Doing nothing*, and Social connection scale: *Having fun*. Despite our findings that no more than the expected number of items misfit by chance alone, we explored, as planned, patterns in the OEP data associated with item misfit.

Table 2.1

Occupational Categories of the OEP (Items) Ordered by Item Difficulty^a on the Four OEP Scales

Pleasure		Productivity		Restoration		Social connection	
Item (<i>n</i> ^b)	Calibration	Item	Calibration	Item	Calibration	Item	Calibration
Having fun (53)	2.15	Working	1.18	Maintaining health	0.71	Socializing	1.93
Socializing (116)	1.38	Enriching/learning	0.91	Caring for self	0.55	Having fun ^c	1.38
Relaxing (133)	0.99	Caring for home	0.83	Socializing	0.48	Caring for others	0.31
Maintaining health ^c (97)	0.34	Getting goods/services	0.73	Relaxing	0.46	Working	0.31
Caring for self (169)	0.21	Meeting obligations	0.61	Having fun	0.42	Getting goods/services	0.15
Doing nothing (48)	-0.16	Maintaining health	0.44	Doing nothing ^c	0.15	Enriching/learning	0.12
Getting goods/services (26)	-0.36	Caring for others	0.08	Caring for others	-0.16	Relaxing	-0.26
Caring for others (21)	-0.40	Caring for self	-0.23	Getting goods/services	-0.23	Traveling	-0.43
Working (64)	-0.73	Traveling	-0.39	Traveling	-0.24	Maintaining health	-0.44
Traveling (118)	-0.75	Having fun	-0.51	Enriching/learning	-0.41	Meeting obligations	-0.60
Enriching/ learning (106)	-0.78	Socializing	-0.62	Caring for home	-0.53	Doing nothing	-0.63
Caring for home (44)	-0.92	Relaxing	-1.22	Meeting obligations	-0.54	Caring for self	-0.85
Meeting obligations (67)	-0.97	Doing nothing	-1.81	Working	-0.67	Caring for home	-0.99

^a Higher item difficulty estimate, reported in logits, represent items that were easier to endorse as being experienced in a highly positive manner

^b The number of times that participants chose each category of occupational performance as listed in Chapter 1, Table 1.1

^c Item that did not demonstrate goodness of fit to the MFR measurement model of the OEP

When we examined the OEP data related to the *Maintaining health* item on the Pleasure scale, we found that the item misfit was associated with only one participant. We, therefore, explored this participant's OEPs in more detail and discovered two important patterns associated with this participant's responses. First, we found that this participant had unexpected ratings not only on the *Maintaining health* item for the Pleasure scale, but also unexpected ratings on many other items across all four of the OEP scales. More specifically, this participant sometimes assigned high ratings when low ratings were expected by the MFR measurement model and low ratings when high ratings were expected. Second, we found that this participant recorded unexpected events when describing several occupational performances. For example, this participant wrote, "It took me forever to make dinner because I dropped the frying pan and food went all over. I had to clean a big mess and then make another dinner!" When we removed this participant from our MFR analyses, the *Maintaining health* item fit the measurement model of the Pleasure scale.

When we explored for patterns in the OEP data that were associated with *Having fun* on the *Social connection* scale, we found that the item misfit seemed to be related to an element of the situational context: with whom (coded as alone or with others). More specifically, among participants who chose the *Having fun* item, those who recorded that they were alone generally assigned lower *Social connection* ratings than did those who recorded that they were with other people.

Because we suspected that there might be a relationship between this element of the social environment and how participants rated the *Having fun* item on the *Social connection* rating scale, we decided to further evaluate this relationship by splitting the *Having fun* item on the *Social connection* scale using a method described by Tennant et al. (2004). We then

conducted a follow-up MFR analysis of the *Social connection* data after we split *Having fun* into two distinct items: *Having fun with others* and *Having fun alone*. Our results revealed that the item difficulty estimates of *Having fun with others* (2.15 logits) and *Having fun alone* (-0.60 logit) differed considerably on the *Social connection* item difficulty hierarchy. Both items, *Having fun with others* and the *Having fun alone*, demonstrated acceptable goodness of fit to the MFR measurement model of the *Social connection* scale.

Finally, we explored for patterns in the OEP data associated with *Doing nothing* on the *Restoration* scale. We found that some *Restoration* ratings related to *Doing nothing* were lower than expected by the measurement model and other ratings were higher than expected. Unlike the *Maintaining health* item, for which only one participant provided unexpected ratings, the *Doing nothing* ratings that were unexpected by the MFR measurement model of the *Restoration* scale were pervasive across all participants. The types of responses that participants recorded included “Eating,” “Checking social media,” “Watching television,” “Falling asleep,” and “Doing nothing productive.” When we examined further, we could find no systematic patterns associated with (a) particular participants, (b) participant responses that described their occupational performances, or (c) available information about the situational context that might explain item misfit related to *Doing nothing*. We did note, however, that many of the participants indicated that they were “doing something” (e.g., “Eating”), but still chose to report that they were “doing nothing.”

The PCA results used to address our fourth research question provided evidence to support the unidimensionality of each of the OEP scales as demonstrated by the following eigenvalues: Pleasure = 2.1, Productivity = 2.4, Restoration = 2.3, Social connection = 2.1. The omission of the misfitting items had minimal impact on our PCA results and no impact on our

conclusion that all four OEP scales demonstrated unidimensionality. Because there was no evidence of a secondary dimension in any of the OEP scales, we proceeded to examine the reliability of the OEP measures.

When we answered our fifth research question, as shown in Table 2.2, the mean *SEs* of the person measures were approximately 0.3 logit for each of the four OEP scales. The reliability coefficients were acceptable for the Pleasure scale and good for the Productivity, Restoration, and Social connection scales. The reliability coefficients indicated that the OEP items could separate participants into two statistically distinct subgroups along the Pleasure scale and three distinct subgroups along the Productivity, Restoration, and Social connection scales with 95% confidence (Fisher, 2008). The *SEs* and reliability coefficients were essentially the same whether *Having fun* was or was not split into two items, and whether the misfitting items were or were not omitted. The correlations among the four measures ranged from low to moderate, indicating that pleasure, productivity, restoration, and social connection appear to be distinct, but interrelated constructs (see Table 2.2).

Table 2.2
Mean Standard Errors (SE) and Reliability Coefficients (R) of the OEP Measures and the Correlations Among Measures

	Reliability		Correlations (<i>r</i>)			
	<i>SE</i>	<i>R</i>	Pleasure	Productivity	Restoration	Social connection
Pleasure	.31	.77	—			
Productivity	.31	.81	.68	—		
Restoration	.28	.87	.56	.32	—	
Social connection	.26	.86	.59	.50	.62	—

Study 1 — Discussion

This is the first study to examine aspects of validity and reliability of the OEP scales. Additionally, it was the first study that involved evaluating people's discrete experiences of social connection shortly after engaging in their occupational performances over 3 days. Our results provided preliminary support for the validity of the OEP rating scales; an expected rate of item misfit to the MFR measurement model of the respective OEP scale; unidimensionality of the Pleasure, Productivity, Restoration, and Social connection scales of the OEP; and reliability of the OEP measures. Our results also revealed the potential need for further improvements to the OEP.

Ratings Scale Functioning

The 6-category OEP rating scales demonstrated improved rating scale functioning over the 7-category rating scales of the PPR Profile (cf. Berg et al., 2017). We found no evidence in this study of a need to further reduce the number of rating scale categories. More specifically, elimination of the middle category of the PPR Profile appeared to encourage participants to effectively use the rating scales.

Item Difficulty Hierarchies

Our results provide information about which occupational performances are generally easier to endorse as being experienced in a highly positive manner than other occupational performances. Although we expected that some items (e.g., *Having fun* on the Pleasure scale) would be easier to endorse in a positive manner than other items (e.g., *Meeting obligations* on the Pleasure scale), our analyses were generally exploratory. That is, there were some items for which we did not have a theoretical basis to predict their item difficulty in relation to the other

items. For example, prior to this study, we could only speculate that *Getting goods and services* would be easier than *Caring for home* on the Pleasure scale. Additionally, it is important to note that the item difficulty estimates in Table 2.1 are preliminary estimates based on a relatively small sample. It is likely, therefore, that they will shift somewhat when this study is replicated with larger and more diverse samples. Stable item difficulty estimates will require samples of at least 100 people (Chen et al., 2014; Krueger et al., 2012; Linacre, 1994).

Item Goodness of Fit

The high percentage (92–100%) of items per scale that demonstrated acceptable goodness of fit to the respective MFR measurement model provided evidence to support aspects of internal scale validity of the OEP scales. That is, as we noted earlier, an expected 5% rate of misfit effectively means that we could expect one item to misfit by chance. When we take this into consideration, none of the four OEP scales had more than one item that misfit the MFR measurement model of that scale.

While some researchers recommend omitting persistently misfitting items (Bond & Fox, 2015; Linacre, 2010), we concluded that it would be premature to omit any of the three misfitting items. We based our conclusion in part on our finding that only one item misfit any of the OEP scales (see Table 2.1). After we discuss the patterns in the OEP data associated with misfit for each of these items in more detail, we will present additional arguments for deferring decisions related to retaining or omitting misfitting items.

Maintaining health. As we noted earlier, the participant who had unexpected *Maintaining health* item ratings on the Pleasure scale also had unexpected ratings on many other items of the Pleasure, Productivity, Restoration, and Social connection scales. As a result, this

participant had misfitting OEP measures on all four OEP scales. Unexpected OEP item ratings or OEP measures can occur when people give random responses without careful reflection on their occupational experiences. Thus, one possible reason that this participant had misfitting ratings and measures may be related to not taking the time, for whatever reason, to provide meaningful OEP item ratings. For example, this participant may have felt undue time constraints or perhaps did not value the OEP portion of the classroom assignment, resulting in seemingly random OEP data.

Another possibility is that this participant's unexpected OEP item ratings were logical, but that unusual events resulted in the participant giving unexpected ratings. We provided an example of such an unexpected event earlier when we mentioned that this participant was cooking dinner and dropped the pan on the floor. When we further examined this participant's OEP data, we found additional examples of unexpected ratings that sometimes were and sometimes were not clearly associated with similarly unexpected events. We decided that the pattern of OEP item ratings was not clear enough to conclude that this was the reason for the misfitting ratings.

Since we did not have enough information to know if one or both of these possibilities applied to this participant, we recommend that future researchers monitor the *Maintaining health* item fit statistics on the Pleasure scale in studies with larger and more diverse samples. One final possibility that should be explored during such studies is that the pattern of responses for this participant actually reflects a typical (i.e., expected) pattern among a subgroup of people who differ from our participants by culture, diagnosis, age, or other life circumstance.

Having fun. *Having fun* demonstrated acceptable goodness of fit to the MFR measurement model of the Social connection scale only when we split the item into two items:

Having fun with others and *Having fun alone*. Thus, we recommend that future researchers consider splitting the *Having fun* item to account for the influence of this social environmental element of the situational context. Moreover, future researchers may even need to explore other OEP items based on whether participants were alone or with others during their occupational performances.

Doing nothing. Similar to the *Maintaining health* and *Having fun* items, our participants provided *Doing nothing* ratings that were sometimes higher and sometimes lower than expected by the measurement model. Unlike these other misfitting items, the unexpected *Doing nothing* ratings were not associated with a particular participant or element of the situational context. Moreover, because we could find no explanatory patterns in the OEP data associated with item misfit for *Doing nothing*, we could only speculate about possible reasons that this item did not fit the MFR measurement model of the Restoration scale.

One possible reason for the misfit was that different participants interpreted what it meant to be “doing nothing” in different ways. This conclusion is supported by the written responses of the participants. For example, as we mentioned earlier, some participants described occupational performances that they categorized as *Doing nothing* using language that represented specific types of occupational performances where they actually were doing something (e.g., “Eating”). Perhaps these participants interpreted the *Doing nothing* item as “doing nothing important.” Other participants described occupational performances that they categorized as *Doing nothing* using language that suggested feeling unproductive (e.g., “Doing nothing productive,” “Falling asleep”).

Another possible reason that *Doing nothing* failed to demonstrate acceptable fit to the measurement model of the Restoration scale was that some people found the item easy to

endorse in a highly positive manner while other people found the item difficult to endorse in a highly positive manner. Evidence to support this possibility came from our finding that many of the unexpected ratings were associated with the participants indicating that they felt energy drain rather than restoration (Chapter 1, Table 1.2) during their occupational performances. According to Sonntag-Öström et al. (2015), some people are more likely than others to experience “doing nothing” with anxiety, stress, and “thoughts of what other things they could have accomplished” during the time they spent “doing nothing” (p. 610). It is possible that stress and anxiety could have prevented some participants, but not all participants, from experiencing a sense of restoration during their “doing nothing” occupational performances.

