



# PROFESSIONAL DEVELOPMENT AT THE LAUNDROMAT PROJECT

A Study of Learning Transfer and Organizational  
Knowledge Creation

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*Special thanks to the Laundromat Project for allowing me to partner with them  
to explore this important topic for their organization.*

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## Executive Summary

The Laundromat Project (The LP) is an arts-based non-profit organization located in the Bedford-Stuyvesant neighborhood of Brooklyn, NY. The organization is deeply committed to providing professional development and leadership training opportunities for their staff members. The LP's goals for the overall program are for their employees to develop skills, knowledge, and networks (The Laundromat Project, 2020). However, leadership were beginning to wonder, "Are they working?". To understand whether something is 'working' or not from a data perspective, literature was gathered around leadership development and training programs, their evaluation, and learning transfer theories.

To explore The LP's problem of practice, this study employed the HRD Research and Measurement Model by Holton (1996) and the Organizational Knowledge Creation theory by Nonaka (1996). Each of these has a unique framework, the Learning Transfer Systems Inventory (LTSI) and the SECI (socialization, externalization, combination, and internalization), respectively. Although numerous studies have expanded upon these two theories, the Learning Transfer Systems Inventory (LTSI) is widely accepted as a validated survey instrument for exploring learning transfer on the individual level (Bates et al., 2012; Chatterjee et al., 2018b; Holton, 2005, Holton et al., 2003; Kim et al., 2019). A 2018 conceptual paper proposed a combination of both the LTSI and SECI models through the utilization of the LTSI instrument, and this framework was chosen as the outline of this study (Chatterjee et al., 2018b).

Two surveys were conducted over a five-month period. Surveys included an initial assessment that collected general data around professional development at the Laundromat

Project and also from specific formalized training sessions. Data analysis highlights factors that contributed to learning transfer, barriers to learning transfer, and how successfully learning from training sessions were being disseminated across the organization.

Results indicated that employees at The LP have a high motivation and ability to transfer their learning from training sessions, but the overall environment, including supervisory support and positive and negative personal outcomes, created a barrier. The data also indicated that employees were not being provided with adequate opportunities to share their knowledge across the organization through explicit means.

Suggestions for areas of improvement and specific recommendations based on the data are directly related to the findings and include ways that The LP should consider improving their organizational environment to enhance training transfer. Recommendations included a focus on strengthening supervisory level support, creating opportunities for staff to share their knowledge, and designing a rewards system. In addition, The LP should strongly consider continuing their evaluation of professional development trainings for the next six months to a year as the Covid-19 pandemic comes to an end and the nature of remote and in-person learning opportunities shift.

## Introduction

In the spring of 2019, members of the leadership team at the Laundromat Project (The LP), a non-profit arts organization in Brooklyn, NY, wondered, 'Are professional development programs worth the investment? Do they help teach people new skills? Do they do anything to advance people's workplace knowledge base, or is it a waste of time and energy? Does it ultimately benefit the organization?' Their questions are not unique to them; many non-profit and for-profit companies struggle to answer the same queries and understand whether they should continue to offer professional development and leadership programs to their employees (Saks & Burke, 2012; Sorensen, 2016).

A comprehensive literature review looked at the history of leadership development, evaluation of leadership development and training programs, and several frameworks that have been developed over the past 60 years to understand how participants are benefitting (or not) from these types of programs. Research indicates that the primary purpose of



professional development or training programs is *learning transfer* (Day, 2000; Sorenson, 2016), and the determination of whether they hold any value for employees, the larger organization, and stakeholders is known as the *transfer problem* (Saks & Burke, 2012; Sorensen, 2016). In the 1990s, Holton (1996) put forth the HRD (human resources development) Research and Measurement Model that looks at learning transfer from a training session to an individual. He identified 16 factors that serve as barriers and catalysts to learning and subsequently developed a now validated instrument called the Learning Transfer Systems Inventory, widely known as the LTSI (Bates et al., 2012; Chatterjee, 2018b, Holton et al., 2000; Holton., 2005). A second theory, known as Organizational Knowledge Creation (OKC), emerged around the same time to explain how learning extends from an individual to the larger organization (Chatterjee, 2018b; Nonaka, 1994). Nonaka's framework that emerged from the OKC theory is the SECI, which stands for socialization, externalization, combination, and internalization (Chatterjee, 2018b; Nonaka, 1994; Nonaka et al., 2000; Nonaka et al., 2009). Nonaka (1994) argues that whereas new knowledge is obtained by individuals, the organization's role in "articulating and amplifying that knowledge" is a critical component to how it flows beyond the individual to the larger group (p. 14). A 2018 conceptual paper combined these two frameworks to understand learning transfer and its role in organizational knowledge creation (Chatterjee et al., 2018b).

Utilizing this conceptual paper as a roadmap to data collection at the Laundromat Project, this capstone project sought to understand: 1.) what factors affect the transfer of learning from a professional development session to an individual, 2.) how likely it is that learning transfer will take place after participants attend a professional development session,



and 3.) in what ways an individual's learning from those sessions transfers to the knowledge base of the larger organization.

This capstone project explored these questions through the lens of learning transfer and organizational knowledge creation to understand to what extent the professional development sessions attended by members of The LP staff were ultimately a worthwhile investment of time, money, and resources for the organization. Recommendations were provided to The LP based on literature and findings from this study on ways to improve learning transfer and grow their organizational knowledge following trainings and professional development sessions.

The LP recognizes that professional development comes in many forms, including but not limited to coaching, research, networking, mentorship, and trainings. The literature around trainings and similar programs is extensive, and phrasing fluctuates depending on the author. For purposes of this project, the focus was targeted at training and professional development sessions. These were independently defined in collaboration with The LP as: *Formalized leadership and professional development programs, including conferences, workshops, webinars, compliance training, and similar programs that are intended to enhance professional knowledge, skills, and networks.* For purposes of this capstone, professional development, leadership development, employee and staff trainings, and similar expressions are used interchangeably to discuss The LP's program and related sessions.

## Organizational Context

The Laundromat Project began in 1999 when Risë Wilson left her job in the corporate sector to bring art to her own community in Bed-Stuy, Brooklyn. She turned laundromats into

makeshift gathering spaces for artist programs and used art as a “tool for turning strangers into neighbors” (The Laundromat Project, 2020). The LP was officially incorporated as a non-profit in 2005 to create accessibility to the arts for neighborhoods of color. Over the past 15 years, The LP’s programming has expanded into all forms of community spaces, such as public parks and community organizations, and their staff has increased to accommodate their growing needs. Their goals have also expanded in that time, and they now engage artists and community members to collaborate to create positive change in the neighborhoods they serve. As their mission states, “We make sustained investments in growing a community of multiracial, multigenerational, and multidisciplinary artists and neighbors committed to societal change by supporting their artmaking, community building, and leadership development” (The Laundromat Project, 2020).

In 2017, recognizing that they were maturing as an organization, they began a two-year period working with a consultant to develop a framework for a strategic vision and growth plan through 2022. Three overarching goals grew out of this process: To Amplify and Deepen Knowledge, Foster Collaboration and Accountability, and Catalyze Networks. They also developed what they call ‘POC (people of color)-Centered Principles,’ and one of those principles is to ‘Nurture Leadership.’ Although leadership and professional development has been part of the culture at The LP for several years, a more pointed focus on shaping their training sessions came out of this particular principle and is included in their extensive employee handbook called ‘The LP Culture Guide.’

The LP currently has thirteen staff members that engage in their professional development and leadership program. The program recognizes that there are various ways in

which their team members can grow their professional skills, knowledge, and networks, including coaching, mentorship, network building, and more formal trainings such as workshops, webinars, conferences, and other similar learning experiences. These formal trainings are facilitated mainly by external consultants specific to the topic area. The LP has dedicated financial resources allocated to ensuring their team members receive appropriate development and learning opportunities. Each team member receives a mix of opportunities that focus on the needs of their individual role, particular skill set, and of the larger organization and community. They are ongoing throughout the year and responsive to the articulated needs of the staff members at goal development sessions with their supervisors. Senge (1994) states that in a learning organization, leaders are responsible for building organizations through the continuous learning of employees. Through this capstone project, The LP leadership seeks to understand the current beliefs about professional development opportunities, whether their existing training offerings contribute positively to their employee's learning and personal growth related to their work, and whether that learning is being disseminated across the larger organization.

## Problem of Practice

The LP invests time, money, and other resources into formalized leadership and professional development programs for their staff, including conferences, workshops, webinars, compliance training, and similar programs intended to enhance professional knowledge, skills, and networks. Leadership staff at The LP have not previously, and do not currently have, a way to evaluate whether their staff members are learning from these programs and whether they are transferring that learning to the workplace and to other

organizational members. Their inability to gain a clear understanding of whether the professional development and training sessions they are providing for their employees are useful is not a unique problem.

There has been a significant increase in the number of professional development and similar training programs being offered by organizations in the past twenty years as organizations seek to improve the knowledge and skillsets of their employees (King & Nesbit, 2013; Packard & Jones, 2013; Ho, 2020). Small organizations like the Laundromat Project can expect to spend close to \$2,000 per employee per year (Miller, 2013), but less than 50% are actually being assessed (Avolio et al., 2010; Day et al. 2013; Throgmorton et al., 2015; Twitchell et al., 2000). Stakeholders often find it challenging to clarify and measure expected outcomes, attribute learning to specific programs, and track and record programs that happen over extended periods of time (Day et al., 2013; Throgmorton et al., 2015; Twitchell et al., 2000;).

Given the high cost of programs and conferences, it is imperative for organizations like The LP to gain a robust understanding of whether learning is occurring, how they might be contributing to that learning, or lack thereof, and what they can do to improve. When organizations evaluate professional development and training sessions, they are more likely to improve over time and have more positive learning outcomes for their employees (Saks & Burke, 2012).

## Literature Review

A comprehensive literature review explores the history of leadership and professional development trainings, learning and training transfer, and the evaluation of leadership development and training programs.

## Leadership and Professional Development Trainings

Leadership development programs, sometimes called professional development, executive or staff trainings, etc., have been broadly defined as “structured, off-the-job events that bring individuals together for shared learning and development experiences” (McCauley, 2008, as cited in Packard & Jones, 2013). These types of programs have increasingly become an important factor for organizations looking to mass train their staff on basic skills, improve leadership capacity, enhance overall job performance, and improve organizational efficiency and innovation (King & Nesbit, 2013; Packard & Jones, 2013). Trainings often focus on individual skills and abilities, but have also included team performance, organizational improvement, and community change (Packard & Jones, 2013).

Training interventions are expected to improve organizational performance and increase global competition in the marketplace, and given the high cost of trainings, organizational leaders have high expectations for success (Holton, 1996). A recent ‘State of the Industry’ report conducted by the Association for Talent Development (ATD) indicated that the average amount spent per employee on direct learning expenses in 2018 was \$1,299 and included in-house development costs, external consultant fees, and tuition reimbursement, as well as other similar expenses (Ho, 2020). Small organizations (fewer than 500 employees) like the Laundromat Project spent exponentially more per employee than medium or large organizations because they are less able to distribute the costs of trainings across as many employees (Miller, 2013). In 2012, large organizations spent an average of \$700, whereas small organizations averaged \$1,800 per employee (Miller, 2013). In 2009, expenses per employee were \$1,081 on average (Green & DeSandro, 2011), meaning that overall, professional

development and learning programs have seen an 18% increase in spending over the past decade.

## Learning and Training Transfer

Modern-day transfer theories are rooted in the Identical Elements theory, first proposed by Thorndike and Woodworth in the early 1900s, and suggests that the closer the training setting conditions are to the workplace performance settings, the higher the degree of transfer (Yamnill & McLean, 2001). Learning transfer, sometimes called training transfer, or transfer of training (Sorenson, 2016), was given a formalized definition by Baldwin and Ford in 1988:

Positive transfer of training is defined as the degree to which trainees effectively apply the knowledge, skills, and attitudes gained in a training context to the job... For transfer to have occurred, learned behavior must be generalized to the job context and maintained over a period of time. (p. 63)

Numerous researchers suggest that the entire purpose of workplace training and professional development programs *is* transfer, even though it often does not occur (Day, 2000; Sorenson, 2016). Indications began emerging in the 1980s that employees might only transfer 10% of learning to on-the-job performance (Baldwin & Ford, 1988). A determination of whether workplace training programs had any value for organizations and stakeholders became known as the *transfer problem* (Saks & Burke, 2012; Sorensen, 2016).

Transfer, in more contemporary perspectives, consists of two major dimensions: generalization and maintenance (Blume et al., 2010). 'Generalization' means the extent to which the knowledge acquired through training can be applied, and 'maintenance' means how

learning and behavioral adjustments remain persistent over time (Baldwin & Ford, 1988, Blume et al., 2010). The literature also recognizes three primary factors that influence transfer: organizational, individual, and design (Saks & Burke, 2010). Holton's 1996 theoretical framework, the HRD research and evaluation model being used in part for this project and explained further in the Conceptual Frameworks section of this report, also recognizes these components as vital to training transfer.

Organizations that choose to evaluate training sessions have a greater ability to improve them over time, and therefore their trainings tend to be more effective at transferring learning, meaning that evaluation of training sessions is positively linked to training transfer (Saks & Burke, 2012).

## Evaluation

Despite a wealth of literature on leadership development programs, evaluation of the efficacy of professional development, leadership, and training programs is less well researched comparatively, and there is a lack of suitable instruments available (Collins & Holton, 2004; Black & Earnest, 2009; Solansky, 2010). Estimates around professional development, learning, and training session evaluations are inconsistent, but numerous findings suggest that less than 50% of organizational leaders assess the effectiveness of their trainings and programs (Twitchell et al., 2000, Avolio et al., 2010; Day et al., 2013; Throgmorton et al., 2015). Some studies suggest that only 10-20% of organizations evaluate their effectiveness (Avolio et al., 2010). Others suggest that between one-third to one-half of training programs are evaluated, with the primary reasons for the lack of evaluation being because stakeholders find it difficult to clarify and measure expected outcomes, leader development can be difficult to attribute to

specific programs, and it is challenging to track and record programs that happen over multiple months (Twitchell et al., 2000; Day et al., 2013; Throgmorton et al., 2015).

Most evaluations cited in research have focused on the individual leader and not looked across organizational and community levels (Clarke, 2012; Packard & Jones, 2013). In a 2004 meta-analysis of studies from 1982-2001, Collins and Holton found that of 130 studies, only 11 looked at organizational outcomes. Researchers have called for measurement of leadership development sessions to go beyond individual outcomes, and assess program impact on organizational and community levels as well as evaluate financial impact (Black & Earnest, 2009; Avolio et al., 2010; Packard & Jones, 2013; Phillips et al., 2016). "Given the substantial costs of such programs and their perceived significance to organizational success, measuring participant learning and its organizational outcomes is critical" (King & Nesbit, 2013, p. 135).