A third possibility for the misfit is that the Restoration rating scale was unclear in relation to “doing nothing” (see Chapter 1, Table 1.2). When an item is unclear, interpreted in different ways, or ambiguous, it is common for participants to respond idiosyncratically (Royal, Ellis, Ensslen, & Homan, 2010). More importantly, such idiosyncrasy suggests the need to either omit or revise the item.

The rationale for omitting misfitting items is that they are not productive for measurement (Bond & Fox, 2015). We, therefore, considered omitting the *Doing nothing* item from the OEP. Given the design of the OEP, however, omitting the *Doing nothing* item from the Restoration scale of the OEP would also require that it be removed from the Pleasure, Productivity, and Social connection scales despite this item being productive for measurement on those scales. This suggests that the idiosyncrasy is only a problem when *Doing nothing* is considered in relation to experiencing restoration or energy drain and should not be removed from the Pleasure, Productivity, and Social connection scales. In addition, previous research has recognized the importance of experiences of “doing nothing” for students (Csikszentmihalyi,

1988), people without paid employment (Scanlan & Bundy, 2011), and people with mental illness (Borg & Davidson, 2008; Liljeholm & Bejerholm, 2019; Sonntag-Öström et al., 2015).

Thus, rather than omit *Doing nothing* from the Restoration scale, we recommend revising it so that it's meaning will be clear and unambiguous. This likely will require future research focused on determining why the item was unclear or ambiguous when rated in terms of experiencing restoration. For example, it may be helpful to use qualitative inquiry methods to explore with prior or potential future participants what meaning they ascribe to “doing nothing” or what it means to experience restoration versus energy drain when “doing nothing.” Such research could point to new language for this OEP item and possibly reduce the idiosyncrasy we found in our data.

Unidimensionality

Our PCA results indicated that the items of the OEP worked together to define one construct for each of the four OEP scales. This provided evidence to support unidimensionality of the OEP scales. This is an improvement in the psychometric properties of the OEP over its previous version, the PPR Profile, whose scales did not demonstrate unidimensionality (Berg et al., 2017). Because the key differences between the OEP and the PPR Profile are that the OEP allowed the participants to choose which occupational category best fit their occupational performances (see Chapter 1, Table 1.1) and rating scales were reduced from 7 to 6 categories, these changes likely account for improved unidimensionality. Nevertheless, given the pilot nature of this study, additional research is needed to confirm our findings with larger and more diverse samples, especially given the low frequency of responses to some items and the possible need to revise, split, and/or omit other items.

Reliability

Our results suggest that the OEP measures were reliable (i.e., stable) estimates of these participants' occupational experiences. Even when we split the *Having fun* item, the reliability estimates were essentially unchanged. The small *SEs* for the OEP measures also suggest that the OEP measures were sensitive enough to be used to detect a difference in occupational experience between two OEP administrations for one person (e.g., Time 1 vs. Time 2) or two persons (e.g., Person A vs. Person B). Because reliability coefficients are influenced by the degree of heterogeneity in a sample (Haertel, 2006), we would expect the reliability of the OEP measures will increase when the OEP is used to evaluate more diverse samples. Obviously, future research will be needed to verify this speculation.

Study 1 — Limitations and Recommendations for Future Research

The results of this study should be interpreted with caution because of our small, homogenous sample. Thus, we recommend that future studies be based on larger samples and take into consideration a variety of life situations and demographic groups (e.g., age, gender, socioeconomic status, culture, world region). It also will be critical to include participants who do not have any identified diagnosis or disability. Gathering data on persons without identified diagnoses or disabilities will enable future researchers to develop expected ranges of the OEP measures for healthy, nondisabled reference groups (Kolen, 2006). This will allow occupational therapy researchers and practitioners to interpret the OEP measures in relation to age-normative expectations.

Another limitation was that we did not have sufficient demographic or other information about our participants to be able to fully discern the reasons for item misfit of the three OEP items that did not demonstrate sound psychometric properties. Thus, we recommend the three

misfitting items be retained and that future research include (a) monitoring for item fit to the MFR measurement model of the respective OEP scale, (b) determining reasons for any identified misfit, and (c) revising or omitting any items that persist in eliciting idiosyncratic responses.

Future research using the OEP could examine Atler's (2015a) theory that "occupational experiences may occur in patterns and may be influenced by each other" (p. 256). For example, if a person experiences more social connection during daily occupational performances, does that person also experience more pleasure? Or, how does experiencing displeasure and energy drain influence one's feelings of social connection during daily occupational performances? In addition, future researchers could examine if and how occupational experiences influence and are influenced by occupational performances, participation, or elements of the situational context.

Another potential use of the OEP in research could be to identify whether subgroups of people share similar patterns of occupational experiences (e.g., students vs. nonstudents in the same age group, people who live in different world regions). For example, one subgroup might experience their occupational performances with moderate pleasure, productivity, restoration, and social connection, while the other subgroup might experience their occupational performances with high pleasure, productivity, and social connection but low restoration. Additionally, the OEP could be used in research exploring relationships between occupational experiences and more global variables such as health and well-being. It might also be valuable to explore how these relationships vary across specific age, gender, cultural, ethnic, or diagnostic groups.

Study 1 — Implications for Occupational Therapy Practice

One reason for developing the OEP was to enable occupational therapists to evaluate a client's occupational experiences during specific and recent occupational performance while taking into consideration some elements of the situational context of those occupational performances (Atler & Berg, 2018). Within this, the OEP has the potential to promote awareness among occupational therapy clients about what they experience during their daily occupational performances. Such awareness is a necessary step toward promoting change in clients' occupational choices (Clark, Jackson, & Carlson, 2004).

Moreover, OEP results potentially could be used to help occupational therapists gain insights into their clients' occupations and related experiences. These insights could enable occupational therapist to establish or clarify a client's occupational priorities and support collaborative goal setting. In addition, with confirmatory evidence from future research, the OEP measures of pleasure, productivity, restoration, and social connection could be used as baseline measures of occupational experiences or to document change in occupational experiences over time. More specifically, occupational therapists potentially could determine whether a client's occupational experience likely changed ($p \leq .15$) if two occupational experience measures on the same OEP scale differ by at least 2 *SE* (Harvill, 1991; Jette, Tao, Norweg, & Haley, 2007). Based on the size of the average *SEs* of the OEP scales (see Table 2.2), this means that occupational therapists could identify a change in a client's occupational experience when that client's OEP measures on the same scale differ by at least 0.6 logit.

Study 1 — Conclusions

The results of this pilot study provided preliminary evidence to support aspects of validity and reliability of the OEP scales. Overall, the OEP rating scales demonstrated effective

rating scale functioning. Moreover, the items of the Pleasure, Productivity, Restoration, and Social connection scales demonstrated acceptable goodness of fit to the MFR measurement model of the respective scale and worked together to define four unidimensional scales of occupational experiences. Our results also provide evidence to support reliability of the OEP measures. Although there was evidence of some item misfit, none of the four OEP scales had more than one item that misfit the MFR measurement model of that scale. Because this study involved a small and homogenous sample, there is a need for confirmatory research with larger and more diverse samples. The OEP has the potential to be used to evaluate occupational experiences among participants in research studies and among clients in occupational therapy practice.

CHAPTER 3: STUDY 2 — MEASURING OVERALL OCCUPATIONAL EXPERIENCE

In their *Transactional Model of Occupation*, Fisher and Marterella (2019) asserted that occupation is comprised of three interwoven elements: occupational performance, occupational experience, and participation. These three occupational elements are viewed as mutually influencing each other. They also are viewed as influencing and being influenced by the various elements of the situational context that also mutually influence each other (see Chapter 1, Figure 1.1).

Fisher and Marterella (2019) defined *occupational performance* as the observable element of occupation (i.e., the doing). This observable element of occupation can be considered the outsider's perspective on the doing as it is observed by another person. For example, an outside observer can observe and then report on a person's quality of occupational performance (Fisher & Griswold, 2018; Fisher & Jones, 2012).

In contrast to occupational performance, the observable element of occupation, *occupational experience* refers to the insider's perspective on one's own occupational performance (Fisher & Marterella, 2019). Understanding a person's occupational experience is commonly based on the person's self-reported (verbal or nonverbal) experience of engaging in an occupational performance. For example, people can report on how well they performed tasks or how safe, productive, satisfied, or lonely they felt during their occupational performances (Fisher & Marterella, 2019).

The third occupational element in the *Transactional Model of Occupation* is participation. Fisher and Marterella (2019) used the term *participation* as a synonym for occupational engagement. In contrast to other definitions of participation, they argued that participation is “more than simply taking part in or doing something, frequency of performance,

or being able to perform tasks independently” (Fisher & Marterella, 2019, p. 21). Rather, participation emerges when persons’ doings (occupational performances) are combined with their experiencing personal value in their doings. In the *Transactional Model of Occupation*, personal value is one of many types of occupational experiences, specifically experiencing that what one is doing is, for some reason, important or worthwhile to do. Examples of experiencing personal value include feeling that one is doing something that is (a) necessary, (b) helpful to others, (c) important simply because it is a typical thing to do, (d) important because it enables one to feel socially connected, or (e) important because doing it evokes a particular experience (e.g., enjoyment, accomplishment, a sense of restoration; Fisher & Marterella, 2019).

Although the elements of occupation (occupational performance, occupational experience, and participation) and the elements of the situational context are inextricably intertwined and mutually influence each other (Fisher & Marterella, 2019), researchers need to be able to evaluate each occupational element separately. Evaluating each occupational element separately could enable researchers to study and better understand (a) the nature of the interwoven relationship among the occupational elements, (b) how the occupational elements influence and are influenced by the elements of the situational context, or (c) the relationship between occupation and other variables thought to be influenced by occupation (e.g., health, well-being). This means that researchers must be able to evaluate occupational performance, occupational experience, and participation separately using psychometrically sound measures of each.

Two well-validated assessment tools of occupational performance that align with the *Transactional Model of Occupation* include the *Assessment of Motor and Process Skills* (AMPS; Fisher & Jones, 2012, 2014) and the *Evaluation of Social Interaction* (ESI; Fisher & Griswold,

2018). Both are used to measure the quality of a person's observed occupational performance. These assessment tools align with the *Transactional Model of Occupation* in that they are administered in ecologically-relevant situational contexts while the person is performing prioritized and personally-relevant tasks (Fisher & Griswold, 2018; Fisher & Jones, 2012). Thus, they are well suited to be used to measure quality of occupational performance in studies focused on the relationship between occupational performance and other variables.

One assessment of occupational experiences that is well suited to be used to study the relationship between occupational experience and other variables is the *Occupational Experience Profile* (OEP; Atler & Berg, 2018). The OEP is the only assessment tool designed to measure four discrete types of occupational experiences (pleasure, productivity, restoration, and social connection) that can be used to create a person's profile of occupational experiences (see Chapter 2). These profiles are based on people recording (a) their occupational performances during recent 24-hour days and (b) their experienced levels of pleasure, productivity, restoration, and social connection during those occupational performances.

The OEP aligns with the *Transactional Model of Occupation* in that people record elements of the situational context (what, where, with whom) before they report on how they experienced each occupational performance (Atler & Berg, 2018). Recording specific and recent occupational performances along with elements of the situational context of those occupational performances are important characteristics of the design of an assessment of occupational experiences. That is, people are more likely to recall how they experienced an occupational performance when they (a) focus on specific and recent occupational performances (Dockray et al., 2010) and (b) are prompted to consider elements of the situational context related to that occupational performance (Robinson & Clore, 2002).

Other assessment tools designed to be used to evaluate occupational experiences include the *Occupational Value Assessment with predefined items* (OVal-pd; Eklund et al., 2003) and the *Engagement in Meaningful Activities Survey* (EMAS; Goldberg et al., 2002). When the OVal-pd and the EMAS are administered, people report on their general occupations, not specific and recent occupational performances. Additionally, the OVal-pd and the EMAS were not designed to prompt people to report on elements of the situational context related to their occupational performances. These important characteristics of an assessment of occupational experience are currently missing from the OVal-pd and the EMAS.

One advantage of using the OVal-pd and the EMAS is that they appear to provide more robust measures of occupational experience when used in research studies exploring relationships between occupational experience and other variables. In fact, researchers have found moderate to strong relationships between the OVal-pd and the EMAS composite measures of occupational experience and various measures of well-being (Atler, Eakman, et al., 2016; Eakman & Eklund, 2012; Eklund et al., 2003). In contrast, some of the same researchers found generally weak relationships between discrete measures of occupational experiences (e.g., pleasure) and well-being (Atler, Eakman, et al., 2016). The results of this research, summarized in Table 1.3, led us to consider expanding the design of the OEP, an evaluation tool used to evaluate discrete occupational experiences, to possibly use the items from all four OEP scales to also generate a composite measure of overall occupational experience. We expand on this idea in more detail below, after we discuss tools designed to evaluate participation.

In our review of the literature, we found only a few assessment tools of participation (e.g., Coster et al., 2011; Heinemann et al., 2011) and none were designed to evaluate the experience of personal value during occupational performances. That is, we could not find any

assessment tools designed to evaluate participation as defined in the *Transactional Model of Occupation*. Because a comprehensive review of participation assessment tools is outside the scope of this study, we return our focus to assessment tools designed to evaluate occupational experience.

As mentioned earlier, in designing this study we hypothesized that if the items from all four OEP scales could be combined into a single scale, the result would be a tool that could be used to generate both discrete measures occupational experiences and a composite OEP measure of overall occupational experience (i.e., a combination of pleasure, productivity, restoration, and social connection). This would mean that the OEP would have the potential to be more robust when used to evaluate occupational experiences.

The purpose of this study, therefore, was to determine if the items of the OEP can be used to generate a psychometrically sound composite measure of overall occupational experience. More specifically, we planned to examine aspects of validity and reliability of a composite OEP scale generated from the Pleasure, Productivity, Restoration, and Social connection items of the OEP. Based on recommendations from Bond and Fox (2015), we addressed the following research questions:

1. Do the composite OEP rating scale categories demonstrate effective rating scale functioning?
2. What is the hierarchical ordering of the Pleasure, Productivity, Restoration, and Social connection item difficulty estimates along the composite OEP scale?
3. Do the Pleasure, Productivity, Restoration, and Social connection items of the OEP, when combined into a single scale, demonstrate acceptable goodness of fit to the MFR measurement model of the composite OEP scale?

4. Do the Pleasure, Productivity, Restoration, and Social connection items of the OEP work together to define a single unidimensional construct?
5. Do the composite OEP measures provide reliable estimates of overall occupational experience?

Study 2 — Methods

Study 2 — Participants

Students enrolled in an entry-level occupational therapy program at a university in the Northeastern United States ($n = 61$) were invited to participate in this study. The instructors of an occupational therapy theory course introduced a semester long assignment. The assignment involved the students completing the OEP for 3 days at the beginning of the semester. The instructors also asked students to establish personal goals, track progress toward those goals, and complete the OEP for another 3 days at the end of the semester. All documents related to the assignment were collected at the end of the semester. This study focused on students' OEPs from the beginning of the semester.

When the course instructors introduced the assignment, they also told the students about this study and distributed consent forms. All students were required to complete the assignment, but they were free to choose whether or not to participate in this study. The consent forms indicated that the occupational therapists implementing research on the OEP only would receive documents related to the assignment with all identifying information removed. The course instructors informed the students that participation in this study would not affect their course grades. Research ethics committees at the students' university and the authors' university deemed this study exempt.

Study 2 — Instrumentation

The OEP is a time-use survey (Atler & Berg, 2018). To complete the OEP, people record, using their own words, their occupational performances during recent 24-hour days (e.g., “prepared a pot of coffee”). For each occupational performance, people also record elements of the situational context (when, where, and with whom) and their experienced levels of pleasure, productivity, restoration, and social connection using 6-category rating scales (see Chapter 1, Table 1.2). A key feature of the OEP is the ability for people also to choose which of 15 predefined occupational categories best fit each occupational performance they have recorded (see Chapter 1, Table 1.1).

Previously conducted many-facet Rasch (MFR) analyses of the OEP (see Chapter 2) provided evidence that the Pleasure, Productivity, Restoration, and Social connection OEP rating scales were valid in terms of effective rating scale functioning. Additionally, there is preliminary evidence to support unidimensionality of the discrete OEP scales and reliability of the resulting measures (see Chapter 2). No prior research, however, has explored whether it is possible to generate a composite OEP measure of overall occupational experience based on combining the items from all four discrete OEP scales into a single composite scale.

Study 2 — Data Preparation and Analyses

Based on recommendations for ensuring that time-use data are of sufficient quality for use in research (Fisher & Gershuny, 2013), we evaluated each OEP for the number of reported activities, the number of data recording errors, and the percent of awake time where no occupational performances were recorded. We planned to omit OEPs from this study if (a) the number of recorded activities was two or more standard deviations outside the mean number of recorded activities for all participants, (b) there were four or more recording errors (e.g.,

overlapping time sequences), or (c) no occupational performances were recorded for more than 90 minutes of their awake time. Because the focus of this study was on the students' (i.e., participants') OEPs from the beginning of the semester, we did not include the OEPs from the end of the semester in our analyses. Finally, we omitted a participant's OEPs if the participant did not indicate whether the OEPs were from the beginning or the end of the semester.

The composite OEP scale potentially consists of 60 items, four items related to each of 15 occupational categories shown in Chapter 1, Table 1.1 (e.g., *Caring for self–Pleasure*, *Caring for self–Productivity*, *Caring for self–Restoration*, and *Caring for self–Social connection*). We, however, analyzed only 53 items. More specifically, based on findings from prior research that used the same OEP assignments from our participants (see Chapter 2), we omitted the four *Experiencing spirituality* and the four *Volunteering* items because these items were used fewer than 20 times (Krueger et al., 2012). Moreover, findings from the same prior research also suggested the need to split one of the items, *Having fun – Social connection*, into two items, with one item representing *Having fun alone – Social connection* and the other item representing *Having fun with others– Social connection*. This resulted in the 53 OEP items we considered as we initiated this study.

We then used an MFR software program, *Facets* version 3.83 (Linacre, 2019a), to generate each participant's composite OEP measure based on that participant's item ratings for the 53 OEP items. The participants' Rasch-generated composite OEP measures were expressed in *logits* (log-odds probability units; Linacre & Wright, 1989) and were adjusted for the relative difficulty of each of the OEP items. Adjusting the participants' measures for item difficulty allowed for their OEP measures to be placed on the composite OEP scale despite the participants engaging in different types of occupational performances (Bond & Fox, 2015).

In order to use participants' OEPs from all 3 days at the beginning of the semester and avoid the need to average ratings across those 3 days, we accounted for day as a facet in our MFR analyses. When accounting for day as a facet, the MFR Rasch analyses can be conducted with the elements of the facet (e.g., Monday, Tuesday, Wednesday) (a) anchored at zero, with day becoming a dummy facet; or (b) allowed to vary based on the impact of the day on the final measures (i.e., with day becoming an active measurement facet; Linacre, 2019b). The results of our MFR analyses were essentially the same whether day was a dummy facet or an active measurement facet. We, therefore, implemented our analyses with day as a dummy facet.

Rating scale functioning. To address our first research question, we examined whether the composite OEP rating scale was valid in terms of effective rating scale functioning. That is, we used Linacre's (2002b) guidelines to (a) verify that each of the rating scale response categories included a minimum of 10 observations, (b) examine if the rating scale category calibration estimates logically increased with the scale's intended meaning (i.e., higher ratings represented more occupational experience), and (c) evaluate the degree to which the rating scale category calibration estimates demonstrated acceptable goodness of fit to the MFR measurement model of the composite OEP scale. We judged acceptable model fit by examining the mean-square fit statistics (*MS*) for each rating scale category calibration estimate in relation to a criterion of $0.5 \leq MS \leq 1.5$ (Wright & Linacre, 1994). If the rating scale did not demonstrate effective rating scale functioning, we planned to combine adjacent rating scale categories (Stone & Wright, 1994). Otherwise, we sought to retain as many rating scale categories as possible so that we could maximize the amount of information that our participants provided.

Item difficulty hierarchy. To explore the hierarchical ordering of the items along the composite OEP scale (Question 2), we examined the item difficulty estimates in relation to the

theoretical construct that the items were intended to measure (Wright & Masters, 1982). For example, we expected that the *Working – Productivity* item would be easier for participants to endorse in a highly positive manner than the *Working – Restoration* item. We, therefore, expected it to be located higher along the hierarchy of item difficulty.

Item goodness of fit. Next, we examined the degree to which the item difficulty estimates demonstrated acceptable goodness of fit to the MFR measurement model of the composite OEP scale ($0.5 \leq MS \leq 1.5$; Bond & Fox, 2015). Although we would expect that 2 or 3 of the 53 OEP items (approximately 5%) might *misfit* (i.e., fail to demonstrate acceptable fit) the MFR measurement model of the composite OEP scale by chance alone (Smith, 1991; Wilson, 2005), we planned to use Linacre's (2010) guidelines to evaluate the impact of item misfit on the measurement system. More specifically, we planned to gradually remove misfitting items, recalculate the participants' composite OEP measures, and examine the difference between the generated measures with and without the inclusion of the misfitting items in our analyses. We also planned to explore patterns in the OEP data that might be associated with the item misfit. That is, we planned to examine each misfitting item in relation to (a) particular participants, (b) participant responses that described their occupational performances, and (c) elements of the situational context related to the occupational performances (when, where, and with whom).

Unidimensionality. To address our fourth research question, we examined the evidence that the OEP items worked together to define a unidimensional construct (i.e., the scale measures one, and only one, underlying construct; Wright & Masters, 1982). To test for unidimensionality, we conducted a principal components analysis (PCA) of the residuals using *Winsteps* version 4.4.7 (Linacre, 2019c). When testing for unidimensionality, we chose to focus on each

participant's first OEP. We focused on one OEP per participant because we could not account for a third facet (i.e., Day) in our PCA of residuals. We recognized that this was a limitation of using PCA to examine unidimensionality. Rasch PCAs are based on the assertion that empirical data consist of two parts: data explained by the Rasch model and the residuals that are not explained by the Rasch model (Bond & Fox, 2015). Residuals are expected to be random. In contrast, when there is sufficient item-correlated residual activity, indicating that some items share a common attribute not explained by the measurement model, there is a potential threat to unidimensionality (Wright, 1996).

While there is disagreement about the best criterion for detecting a secondary dimension (cf. Linacre, 2003; Raiche, 2005), we chose to follow Linacre's (2019d) recommendations. We, therefore, first conducted five PCA simulations of randomly-generated, Rasch-fitting OEP data sets. The eigenvalues from our PCA simulations ranged in strength from 3.5 to 4.1. These eigenvalues represent the magnitude of item-correlated residual activity in terms of the number of items. For example, an eigenvalue of 4.0 indicates that the residual activity has the strength of four items (Linacre, 2019d). We used the eigenvalue range from our simulations as our criteria for identifying a possible secondary dimension. If we found evidence of a secondary dimension, we planned to explore and describe that dimension by examining the items with the strongest factor loadings on the possible secondary dimension.

Reliability. Pertaining to our fifth research question, we evaluated the reliability of the composite OEP measures by examining the mean standard error (*SE*) of the measures and the Rasch reliability coefficient (*R*) of the composite OEP scale (Bond & Fox, 2015). While there are no guidelines for evaluating the size of an *SE*, smaller *SE*s indicate that the measures are more likely to be reliable and sensitive indices of change. A Rasch reliability coefficient greater

than $R = .80$ indicates good reliability and suggests that the items can separate the participants into at least three groups with 95% confidence. The greater the reliability coefficient, the more groups can be distinguished within the sample (Fisher, 2008), indicating more sensitive measures.

Study 2 — Results

All 61 potential participants consented to participate in this study and their OEPs met minimum data quality standards. Three participants, however, did not indicate which OEPs were from the beginning versus the end of the semester. We omitted these three participants from this study. The final sample included 58 participants.

Rating Scale Functioning

Pertaining to our first research question, the participants provided at least 10 ratings for each of the rating scale response categories. All of the OEP rating scale response category calibration estimates (a) advanced logically with the intended meaning of the rating scale category labels and (b) fit the MFR measurement model of the composite OEP scale. The rating scale category calibration estimate *MS* values ranged from 0.8 to 1.1. Considered together, we concluded that the composite OEP rating scale was valid in terms of effective rating scale functioning. We, therefore, proceeded with our analyses using the 6-category rating scale.

Item Difficulty Hierarchy

As shown in Table 3.1, the item difficulty estimates ranged from 2.04 logits (*Having fun – Pleasure*) to -1.16 logit (*Doing nothing – Productivity*). We found that the ordering of the

items along the composite OEP item hierarchy aligned with the theoretical construct that the items were intended to measure: overall occupational experience.

Item Goodness of Fit

Of the 53 OEP items, 50 (94.3%) demonstrated acceptable goodness of fit to the MFR measurement model of the composite OEP scale. The following items misfit the measurement model: *Caring for home – Productivity*, *Doing nothing – Restoration*, and *Working – Social connection*. Although we expected that as many as three items might misfit the measurement model by chance, as planned, we proceeded to examine the impact of item misfit on the measurement system.