According to Kirkpatrick and Kayser (2016), there are three significant reasons to evaluate training programs: "to improve the program, maximize transfer of learning to behavior and subsequent organizational results, and to demonstrate the value of training to the organization" (p. 5). Black and Earnest (2009) concluded similarly that evaluation instruments could help to improve programs and demonstrate outcomes at personal, professional, and community levels. Saks and Burke (2012) noted that the primary reasons to evaluate training programs are for stakeholders to make decisions surrounding areas for improvement or whether to discontinue programs altogether. "Effective evaluation provides decision-making data (to stakeholders, participants, funders, and others), which affects program change, expansion, or even abolishment" (Black & Earnest, 2009).



### Kirkpatrick's Four Levels

The Kirkpatrick Model, initially designed in the 1950s by Dr. Donald Kirkpatrick, is a commonly adapted framework for evaluating professional development and leadership training (King & Nesbit, 2013; Kirkpatrick & Kayser, 2016; Packard & Jones, 2013; Throgmorton et al., 2016). The model consists of four levels of evaluation for training programs: reaction, learning, behavior, and results (Kirkpatrick & Kayser, 2016; Throgmorton et al., 2016). At the first level, evaluation gauges whether participants were satisfied with the training and thought it was relevant to their jobs (Kirkpatrick & Kayser, 2016). At Level 2, evaluators measure the degree to which employees actually learned the material being taught (Kirkpatrick & Kayser, 2016). The third level, behavior, looks at how participants are able to apply their newly acquired learning on the job, and the fourth level, results, measures whether the intended individual, organizational, and community outcomes occurred as a result of the development program (Kirkpatrick & Kayser, 2016).

However, several misapplications of Kirkpatrick's model, since its inception, failed to use the complete theory and model, often stopping after level one, employee satisfaction (Holton, 1996; King & Nesbit, 2013; Kirkpatrick & Kayser, 2016). A review of research found that over 200 studies had used at least one of Kirkpatrick's levels to evaluate leadership programs, but very few used all four levels, and most evaluators found the fourth level too expensive or difficult (Throgmorton, 2016). Saks and Burke (2012) concluded that although organizations most often evaluate employee's initial reactions and initial learning (levels one and two via Kirkpatrick), the behavioral and organizational results criteria (levels three and four) have the highest relationship to training transfer. Numerous researchers by the 1990s

had deemed it a flawed model and sought to design improved evaluation models for training transfer (Baldwin & Ford, 1988; Holton, 1996), which leads to the conceptual frameworks used in this study.

## Conceptual Framework

This capstone project utilizes a combination of two theories, Holton's (1996) HRD research and measurement model and Nonaka's (1994) organizational knowledge creation (OKC) theory. The HRD model looks specifically at factors affecting learning transfer to individuals, whereas the OKC theory looks at how an individual's knowledge can expand to the organization at large (Chatterjee et al., 2018b). Each of these has a subsequently related framework, LTSI and SECI respectively, and the conceptual paper this quality improvement study was modeled after combines both of these as a way to understand the learning transfer problem as it relates to both individuals and the larger organization (Chatterjee et al., 2018b).

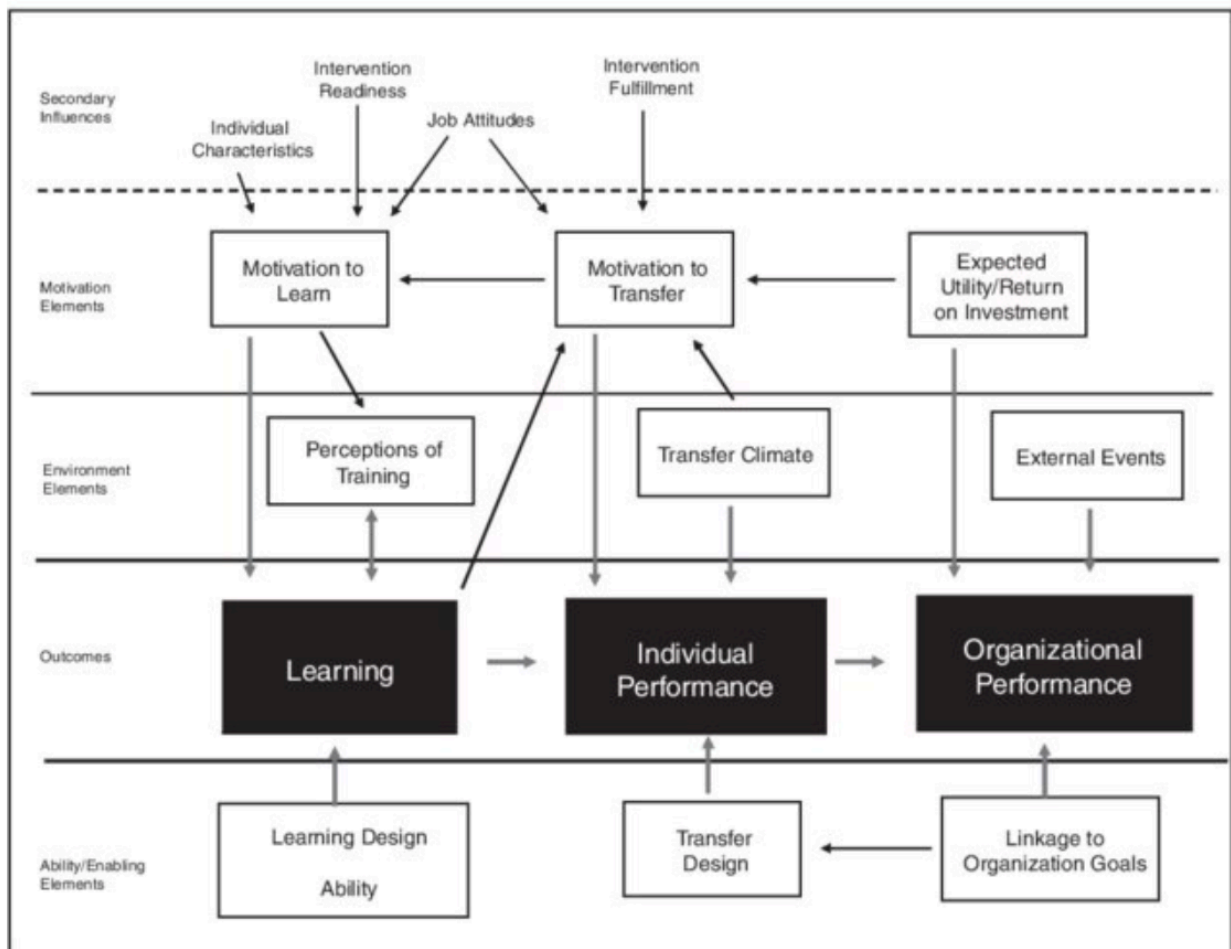
### HRD Research and Measurement Model

The HRD (human resources development) research and measurement model, as developed by Holton (1996), was a direct response to what he believed was a "flawed four-level evaluation model" (p. 5) by Kirkpatrick, compelling him to utilize other contemporaneous evaluation designs by Baldwin and Ford (1988) and Noe (1986) to build his own model. The new model was proposed as a way to diagnose and understand the causal factors and influences of what Holton (2005) called "HRD intervention outcomes," or trainings, and has been updated since that time to reflect research conducted using the original framework. Three primary outcomes, as shown in Figure 1 on page 19, were identified as learning, individual performance, and organizational results (Holton, 2005). It also outlines additional

influences on the outcomes such as motivation, ability, and environmental elements, listed on the left-hand side (Holton, 1996). Motivation to transfer, transfer climate, and transfer design are specified as three critical elements affecting individual performance, and these are shown in the middle column (Yamnill & McLean, 2001).

This framework became the conceptual basis for the Learning Transfer Systems Inventory (LTSI), which Holton designed in conjunction with other researchers to create a rigorous inventory for assessing catalysts and barriers to learning transfer and transfer climate

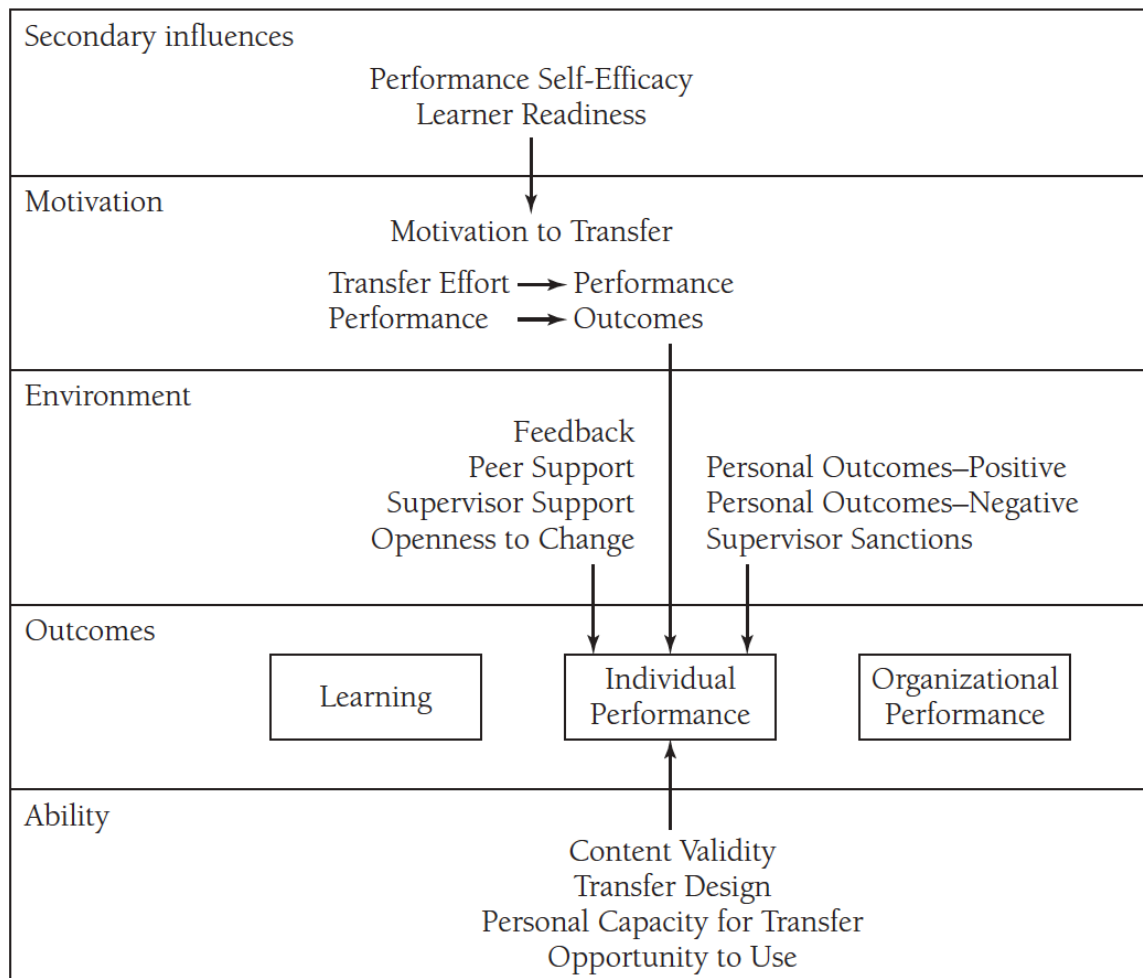
FIGURE 1: HOLTON'S HRD EVALUATION RESEARCH AND MEASUREMENT MODEL



Source: Holton, 2005, p. 38

from work-related training (Bates et al., 2012). Generally, it measures how likely it is that learning transfer at the individual level will occur after attending a training program (Chatterjee et al., 2018b). It has been tested and adjusted over time with proven validity (Holton, 2005). The LTSI looks at the individual performance measures located in the original Holton (2005) model boxes labeled Transfer Design, Transfer Climate, and Motivation to Transfer.

FIGURE 2: LEARNING TRANSFER SYSTEMS INVENTORY, CONCEPTUAL MODEL OF INSTRUMENT CONSTRUCTS

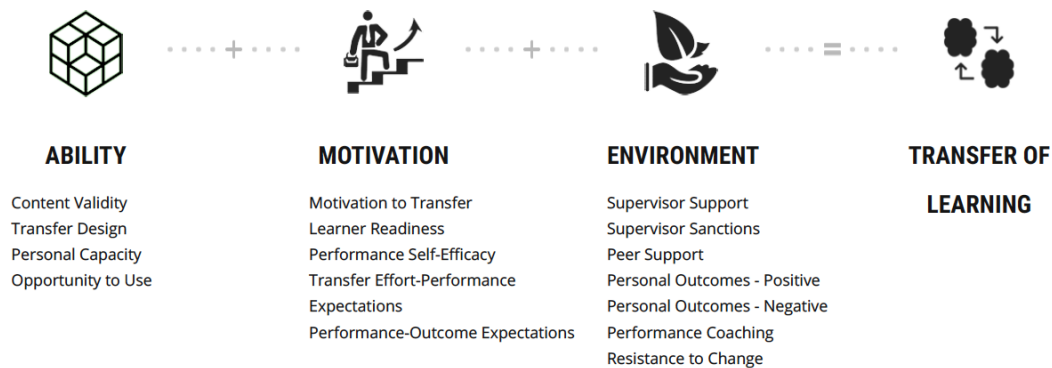


Source: Holton et al., 2000 p. 339, as cited in Holton, 2005, p. 38

Figure 2 illustrates how the LTSI instrument maps factors to the original model as it relates to one’s personal capacity to transfer, and Figure 3 further illustrates the model’s three major areas of influence: motivation, environment, and ability (Holton et al., 2000; LTSInventory, 2021).