We started the removal process by eliminating *Doing nothing – Restoration* because it was the most misfitting item. We found that each participant's composite OEP measure, estimated with and without *Doing nothing – Restoration*, differed by less than the size of the average standard error of the person measures (0.13 logit). Only after we had removed all three misfitting items did the measure for one participant (1.8%) differ by more than the size of the average standard error. More specifically, that participant's composite OEP measure differed by 0.16 logit with and without the three misfitting items included in the estimation of that participant's composite OEP measure. These findings suggest that the misfitting items had minimal impact on the measurement system of the OEP. Despite minimal impact on the measurement system, we proceeded to explore for patterns in the OEP data associated with each misfitting item.

Table 3.1

OEP Items Ordered by Item Difficulty

Item	Calibration ^a (logits)	Item	Calibration ^a (logits)
Having fun – Pleasure	2.04	Enriching/ learning – Social connection	-0.11
Having fun with others – Social connection	2.00	Getting goods/services – Social connection	-0.13
Socializing – Social connection	1.85	Having fun – Restoration	-0.15
Socializing – Pleasure	1.44	Socializing – Productivity	-0.18
Working – Productivity	1.35	Working – Pleasure	-0.28
Enriching/ learning – Productivity	1.18	Doing nothing – Restoration ^b	-0.32
Relaxing – Pleasure	1.13	Traveling – Pleasure	-0.36
Getting goods/services – Productivity	1.13	Enriching/ learning – Pleasure	-0.36
Caring for home – Productivity ^b	1.08	Relaxing – Social connection	-0.46
Meeting obligations – Productivity	0.86	Meeting obligations – Pleasure	-0.52
Caring for others – Productivity	0.73	Caring for home – Pleasure	-0.54
Maintaining health – Productivity	0.71	Traveling – Social connection	-0.63
Maintaining health – Pleasure	0.58	Maintaining health – Social connection	-0.64
Caring for self – Pleasure	0.46	Relaxing – Productivity	-0.66
Doing nothing – Pleasure	0.24	Traveling – Restoration	-0.67
Maintaining health – Restoration	0.19	Getting goods/services – Restoration	-0.69
Caring for self – Productivity	0.18	Caring for others – Restoration	-0.70
Traveling – Productivity	0.08	Meeting obligations – Social connection	-0.78
Caring for others – Social connection	0.05	Enriching/ learning – Restoration	-0.81
Caring for self – Restoration	0.00	Caring for home – Restoration	-0.86
Socializing – Restoration	0.00	Meeting obligations – Restoration	-0.91
Having fun – Productivity	0.00	Doing nothing – Social connection	-0.91
Getting goods/services – Pleasure	-0.02	Working – Restoration	-0.93
Working – Social connection ^b	-0.05	Having fun alone – Social connection	-0.94
Relaxing – Restoration	-0.06	Caring for self – Social connection	-1.04
Caring for others – Pleasure	-0.10	Caring for home – Social connection	-1.16
(Continued on next column)		Doing nothing – Productivity	-1.16

^a Higher item difficulty estimates represent items that were easier to endorse as being experienced in a highly positive manner

^b Items that did not demonstrate goodness of fit to the MFR measurement model of the OEP

Caring for home – Productivity. We found one participant who had a few *Caring for home – Productivity* ratings that were lower than expected by the measurement model. This participant’s OEP also included handwritten notes about an unexpected event, accidentally dropping and breaking dishes, and the participant’s associated feelings of unproductivity and frustration related to breaking the dishes. We temporarily omitted this participant from our analyses and recalculated the fit statistics for the *Caring for home – Productivity* item. Without this participant’s unexpected ratings in our analyses, the *Caring for home – Productivity* item demonstrated acceptable goodness of fit to the MFR measurement model of the composite OEP scale. Because none of the other participants who categorized their occupational performances using the *Caring for home – Productivity* item assigned ratings that failed to demonstrate acceptable goodness of fit to the measurement model, we concluded that the item misfit was due to one participant who experienced an unexpected event.

Doing nothing – Restoration. The unexpected *Doing nothing – Restoration* ratings were pervasive across all participants. Some participants rated *Doing nothing – Restoration* higher than expected by the measurement model and some participants rated this item lower than expected. This led us to explore what the participants recorded when they described their occupational performances.

Examples of how participants described the occupational performances they categorized as *Doing nothing* included “Eating,” “Checking social media,” “Watching television,” “Falling asleep,” and “Doing nothing productive.” Thus, even when the participants wrote that they were “doing something” (e.g., “Checking social media”), they still categorized those occupational performances as *Doing nothing*. Moreover, similar to our earlier findings (see Chapter 2), we could not find any systematic patterns in the OEP data related to particular participants,

participant responses, or elements of the situational context that were associated with the *Doing nothing – Restoration* item misfit. We concluded, therefore, that this item elicited idiosyncratic responses that warranted future research.

Working – Social connection. Finally, we explored for patterns in the OEP data associated with *Working – Social connection*. Participants who recorded that they were with other people generally assigned higher *Working – Social connection* ratings than did the participants who were alone. These findings were similar to the results of our previous research with the OEP (see Chapter 2) where we found that the same social environmental element of the situational context influenced the item difficulty estimate and fit statistics of *Having fun – Social connection*. As we noted earlier, this led us to split *Having fun – Social connection* into two items: *Having fun alone – Social connection* and *Having fun with others – Social connection*. We, therefore, conducted a follow-up analysis using a method described by Tennant et al. (2004) that involved splitting the *Working – Social connection* item into two items: *Working alone – Social connection* and *Working with others – Social connection*. The follow-up MFR analyses revealed that (a) the two *Working – Social connection* item difficulty estimates differed by 1.8 logits and (b) both of the split items demonstrated acceptable goodness of fit to the MFR measurement model of the composite OEP scale. We concluded, therefore, that as long as the social context was taken into consideration, the *Working – Social connection* item functioned as intended, indicating the need to split this item in future research.

Unidimensionality

When we conducted our PCA to address our fourth research question, the resulting size of the item-correlated residual activity had an eigenvalue of 4.6, larger than the criterion that we

set based our PCA simulations. The most positive and the most negative item factor loadings from our PCA are reported in Table 3.2. Those factor loadings that are most positive reflect one cluster and those that are most negative reflect another. In an attempt to identify a construct represented by the secondary dimension, we explored for a shared attribute among the items in the positive cluster that might contrast with a shared attribute among the items in the negative cluster.

Table 3.2

Principal Components Analysis (PCA) Standardized Residual Loadings and Item Difficulty Estimates

Positive loading	Calibration (logits)	Item	Negative loading	Calibration (logits)	Item
.66	0.73	Caring for others – Productivity	-.52	-0.67	Traveling – Restoration
.51	0.71	Maintaining health – Productivity	-.49	-0.69	Getting goods/ services – Restoration
.48	1.13	Relaxing – Pleasure	-.49	-1.16	Caring for home – Social connection
.37	1.18	Enriching/learning – Productivity	-.48	-0.91	Meeting obligations – Restoration
.36	2.04	Having fun – Pleasure	-.42	-0.78	Meeting obligations – Social connection
.35	1.08	Caring for home – Productivity	-.37	-0.93	Working – Restoration
Mean	1.14			-0.86	

Initially, we found that the items in the positive cluster seemed to reflect caring occupational performances (e.g., *Caring for others*, *Maintaining health*, *Relaxing*) while the items in the negative cluster seemed to reflect obligatory occupational performances. This led us to reason that the contrast between these caring and obligatory types of occupational performances may reflect our participants' shared student lifestyle. For example, our participants' everyday activities may have been dominated by taking care of their health and

well-being while, at the same time, trying to meet school obligations. The contrast between these two types of occupational performances may have resulted in the emergence of a secondary dimension in our data.

However, when we examined the items in the positive and negative clusters more closely, we recognized that *Caring for home* items were found in both clusters. We, therefore, continued to explore for other possible shared attributes that differed between the positive and negative clusters. When we did so, we found two interrelated shared attributes that more clearly differed between the two clusters: (a) item difficulty and (b) type of occupational experience. That is, the items with the most positive factor loadings consistently included easier items on the item difficulty hierarchy and all of them pertained to experiences of pleasure or productivity. In contrast, the items with the most negative factor loadings consistently were harder items and all of them pertained to experiences of restoration and social connection. In fact, the average of the item difficulty estimates between the two item clusters differed by 2.0 logits (see Table 3.2). We concluded, therefore, that the easier Pleasure and Productivity items appear to be measuring a different construct than the harder Restoration and Social connection items.

Reliability

The mean of the standard errors of participants' composite OEP measures were low (mean $SE = .13$). The strength of the reliability coefficient was very high ($R = .93$) and suggested that the composite OEP items could separate our participants into at least four distinct groups with 95% confidence (Fisher, 2008). We found no practical impact on the reliability of the composite OEP measures when we (a) removed the *Caring for home – Productivity* and *Doing nothing – Restoration* items or (b) split the *Working – Social connection* item into two separate items.

Study 2 — Discussion

The purpose of this study was to examine aspects of validity and reliability of a composite OEP scale generated from all of the OEP items designed to measure four experiences during occupational performances: pleasure, productivity, restoration, and social connection. Our results revealed preliminary evidence to support aspects of validity and reliability of the composite OEP scale when used to evaluate overall occupational experience. However, our PCA results also revealed a potential threat to unidimensionality because the OEP items appeared to measure more than one construct.

Rating Scale Functioning

Consistent with the findings of earlier research revealing that the OEP Pleasure, Productivity, Restoration, and Social connection rating scales each were valid in terms of effective rating scale functioning when evaluated separately (see Chapter 2), the composite OEP rating scale also demonstrated effective rating scale functioning. These results indicate that the OEP rating scale remains psychometrically sound even when the OEP items from four different scales are combined into a single scale of overall occupational experience.

Item Difficulty Hierarchy

In general, the hierarchical ordering of item difficulty estimates was logical in relation to the theoretical construct that the items were intended to measure (i.e., overall occupational experience). Although we had a theoretical basis for our expectations about the relative difficulty of many of the OEP items, there were some items for which we did not have a theoretical basis to predict their item difficulty in relation to the other items.

To illustrate where we did and did not have a theoretical basis for the relative difficulties, consider the OEP *Work* items. Based on previous research from (a) work and organizational psychology (Sonnentag, Venz, & Casper, 2017) and (b) occupational science (Atler & Sharp, 2019), we expected *Working – Productivity* to be easier to endorse in a highly positive manner than *Working – Restoration*. Prior to this study, however, we could only speculate about the relative item difficulties for *Working – Pleasure* and *Working – Social connection*. That *Working – Pleasure* was noticeably more difficult than *Working – Social connection* is new knowledge that should be interpreted cautiously.

Importantly, the item difficulty estimates found in Table 3.1 were based on our relatively small, homogenous sample. These item difficulty estimates will likely shift somewhat when this study is replicated on larger and more diverse samples. Recommendations for stable item difficulty estimates suggest samples of at least 100 people (Chen et al., 2014; Krueger et al., 2012; Linacre, 1994).

Item Goodness of Fit

Overall, our results indicated that an expected number of items (i.e., 50/53 items) demonstrated acceptable goodness of fit to the MFR measurement model of the composite OEP scale. Moreover, when we explored the impact of the three misfitting items, their removal had virtually no impact on the measurement system. Nevertheless, we chose to explore for systematic patterns in the OEP data related to each misfitting item. When we did, we found that a single misfitting participant could account for the fact that *Caring for home – Productivity* failed to demonstrate acceptable goodness of fit. This suggested that this participant, someone who experienced an unexpected event, was the source of misfit, not the item.

When we explored the OEP data associated with item misfit for *Doing nothing – Restoration*, we could find no patterns to explain the misfit. As discussed previously (see Chapter 2), a possible reason for the item misfit related to *Doing nothing – Restoration* was that some participants may have interpreted the *Doing nothing* item to mean “doing nothing important” (e.g., “Watching television,” “Checking social media”), while other participants may have interpreted *Doing nothing* in a way that suggested feeling unproductive (e.g., “Doing nothing productive,” “Falling asleep”). It also is possible that the *Restoration* rating scale was unclear when applied to the *Doing nothing* item (see Chapter 1, Table 1.2). Items that are unclear or interpreted differently by different people can lead to idiosyncratic participant responses (Royal et al., 2010). Such idiosyncrasy suggests that the test item needs to be omitted or revised.

Yet, as we discussed in the previous study (see Chapter 2), “doing nothing” is an important category of occupational performance when evaluating a person’s occupational experiences (Borg & Davidson, 2008; Csikszentmihalyi, 1988; Liljeholm & Bejerholm, 2019; Scanlan & Bundy, 2011; Sonntag-Öström et al., 2015). Moreover, omitting the *Doing nothing – Restoration* item would also require that the other three *Doing nothing* items be removed from the OEP despite being productive for measurement. Finally, the other three *Doing nothing* items demonstrated acceptable goodness of fit to their respective OEP scales (see Chapter 2) as well as to the composite OEP scale. This suggests that the idiosyncrasy of *Doing nothing* ratings was only related to recording experiences of restoration versus energy drain (see Table 1.2).

If the four *Doing nothing* OEP items are to be retained in the OEP, the items or the Restoration rating scale may need to be reworded. We suggest that future researchers use qualitative inquiry methods to explore what people mean when they categorize an occupational performance as “doing nothing,” and report feeling restored or feeling drained when “doing

nothing.” Such research could reveal new language for this OEP test item or the Restoration rating scale that better aligns with what people mean when they report on their restoration experiences when they are “doing nothing.”

The third item that demonstrated item misfit, *Working – Social connection*, fit the measurement model when we split the item into two distinct items: *Working alone – Social connection* and *Working with others – Social connection*. Given the evidence that there are two OEP items (*Working* and *Having fun*) that only fit the respective measurement model after being split, future research may need to consider the benefits of splitting all of the OEP items based on whether participants were alone or with others during their occupational performances. Because the current design of the OEP requires that the participants indicate whether they were alone or with others during their occupational performances, the splitting of items would not add burden to the respondents.

Unidimensionality

The results of our PCA indicated that the items of the composite OEP scale may be simultaneously measuring two underlying constructs, suggesting a potential threat to unidimensionality of the composite OEP scale. These two constructs may or may not be related to the theoretical construct that the OEP was designed to measure: occupational experience. For example, one possibility is that the Pleasure and Productivity items are measuring one construct, whereas the Restoration and Social connection items are measuring another, even though both underlying constructs are related to occupational experience. This situation would be analogous to arithmetic and algebra representing two related, but still different underlying mathematical constructs.

Another possibility is that what appears to be two dimensions may actually reflect easy versus hard items. Evidence to support this possibility comes from the item difficulty estimates for the items in contrasting item clusters. As shown in Table 3.2, items in one cluster were easier than average (i.e., item difficulty estimates were higher than 0.0) while items in the other cluster were harder than average (i.e., item difficulty estimates were lower than 0.0).

Considered together, it is possible that the two underlying constructs being measured by the items of the composite OEP scale actually represent different “strands” of the same overall underlying construct. For example, it is possible that the easier Pleasure and Productivity items may be measuring one strand of occupational experience while the harder Restoration and Social connection items are measuring a different strand. This is similar to math tests that consist of items that (a) capture different types of math proficiency (e.g., conceptual, procedural, problem solving) and (b) differ along the item difficulty hierarchy (Wright, 2012). These different strands “are not independent; they represent different aspects of a complex whole [that] are interwoven and interdependent” (National Research Council & Mathematics Learning Study Committee, 2001, p. 116). In a similar way, we might consider different types of occupational experiences to be strands that are interwoven and interdependent and constitute a person’s *overall occupational experience*.

Finally, an entirely different possibility is that there is some other, as yet unidentified, construct embedded within the contrasting positive and negative clusters. To continue using the mathematical example, this would be analogous to finding that math problems written in mathematical notation represent one construct (e.g., $6 + 7$), but math problems presented as word problems represent a secondary construct (e.g., “Sophia has six apples. Liam gave her seven apples. How many apples does Sophia have?”). The added verbal component represents a

secondary construct. Further research will be needed to determine if this is the case; our data were insufficient to explore such an option.

Obviously, given the pilot nature of this study, further research is needed with larger and more diverse samples to examine occupational experience as possibly consisting of strands of experience versus the potential risk that the composite OEP items represent two different constructs. Should the latter be the case, it will be necessary to omit any items from the composite scale that represent the secondary dimension.

Reliability

Important findings from this study involve the small *SE* and very high Rasch reliability coefficient that provide evidence to support reliability of the composite OEP measures. The small *SE* indicates that the OEP is a sensitive measure and is able to be used to detect a small change in overall occupational experience over time. Moreover, the very high reliability coefficient indicates that the items of the OEP could separate our sample into at least four distinct groups. This means that the OEP likely could be used in practice as an outcome measure. It also suggests that the composite OEP, as planned, can be used as a robust measure of occupational experience when exploring relationships between occupational experience and other variables such as well-being, occupational performance, or participation.

Study 2 — Limitations and Recommendations for Future Research

Due to our small convenience sample of occupational therapy students from one university in the United States, we suggest that the results of this study be interpreted with caution. Further research is needed to examine the validity and reliability of the composite OEP scale with larger and more diverse samples. One rationale for needing a larger sample has to do

with the stability of the composite OEP item difficulty hierarchy. Stable item difficulty estimates can only be expected with a sample size of at least 100 (Chen et al., 2014; Linacre, 1994).

Additional reasons for recommending collecting new data with larger and more diverse samples pertain to the potential need to (a) explore the splitting of all of the OEP items based on whether people engage in occupational performances alone or with others, and (b) make changes to the rating scale or definition of the *Doing nothing* items. Thus, in addition to monitoring the stability of item difficulty estimates, future studies should reexamine item fit statistics, the unidimensionality of the composite OEP scale, and the reliability of the generated measures.

If future studies confirm and expand on the evidence for validity and reliability of the composite OEP scale, the OEP could be used as an even more robust measure of occupational experience in research. For example, the composite OEP measure could be used to study relationships between overall occupational experience and other variables such as well-being. The OEP also could be used to explore if and how a person's overall occupational experience influences and is influenced by (a) other occupational elements of the *Transactional Model of Occupation* (Fisher & Marterella, 2019) and (b) elements of the situational context that influence each other just as they influence how people experience their occupational performances.

Another important line of research will be to examine the expected range of composite OEP measures among reference groups. For example, research involving participants who do not have a diagnosis or disability will enable the comparison of one person's composite OEP measure in relation to the expected range of composite OEP measures of healthy, well people (Kolen, 2006). It also will be important to examine the expected ranges of composite OEP measures for other reference groups by age, gender, culture, ethnicity, or diagnosis.

Study 2 — Implications for Occupational Therapy Practice

A primary reason for conducting this study was to examine whether the OEP could be used to generate a psychometrically sound composite OEP measure of overall occupational experience. Our rationale revolved around the evidence that composite measures of occupational experience appear to be more robust than measures of discrete types occupational experience in research. Additionally, a composite OEP measure could be valuable for use in occupational therapy practice. In particular, the small average *SEs* of the composite OEP measures suggest that the composite OEP scale could be sensitive when detecting change in occupational experience over time. More specifically, occupational therapists could identify whether a person's overall occupational experience likely changed ($p \leq .15$) if the composite OEP measures differed between Time 1 and Time 2 evaluations by at least 0.26 logit (i.e., 2 *SE*; Harvill, 1991; Jette et al., 2007).

Study 2 — Conclusions

This study provided evidence that it is possible to generate composite OEP measures based on the Pleasure, Productivity, Restoration, and Social connection items of the OEP. Our results provided evidence to support aspects of validity and reliability of the composite OEP scale. We also found evidence that the composite OEP scale may consist of strands of occupational experiences that are interwoven and interdependent, while still constituting a person's overall occupational experience. Finally, the evidence supporting reliability of the composite OEP measures suggests that, with further research to confirm and expand the findings in this study, the OEP could be used to generate sensitive and robust measures of overall occupational experience that have the potential to be used in occupational therapy practice and research.

CHAPTER 4: STUDY 3 — PATTERNS OF OCCUPATIONAL EXPERIENCES

Occupational patterns, regular and discernable forms or sequences of actions (Pattern, n.d.), have been of interest to the profession of occupational therapy since its inception. As early as 1922, Meyer (1922) proposed that people need occupational patterns that can be described as a healthy balance of work, play, rest, and sleep. “The only way to attain balance in all this is actual doing, actual practice, a program of wholesome living as the basis of wholesome feeling and thinking and fancy and interests” (Meyer, 1922, p. 6). In this chapter, we refer to a person’s unique form or sequence of occupations as an *individual profile*. When a group or subgroup of people share similar individual profiles, we refer to those as *occupational patterns*.

Most existing research on occupational patterns has focused on patterns of occupational performances. For example, Smith et al. (1986) studied occupational patterns of a sample of 60 older adults. Smith et al. described the older adults’ occupational patterns based on how much time they spent engaged in four different types of occupational performances (work, daily living task, recreation, and rest). They found that, on average, their participants’ overall pattern of occupational performances during their waking hours could be described as 6% work, 20% daily living tasks, 27% recreation, and 7% rest. Moreover, they found that a subgroup of the older adults in their study who reported higher life satisfaction spent more of their awake time in recreation and work, and less time in activities of daily living and rest than did the subgroup who reported lower life satisfaction.

Other researchers have used time-geographic methods to study occupational patterns described in terms of (a) how often and how long participants engaged in occupational performances and (b) elements of the situational context (e.g., where, with whom; Ellegård, 1999). For example, Orban et al. (2012) studied patterns of occupational performances of 30

parents of obese children, 4 to 6 years old. They identified four subgroup patterns among their participants, such that the participants in each subgroup shared similar individual profiles of occupational performances based on how much time the parents spent in occupational performances (a) with or without their children and (b) together with their spouses. Orban et al. described each subgroup pattern as follows: *togetherness focused* (parents spent time with children and together), *child focused* (parents spent time with children, but minimal time together), *individual focused* (parents spent minimal time with children or together), and *parent-child focused* (only one parent spent time with children and the parents spent moderate time together).

Finally, Erlandson and colleagues (Erlandsson & Eklund, 2001, 2006; Erlandsson et al., 2004) studied occupational patterns based on the level of complexity in the sequence of occupational performances over time. Erlandsson et al. (2004) identified three subgroup patterns wherein the participants in each subgroup shared similar individual profiles of occupational performances based on whether their individual profiles reflected low, medium, or high temporal complexity. They defined levels of complexity in terms of the number of changes in occupational performances (e.g., starting or restarting an occupational performance) during a day. For example, one participant reported a highly complex individual profile of occupational performances exemplified by the following segment of that participant's day: After returning home from running errands, "she started to prepare dinner, started the washing machine, made a phone call, sat down, and ate with the family. She interrupted the eating and went to get a son at his football training, but continued eating when they came back" (Erlandsson et al., 2004, p. 10).

Erlandsson and Eklund (2006) found that their participants tended to report progressively lower quality of life as the complexity of their occupational patterns increased. They proposed

that the subjective experience of occupational overload (Wilcock, 1998) may have accounted for their results. They, therefore, recommended that future research explore occupational patterns from other perspectives, and that “focusing on experiential aspects might have yielded other results” (Erlandsson & Eklund, 2006, p. 34).

The recommendation from Erlandsson and Eklund (2006) to study experiential aspects of occupational patterns is consistent with the *Transactional Model of Occupation* (Fisher & Marterella, 2019). Within the *Transactional Model of Occupation*, occupation is viewed as being comprised of three interwoven elements that mutually influence each other: occupational performance (the actual doing), occupational experience (how the person experiences that doing), and participation (occupational engagement; what emerges when the person is doing something and experiences value in that doing). Given that occupational performance and occupational experience are asserted to mutually influence each other (Fisher & Marterella, 2019), there ultimately will be a need to study and better understand how patterns of occupational performances and patterns of occupational experiences mutually influence and shape each other. But, before implementing such research, there is a need to determine if subgroups of people share similar patterns of occupational experiences.

To date, only a few researchers have examined patterns of occupational experiences, and all of them focused on overall group patterns; they did not seek to identify patterns among subgroups. For example, Jonsson and Persson (2006) implemented a secondary analysis of data collected in Italy, the United States, and Sweden. All of these data were collected using experiential sampling methods (see Moneta, 2012). Jonsson and Persson created individual participant profiles based on the percent of the participants’ occupational performances that they experienced as *flowing* (matched challenge and skill), *exacting* (high challenge, low skill), and

calming (low challenge, high skill). They then summarized their findings by describing the overall pattern of occupational experiences for each sample. For example, the overall pattern of occupational experiences for the Italian sample was 27% *flowing*, 27% *exacting*, and 46% *calming*.

Jonsson and Persson (2006) did not examine if there were subgroups of participants within each sample (e.g., the Italian sample) that shared similar profiles of occupational experiences, but they reported a few individual profiles. For example, the individual profile of occupational experiences for an Italian female adolescent (2% *flowing*, 29% *exacting*, and 69% *calming*) was quite different from the overall group pattern for the Italian sample. We do not know, however, if other participants from the Italian sample had similar occupational profiles, or if this profile was unique.