The latest version of the LTSI (version 4, used in this study) identifies 16 factors that affect learning transfer; 11 are related to a specific training program, and five generalized constructs relate to all training programs (Chatterjee et al., 2018b). The five generalized factors are *transfer effort – performance expectations, performance-outcomes expectations,*

FIGURE 3: LEARNING TRANSFER SYSTEMS INVENTORY, THREE KEY AREAS OF INFLUENCE



Source: LTSInventory.com, 2021

*resistance/openness to change, performance self-efficacy, and performance coaching* (Chatterjee et al., 2018b; Holton, 2005). These general factors should remain constant regardless of the training session and should not vary between sessions (Kim et al., 2019). Training-specific factors include learner readiness, motivation to transfer, positive personal outcomes, negative personal outcomes, supervisor sanctions, peer support, supervisor support, content validity, transfer design, personal capacity for transfer, and opportunity to use (Holton, 2005; Chatterjee et al., 2018b). These specific factors are variable and will fluctuate across training

TABLE 1: LTSI SCALE DEFINITIONS AND SAMPLES

<i>Factor</i>	<i>Definition</i>	<i>Sample Item</i>
<i>Training specific scales</i>		
Learner Readiness	Extent to which individuals are prepared to enter and participate in training.	Before the training I had a good understanding of how it would fit my job-related development.
Motivation to Transfer	Direction, intensity, and persistence of effort toward utilizing in a work setting skills and knowledge learned.	I get excited when I think about trying to use my new learning on my job.
Positive Personal Outcomes	Degree to which applying training on the job leads to outcomes that are positive for the individual.	Employees in this organization receive various "perks" when they utilize newly learned skills on the job.
Negative Personal Outcomes	Extent to which individuals believe that <i>not</i> applying skills and knowledge learned in training will lead to negative personal outcomes.	If I do not utilize my training I will be cautioned about it.
Personal Capacity for Transfer	Extent to which individuals have the time, energy, and mental space in their work lives to make changes required to transfer learning to the job.	My workload allows me time to try the new things I have learned.
Peer Support	Extent to which peers reinforce and support use of learning on the job.	My colleagues encourage me to use the skills I have learned in training.
Supervisor Support	Extent to which supervisors/managers support and reinforce use of training on the job.	My supervisor sets goals for me which encourage me to apply my training on the job.
Supervisor Sanctions	Extent to which individuals perceive negative responses from supervisors/managers when applying skills learned in training.	My supervisor opposes the use of the techniques I learned in training.
Perceived Content Validity	Extent to which trainees judge training content to accurately reflect job requirements.	What is taught in training closely matches my job requirements.
Transfer Design	Degree to which (1) training has been designed and delivered to give trainees the ability to transfer learning to the job, and (2) training instructions match job requirements.	The activities and exercises the trainers used helped me know how to apply my learning on the job.
Opportunity to Use	Extent to which trainees are provided with or obtain resources and tasks on the job enabling them to use training on the job.	The resources I need to use what I learned will be available to me after training.
<i>General scales</i>		
Transfer Effort—Performance Expectations	Expectation that effort devoted to transferring learning will lead to changes in job performance.	My job performance improves when I use new things that I have learned.
Performance—Outcomes Expectations	Expectation that changes in job performance will lead to valued outcomes.	When I do things to improve my performance, good things happen to me.
Resistance-Openness to Change	Extent to which prevailing group norms are perceived by individuals to resist or discourage the use of skills and knowledge acquired in training.	People in my group are open to changing the way they do things.
Performance Self-Efficacy	An individual's general belief that they are able to change their performance when they want to.	I am confident in my ability to use newly learned skills on the job.
Performance Coaching	Formal and informal indicators from an organization about an individual's job performance.	After training, I get feedback from people about how well I am applying what I learned.

Source: Adapted from Holton III, E., Chen, H.; & Naquin, S., (2003). An Examination of Learning Transfer System Characteristics Across Organizational Settings. *Human Resource Development Quarterly*, 14(4), 459-482.

sessions (Kim et al., 2019). Table 1 provides detailed explanations of the 16 LTSI factors, identifies them as either general or specific, and provides examples of questions associated with each factor. These 16 factors can also be seen mapped out in Figures 2 and 3.

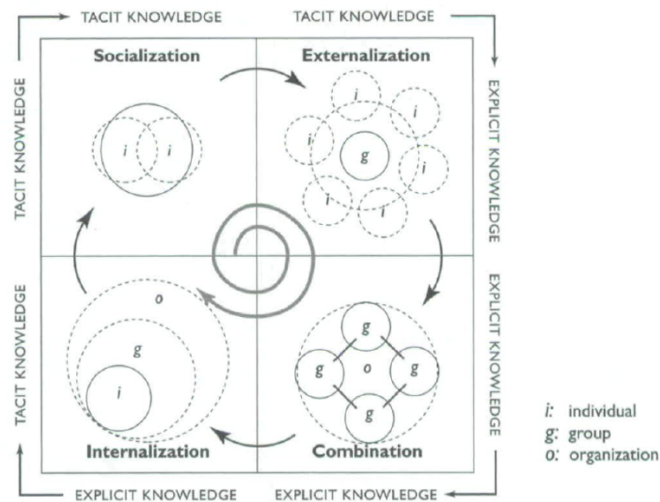
Understanding how that individual learning can be shared across the organization at large requires a transition to organizational knowledge creation theory.

### **Organizational Knowledge Creation Theory**

Nonaka's (1994) Organizational Knowledge Creation (OKC) theory argues that although individuals develop new knowledge, organizations can amplify that knowledge through continuous interactions between tacit and explicit means. Tacit knowledge can be described as variations on tactile experiences such as movement skills, unarticulated mental models, actions attributed to intuition, and understood rules of thumb, whereas explicit knowledge is more universal in nature; it includes knowledge that can be written down, articulated, or drawn-out (Nonaka & von Krogh, 2009). The continuous dialogue between the two types of knowledge create four modes of knowledge conversion: "(1) from tacit knowledge to tacit knowledge (2) from explicit knowledge to explicit knowledge (3) from tacit knowledge to explicit knowledge, and (4) from explicit knowledge to tacit knowledge" (Nonaka, 1994, p. 18). These four processes of knowledge conversion combine into what is known as the SECI model: socialization, externalization, combination, and internalization (Nonaka & von Krogh, 2009).

Figure 4 illustrates the process of organizational knowledge creation through the four modes and how it relates to tacit and explicit knowledge. Socialization (tacit to tacit) often happens in conversation between two parties, through shared experience, such as

FIGURE 4: SECI PROCESS OF ORGANIZATIONAL KNOWLEDGE CREATION



Source: Nonaka and Konno, 1998, p. 43

performance coaching, structured one-on-one meetings, casual suggestions from peers, and spontaneous idea sharing (Chatterjee et al., 2018b). This might also occur in a hands-on experience as with an apprenticeship relationship. Externalization (tacit to explicit) depends on one individual being able to verbalize or otherwise articulate the knowledge gathered from personal experience into an explicit form that may be shared by others, such as through the use of a drawing, metaphor, analogy, or another model (Chatterjee et al., 2018b, Nonaka et al., 2000). In 'combination' (explicit to explicit), explicit knowledge from both inside and outside of the organization may be combined to create new forms of explicit knowledge (Chatterjee et al., 2018b; Nonaka et al., 2000). This may include tasks like reconfiguring existing information to be better sorted and viewed through different contexts, such as a synthesized financial report or operationalized business concept map (Nonaka, 1994; Nonaka et al., 2000). The final interaction is called internalization (explicit to tacit) and is often described as learning by doing (Nonaka et al., 2000). In this mode, individuals are converting knowledge through action, such as when an employee reads a document on operating a piece of machinery, and then through

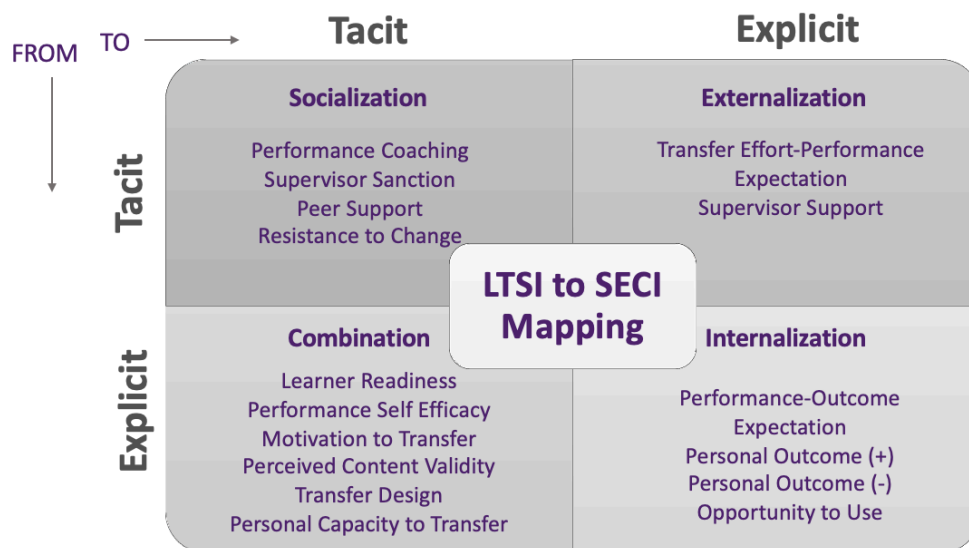


the action of operating the machine effectively converts the written instruction (explicit) to an internalized understanding (Nonaka et al., 2000). The movement through the modes is known as the knowledge creation spiral starting at the individual level, and it becomes amplified, triggering expansions across and beyond organizational boundaries (Nonaka, 1994).

### Combining LTSI and SECI Models

Chatterjee et al. (2018b) combines the SECI and LTSI models as a way to map how individual learning transfer can work to create knowledge within the organization by matching each of the 48 LTSI questions to modes within the SECI construct. They “propose that once individual-level knowledge creation takes place through the epistemological SECI process, the learning transfer factors (as described in the LTSI model) help magnify or amplify the creation and transfer of knowledge” (Chatterjee et al., 2018b, p.315). Figure 5 illustrates how each of the 16 learning transfer factors matches up with the SECI modes described previously and how these two models work together to bring the individual’s experience in a professional development session to the larger organizational context (Chatterjee et al., 2018b). This

FIGURE 5: COMBINATION OF LTSI WITH SECI



Source: Adapted from Chatterjee et al. (2018b)

combination framework provides a roadmap to determining whether individuals at The LP are able to transfer learning from their PD sessions and to what extent that learning may be expanding to the organization at large, thus addressing the problem of practice of the organizational partner.

## Key Questions

This quality improvement project was guided by three primary questions that integrate the learning transfer literature and the connections between the LTSI survey instrument and the Organizational Knowledge Creation's (OKC) SECI framework, as illustrated by Chatterjee et al. (2018). The overall purpose was to evaluate the Laundromat Project's formalized professional development sessions to understand whether these sessions benefit staff members and the organization through the lens of learning transfer and organizational knowledge creation. Based on the data analysis, recommendations will be provided to The LP that helps them enhance learning transfer at the individual level and expand the knowledge gained from the individual to the organization.

### Question 1

#### **What factors affect the transfer of learning from professional development sessions to individuals?**

Holton's HRD Model (2005), and related Learning Transfer Systems Inventory (LTSI), identify 16 key factors that lead to learning transfer at the individual level (Chatterjee et al., 2018b). The data collected from the LTSI instrument in surveys one and two identified which of the factors measured from professional development sessions at the Laundromat Project are serving as barriers and which are serving as catalysts to learning transfer (Bates et al., 2012).

This study also looked at the specific areas of influence (Ability, Motivation, Environment) particular catalysts and barriers fell into and determined if there is a pattern.

## Question 2

**How likely is it that learning transfer will take place after participants at The LP attend a program?**

The LTSI essentially evaluates how likely learning transfer is (Chatterjee et al., 2018b). Based on the data analysis linked to the LTSI instrument, this study evaluated overall whether there were more catalysts or barriers to learning transfer. A larger number of barriers indicated that learning transfer was less likely, and a larger number of catalysts indicated that learning transfer was more likely. An average of all 16 LTSI factors provided an indication as to whether learning transfer is likely.

## Question 3

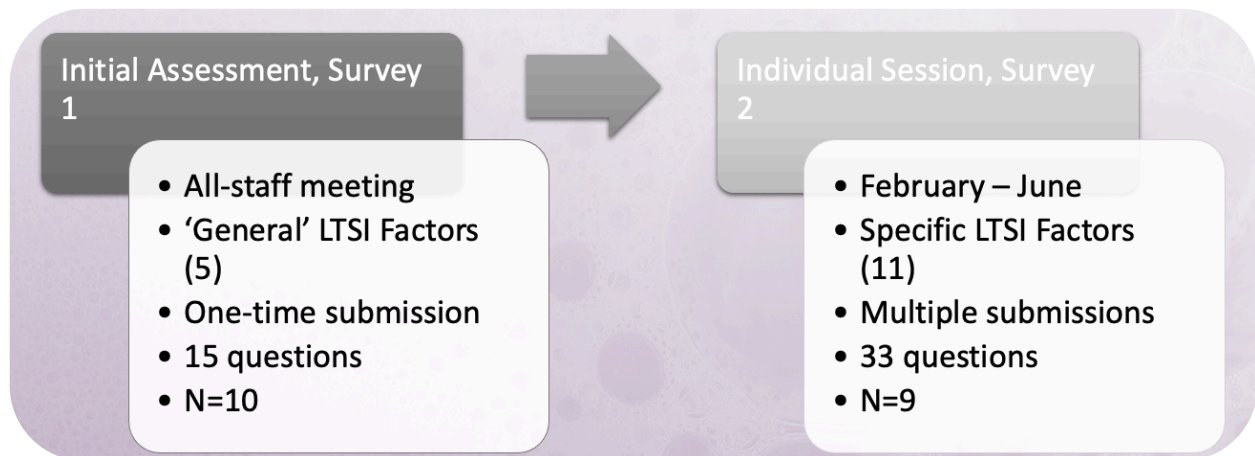
**In what ways does individual learning from sessions transfer to organizational knowledge creation?**

Chatterjee et al.'s 2018(b) conceptual paper mapped the LTSI instrument to the SECI framework from Nonaka's Organizational Knowledge Creation theory (see Appendix A). The data collected from the LTSI surveys were analyzed using the conceptual mapping to illustrate how individual learning transfer from professional development sessions is being transferred across the organization through each of the SECI modes (socialization, externalization, combination, and internalization). Each of the four modes was evaluated and compared to each other to identify areas of strength and weakness.

There are many factors in an organization that combine with existing data and information to create knowledge that is embedded in individuals. Our framework shows that the LTSI factors (through their dynamic explicit-tacit knowledge conversions) augment the SECI process of knowledge creation. (Chatterjee et al., 2018, p. 315)

## Project Design

FIGURE 6: DATA COLLECTION TIMELINE



## Data Collection

This project utilized a quantitative approach to collecting data. The diagram in Figure 6 shows the study design and timeline, which included two surveys administered between February and June 2021. An all-staff meeting in February included a presentation that provided staff members with an introduction to the project, a process timeline, and links to the two surveys. Staff members were informed that all responses would be confidential and provided an explanation of what this study defined as a professional development or training session to be evaluated: *formalized leadership and professional development programs including conferences, workshops, webinars, compliance training, and similar programs that are intended to enhance professional knowledge, skills, and networks.* 'Sessions' included those conducted either internally or externally, and multi-day conferences were treated as a single session. A

session did not include 1:1 coaching, mentoring, or similarly formatted experiences. All questions on all surveys were optional other than the first question of each survey, which provided for consent.