Other researchers used the *Daily Experiences of Pleasure, Productivity, and Restoration Profile* (PPR Profile; Atler, 2014) to study occupational patterns defined by how people experience their occupational performances. More specifically, Atler et al. (2018) identified which types of occupational performances college students experienced with high productivity and pleasure (e.g., exercising), low productivity and pleasure (e.g., commuting), high pleasure and low productivity (e.g., eating), and low pleasure and high productivity (e.g., working). In a follow-up study, Atler and Sharp (2019) found that the same college students experienced eating, relaxing, and reading with high levels of pleasure and restoration, but studying, working, and attending class with low levels of pleasure and restoration. Again, like Jonsson and Persson (2006), Atler and colleagues only looked at overall group patterns.

While there is some research exploring overall group patterns of occupational experiences, there remains a lack of research focused on exploring if there are different patterns

of occupational experiences among subgroups within a sample. The purpose of this study, therefore, was to determine if we could use the *Occupational Experience Profile* (OEP; Adler & Berg, 2018) to identify subgroup patterns of occupational experiences defined by experienced levels of pleasure, productivity, restoration, and social connection within a sample of occupational therapy students.

Study 3 — Methods

Study 3 — Participants

Students enrolled in an occupational therapy theory course at a university in the Northeastern United States ($n = 61$) were invited to participate in this study. The course instructors gave the students a semester-long assignment that involved completing the OEP for 3 days at the beginning of the semester and for 3 additional days at the end of the semester.

The instructors introduced this study to the students and distributed consent forms. The students were required to complete the assignment, but they had a choice about whether or not to permit researchers to use their assignments in this study. The consent forms indicated that only the assignments, including the OEP portion of the assignments, would be shared with occupational therapists implementing research on the OEP. The course instructors informed the students that participation in the study would not impact their course grades. This study was deemed exempt by the institutional review boards at the students' university and the authors' university.

Study 3 — Instrumentation and Data Preparation

When people complete the OEP, they record, using their own words, their occupational performances during recent 24-hour days. They also indicate which of 15 OEP occupational categories best fit what they did (see Chapter 1, Table 1.1). In addition, they record some elements of the situational context (what, where, with whom) and their experiences related to each occupational performance (Atler & Berg, 2018). More specifically, to record how they experienced their occupational performances, they rate their experienced levels of pleasure, productivity, restoration, and social connection using 6-category rating scales (see Chapter 1, Table 1.2).

The focus of this study was on the students' (i.e., participants') OEPs from the beginning of the semester. We planned to omit a participant's OEPs from this study if the participant did not indicate which OEPs were from the beginning of the semester. We also ensured that participants' OEPs met minimum quality standards for time use data by following the recommendations from Fisher and Gershuny (2013). That is, we planned to omit a participant's OEPs from this study if (a) the number of reported activities was two or more standard deviations outside the mean number of activities reported by all participants, (b) there were four or more recording errors (e.g., overlapping time sequences), or (c) more than 90 minutes of awake time were missing (i.e., time not associated with an occupational performance).

Previous research using Rasch measurement methods provided preliminary evidence supporting aspects of validity and reliability of the OEP measures for the pleasure, productivity, restoration, and social connection scales. These discrete OEP measures of occupational experiences are used to create individual occupational experience profiles based on a participant's relative levels of pleasure, productivity, restoration, and social connection.

We omitted two items (*Experiencing spirituality* and *Volunteering*) from this study because our participants used these items fewer than 20 times (Krueger et al., 2012). Recommendations from previous research (see Chapters 2 and 3) indicated that two social connection items (*Having fun* and *Working*) each should be split into two items. The rationale for splitting these items was based on the conclusion that an element of the situational context (with whom, coded as alone or with others) strongly influenced the items' difficulty estimates and the degree to which these items demonstrated acceptable goodness of fit to the many-facet Rasch (MFR) model of the OEP (see Chapters 2 and 3). Therefore, in the current study, we split those two social connection items into the following four social connection items: *Having fun alone*, *Having fun with others*, *Working alone*, and *Working with others*.

Study 3 — Data Analyses

We initially used *Facets* version 3.83 (Linacre, 2019a) to implement MFR analyses and to calculate linearized measures of participants' experienced levels of pleasure, productivity, restoration, and social connection based on their ordinal raw item scores from the OEP. We then subjected the participants' four OEP measures to cluster analyses (Shannon, 2008). More specifically, we conducted cluster analyses using SPSS Version 26 (IBM Corp., 2019) to find subgroups of participants with individual profiles that were more similar to each other than to the individual profiles of the participants in other subgroups. In our initial analysis, we used Ward's method to identify the optimum number of subgroups. We then conducted a second cluster analysis using k-means method, starting with the number of subgroups identified using Ward's method. Finally, we compared and described the identified subgroup patterns of occupational experiences in terms of their relative experienced levels of pleasure, productivity, restoration, and social connection.

Study 3 — Results

All 61 participants' OEPs met minimum data quality standards, but only 58 participants clearly indicated which OEPs were from the beginning of the semester. Our initial Ward's method cluster analysis specified two subgroups as optimal. This analysis also revealed that there was one participant whose profile of occupational experiences was markedly different from all other participant profiles. When we examined that participant's OEP results, we also found that none of that participant's OEP measures demonstrated goodness of fit to the MFR model of OEP. We, therefore, judged this participant's individual profile of occupational experiences to be an outlier and invalid, and omitted it from our final k-means cluster analysis.

When we implemented our final k-means cluster analysis of the remaining 57 participants, forcing two groups, 41 of the participants were allocated to one group and 16 to the other. Figure 4.1 displays (a) the overall patterns of occupational experiences for the two subgroups, (b) the individual profiles of occupational experiences for the participants within each of the subgroups, and (c) the individual profile of occupational experiences of the participant with the outlying profile.

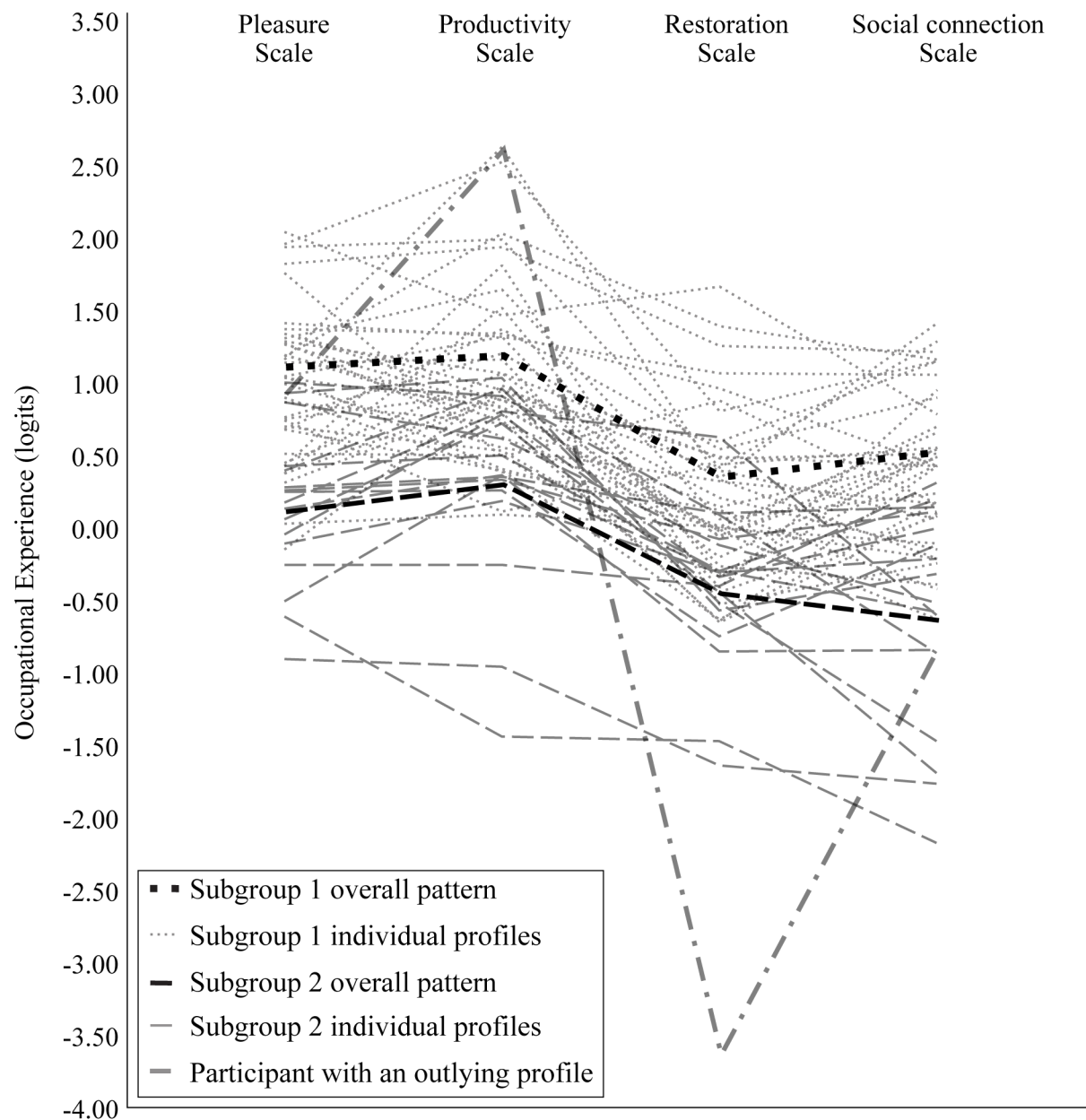


Figure 4.1. The overall patterns and individual profiles of occupational experiences for each subgroup and the participant with the outlying profile of occupational experiences.

As shown in Figure 4.1, the overall pattern of occupational experiences for Subgroup 1 can be described in terms of mean Pleasure and Productivity measures that were relatively higher than the mean Restoration and Social connection measures. The relative differences (a) between

the mean Pleasure and Productivity measures and (b) between the mean Restoration and Social connection measures for Subgroup 1 are less than the mean standard errors of the measures (0.3 logit; see Chapter 2) and are too small to be meaningful. The overall pattern of occupational experiences for Subgroup 2 was essentially parallel to and approximately 1 logit lower than the pattern of occupational experiences for Subgroup 1. This suggests that the important difference between these two subgroups' patterns of occupational experiences had to do with their overall level of occupational experience.

When we looked more closely at the individual profiles of occupational experiences, we found noticeable variation within each subgroup. While there were many participants in both subgroups whose profiles of occupational experiences were similar to the overall subgroup pattern, there also were several participants who had unique profiles. In Figure 4.2 we selectively display the profiles of four such participants to highlight their unique profiles of occupational experiences. We discuss below the implications of these similarities and differences in profiles of occupational experiences between and within subgroups.

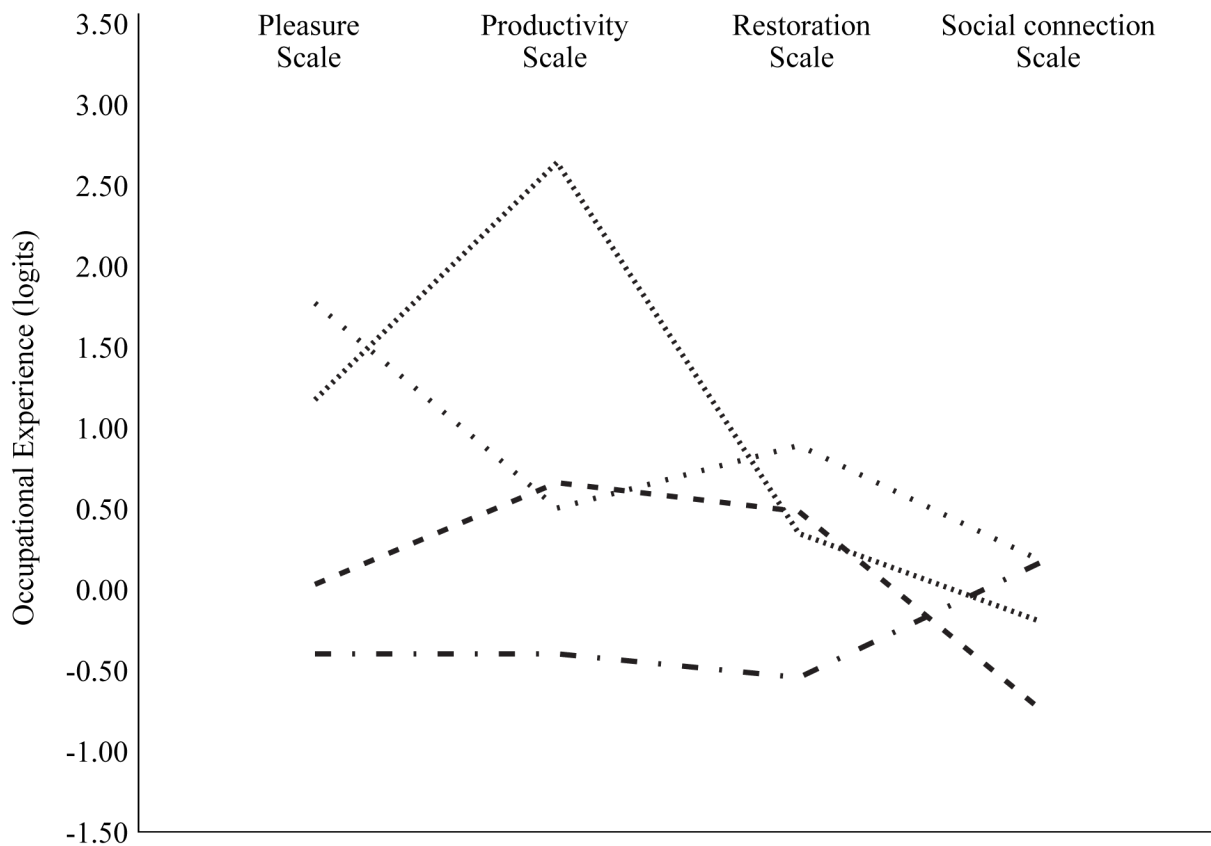


Figure 4.2. Four examples of different individual profiles of occupational experiences.