The survey questions were taken directly from the LTSI to SECI mapping table provided by Chatterjee et al. (2018b) and shown in Appendix A. The 'Element' column was not considered, as it was beyond the scope of this project. Ultimately, per Chatterjee et al.'s (2018b) mapping, the LTSI results from the survey data would be used to extrapolate the links between learning transfer and organizational knowledge creation, identify what specific LTSI factors serve as catalysts or barriers to learning transfer, and whether the knowledge gained from training sessions was likely to be transferred to the organization through tacit or explicit means.

### Quantitative Surveys

A modified version of the validated LTSI instrument (described previously), a self-report survey, was employed based on the mapping conducted by Chatterjee et al. (2018b). The latest version of the LTSI has 48 questions total, broken up into general and session-specific topic areas (Chatterjee et al., 2018b). For this study, two separate surveys were administered to capture all 48 questions. Both surveys were conducted over the electronic survey platform, Qualtrics, and utilized a five-point Likert type scale using strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, and strongly agree to remain consistent with the original LTSI survey instrument. The surveys were designed to be completed in less than ten minutes. Basic employee demographic information not included on the original LTSI instrument was added to each of the surveys (see Appendix B and C). The results of the data

collected surrounding employment status, role, and gender identity can be seen in Table 2 below.

TABLE 2: EMPLOYMENT & DEMOGRAPHIC DATA

	Survey 1	Survey 2
<b>Employment Status</b>		
Full Time	7	9
Part Time	3	0
<b>Role</b>		
Director	3	6
Manager	3	3
Associate/Other	4	0
<b>Gender Identity</b>		
Male	1	4
Female	6	1
Non/binary/third gender	3	0
Prefer not to say	0	4

*Initial Assessment, Survey 1*

The 'Initial Assessment' survey (Survey 1), shown in Appendix B, included the 15 questions categorized as the 'general' scale factors on the LTSI (see Table 1). The five general factors examine *performance self-efficacy*, *transfer effort-performance expectation*, *performance-outcome expectation*, *performance coaching*, and *resistance to change* (Chatterjee et al., 2018b). Staff members in attendance at the all-staff meeting in February took the survey at that time. Leadership at The LP sent the initial assessment survey to all other staff members for completion and were given instruction to complete survey 1 before taking survey 2.

*Individual Session, Survey 2*

Survey 2, called 'Individual Professional Development and Training Session' and shown in Appendix C, included the remaining 33 questions from the LTSI labeled as the 11 session

'specific' factors (see Table 1). These questions looked at constructs such as opportunities to use learning, transfer design, and perceived content validity (Chatterjee et al., 2018b). The link to survey 2 was initially shared in the same all-staff meeting, and employees were directed to take the survey each time they finished a professional development or training session between February and June of 2021. Staff members were advised to complete this survey within seven days of the session. Each employee was expected to attend one to two trainings over the five-month period. Since it was anticipated that some employees would complete the survey more than once, a question was added to determine how many times an individual had completed survey 2. The survey also asked participants to categorize the type of training session they attended and provide the title and date. The LP leadership shared the link and related information with any employees not in attendance.

### Data Analysis

Survey 1 had a total of 11 survey respondents, 10 of which were useable. Survey 2 had 13 survey respondents, nine of which were useable. Results showed that of the nine useable individual session surveys collected (survey 2), one person took it four times, and the additional five surveys were by one-time respondents. On either survey 1 or survey 2, those that answered the first question (consenting to the survey) but then discontinuing the survey were deemed unusable and not included in data analysis.

Data was exported from Qualtrics into Excel and hand sorted into a new Excel document (see Appendices D and E) that classified each question based on the LTSI to SECI conceptual mapping table (Appendix A). Each question related to an item on the LTSI construct, an LTSI area of influence, and a SECI mode. The LTSI 'Area of Influence' was not

present on the Chatterjee et al. (2018) mapping table but is a foundational element of the LTSI framework (Holton et al., 2000; Holton, 2005; Kim et al., 2019; LTSIInventory, 2021) and therefore included in the data analysis. A portion of the data analysis chart is shown in Table 3. All questions were clustered into a grouping of three that related to one of the 16 LTSI Factors, one of the three LTSI Areas of Influence, and one of the four SECI modes. The furthest left column indicates whether the question was from survey one (general factors) or survey two (specific factors). For example, Clustered Group 1 in Table 3 (and Appendix D) included the statements, “My job performance improves when I use new thinking that I have learned,” “The harder I work at learning, the better I do my job,” and “The more training I apply on my job, the better I do my job.” All three of these statements were part of the first survey that identified general LTSI factors. They specifically related to the LTSI factor, ‘Transfer effort-performance expectation,’ ‘Motivation’ as an LTSI Area of Influence, and ‘Externalization’ on the SECI chart. Data were transferred into the Excel sheet based on each statement’s Likert scale responses.

TABLE 3: QUESTION MAPPING DATA ANALYSIS CHART, CLUSTERED GROUPS 1-3

Laundromat Project: Capstone Data Analysis				
Survey	Question Text	LTSI Factors	LTSI Area of Influence	SECI
	My job performance improves when I use new thinking that I have learned.			
	The harder I work at learning, the better I do my job.			
	The more training I apply on my job, the better I do my job.			
<b>1 - General</b>	<b>Totals, Clustered Group 1</b>	<b>4. Transfer effort-performance expectation</b>	<b>Motivation</b>	<b>E (Externalization)</b>
	For the most part, the people who get rewarded around here are the ones that do something to deserve.			
	When I do things to improve my performance, good things happen to me.			
	My job is ideal for someone who likes to be rewarded when they do something good.			
<b>1 - General</b>	<b>Totals, Clustered Group 2</b>	<b>5. Performance-outcome expectation</b>	<b>Motivation</b>	<b>C (Combination)</b>
	Experienced employees in my group ridicule other when they use techniques they learn in trainings.			
	People in my group are not willing to put in the effort to change the way things are done.			
	My workgroup is reluctant to try new ways of doing things.			
<b>1 - General</b>	<b>Totals, Clustered Group 3</b>	<b>10. Resistance to change</b>	<b>Environment</b>	<b>S (Socialization)</b>

### Learning Transfer Systems Inventory Analysis

Key questions one and two relied on an analysis of the LTSI factors. To determine whether each LTSI factor served as a barrier or catalyst to learning transfer, each factor needed to be given an average rating. Each clustered group column of three questions was summed, multiplied, and then averaged to generate the average rating. Questions answered



with 'Strongly Disagree' were multiplied by '1', 'Somewhat Disagree' by '2', 'Neither Agree nor Disagree' by '3', 'Somewhat Agree' were multiplied by '4', and 'Strongly Agree' were multiplied by '5'. This number was then divided by the number of total responses in that clustered group.

TABLE 4: CLUSTERED GROUP 1 DATA

Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree	Average Rating	Determination
			3	7		
			6	4		
		1	4	5		
0	0	1	13	16	4.5	Strong Catalyst

For example, of the ten survey respondents on survey 1, three selected 'Somewhat Agree,' and seven selected 'Strongly Agree' on the question "My job improves when I use new thinking that I have learned" (Tables 3 and 4). The column totals for that cluster are shown in the purple line: 0 'Strongly Disagree,' 0 'Somewhat Disagree,' 1 'Neither Agree nor Disagree,' 13 'Somewhat Agree,' and 16 'Strongly Agree.' Those totals were multiplied as described above and subsequently divided by the total number of responses for that cluster (40) to reach an average rating of 4.5. Mathematically:

$$=((0*1)+(0*2)+(1*3)+(13*4)+(16*5))/40$$

Clustered groups 3 (Resistance to Change), 9 (Personal Capacity to Transfer), and 14 (Supervisor Sanction) were reverse coded. For reverse coded factors, 'Strongly Agree' responses were multiplied by 1, 'Somewhat Agree' responses by 2, etc. All factors were given an average rating and then designated as either a 'Strong Catalyst,' a 'Weak Catalyst,' or a 'Barrier' to learning transfer. A 'Strong Catalyst' required an average rating above '4'. A 'Weak Catalyst' required an average rating above '3' and up to '4', and a factor designated as a 'Barrier' required a rating of '3' or below. Table 5 showcases all factors in ranked order from the highest average rating to the lowest. Those that were reverse coded are marked with an asterisk. Factors with the highest rating (Strong Catalysts) have the most influence on learning

transfer, whereas those with the lowest ratings (Barriers) are factors that should be of concern for the organization.

In addition to looking at individual factors affecting transfer, the data were categorized by area of influence: Ability, Motivation, and Environment. Grouped averages were then created for each 'Area of Influence,' seen in Table 6. Finally, to determine whether transfer was likely (key question 2), the grouped averages from Table 6 were also summed and averaged.

TABLE 5: LTSI FACTORS ORGANIZED BY RATING

LTSI Factors	LTSI Area of Influence	Average Rating	Determination
Supervisor sanction *	Environment	4.85	Strong Catalyst
Transfer effort-performance expectation	Motivation	4.5	Strong Catalyst
Opportunity to use learning	Ability	4.30	Strong Catalyst
Motivation to Transfer	Motivation	4.22	Strong Catalyst
Performance self-efficacy	Motivation	4.17	Strong Catalyst
Transfer design	Ability	4.11	Strong Catalyst
Resistance to change *	Environment	3.87	Weak Catalyst
Learner Readiness	Motivation	3.85	Weak Catalyst
Performance-outcome expectation	Motivation	3.6	Weak Catalyst
Perceived content validity	Ability	3.41	Weak Catalyst
Peer support	Environment	3.26	Weak Catalyst
Personal capacity to transfer*	Ability	3.24	Weak Catalyst
Performance coaching	Environment	3	Barrier
Personal outcome + ve.	Environment	2.30	Barrier
Supervisor support	Environment	2.22	Barrier
Personal outcome - ve.	Environment	1.22	Barrier

\* REVERSE CODED

TABLE 6: LTSI AREAS OF INFLUENCE AVERAGE RATINGS

Area of Influence	Grouped Average	Determination
Motivation	4.07	Strong Catalyst
Ability	3.76	Weak Catalyst
Environment	2.96	Barrier
Grouped Average	3.60	Weak Catalyst

### Organizational Knowledge Creation, SECI Analysis

Key question three required an analysis of the LTSI data through a SECI lens. As illustrated in Appendix A, Appendix D, and Table 3, each of the 16 clustered groups based on LTSI factors was also assigned to one of the four SECI modes. Using Table 3 again as an example, the three questions from clustered group 1 were assigned to E (Externalization), group 2 questions were designated as C (Combination), and group 3 was designated as S (Socialization). In total, four clustered groups were assigned as 'Socialization,' two clustered groups were 'Externalization,' three were 'Combination,' and seven were assigned 'Internalization.' Table 7 provides a complete listing of each LTSI factor and cluster group as it related to the SECI modes.

To analyze the data related to the SECI factors, a separate calculation was created to group responses as either 'Likely to Agree' or 'Likely to Disagree.' For each cluster, a response of either 'Strongly Agree' or 'Somewhat Agree' were summed together as 'Likely to Agree.' Responses of 'Strongly Disagree' or 'Somewhat Disagree' were summed together as 'Likely to Disagree.' Responses of 'Neither Agree nor Disagree' were disregarded. Cluster groups 3, 9, 10, and 14 were reverse coded for the SECI data analysis due to the negative phrasing of the questions, i.e., "I do not have time to use this training at my job." Clustered group responses



TABLE 7: SECI MAPPING TO LTSI FACTORS

SECI Mapping to LTSI Factors		
SECI	LTSI Factors	Cluster Group
S (Socialization)	Resistance to change *	3
S (Socialization)	Performance coaching	4
S (Socialization)	Peer support	12
S (Socialization)	Supervisor sanction *	14
E (Externalization)	Transfer effort-performance expectation	1
E (Externalization)	Supervisor support	13
C (Combination)	Performance-outcome expectation	2
C (Combination)	Personal outcome (Positive)	8
C (Combination)	Personal outcome (Negative) *	10
I (Internalization)	Performance self-efficacy	5
I (Internalization)	Learner Readiness	6
I (Internalization)	Motivation to Transfer	7
I (Internalization)	Personal capacity to transfer *	9
I (Internalization)	Opportunity to use learning	11
I (Internalization)	Perceived content validity	15
I (Internalization)	Transfer design	16

\* REVERSE CODED

were then combined with other clustered responses with the same SECI designation. For example, 'Likely to Agree' responses from 'S (Socialization)' cluster groups 3,4,12, and 14 were added together, totaling '64' as seen in Table 8. Table 8 provides totals for both 'Likely to Agree' and 'Likely to Disagree' responses and the combined total responses. Because the total response number for each SECI mode varied, a percentage was used to better compare the data.

TABLE 8: SECI DATA TOTALS

SECI	Likely to Agree	Likely to Disagree	Total Responses	Likely to Agree %	Likely to Disagree %
S (Socialization)	64	17	81	79%	21%
E (Externalization)	35	16	51	69%	31%
C (Combination)	41	4	45	91%	9%
I (Internalization)	133	15	148	90%	10%

## Findings

Holton et al. (2000, 2003) have recognized that each organization has a different culture, desired environment, and varying transfer factors that may hinder or promote learning transfer. Appropriate interventions will range across workplaces, for different training types, and even based on the type of organization (non-profit, government, etc.), and therefore the LTSI should be used as a diagnostic tool to understand particular points of leverage (Holton et al. 2000, Holton et al., 2003). According to Holton and his group of collaborators, human resource professionals, and all those called to provide training for their team members, should use the LTSI strategically and identify the key factors of influence that may significantly impact their team's transfer of learning (Holton et al., 2003). From February through June of 2021, employees at The LP engaged in a series of professional development and training sessions, and by exploring the findings from the LTSI questionnaire, they could begin to understand



which of the 16 LTSI factors were potentially playing a role in their ability to transfer learning.

Furthermore, using Chatterjee et al.'s (2018b) concept mapping tool (see Appendix A), the results from the LTSI could be extrapolated out to explore whether The LP was successfully transferring knowledge from the individual learner to the organization at large through the SECI framework, and in what specific areas they could improve.

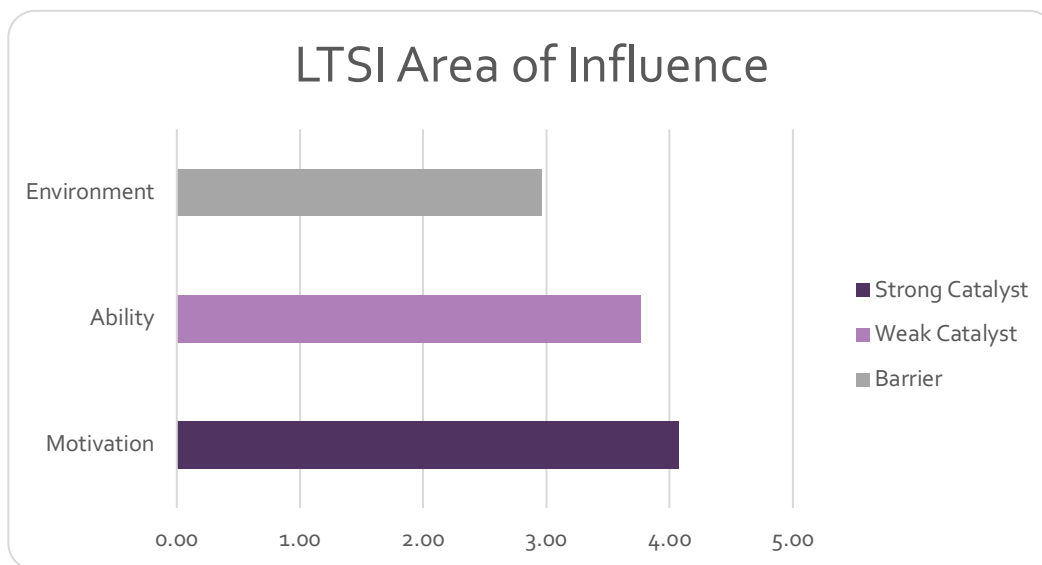
Key Question 1, Findings 1 and 2

*What factors affect the transfer of learning from professional development sessions to individuals?*

*Finding 1: The Laundromat Project has strong catalysts for learning transfer specifically in the factors related to 'Motivation'.*

As can be seen in Tables 5 and 6, and is exemplified in Figure 7, 'Motivational Factors', as compared to the other areas of influence, provided the most significant opportunity for learning transfer at The LP. Motivational factors (see Figure 8) include *learner readiness* (3.81 average), *performance self-efficacy* (4.17 average), *motivation to transfer* (4.33 average), *transfer-effort performance expectation* (4.5 average), and *performance – outcome*

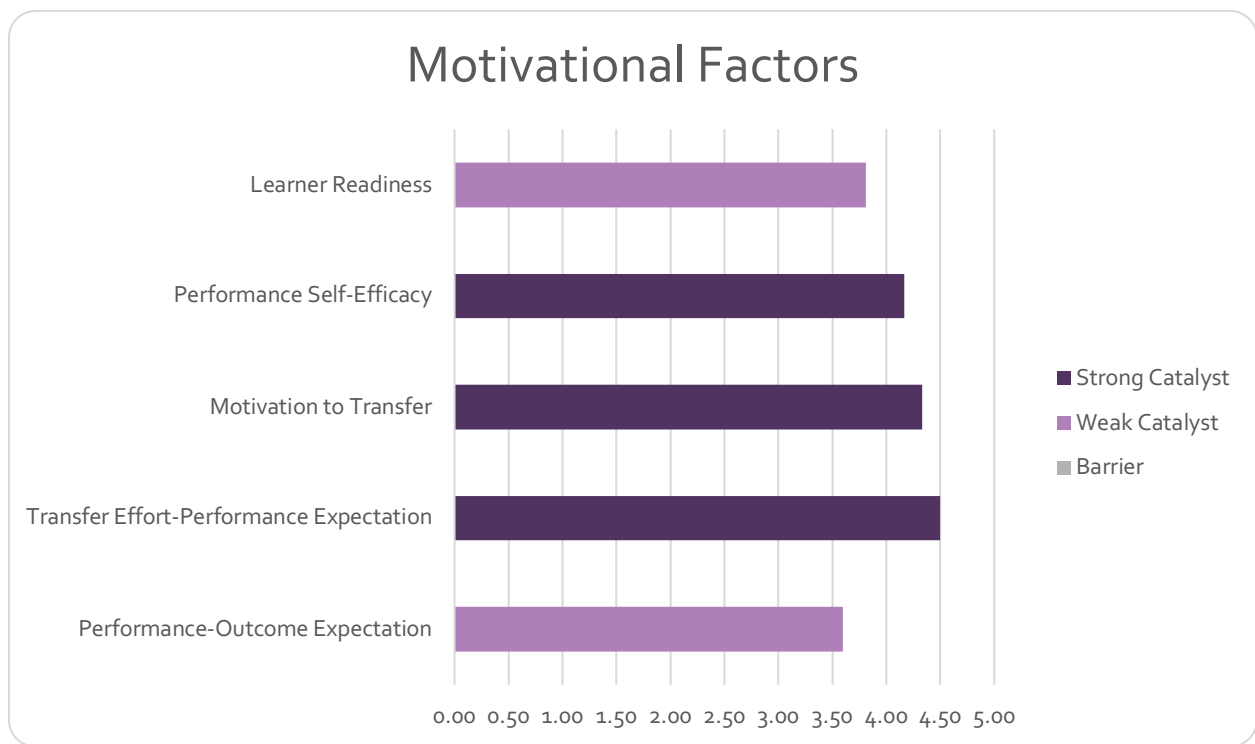
FIGURE 7: LTSI FACTORS GROUPED BY AREA OF INFLUENCE



*expectation* (3.6 average). *Learner readiness* and *performance – outcome expectation* factors were designated as 'Weak Catalysts based on their average ratings, and *performance self-efficacy*, *motivation to transfer*, and *transfer effort – performance expectation*, were all

designated as 'Strong Catalysts. These combined scores provided an overall average of 4.07 on motivational factors (Strong Catalyst). These findings are in line with a study conducted by Holton et al. (2003) that looked across organizational types (nonprofit, public, and private) and found that employees in nonprofit organizations have higher levels of motivation to transfer and higher expectations that their efforts related to transferring knowledge are directly related to changes in job performance.

FIGURE 8: LTSI MOTIVATIONAL FACTORS



*Learner readiness* and *motivation to transfer* fall under the training-specific scales (survey 2), while the other three factors are considered general (survey 1). *Learner readiness* is an indication of whether the trainee was ready to be an active participant, was clear on training expectations, and whether they had a solid understanding of how the training impacted them and their work in advance (Holton et al., 2000; Holton, 2005; Chatterjee, 2018, LTSInventory, 2021). *Performance self-efficacy* looks at how confident an employee is in their ability to adjust

their performance as it relates to their recent training experience and self-motivation to do so (Holton et al., 2000; Holton, 2005; Chatterjee, 2018, LTSInventory, 2021). Massenberg et al. (2017) found that *learner readiness* and *self-efficacy* were some of the most critical LTSI factors to consider before starting a program. They also identified *transfer effort-performance expectation*, the belief that their ability to transfer learning from a training session leads to positive improvements in their job performance (Holton et al., 2000), as a vitally important factor in overall training transfer (Massenberg et al., 2017).

The *motivation to transfer* factor looks at how intrinsically motivated a trainee is to utilize their newfound skills and knowledge in the workplace, and the *performance – outcome expectation* factor measures one's belief that their actions related to positive performance will lead to overall positive outcomes at work, i.e., 'When I do things to improve my performance, good things happen to me' (Holton et al., 2000; Holton, 2005; Chatterjee, 2018, LTSInventory, 2021).

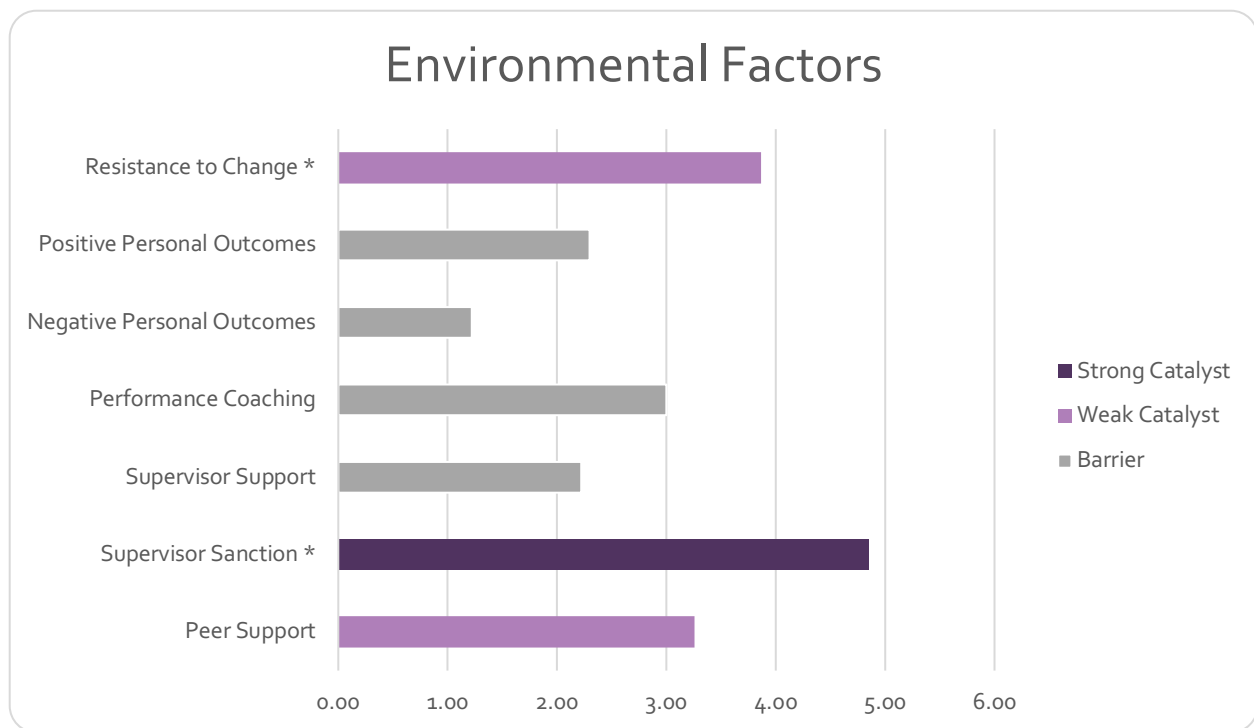
*Finding 2: The environment at The LP is a significant barrier to learning transfer.*

On the opposite side of the spectrum, the data indicates that 'Environmental Factors' posed the most significant barriers overall to learning transfer at The LP (see Figure 7). Environmental factors include *resistance to change* (3.87 average), *positive personal outcomes* (2.3 average), *negative personal outcomes* (1.22), *performance coaching* (3 average), *supervisor support* (2.22 average), *supervisor sanction* (4.85), and *peer support* (3.26). Both *resistance to change* and *performance coaching* are considered to be general factors versus specific. Of the



seven total environmental factors, four were designated as 'Barriers', two as 'Weak Catalysts', and just one as a 'Strong Catalyst' (see Figure 9). This is particularly concerning because studies show that the transfer environment is a key motivator to transferring learning (Noe & Schmitt, 1986, as cited in Chatterjee et al., 2018a), and because overwhelmingly nonprofits typically score higher on coaching, support factors, and positive outcomes than other types of workplaces (Holton et al., 2003). *Supervisor support* is shown to be rated low across all types of organizations and indicates that there is a lack of overall support in this area and one which should be given considerable attention (Holton et al., 2003).

FIGURE 9: LTSI ENVIRONMENTAL FACTORS



*Supervisory support* includes how well the manager or other supervisor provides guidance and general assistance for the employee, including making links between their new skills and their job responsibilities, reinforcing the use of training, providing realistic expectations and goals for use, and encourages the employee to try their new knowledge in

the workplace (Chatterjee et al., 2018b; Holton et al., 2000; Holton, 2005; LTSInventory, 2021). A low rating on this factor indicates that staff members are unclear regarding their performance expectations post-training, have not been given the opportunity to set goals for their learning, and have low expectations that they will be given feedback on their performance as it relates to the specific training (Chatterjee et al., 2018a). This links to the *performance coaching* factor as well, which helps determine to what extent an individual is receiving both formal and informal feedback about their performance from others at the organization, including but not limited to, their supervisor (Holton, 2005; Chatterjee et al., 2018a; Chatterjee et al., 2018b). It looks to determine whether they are receiving advice, suggestions, and constructive feedback in general and speaks directly to the overall workplace culture (Chatterjee et al., 2018a; Chatterjee et al., 2018b).

The two personal outcomes scales (positive and negative) were also designated as barriers to learning transfer for the employees at The LP. The *positive personal outcomes* scale



indicates whether employees believe that they will either be rewarded via salary increase, recognition, or other similar perk or opportunity to advance in the organization (Holton, 2005; Chatterjee et al., 2018a; Chatterjee et al., 2018b). The *negative personal outcomes* scale looks specifically at whether an employee will receive any kind of reprimand, penalization, or any other type of undesirable workplace outcomes for the individual (Holton, 2005; Chatterjee et al., 2018a; Chatterjee et al., 2018b). This indicates that, as an organization, they are not linking training directly to performance outcomes (Holton et al., 2003). Taking all of these barriers together indicates that the environment at the Laundromat Project is preventing some employees from engaging in positive learning transfer from their training sessions.