Study 3 — Discussion

The purpose of this study was to determine if we could use the OEP to identify subgroup patterns of occupational experiences defined by levels of experienced pleasure, productivity, restoration, and social connection. That is, we expected that the subgroup patterns would vary across the types of occupational experiences. For example, one subgroup might have relatively higher restoration and lower productivity, but another subgroup might have relatively lower restoration and higher productivity. However, this was not what we found. Rather, the two subgroup patterns were essentially parallel. This suggests that the subgroups in our sample differed by overall level of occupational experience (i.e., more or less experience overall), not by

their subgroup patterns of occupational experiences. Following a brief discussion about possible reasons for these results, we will consider important next steps that could enable uses of the OEP in research and practice.

One possible reason for these results could be that our participants experienced their occupational performances in personally unique and disparate ways. Evidence to support this possible reason comes from the considerable variation in our participants' individual profiles. This is similar to the results of Jonsson and Persson (2006) who reported some individual profiles of occupational experiences that were very different from their overall group patterns. Such a conclusion would align with Pierce (2001), who proposed that an occupational performance "is a specific individual's personally constructed, nonrepeatable experience" (p. 139). Moreover, this suggests that a search for subgroup patterns of occupational experiences could be an ambitious venture.

Another possible reason for our findings may have been related to our sampling methods. Our small convenience sample consisted of a presumably homogenous sample of college students from the same occupational therapy education program in the United States. It is possible, therefore, that our participants experienced their occupational performances in similar ways because they were living similar life situations. Yet, several participant profiles differed from their overall subgroup pattern, but nevertheless clustered together with other participant profiles in their subgroup. Whether any of the unique profiles in our study (e.g., those in Figure 4.2) might cluster into another subgroup given a larger and more diverse sample remains unknown. Future research is needed to determine if, in fact, patterns of occupational experiences vary among larger samples of people who are more heterogenous by diagnosis, socioeconomic status, stage in life, world region, or cultural background.

A critical feature of each of the two subgroups patterns was the variation in individual profiles of occupational experiences within each subgroup. We were unable to examine possible factors that might have influenced their profiles of occupational experiences because we did not collect demographic or other information about the participants such as whether they were employed, were parents, came from diverse cultural backgrounds, were performing well academically, or were experiencing stress. We did identify one outlier, but we could not explore any such variables to try to understand what might have been factors associated with this unique profile. Similarly, there were two profiles that were lower than all the others in Figure 4.1 and we were unable to explore more about what might have been different between these two profiles and the others in their subgroup. Clearly, future research needs to include exploration of participants' demographic, life circumstance, or other information to better understand the participant profiles and any identified subgroup patterns.

Study 3 — Limitations and Recommendations for Future Research

One limitation of this study likely was our use of a narrow set of interrelated variables to define clusters (Hatten & Hatten, 1987; Ketchen & Shook, 1996). While our defining variables demonstrated only 10% to 46% shared variance (see Chapter 2, Table 2.2), it is possible that some degree of multicollinearity dominated our cluster analysis findings, resulting in the conclusion that our subgroup patterns differed merely by the overall level of occupational experience. Future research should include more variables such as participant characteristics in defining clusters.

As alluded to above, the primary limitation in our study was our small, presumably homogenous sample. Future research clearly is needed to determine if, in fact, patterns of occupational experiences vary among larger samples of people who are more heterogenous by

diagnosis, socioeconomic status, stage in life, world region, or cultural background. Within this, it will be important to identify expected patterns among reference groups against which individual profiles of occupational experiences can be compared. Example reference groups might include samples of people with no known diagnosis or disability to enable norm-referenced interpretations (Kolen, 2006). Additionally, it will be important to identify the expected patterns of occupational experiences among other reference groups such as people who are under extreme stress, adults transitioning into retirement, or people without paid employment, to name a few.

If future researchers identify subgroup patterns, there will also be a need to determine if and how these patterns of occupational experiences are related to patterns of occupational performances. Another potential use of the OEP in research could involve examining the relationship between patterns of occupational experiences and well-being. For example, it is possible that participants in Subgroup 1, with higher overall occupational experiences, may also have higher self-rated well-being than did Subgroup 2, with lower overall occupational experiences. It is possible that research with a more heterogeneous sample may find patterns that are more divergent than we found in this study.

Study 3 — Implications for Occupational Therapy Practice

An important finding in this study was that individual participant profiles varied even within subgroups. Moreover, the two subgroup patterns differed by overall level of occupational experiences. Thus, while it remains inconclusive as to whether or not the OEP can be used to identify differing patterns among subgroups, the OEP can be used in practice to generate individual profiles of occupational experiences.

These profiles of occupational experiences could help occupational therapists to (a) gain insights into their clients' occupations and related experiences and (b) promote increased awareness among their clients about what those clients experience during their daily occupational performances. More specifically, because the profiles illustrate the relative levels of experienced pleasure, productivity, restoration, and social connection during a client's occupational performance, these profiles could be used collaboratively by the occupational therapy practitioner and the client to explore how different types of occupational experiences are interrelated. Moreover, they also could use the OEP results to examine how a client's profile of occupational experiences is related to specific types of occupational performances and/or physical and social environmental elements of the situational context. Increased client awareness and occupational therapist insights have the potential to facilitate meaningful dialogue about the client's occupational priorities and promote collaborative goal-setting.

If future researchers are able to identify expected patterns among reference groups, occupational therapists could use the results of that research as a frame of reference for interpreting their clients' profiles. For example, if an occupational therapist had a client who had a profile like the participant in our study who had an outlying profile, that occupational therapist could compare the client's profile to expected patterns of reference groups of age-matched peers with no known diagnosis or disability. Such comparison could allow the occupational therapist to determine whether or not that client's profile was expected of healthy, well young adults of the same age. Yet, until further research is implemented to identify expected patterns among people with no known diagnosis or disability, and we know more about the specific demographic or situational background of this individual, we cannot make any determinations about whether this

profile is one we might want to target for inclusion in an occupational therapy intervention program.

Study 3 — Conclusions

The results of this study provided inconclusive evidence to support the use of the OEP for identifying subgroups of people who share similar profiles of occupational experiences. While we did find two subgroups within our sample, they varied primarily by the overall level of occupational experience, not in terms of the differing levels of experienced pleasure, productivity, restoration and social connection. More specifically, we expected that the patterns would vary among any identified subgroups such that, for example, one group might have higher experiences of pleasure and lower experiences of restoration; whereas, another group might have lower experiences of pleasure and higher experiences of restoration. This was not the case for our participants' subgroup patterns which were essentially parallel. Reasons for the findings were discussed, including such possibilities as individuals might have unique profiles, or that our participants, presumably a homogenous group of occupational therapy graduate students, were sharing similar experiences. Clearly, there is a need for future research with larger and more diverse samples to study whether there are typical occupational patterns that are defined by divergent rather than relative levels of experienced pleasure, productivity, restoration, and social connection.

CHAPTER 5 — DISCUSSION

The overall aim of this dissertation was to evaluate aspects of validity and reliability of the *Occupational Experience Profile* (OEP; Atler & Berg, 2018). I begin this chapter with a discussion of the evidence that supports the use of the OEP to generate valid and reliable measures of occupational experiences. I then discuss the inconclusive evidence that the OEP can be used to identify subgroup patterns of occupational experiences. Next, I discuss the limitations of this dissertation and list future directions for research not otherwise discussed in previous chapters. I conclude with a discussion about the implications for occupational therapy practice, occupational science, and rehabilitation science.

Preliminary Evidence to Support the Use of the OEP to Generate Discrete and Composite Measures of Occupational Experiences

This dissertation focused on whether the OEP, as a unique assessment, can be used to generate both discrete and composite measures of occupational experiences. Unlike its predecessor, the PPR Profile (Atler, 2014), the discrete OEP scales demonstrated sound psychometric properties in terms of rating scale functioning, unidimensionality, and reliability. Additionally, the composite OEP rating scale also demonstrated effective rating scale functioning and the composite OEP measures demonstrated higher reliability than did the measures of any one of discrete OEP scales. There remains a need, however, to further explore unidimensionality of the composite OEP scale. In the following section, I expand on the ways the OEP is an improvement over its predecessor, address the benefits of using the OEP to measure social connection experiences during occupational performances, and discuss the

implications of using the OEP to generate a composite OEP measure of overall occupational experience.

Improvements of the OEP Over the PPR Profile

Discrete OEP measures. The improved rating scale functioning of the OEP appeared to be due to the revised rating scales and the predefined items. The result was improved rating scale functioning and better reliability of the resulting measures. Effective rating scale functioning is a necessary characteristic of an assessment tool, without which any interpretation of the resulting measures would be insecure (Linacre, 2002b). Improved reliability suggests that the OEP has the potential to be more sensitive than was the PPR Profile in detecting a meaningful difference between two measures on the same scale. For example, in contrast to the average *SE* of the PPR Profile Pleasure measures ($SE = .40$; Berg et al., 2017), the average *SE* of the OEP Pleasure measures was 0.31. This suggests that occupational therapy practitioners and researchers likely could identify a significant difference in occupational experience ($p \leq .15$) if two OEP Pleasure measures differed by at least 0.62 logit (i.e., 2 *SE*; Harvill, 1991; Jette et al., 2007; see Chapter 2, Table 2.2).

Another fundamental improvement of the OEP over its predecessor was that the items included in each scale worked together to define a unidimensional construct. The result was the ability to use the discrete OEP measures to create individually unique profiles of occupational experiences. These profiles described each participant's relative levels of experienced pleasure, productivity, restoration, and social connection. As shown in Figure 4.1 (see Chapter 4), there was considerable variability among individual participant profiles.

Social connection. When developing the OEP, a major change over its predecessor was the inclusion of a scale of experienced social connection during occupational performances.

Adding a social connection scale to the OEP was based on a review of the occupational experience research and the common view within and outside of occupational science that humans are social creatures with a basic need to feel a sense of belonging and social connection with other people (Baumeister & Leary, 1995; Deci & Ryan, 2011; Matuska & Christiansen, 2008; Wilcock & Hocking, 2015). Moreover, social connection has been identified as an important experience for occupational therapy practice and research (Atler, 2015a; Hammell, 2009; Rebeiro et al., 2001; Reed et al., 2010).

The results of this dissertation provided preliminary evidence to support the use of the OEP to generate a psychometrically sound discrete measures of social connection. With further validation of the social connection scale, the OEP could be used to examine if and how a person's experience of social connection is interrelated with other discrete types of occupational experiences (e.g., pleasure, productivity, restoration). From a practice perspective, this information has the potential to enable occupational therapists to better understand a client's daily occupations through the lens of feeling socially connected with (or disconnected from) other people. Given that experiences of social connection or disconnection have been linked to physical and psychological health (Coyle & Dugan, 2012; Hagerty & Williams, 1999; Poey et al., 2017; Wilson et al., 2007), occupational therapists could be well positioned to help their clients establish occupational goals to promote increased experiences of social connection during their daily occupational performances.