### Key Question 2, Finding 3

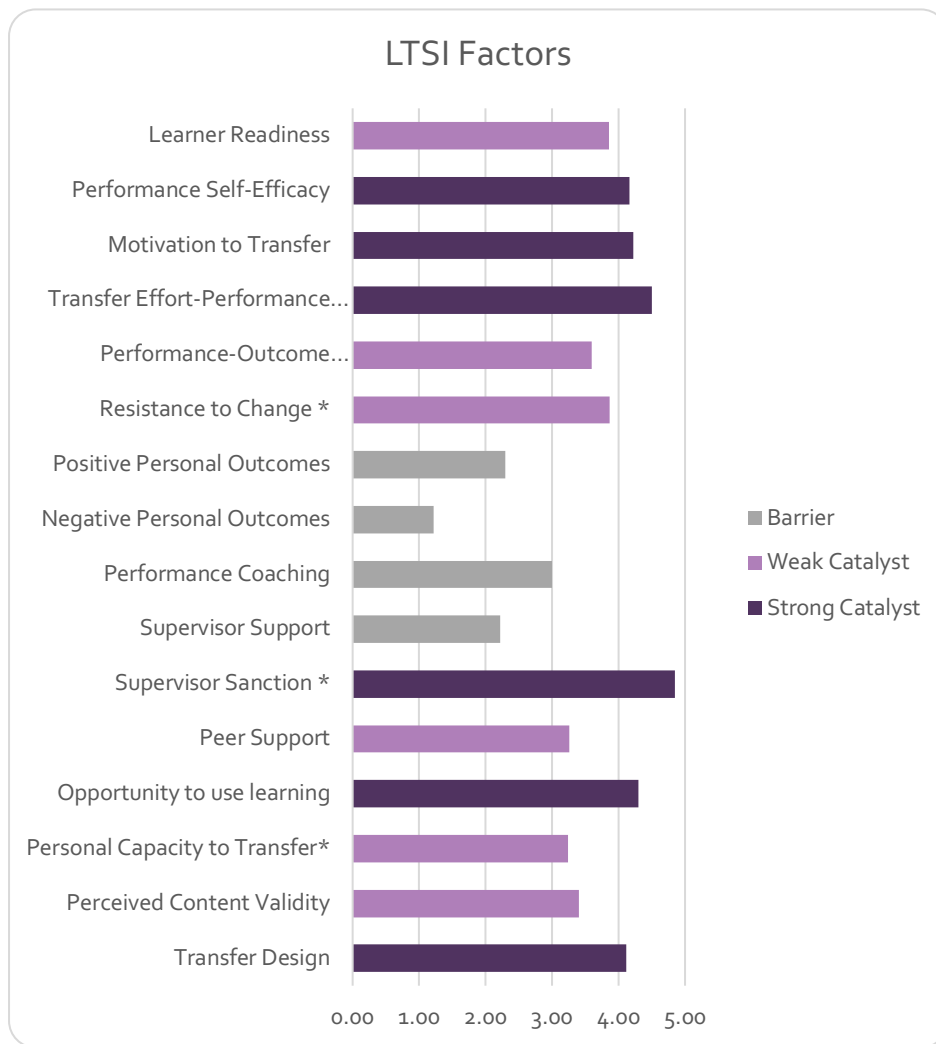
*How likely is it that learning transfer will take place after participants at The LP attend a program?*

*Finding 3: Learning transfer is likely to take place after participants at The LP attend a program.*

Looking across the data from all 16 factors (see Figure 10), a determination was made that it is likely that learning transfer will take place after participants at The LP attend a program. Of the 16 factors, six were ultimately designated as 'Strong Catalysts', six were designated 'Weak Catalysts', and four as 'Barriers'. The grouped average of all factors, by way of their area of influence (see Table 6), was 3.6. A determination of 3.6 provides a 'Weak Catalyst' designation, which indicates that although there were certainly areas to improve and look into regarding their learning transfer factors, their staff was highly motivated and able to

successfully transfer learning if they chose. Research conducted by Massenberget al. (2017) indicated that high levels of *motivation to transfer* are a mediator across other factors and areas of influence. Since The LP’s strongest area of influence is ‘Motivation’, this would suggest that these factors have the ability to make up for any areas needing improvement. Massenberget al. (2017) also suggest that *transfer design* and *peer support* are critical factors for transfer after the training program, and The LP’s catalyst designations (4.11 and 3.26 respectively) in those areas bode well for successful transfer.

FIGURE 10: LTSI FACTOR DETERMINATIONS



**Key Question 3, Finding 4**

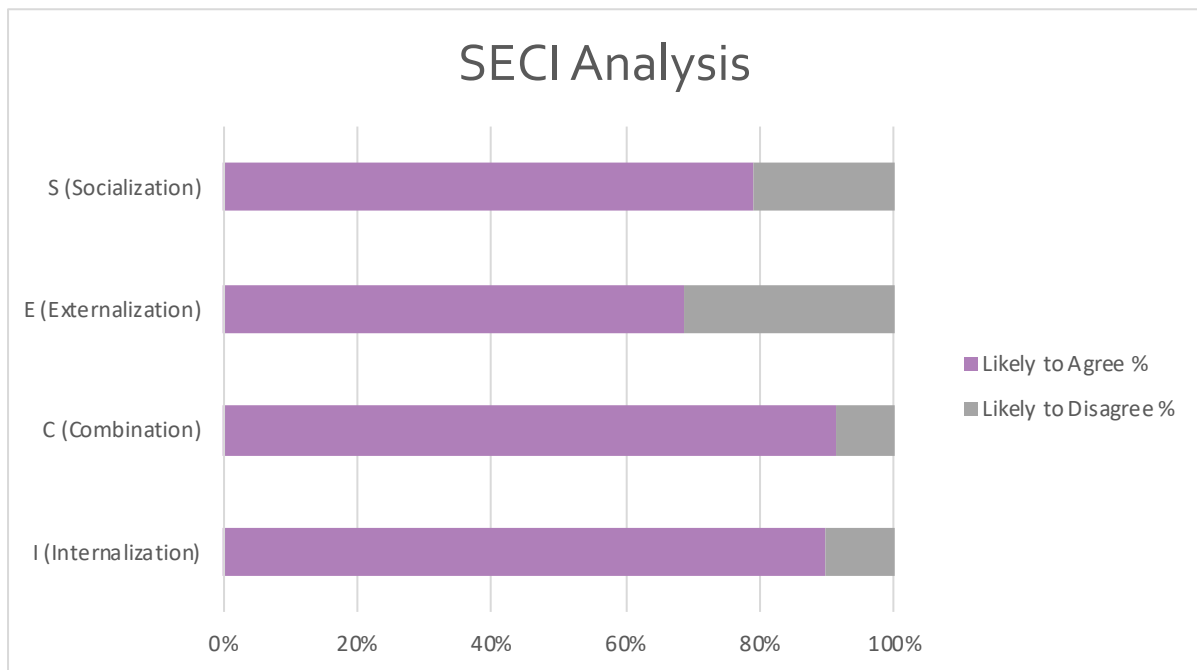
*In what ways does individual learning from sessions transfer to organizational knowledge creation?*

*Finding 4: Individual learning was successfully being transferred to OKC through three SECI modes, with opportunity for improvement in the Externalization mode.*

The OKC theory proposes that knowledge creation is a social process and that knowledge is continuously changing, redesigned, and recreated as employees practice skills, share information, and interact with each other (Nonaka, 1994; Chatterjee et al., 2018b). Organizations, of course, are unable to create knowledge without the individual actors, but the organization can support employees and provide context and the environment to amplify the knowledge of one person to be shared with many (Nonaka, 1994). When tacit and explicit knowledge interact through these social interactions in the workplace, four distinct modes of knowledge conversion emerge known as the SECI model (socialization, externalization, combination, and internalization) (Nonaka, 1996; Chatterjee et al., 2018b).

Figure 11 illustrates how well the employees at The LP are engaging in each of the four modes of organizational knowledge creation based on the survey data. 'Combination' and 'Internalization' had the highest levels of perceived engagement, with staff members who were 'Likely to Agree' reaching 91% and 90%, respectively. 'Socialization' was also reasonably high, coming in just under 80%, with 'Externalization' having the lowest percentage score at 69%. Overwhelmingly this indicates that folks at The LP were engaging across all four SECI

FIGURE 11: SECI DATA ANALYSIS



modes. However, there was a clear area for improvement when moving from tacit to explicit knowledge conversion (externalization). *Externalization* is one of the most clearly defined ways that an individual can share their knowledge with others. *Externalization* is when an individual has internalized conceptual information, and they are able to, either through dialogue, written documentation, or charts and figures, explain and share those concepts with others (Chatterjee et al., 2018b; Nonaka, 1996). It is a way of fully articulating knowledge and a key to transferring learning from one person to many others, and therefore imperative for The LP to address. (See page 24 for full descriptions of each of the other SECI modes.)

Chatterjee et al. (2018b) linked the mode of '*Externalization*' with two specific LTSI factors: *transfer effort-performance expectations* (Cluster Group 1) and *supervisor support* (Cluster Group 13). They described the link between the actionable LTSI factors with each mode. They argue that *transfer effort-performance expectations*, which included questions like

'The more training I apply on my job, the better I do my job,' is linked with 'Externalization' because it indicates that tacit knowledge (learning from the training session) is being applied explicitly to on-the-job tasks (Chatterjee et al., 2018b). Cluster group 13, *supervisor support*, which included questions like, 'My supervisor will meet with me to discuss ways to apply this training on the job' is also linked with 'Externalization.' Again, the specific connections between the training session and direct application to the workplace setting, contribute to the tacit to explicit knowledge conversion (Chatterjee et al., 2018b).



## Recommendations

Holton (2003) calls for research on learning transfer to be more action-oriented, and while it was essential to understand areas where The LP was fully supporting their staff members and professional development was working well, it was also vital to search for opportunities to improve, or leverage points for change. Each organization is unique in defining a successful transfer system, and internal workplace cultures call for varied techniques

(Holton, 2003, Massenberg et al., 2017). Chatterjee et al.'s (2018b) proposed combination framework shows that the LTSI factors can also help operationalize organizational knowledge creation through the SECI model. It can be used to define action-oriented solutions for OKC (Chatterjee et al., 2018b). Based on the data collected and findings that surfaced, the following are proposed recommendations:

### Recommendation 1

#### *Focus on Strengthening Supervisory Support*

Numerous studies have indicated that supervisory support plays a significant role in training transfer (Chauhan et al., 2016; Cromwell & Kolb, 2004; Kim et al., 2019; Na-nah et al., 2017). Chauhan et al. (2016) found that employees who report being part of a supportive work environment have more motivation to transfer learning, and Na-nah et al. (2017) states that employees are more likely to apply knowledge gained from training sessions to the workplace based on the support level of the environment. Cromwell and Kolb's (2004) study suggests that the level of support provided to a trainee has a significant influence on transfer, and Kim et al. (2019) also found that workers are more likely to engage in transfer behavior when they feel supported by their managers and appreciated by their employer.

Results from finding 2 suggest that supervisory support is lacking at The LP with regard to professional development sessions and that this is an area of opportunity for them to improve learning transfer. Managers and other types of supervisors should spend time clarifying performance expectations both before and after trainings, identify goals in



collaboration with the employee, and identify areas where the employee could utilize their newfound learning on the job (Chatterjee et al., 2018a). Massenberg et al. (2017) found that it is particularly important to spend time discussing training sessions with staff members in advance so that they go in with a robust understanding of what the expectations are for their learning outcomes. With this in mind, supervisors at The LP should make it standard to outline goals and objectives for the training, establish expectations with employees at the time that they sign up for the training, review those shortly in advance, and then follow through immediately after the training is complete and at regular intervals afterward as needed. Supervisors have an obligation to provide regular feedback to their employees on their performance and also to work with the employee to evaluate the effectiveness of the training. Looking back to the problem of practice, the LP needed to consider whether the time, money, and resources spent on the training sessions were making a significant impact on their employees' learning. Through continuous dialogue with trainees, an assessment can be made for each PD session as to whether it should be repeated the following year or by additional staff members in the future.

## Recommendation 2

### *Create Opportunities for Staff to Share Learning*

Related to recommendation 1, finding 4 indicates that staff members were not applying their learning to on-the-job tasks or sharing their newfound knowledge with staff members through *externalization* techniques in the SECI framework. Organizational knowledge creation

is a social process and requires individuals to engage with their peers so that knowledge is transferred to others in the workplace. The interactions between people that leads to the tacit to explicit knowledge conversation of *externalization* is only possible when learning is actually utilized in the work environment (Chatterjee et al., 2018b). Supervisors provide those application opportunities for individuals by identifying improvement goals, performance expectations, and areas of responsibility where the employee can specifically apply learning from particular trainings as suggested in Recommendation 1. Additionally, supervisors should encourage trainees to share their newfound knowledge with their peers in order to improve their own training transfer as well as organizational knowledge (Chauhan et al., 2016; Na-nah et al., 2017). Chauhan et al. (2016) found that encouragement by fellow employees to apply training skills has a potentially greater impact on learning transfer than supervisors.

Nonaka (1994) states, "While tacit knowledge held by individuals may lie at the heart of the knowledge creating process, realizing the practical benefits of that knowledge center on its *externalization* and amplification" (p. 20). The *externalization* process is one of meaningful dialogue whereby employees are able to articulate their own tacit learning and perspectives, and the information then becomes explicit concepts that can be shared through common means to the rest of the organization (Nonaka, 1996). That may be realized as formalized communications such as oral communication, visualizations, sketches, written documents, slide presentations, spreadsheets, charts and figures (Chatterjee et al., 2018b, Nonaka, 1996; Philipson & Kjellström, 2020). This 'mobilization' process, the articulation and conversion of tacit knowledge into explicit knowledge (*externalization*), is truly a primary element in organizational knowledge creation (Nonaka, 1996).

Therefore, to 'mobilize' this knowledge, supervisors should work with their employees to identify how to best share information across The LP. This knowledge sharing will require additional time and attention and may add new responsibilities to already significant workloads. With this in mind, it should be discussed in advance of the training to ensure the employee will have time post-training to engage in dialogue with their peers. There is no one way to share information for all types of employees or for all types of tacit/explicit knowledge. Employees and their supervisors can think collaboratively about which other departments would benefit most significantly from their shared knowledge and what presentation format would provide the most robust overview.

### Recommendation 3

#### *Implement a Rewards System*

Finding 2 indicated that The LP, as an organization, was not linking training programs directly to performance outcomes. Employees neither believed they would be rewarded nor punished for their participation in or utilization of session contents. As was mentioned in finding 3, employees were intrinsically motivated to transfer their learning from professional development sessions and were overwhelmingly able to do so. However, organizational support in the form of a reward structure can amplify the extent of training transfer (Chatterjee et al., 2017; Na-nah et al., 2017). An attractive rewards system that improves the employee's workplace or financial situation can incentivize them to apply learning acquired through training leading to lasting behavioral changes (Ahmed et al., 2015 as cited in Na-nah et al.,

2017). Rewards may come in the form of career advancement, monetary incentives, job security, benefits, etc. (Chatterjee et al., 2017; Na-nah et al., 2017). As previously mentioned, the more supportive the workplace, the higher the likelihood that employees' application of learning will occur, and that includes the feeling of appreciation that may come with a reward system (Kim et al., 2019; Na-nah et al., 2017). Chauhan (2016) even suggests a rewards system for supportive peers to motivate training transfer across the organization.

Leadership at The LP should consider what options they have for providing rewards for professional development trainings to their employees. Some options might include a clear pathway for career advancement linked to particular learned skill sets, additional benefits such as paid-time-off, opportunities for part-time and temporary staff to become full-time permanent team members, additional workplace technology (new computer and/or related programs linked to training competencies), opportunities for a more flexible workday or to work on special interest projects, and similar benefits. In order to determine what specific rewards would be most impactful for their employees, a brief anonymous survey could be distributed, and/or supervisors could speak with trainees individually to understand their long-term career and financial goals.