Composite OEP scale. In this dissertation, I also introduced the idea of expanding the usefulness of the OEP to generate a composite OEP measure based on all of the pleasure, productivity, restoration, and social connection items of the OEP. Although there is a need for further research into the unidimensionality of the composite OEP scale, this dissertation provided

preliminary validity evidence for effective rating scale functioning of the composite OEP rating scale. Additionally, as I mentioned above, the composite OEP measures were even more reliable than any one of the discrete OEP measures. This means that the composite OEP scale has the potential to be a sensitive measure of overall occupational experience. For example, occupational therapy practitioners or researchers potentially could determine whether overall occupational experience differed significantly ($p \leq .15$) if two composite OEP measures differed by at least 0.26 logit for the same person (Time 1 vs. Time 2) or different people (Person A vs. Person B).

Inconclusive Evidence to Support the Use of the OEP to Distinguish Occupational Patterns

In contrast to the preliminary evidence to support the use of the OEP to generate valid and reliable measures of occupational experiences, the evidence was inconclusive to support the use of the OEP to distinguish subgroups with different occupational patterns. One interpretation of these findings is that, contrary to my expectations, the OEP may not be useful for identifying subgroups. That is, I expected to find subgroups of participants who had profiles that were similar to each other, but different from participant profiles in other subgroups. Contrary to these expectations, participants in this dissertation generally demonstrated two parallel patterns of occupational experiences that merely differed by overall level of occupational experience.

Yet, even within the two subgroups, there was considerable variation in individual profiles of occupational experiences. Moreover, there were several participants with profiles of occupational experiences that differed from their overall subgroup pattern, but nevertheless clustered together with other participant profiles in their subgroup. Whether any of these individual profiles might cluster into another subgroup given a larger and more diverse sample remains unknown. Considered together, it is unclear whether the OEP can be used to identify subgroups of participants who share similar profiles of occupational experiences.

Overall Limitations and Future Directions

Limitations of this Dissertation

Participants. The small convenience sample of occupational therapy students from the same university in the United States was a major limitation of the studies in this dissertation and should be considered when interpreting these results. The participants' occupational therapy education program likely provided them with a perspective on occupational concepts (e.g., occupational performance, occupational experience) that influenced how they interpreted and completed the OEP. Thus, these results cannot be interpreted in relation to other groups of people.

Reliability. Rasch reliability estimates are expected to increase when (a) there are more test items and (b) there is greater variance in participant measures (Linacre, 2019d). In these studies, each participant completed OEPs for 3 days at the beginning of the semester. I chose to generate each participant's OEP measure based on 3 days' worth of test items. Although more items on a test necessarily increase reliability (Haertel, 2006), the reliability statistics of the discrete OEP measures were only acceptable to good (see Chapter 2, Table 2.2). While these reliability statistics demonstrated improvement over the predecessor of the OEP, PPR Profile (see Berg et al., 2017), it is possible that homogeneity of the sample resulted in lower reliability estimates than if the sample were more diverse. Moreover, I did not examine reliability statistics for just 1 day, but I would expect that the reliability statistics of the OEP measures likely would be lower if they were based on an OEP for only 1 day for each participant.

Data analysis methodologies and loss of information. Participants recorded their occupational performances for 3 days and categorized each occupational performance using the 15 OEP occupational performance categories (see Chapter 1, Table 1.1). Yet, some of these data

were occasionally combined or omitted, resulting in loss of information. In the following paragraphs, I discuss such loss of information.

Categories of occupational performances. When prompted to indicate which of the 15 predefined occupational categories (i.e., OEP items; see Chapter 1, Table 1.1) best fit what they did, the format of the OEP allowed participants to choose an “Other” category. Participants who chose the “Other” category also were prompted to write their own category to fit what they did. I chose not to combine the “Other” data into a new item or otherwise use the “Other” data in these studies. There is a need, however, to explore these “Other” categories from this and future studies to determine if some important categories of occupational performances are missing from the 15 occupational categories of the OEP listed in Chapter 1, Table 1.1.

Recurring occupational performances. The Rasch measurement model that I used in these studies required that there be only one rating per item per day. Yet, some participants marked the same type of occupational performance more than once during the same day (e.g., *Caring for self* in the morning and *Caring for self* again in the evening). This resulted in sometimes having more than one rating per item per day. In these situations, I calculated the mean of those ratings, resulting in a loss of information that participants had provided.

Number of occupational performance categories per recorded activity. Instructions on the OEP prompted participants to mark one and only one category of occupational performance for each recorded activity. However, there was nothing to prevent participants from marking multiple categories for the same recorded activity. If this occurred, the experience ratings for that activity were ignored in analyses of data in these studies. In addition, if a participant did not mark even one occupational performance category, those experience ratings also were ignored. Future researchers should consider using a new web app version of the OEP (see

www.oeprofile.com), which forces participants to mark one and only one category of occupational performance for each recorded activity.

Future Directions

The studies in this dissertation have begun the process of generating validity and reliability evidence to support the use of the OEP. Yet, they also highlighted the need for additional research to further develop the OEP, including the need to replicate the studies with larger samples of participants who are more diverse by culture, diagnosis, age, and other life circumstances. In the list of future directions for the OEP below, I suggest potential future studies focusing on ideas I have not previously suggested in this dissertation.

- As I described in Chapters 2 and 3, two OEP items demonstrated improved psychometric properties when I accounted for the participants being alone or with others. In these studies, I split the two items using a method recommended by Tennant et al. (2004). Another way to account for being alone or with others, not discussed in the previous chapters, could be to expand the many-facet Rasch measurement model of the respective OEP scale by introducing a *social* facet. By adding a social facet with two elements (*alone* or *with others*) to the respective measurement model, participants' OEP measures would be allowed to vary according to the impact of being alone or with others during their occupational performances (Linacre, 2019b). Whether future researchers choose to split items or revise the measurement model, there will be a need to collect new data and re-examine the psychometric properties of the scales.
- In addition to the need to establish stable item difficulty estimates with larger, more diverse samples, further research is needed to examine test fairness related to the OEP item difficulty estimates (see Chapter 2, Table 2.1 and Chapter 3, Table 3.1). One potential type

of test unfairness is evidenced by differential item functioning (DIF; Camilli, 2006). DIF can occur if people from one group (e.g., women) find easy items more difficult to endorse in highly positive manner than people from another group (e.g., men). DIF studies generally involve samples of at least 200 participants per group (Tennant & Pallant, 2007; Zumbo, 1999). Future research should be examine DIF for the discrete and composite OEP scales in relation to different types of groups (e.g., groups identified by culture, gender, geographic region).

- As I mentioned above, no research has examined reliability and validity of the OEP scales based on OEP for fewer than 3 days. In occupational therapy practice and research, however, I believe that there may be a desire to generate a person's OEP measure based on fewer than 3 days. Future research, therefore, should compare the reliability as well as the validity of the OEP based on 1 day, 2 days, and 3 days to determine what is needed to generate valid and reliable OEP measures.
- Finally, I recommend that future researchers explore the possibility of further developing the OEP to allow participants to record their level of experienced *personal value* during occupational performances. Again, personal value refers to experiencing that what one is doing is important or worthwhile to do (Fisher & Marterella, 2019). Such a scale could allow occupational therapy practitioners and researchers to use the OEP to evaluate participation, one of the three interwoven occupational elements of the *Transactional Model of Occupation* (Fisher & Marterella, 2019). Given new research to examine the validity and reliability of a revised OEP to measure participation, researchers could potentially engage in new research to examine relationships among all three occupational elements of the *Transactional Model of Occupation*.

Implications for Occupational Therapy Practice

With further validation, the OEP has the potential to be used in occupational therapy practice. For example, the discrete and composite OEP measures could be used to promote awareness among occupational therapy clients about how they experience their everyday occupational performances. Moreover, the use of profiles of occupational experiences that illustrate a client's relative levels of discrete OEP measures have the potential to increase client awareness about the interrelatedness of pleasure, productivity, restoration, and social connection experienced during those occupational performances. Additionally, occupational therapists have the opportunity to use the OEP results to increase awareness about the relationship between those OEP measures and the physical and social environmental elements of the situational context that the client recorded. Increased awareness is necessary for making occupational change (Clark et al., 2004) and could be used to foster meaningful communication with clients about their occupations, occupational goals, and future occupational choices. Moreover, when using the OEP to evaluate the effectiveness of occupational therapy interventions and a client's progress toward goals, both the discrete and composite OEP measures are sensitive enough to identify a change in occupational experiences, but the composite OEP measure appears to be more sensitive than is any one of the discrete OEP measures.

Implications for Occupational Science

The focus of this dissertation was occupational experience, one of three interwoven elements of occupation (see Chapter 1, Figure 1.1). I, therefore, approached this dissertation from the philosophical perspectives of occupational science. Occupational science is the academic and scientific discipline that emerged from occupational therapy practice with the promise to develop new knowledge about human occupation (Yerxa et al., 1990). As viewed

from the philosophical perspectives of occupational science, occupation is a basic human need and people can influence their own health and well-being through occupation (Wilcock & Hocking, 2015). Additionally, occupation is a complex phenomenon (Yerxa, 1993) that requires examination of what people do, how people experience what they do (Hasselkus, 2006; Hocking, 2009; Wright-St Clair & Hocking, 2014), and how their doings influence and influenced by the situational context (Fisher & Marterella, 2019).

As I described in Chapter 1, a theoretical model that best fit and informed my dissertation was the *Transactional Model of Occupation* (Fisher & Marterella, 2019). I designed the studies of this dissertation from the perspective that occupational experience is not something internal to the person, but it is intertwined with other occupational elements as depicted in the *Transactional Model of Occupation*. Moreover, within the *Transactional Model of Occupation*, the three occupational elements (occupational performance, occupational experience, and participation) are viewed as influencing and being influenced by the situational elements (physical and social environmental, sociocultural, geopolitical, temporal, task, and client) that all mutually influence each other (see Chapter 1, Figure 1.1). These assumptions about the transactional nature of occupation guided not just the design of my studies, but they also guided my interpretation and exploration of the results. For example, when I found that the OEP items *Working* and *Having fun* failed to demonstrate acceptable goodness of fit to the many-facet Rasch models of the OEP, I speculated that a social environmental element of the situational context might have influenced these items' difficulty estimates and related fit statistics.

This dissertation helped to advance occupational science by providing preliminary evidence to support the use of the OEP to generate objective measures of occupational experiences. With further validation, the OEP has the potential to be used in occupational science

research for multiple purposes. For example, the discrete and composite OEP measures could be used to examine if and to what extent occupational experience influences and is influenced by occupational performance and participation. Additionally, the OEP measures could be used to study relationships between occupational experience and elements of the situational context. Moreover, it is possible that the OEP could be used to test the common assertion within occupational science that people can influence their health and well-being through occupation (Wilcock & Hocking, 2015).

Implications for Rehabilitation Science

Rehabilitation science is a discipline focused on maximizing functional independence among people with disabling conditions (Ottenbacher, Jette, Fuhrer, & Granger, 2012). As viewed from a rehabilitation science perspective, a person's capacities and impairments of body function and structure potentially enable or restrict (i.e., disable) the person's ability to do tasks. Similarly, aspects of the environment also have the potential to be enabling or disabling conditions. From a rehabilitation perspective, the interaction between the person and the environment can be considered an enabling-disabling process (Institute of Medicine, 1997). The rehabilitation science focus on maximizing functional independence, therefore, is realized through reducing the effects of disabling impairments and environmental conditions (Institute of Medicine, 1997; Ottenbacher et al., 2012; Seelman, 2000).

I did not choose to approach this dissertation from a rehabilitation science perspective for several reasons. First, this dissertation was concerned with the psychometric properties of an assessment tool that could be used with nearly anyone, whether or not they have a disabling condition. While future OEP studies certainly should include participants who have disabling

conditions, such participants were not explicitly chosen for the studies in this dissertation and they were not the focus of these studies.

More importantly, this dissertation focused on subjective experiences — something that is not explicit in most theoretical models used in rehabilitation science (c.f. Institute of Medicine, 1997; World Health Organization, 2001). Some researchers, however, have recommended that rehabilitation science consider subjective experiences (Hemmingsson & Jonsson, 2005; King, Imms, Stewart, Freeman, & Nguyen, 2018; Tate, 2006). With further development, the OEP has the potential to be used in rehabilitation science research to address these recommendations. More specifically, the OEP could be used as an objective measure of subjective experiences to study factors that improve or hinder human functioning from participants' own perspectives.

Conclusions

This dissertation provided preliminary validity and reliability evidence to support the use of the OEP to generate discrete and composite measures of occupational experiences. The discrete OEP measures can be used to create profiles of occupational experiences that describe a person's relative levels of experienced pleasure, productivity, restoration, and social connection. The composite OEP scale potentially could be used to generate even more sensitive measures of occupational experience. This dissertation, however, provided inconclusive evidence that the OEP could be used to identify subgroups who shared similar profiles. With further research, the OEP has the potential to be used in occupational therapy practice and research.

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