#### **Recommendation 4**

### ***Continue to Evaluate Over Time***

Massenberg et al. (2017) found that to gather a complete understanding of learning transfer factors, data needed to be gathered and assessed continuously. Given the short

timeframe of this study and the impact of Covid-19 on employee's ability to attend PD sessions in person, it is suggested that The LP continue conducting LTSI surveys for another six months to a year, followed by a series of focus groups of interview sessions. Although Covid-19 continues to impact events, and some training sessions may become permanently available online, there are limitations to digital learning (Sormunen et al., 2020), and there is an expectation that employees at The LP will at least return in part to in-person professional development sessions. A lack of in-depth instruction and feedback from instructors is a concern with digital learning

platforms as opposed to

traditional learning settings

(Sormunen et al., 2020) and may

have impacted the initial results of

the LTSI. Continuing to employ

the LTSI survey over time will give

The LP a broader sense of the

learning transfer and knowledge

creation from professional development sessions. The original intention for this study was to

include interviews, but ultimately individuals did not agree to participate, and it was cut from

the study design. The LTSI is only a diagnostic tool, and Holton (2007) suggests that after

identifying potential barriers to learning transfer, an organization should conduct interviews

and follow-up focus groups to understand the findings further and identify interventions.

Following a continuation of staff surveys over the next year, The LP should consider hiring an



independent researcher to conduct either one-on-one interviews and/or focus groups. In addition, frequently conducting needs analyses and monitoring of The LP's program effectiveness as suggested in recommendation 1 will help keep training sessions relevant to staff members and align with their interests and individual areas of improvement.

## Limitations

There are several notable limitations to this study. First, the sample sizes were too small to create meaningful generalizations based on the data collected on employment and demographic data. Second, due to Covid-19, staff began working from home in March 2019 and are set to return to the office in September 2021. As a result, all PD sessions surveyed have been remote, a departure from prior years, and they are likely to see a significant shift in future years back to in-person learning. It is unknown how the responses would have differed with a mix of in-person and online sessions. This also affected how readily the employees had access to their supervisors and fellow employees. Third, while the LTSI is a validated instrument to assess learning transfer, the use of the LTSI to SECI mapping conceptualized by Chatterjee et al. (2018) has not been validated. Fourth, although staff members were instructed to complete survey 2 within seven days of their training session, many waiting significantly longer, some up to 2 months to fill it out. Lastly, the LTSI is a diagnostic tool, and it has been suggested numerous times in this study and across additional literature that follow-up interviews and/or focus groups are conducted to further understand the results of the LTSI findings. This was suggested in the original design, but a lack of interest by the employees at The LP forced it to be eliminated from the study.

## Discussion

This capstone project sought to provide a way for the leadership team at The Laundromat Project to evaluate their currently existing professional development and training programs. They, as do many other employers, spend time, money, and other resources on conferences, seminars, webinars, and similar opportunities for their staff without understanding whether they impact their employees' workplace skills and whether those experiences provide any benefit to their organization at large. In order to examine this problem of practice, this study asked three questions that focused on learning transfer and organizational knowledge creation. It relied on quantitative data from two surveys over a period of five months and ultimately arrived at four findings and four recommendations for improvement. Findings indicated that employees at The LP are likely to transfer their learning from training sessions due to their high motivation to transfer and internal ability to do so. However, the workplace environment at The LP poses a significant barrier to individual training transfer and also affects an employee's ability to share that knowledge across the organization. As a result of those findings, recommendations were made that focused heavily on the workplace environment. Specifically, The LP should take steps to strengthen supervisory level support, design opportunities for staff members to explicitly share learning gained from training sessions with their colleagues, and they should also consider creating a rewards system for those who successfully implement newfound knowledge on the job. Additionally, it is recommended that, given the short timeframe of the study that The LP continue to evaluate their professional development trainings and consider follow-up interviews and focus groups to understand barriers more deeply.

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## Appendices

### Appendix A: LTSI to SECI Mapping

TABLE 9: LTSI TO SECI MAPPING

Q#	LTSI item	LTSI construct	S/E/C/		Explanation
			I	Element	
Q1	Prior to this training, I knew how the program was supposed to affect my performance	1. Learner readiness (S)	I	MT	Information about a training program and expectation from it is shared formally and explicitly. In the participant's mind, conversion happens from explicit to tacit form, hence <i>Internalization</i> .
Q8	Before this training, I had a good understanding of how it would fit my job-related development		I	MT	
Q9	I knew what to expect from this training before it began		I	MT	
Q45	I never doubt my ability to use newly learned skills on the job	2. Performance self-efficacy (G)	I	CG	This factor is about an individual's internal belief, confidence and self-motivation. These are thoughts that have been internalized in a person based on prior experience or incidents, hence <i>internalization</i> . Internal conviction is a person's perception; hence, the element is <i>cognitive process</i> .
Q46	I am sure I can overcome obstacles on the job that hinder my use of new skills or knowledge		I	CG	
Q47	At work, I feel very confident using what I learned in training even in the face of difficult or taxing situations		I	CG	
Q2	This training will increase my personal productivity		3. Motivation to transfer (S)	I	
Q3	When I leave this training, I can't wait to get back to work to try what I learned	I		CG	
Q4	I believe this training will help me do my current job better	I		CG	
Q34	My job performance improves when I use new things that I have learned	4. Transfer effort-performance expectation (G)	E	CG	Tacit knowledge is applied on work and performance improves; recognized performance improvement is explicit knowledge. Conversion happens from tacit to explicit knowledge, hence <i>Externalization</i> . This is an individual's belief that investing effort to use new skills has made a difference in the past or will affect future productivity and effectiveness; hence, the element is <i>cognitive process</i> .
Q35	The harder I work at learning, the better I do my job		E	CG	
Q38	The more training I apply on my job, the better I do my job		E	CG	

f

(continued)

Q#	LTSI item	LTSI construct	S/E/C/		Explanation
			I	Element	
Q36	For the most part, the people who get rewarded around here are the ones that do something to deserve it	5. Performance-outcome expectation (G)	C	SO	Being rewarded is explicit knowledge about good performance being converted into another explicit form, i.e. reward.
Q37	When I do things to improve my performance, good things happen to me		C	SO	
Q39	My job is ideal for someone who likes to be rewarded when they do something really good		C	SO	
Q43	People often make suggestions about how I can improve my job performance	6. Performance coaching (G)	S	SO	Suggestions and advice are usually given by people based their own tacit knowledge of a situation. Such advice gained is converted to tacit knowledge of the advisee. Tacit to tacit knowledge conversion, hence <i>socialization</i> . It is the organizational environment that will determine how much individuals receive constructive input, assistance, and feedback from people in their work environment. Hence, the element is <i>societal-organizational conditions</i> .
Q44	I get a lot of advice from others about how to do my job better		S	SO	
Q48	People often tell me things to help me improve my job performance		S	SO	
Q21	My supervisor will meet with me regularly to work on problems I may be having in trying to use this training	7. Supervisor support (S)	E	MT	When supervisor discusses performance improvement or application of learning to a specific task, it is usually more SMART (specific,

(continued)

Q#	LTSI item	LTSI construct	S/E/C/I		Explanation
			I	Element	
Q22	My supervisor will meet with me to discuss ways to apply this training on the job		E	MT	attainable, measurable, realistic and time bound), hence explicit. Supervisor's advice (tacit knowledge) is converted to improvement goal (explicit knowledge).
Q26	My supervisor will help me set realistic goals for job performance based on my training		E	MT	Tacit to explicit knowledge conversion, hence <i>externalization</i> . This is managers' involvement in clarifying performance expectations. Hence, the element is <i>management tools</i>
Q23	My supervisor will oppose the use of techniques I learned in this training	8. Supervisor sanction (S)	S	MT	Opposition or threats regarding application of new learnings are usually communicated either verbally or through attitude. It is rarely communicated explicitly (only in extreme situations). People get a sense of the message and form an opinion. This is a situation of tacit threats being converted to tacit fears.
Q24	My supervisor will think I am being less effective when I use the techniques taught in this training		S	MT	Tacit to tacit knowledge conversion, hence <i>socialization</i> . This is manager's involvement in opposing or threatening. Hence, the element is <i>management tools</i>
Q25	My supervisor will probably criticize this training when I get back to the job		S	MT	With peer support, tacit encouragement and recognition are converted to implicit motivation.
Q18	My colleagues will appreciate my using the new skills I learned in this training	9. Peer support (S)	S	SO	Tacit to tacit knowledge conversion, hence <i>socialization</i> .
Q19	My colleagues will encourage me to use the skills I have learned in this training		S	SO	It is the organizational environment that will determine how much support individuals receive from peers in their work environment. Hence, the element is <i>societal-organizational conditions</i>
Q20	At work, my colleagues will expect me to use what I learned in this training		S	SO	

(continued)



Q#	LTSI item	LTSI construct	S/E/C/		Explanation
			I	Element	
Q40	Experienced employees in my group ridicule others when they use techniques they learn in training	10. Resistance to change (G)	S	SO	In this situation, tacit discouragement, disinterest and apathy are converted to implicit reluctance to try new things. Tacit to tacit knowledge conversion, hence <i>socialization</i> . It is the organizational environment that will determine how much resistance individuals receive from peers in their work environment. Hence, the element is <i>societal-organizational conditions</i>
Q41	People in my group are not willing to put in the effort to change the way things are done		S	SO	
Q42	My workgroup is reluctant to try new ways of doing things		S	SO	
Q5	Successfully using this training will help me get a salary increase	11. Personal outcome + ve. (S)	C	MT	Getting reward or recognition is explicit knowledge about performance or proper usage of training being converted into another explicit form, i.e. reward. Explicit to explicit conversion, hence <i>combination</i> . Being rewarded is a managerial action; hence, the element is <i>managerial tools</i>
Q6	If I use this training I am more likely to be rewarded		C	MT	
Q7	I am likely to receive some recognition if I use my newly learned skills on the job		C	MT	
Q12	Employees in this organization will be penalized for not using what they have learned in this training	12. Personal outcome - ve. (S)	C	MT	Usage of training is usually documented, hence explicit knowledge. Non usage of training is usually absence of such documentation, hence again explicit knowledge. Being reprimanded or penalized (more than a mere warning from the manager) is explicit knowledge. Explicit to explicit conversion, hence <i>combination</i> . Being reprimanded is a managerial action; hence, the element is <i>managerial tools</i>
Q15	If I do not use new techniques taught in this training I will be reprimanded		C	MT	
Q16	If I do not use this training I will be cautioned about it		C	MT	
Q13	I will be able to try out this training on my job	13. Opportunity to use learning (S)	I	SO	Reflecting and applying learning/knowledge on the job is converting explicit knowledge to individual or tacit knowledge. Learning by doing is a form of
Q17	The resources needed to use what I learned in this training will be available to me		I	SO	

(continued)

Q#	LTSI item	LTSI construct	S/E/C/		Explanation
			I	Element	
Q33	I will get opportunities to use this training on my job		I	SO	<i>internalization</i> . This is the organization providing individuals with opportunities to apply new skills, resources needed to use new skills. Hence, the element is <i>societal-organizational conditions</i>
Q10	I do not have time to try to use this training on my job	14. Personal capacity to transfer (S)	I	SO	These are related to an individual's perception of his/her capacity to transfer knowledge. These are perceptions or beliefs that have been internalized in a person based on prior experience or incidents, hence <i>internalization</i> .
Q11	Trying to use this training will take too much energy away from my other work		I	SO	This is the extent to which individuals have the time, energy and mental space in their work lives, which is determined by the organizational environment. Hence, the element is <i>societal-organizational conditions</i>
Q14	There is too much happening at work right now for me to try to use this training		I	SO	Training is explicit knowledge, understanding how to apply it in workplace is tacit knowledge. Conversion happens from Explicit to tacit form, hence <i>internalization</i> . This is an individual's perception about validity of content. Hence, the element is <i>cognitive process</i> .
Q27	The instructional aids (equipment, illustrations, etc.) used in this training are very similar to real things I use on the job	15. Perceived content validity (S)	I	CG	Training is explicit knowledge, understanding how to apply it in workplace is tacit knowledge. Conversion happens from Explicit to tacit form, hence <i>internalization</i> . This is an individual's perception about validity of content. Hence, the element is <i>cognitive process</i> .
Q28	The methods used in this training are very similar to how we do it on the job		I	CG	Training is explicit knowledge, understanding how to apply it in workplace is tacit knowledge. Conversion happens from Explicit to tacit form, hence <i>internalization</i> . This is how an individual gains knowledge from a training program. Hence, the element is <i>cognitive process</i> .
Q29	I like the way this training seems so much like my job		I	CG	Training is explicit knowledge, understanding how to apply it in workplace is tacit knowledge. Conversion happens from Explicit to tacit form, hence <i>internalization</i> . This is how an individual gains knowledge from a training program. Hence, the element is <i>cognitive process</i> .
Q30	It is clear to me that the people conducting this training understand how I will use what I learn	16. Transfer design (S)	I	CG	Training is explicit knowledge, understanding how to apply it in workplace is tacit knowledge. Conversion happens from Explicit to tacit form, hence <i>internalization</i> . This is how an individual gains knowledge from a training program. Hence, the element is <i>cognitive process</i> .
Q31	The trainer(s) used lot of examples that showed me how I could use my learning on the job		I	CG	Training is explicit knowledge, understanding how to apply it in workplace is tacit knowledge. Conversion happens from Explicit to tacit form, hence <i>internalization</i> . This is how an individual gains knowledge from a training program. Hence, the element is <i>cognitive process</i> .
Q32	The way the trainer(s) taught the material made me feel more confident. I could apply it in my job		I	CG	Training is explicit knowledge, understanding how to apply it in workplace is tacit knowledge. Conversion happens from Explicit to tacit form, hence <i>internalization</i> . This is how an individual gains knowledge from a training program. Hence, the element is <i>cognitive process</i> .

Note: Reprinted from Chatterjee, A., Pereira, A., & Sarkar, B. (2018b). Learning transfer system inventory (LTSI) and knowledge creation in organizations. *The Learning Organization*, 24(5), p.310.

## Appendix B: Recruitment Letter and Initial Evaluative Survey



### Agreement

#### Initial Evaluative Survey

You are invited to participate in a capstone project about professional development and learning at The Laundromat Project. This online survey should take about 5 minutes to complete.

Participation is voluntary, and responses will be kept confidential. You have the option to not respond to any questions that you choose. Participation or nonparticipation will not impact your relationship with The Laundromat Project. Submission of the survey will be interpreted as your informed consent to participate and that you affirm that you are at least 18 years of age.

If you have any questions about the project, please contact the Principal Investigator, Danielle (Danni) Pascuma, via email at [danielle.pascuma@vanderbilt.edu](mailto:danielle.pascuma@vanderbilt.edu) or the faculty advisor, Dr. Tracey Armstrong at [tracey.m.armstrong@vanderbilt.edu](mailto:tracey.m.armstrong@vanderbilt.edu).

If you have any questions regarding your rights, contact the Vanderbilt Institutional Review Board (IRB) at (615) 322-2918.

Please print or save a copy of this page for your records.

I agree

### Demographic Questions

Which of these best describes your current employment status at The Laundromat Project?

- Volunteer/Other
- Part-time
- Full-time

Which of these best describes your role at The Laundromat Project?

- Associate/Other
- Manager
- Director

What is your gender identity?

- Male
- Female
- Non-binary / third gender
- Prefer not to say
- Other

### General Questions Part 1

My job performance improves when I use new thinking that I have learned.

Strongly disagree      Somewhat disagree      Neither agree nor disagree      Somewhat agree      Strongly agree

The harder I work at learning, the better I do my job.

Strongly disagree      Somewhat disagree      Neither agree nor disagree      Somewhat agree      Strongly agree

The more training I apply on my job, the better I do my job.

Strongly disagree      Somewhat disagree      Neither agree nor disagree      Somewhat agree      Strongly agree

**General Questions Part 2**

For the most part, the people who get rewarded around here are the ones that do something to deserve it.

Strongly disagree      Somewhat disagree      Neither agree nor disagree      Somewhat agree      Strongly agree

When I do things to improve my performance, good things happen to me.

Strongly disagree      Somewhat disagree      Neither agree nor disagree      Somewhat agree      Strongly agree

My job is ideal for someone who likes to be rewarded when they do something good.

Strongly disagree      Somewhat disagree      Neither agree nor disagree      Somewhat agree      Strongly agree

**General Questions Part 3**

Experienced employees in my group ridicule other when they use techniques they learn in trainings.

Strongly disagree      Somewhat disagree      Neither agree nor disagree      Somewhat agree      Strongly agree

People in my group are not willing to put in the effort to change the way things are done.

Strongly disagree      Somewhat disagree      Neither agree nor disagree      Somewhat agree      Strongly agree

My workgroup is reluctant to try new ways of doing things.

Strongly disagree      Somewhat disagree      Neither agree nor disagree      Somewhat agree      Strongly agree

**General Questions Part 4**

People often make suggestions about how I can improve my job performance.

Strongly disagree      Somewhat disagree      Neither agree nor disagree      Somewhat agree      Strongly agree



I get a lot of advice from others about how to do my job better.

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

People often tell me things to help me improve my job performance.

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

General Questions Part 5

I never doubt my ability to use newly learned skills on the job.

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I am sure I can overcome obstacles on the job that hinder my use of new skills or knowledge.

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

At work, I feel very confident using what I learned in training even in the face of difficult or taxing situations.

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Appendix C: Recruitment Letter and Individual Professional Development Session Survey



### Agreement

#### Individual Professional Development and Training Session Evaluation Form

You are invited to participate in a capstone project about professional development and learning at The Laundromat Project. The online survey is specific to a **single program session (workshop, conference, training, etc.) that you have participated in within the last 7 days**, and should take about 10 minutes to complete.

Participation is voluntary, and responses will be kept confidential. You have the option to not respond to any questions that you choose. Participation or nonparticipation will not impact your relationship with The Laundromat Project. Submission of the survey will be interpreted as your informed consent to participate and that you affirm that you are at least 18 years of age.

If you have any questions about the project, please contact the Principal Investigator, Danielle (Danni) Pascuma, via email at [danielle.pascuma@vanderbilt.edu](mailto:danielle.pascuma@vanderbilt.edu) or the faculty advisor, Dr. Tracey Armstrong at [tracey.m.armstrong@vanderbilt.edu](mailto:tracey.m.armstrong@vanderbilt.edu).

If you have any questions regarding your rights, contact the Vanderbilt Institutional Review Board (IRB) at (615) 322-2918.

I agree

### Block 1

Session Title:

Session Date (mm/dd/yyyy):

How would you categorize the topic of this Professional Development and/or Training Session? Check all that apply.

- Leadership and Management
- Diversity, Equity, and Inclusion
- Human Resources
- Program/Curriculum Development
- Community Engagement
- Health and Safety
- Technical
- Other

How many times have you taken this survey?

- This is my first time taking this survey.

- This is my second time taking this survey.
- This is my third time taking this survey.
- This is my fourth time taking this survey.
- This is my fifth time taking this survey.
- This is at least my sixth time taking this survey.

**Block 5**

Please indicate how strongly you agree with the following statements as they relate to the professional development or training session you listed at the beginning of this survey.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Prior to this training, I knew how the program was supposed to affect my performance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Before this training, I had a good understanding of how it would fit my job-related development.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I knew what to expect from this training before it began.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
This training will increase my personal productivity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I left this training, I couldn't wait to get back to work to try what I learned.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe this training will help me do my current job better.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Default Question Block**

Please indicate how strongly you agree with the following statements as they relate to the professional development or training session you listed at the beginning of this survey.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Successfully using this training will help me get a salary increase.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I use this training I am more likely to be rewarded.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am likely to receive some recognition if I use my newly learned skills on the job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I do not have time to try to use this training at my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trying to use this training will take too much energy away from my other work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is too much happening at work right now for me to try to use this training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Block 4**

Please indicate how strongly you agree with the following statements as they relate to the professional development or training

session you listed at the beginning of this survey.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree	N/A
Employees in this organization will be penalized for not using what they have learned in this training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I do not use new techniques taught in this training I will be reprimanded.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I do not use this training I will be cautioned about it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree	N/A
I will be able to try out this training on my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The resources needed to use what I learned in this training will be available to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will get opportunities to use this training on my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Block 2**

Please indicate how strongly you agree with the following statements as they relate to the professional development or training session you listed at the beginning of this survey.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My colleagues will appreciate my using the new skills I learned in this training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My colleagues will encourage me to use the skills I have learned in this training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At work, my colleagues will expect me to use what I learned in this training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My supervisor will meet with me regularly to work on problems I may be having in trying to use this training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My supervisor will meet with me to discuss ways to apply this training on the job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My supervisor will help me set realistic goals for job performance based on my training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Block 3**

Please indicate how strongly you agree with the following statements as they relate to the professional development or training session you listed at the beginning of this survey.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My supervisor will oppose the use of techniques I learned in this training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My supervisor will think I am being less effective when I use the techniques taught in this training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My supervisor will probably criticize this training when I get back to the job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The instructional aids (equipment, illustrations, etc.) used in this training are very similar to real things I use on the job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The methods used in this training are very similar to how we do it on the job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like the way this training seems so much like my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Block 6**

Please indicate how strongly you agree with the following statements as they relate to the professional development or training session you listed at the beginning of this survey.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
It is clear to me that the people conducting this training understand how I will use what I learn.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The trainers used a lot of examples that showed me how I could use my learning on the job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The way the trainer(s) taught the material made me feel more confident. I could apply it in my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Block 7**

Is there anything else you would like to say regarding the impact of this professional development or training session as it pertains to your work at the LP?

**Demographic Questions**

Which of these best describes your current employment status at The Laundromat Project?

- Volunteer/Other
- Part-time
- Full-time

Which of these best describes your role at The Laundromat Project?

- Associate/Other
- Manager
- Director

What is your gender identity?

- Male
- Female
- Non-binary / third gender
- Prefer not to say

Appendix D: Data Analysis Construct

Laundromat Project: Capstone Data Analysis				
Survey	Question Text	LTSI Construct	LTSI Area of Influence	SECI
	My job performance improves when I use new thinking that I have learned. The harder I work at learning, the better I do my job. The more training I apply on my job, the better I do my job.			
1 - General	<b>Totals, Clustered Group 1</b> For the most part, the people who get rewarded around here are the ones that do something to deserve. When I do things to improve my performance, good things happen to me. My job is ideal for someone who likes to be rewarded when they do something good.	4. Transfer effort-performance expectati	Motivation	E (Externalization)
1 - General	<b>Totals, Clustered Group 2</b> Experienced employees in my group ridicule other when they use techniques they learn in trainings. People in my group are not willing to put in the effort to change the way things are done. My workgroup is reluctant to try new ways of doing things.	5. Performance-outcome expectation	Motivation	C (Combination)
1 - General	<b>Totals, Clustered Group 3</b> People often make suggestions about how I can improve my job performance I get a lot of advice from others about how to do my job better. People often tell me things to help me improve my job performance.	10. Resistance to change	Environment	S (Socialization)
1 - General	<b>Totals, Clustered Group 4</b> I never doubt my ability to use newly learned skills on the job. I am sure I can overcome obstacles on the job that hinder my use of new skills or knowledge. At work, I feel very confident using what I learned in training even in the fact of difficult or taxing situations.	6. Performance coaching	Environment	S (Socialization)
1 - General	<b>Totals, Clustered Group 5</b> Prior to this training, I knew how the program was supposed to affect my performance. Before this training, I had a good understanding of how it would fit my job-related development. I knew what to expect from this training before it began.	2. Performance self-efficacy	Motivation	I (Internalization)
2 - Specific	<b>Totals, Clustered Group 6</b> This training will increase my personal productivity. When I left this training, I couldn't wait to get back to work to try what I learned. I believe this training will help me do my current job better.	1. Learner Readiness	Motivation	I (Internalization)
2 - Specific	<b>Totals, Clustered Group 7</b> Successfully using this training will help me get a salary increase. If I use this training I am more likely to be rewarded. I am likely to receive some recognition if I use my newly learned skills on the job	3. Motivation to Transfer	Motivation	I (Internalization)
2 - Specific	<b>Totals, Clustered Group 8</b> I do not have time to try to use this training at my job. Trying to use this training will take too much energy away from my other work. There is too much happening at work right now for me to try to use this training.	11. Personal outcome +ve.	Environment	C (Combination)
2 - Specific	<b>Totals, Clustered Group 9</b> Employees in this organization will be penalized for not using what they have learned in this training. If I do not use new techniques taught in this training I will be reprimanded. If I do not use this training I will be cautioned about it.	14. Personal capacity to transfer	Ability	I (Internalization)
2 - Specific	<b>Totals, Clustered Group 10</b> I will be able to try out this training in my job. The resources needed to use what I learned in this training will be available to me. I will get opportunities to use this training on my job.	12. Personal outcome - ve.	Environment	C (Combination)
2 - Specific	<b>Totals, Clustered Group 11</b> My colleagues will appreciate my using the new skills I learned in this training. My colleagues will encourage me to use the skills I have learned in this training. At work, my colleagues will expect me to use what I learned in this training.	13. Opportunity to use learning	Ability	I (Internalization)
2 - Specific	<b>Totals, Clustered Group 12</b> My supervisor will meet with me regularly to work on problems I may be having in trying to use this training. My supervisor will meet with me to discuss ways to apply this training on the job. My supervisor will help me set realistic goals for job performance based on my training.	9. Peer support	Environment	S (Socialization)
2 - Specific	<b>Totals, Clustered Group 13</b> My supervisor will oppose the use of techniques I learned in this training. My supervisor will think I am being less effective when I use the techniques taught in this training. My supervisor will probably criticize this training when I get back to the job.	7. Supervisor support	Environment	E (Externalization)
2 - Specific	<b>Totals, Clustered Group 14</b> The instructional aids (equipment, illustrations, etc.) used in this training are very similar to real things I use on the job. The methods used in this training are very similar to how we do it on the job. I like the way this training seems so much like my job.	8. Supervisor sanction	Environment	S (Socialization)
2 - Specific	<b>Totals, Clustered Group 15</b> It is clear to me that the people conducting this training understand how I will use what I learn. The trainers used a lot of examples that showed me how I could use my learning on the job. The way the trainer(s) taught the material made me feel more confident. I could apply it in my job.	15. Perceived content validity	Ability	I (Internalization)
2 - Specific	<b>Totals, Clustered Group 16</b>	16. Transfer design	Ability	I (Internalization)

Appendix E: LTSI Data Sheet

Laundromat Project LTSI Survey Data							
Question Text	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree	Average Rating	Determination
Totals, Clustered Group 1	0	0	1	13	16	4.5	Strong Catalyst
Totals, Clustered Group 2	0	4	13	4	9	3.6	Weak Catalyst
Totals, Clustered Group 3	13	6	5	6	0	3.87	Weak Catalyst
Totals, Clustered Group 4	2	7	11	9	1	3	Barrier
Totals, Clustered Group 5	0	1	5	12	12	4.17	Strong Catalyst
Totals, Clustered Group 6	1	3	5	8	10	3.85	Weak Catalyst
Totals, Clustered Group 7	0	0	5	11	11	4.22	Strong Catalyst
Totals, Clustered Group 8	11	1	11	4	0	2.30	Barrier
Totals, Clustered Group 9	3	8	7	6	1	3.24	Weak Catalyst
Totals, Clustered Group 10	24	0	3	0	0	1.22	Barrier
Totals, Clustered Group 11	0	0	4	11	12	4.30	Strong Catalyst
Totals, Clustered Group 12	0	2	16	9	0	3.26	Weak Catalyst
Totals, Clustered Group 13	12	4	5	5	1	2.22	Barrier
Totals, Clustered Group 14	24	2	1	0	0	4.85	Strong Catalyst
Totals, Clustered Group 15	1	1	12	12	1	3.41	Weak Catalyst
Totals, Clustered Group 16	1	0	4	12	10	4.11	Strong Catalyst

Appendix F: SECI Data Sheet

Laundromat Project: SECI Data Analysis			
Question Text	Likely to Agree	Likely to Disagree	
Totals, Clustered Group 1	29	0	
Totals, Clustered Group 2	13	4	
Totals, Clustered Group 3	19	6	
Totals, Clustered Group 4	10	9	
Totals, Clustered Group 5	24	1	
Totals, Clustered Group 6	18	4	
Totals, Clustered Group 7	22	0	
Totals, Clustered Group 8	4	12	
Totals, Clustered Group 9	11	7	
Totals, Clustered Group 10	24	0	
Totals, Clustered Group 11	23	0	
Totals, Clustered Group 12	9	2	
Totals, Clustered Group 13	6	16	
Totals, Clustered Group 14	26	0	
Totals, Clustered Group 15	13	2	
Totals, Clustered Group 16	22	1	

SECI	Likely to Agree	Likely to Disagree	Total Responses	Likely to Agree %	Likely to Disagree %	Average Ratings
S (Socialization)	64	17	81	79%	21%	3.74
E (Externalization)	35	16	51	69%	31%	3.36
C (Combination)	41	4	45	91%	9%	3.56
I (Internalization)	133	15	148	90%	10%	3.90