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# Hospitality Training: Do Learning Styles Matter?

Alison J. Green

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**HOSPITALITY TRAINING: DO LEARNING STYLES MATTER?**

**BY**

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M.A., Organizational Management, University of Phoenix, 1996  
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of New Mexico, 2011

DISSERTATION

Submitted in Partial Fulfillment of the  
Requirements for the Degree of

**Doctor of Philosophy**  
**Organizational Learning and Instructional Technology**

The University of New Mexico  
Albuquerque, New Mexico

**May, 2011**

## **Dedication**

This dissertation is dedicated to all of the Warriors in Pink, keep on fighting the good fight. And to my sweet little girl, Lilli Anna who some day will understand why this all was so important.

## **Acknowledgements**

As with goals such as a Ph.D., it really does take a village to get to the end and relish in the sweet success. First and foremost I have to thank my mom, dad and sister. I share the end result with all of them. An advanced degree is hard in many different ways as an adult student, but add on to that a diagnosis with cancer just before starting the first semester. My family helped me throughout the treatments, surgeries and mostly for support all as I continued attending classes. I would not be where I am today without the unconditional love. For that, I thank you in words.

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For all of the hospitality learners out there, my research and passion is for you, to help the industry grow and thrive. It is giving back to the sector in which I love and will continue to be part of my life in some way. Service really is in our blood, and for those of us that catch the bug, there is no other industry we would like to be in.

Peace be with you.

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## **ABSTRACT**

The purpose of this quantitative study was to explore the learning styles and delivery mode preferences in hospitality training. The delivery modes were online, using Centra™, and traditional training or face to face workshop. Data was collected from participants (n=79) in training within a large hospitality organization over a total of 11 workshops, 6 traditional, 5 online. This study examined how best to use the results in training at the instructional system design level to help deliver the appropriate training delivery modes. There were a total of four research questions analyzed. A correlational analysis, independent t-test and 2x1 ANOVA's were used to analyze the appropriate research question. Index for Learning Styles (ILS) was used to determine the learning styles of the participants, pretest and posttest measured the learning and additional demographic questions were asked. There has been literature studying delivery modes in university classrooms, yet there is a gap in real practice research within the hospitality organization.



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## **Chapter 1: Introduction and Purpose**

### **Background**

The service industry is our nation's largest overall industry (Bureau of Labor Statistics, 2006). The hospitality/lodging industry equals about one quarter of the total service-sector employees (Moncarz & Zhao, 2008) and is the largest component of the service industry, accounting for two-thirds of its revenue (Bureau of Labor Statistics, 2006). The hospitality sector employs over 1.8 million people in the United States and provides first jobs to many new entrants to the workforce (Bureau of Labor Statistics, 2006). Turnover rates within the service industry are some of the highest in the nation, even during difficult economic climates. According to Cho, Woods, Jang, and Erdem (2006) the hospitality sector reports turnover ranging from 36 to 300 percent, which was the highest of all service industries within the United States. The Incentive Research Foundation (2002) estimates that employee turnover within the United States fast food and hotel industries costs those sectors roughly \$140 billion annually.

One reason for the significant turnover within the hospitality industry may be that the industry itself is constantly changing and employees are expected to keep up with the changes by rapidly learning new skills. Hospitality employees at every layer within an organization – entry to executive – are challenged to improve service levels and the quality of services provided. This is especially true for the mid-level hospitality worker who is hired to perform the day-to-day operations of the hotel. Service and quality levels are defined by the industry itself as well as at the franchisor level which then sets the standards or also known as quality assurance levels.

A delicate blend of motivating, training and reinforcement is important to reach the goal of increasing the service level. There is a direct impact from training to delivery of service. Wood and Macaulay (1989) explain that if a hotel experiences a 150% turnover, then guests are always being serviced by someone new. New employees may not have the talent and skills to bring to the job quickly. Thus, the customer may have a poor guest experience.

Recognizing the effects on bottom line profit statements and return on investment, organizations are leveraging training to move toward a service focus (ASTD, 2009) and aligning strategies with customer service culture (p. 20). Training may be the most important topic in the hospitality industry because it is almost completely dependent on people to deliver “service.” Pratten & Curtis (2002) suggest that in the hospitality industry, where service is the product, it is the service that differentiates one company or hotel from its competitors. Service leads to an “experience” and what brings the customers back is a positive service experience. Hospitality workers are the people who make the service experience, and thus, affect company revenue.

Training programs may help decrease turnover of the employees that provide a high service level within an organization, and attention needs to be paid to how the instruction is being designed and the delivered. Traditional instructional delivery of training, better known as face-to-face training, is still dominant in hospitality training. This type of training is designed for the masses in a one-size-fits-all approach. However, the past decade has opened the doors to different ways to deliver training, including online methods (synchronous and asynchronous), computer-based training, simulations and even training in virtual worlds such as Second Life™. The proliferation of the



Internet as an instruction method has led to rapid growth in distance learning (Taran, 2006). Distance learning also called, e-learning, or online learning offers corporate organizations an efficient and economical way to deliver material to learners (Dimitroff & Wolfram, 1995). The once “new” way to learn is now an expected option in corporate learning culture.

As corporations seek to improve the transfer of knowledge to employees via training programs, there has been a focus on the question “How do adults learn the best?” Merriam (2001) indicates that researchers have been asking that question for many years and are still searching for the “best” method. Several adult learning approaches have been developed over the years. One of the best known is from Malcolm Knowles, who developed the andragogy model. This approach was developed to decipher learning, especially for adults. Knowles (1975) infers that adults are self-directed and are expected and expect to take responsibility for their decisions.

Another adult learning approach, experiential learning, was introduced by Carl Rogers (1994). According to Rogers (1994), experiential learning is about personal change and growth. Experiential learning originates from the humanistic approach to psychology. Experiential learning allows the employee to work with real life situations or with a hands on approach, and then learn from the experience. Within the hospitality industry many of the frontline employees gain knowledge by doing activities. It is the experience of the interaction with the guest and fellow employees that becomes tacit knowledge down the road.

As the workplace changes so does the work environment and the focus on employees. Organizations are now looking at ways to reach their employees through well-developed training programs that acknowledge the training needs of the employees.

As organizations understand more about how adults learn, corporate trainers can utilize tools that have been researched at the academic level based on empirical evidence. Tools such as learning style assessments and preferred instructional delivery mode can be used to make learning meaningful for each employee (Lee, 2010).

Corporate trainers can learn from academic research in regard to writing instructional design that incorporates learning styles and the delivery mode preference. Understanding how the trainees learning styles fit with the actual training, possibly will help hospitality industry trainers be more effective in the delivery of instructional materials.

Learning style assessments have been developed to identify preferred learning style models. These assessments are used throughout academic and corporate learning environments. The Kolb Learning Style Inventory (Kolb, 1976), Dunn & Dunn Learning Style Inventory (Dunn, Dunn & Price, 1975, 1985), Myers-Briggs Type Indicator (Meyers & Briggs, 1980, 1995) and Felder/Silverman's Index of Learning Styles (1988) are some of the more widely used models.

### **Assumptions**

It is important to understand the following are assumptions that help guide this study. Adult learning theory is different from child learning theory, and this study focuses only on adult learning theory. How adults learn best is based on the following specific assumptions:

- Adult learners may have a preference for either online or traditional delivery modes of instruction.
- Adult learners may have an individual learning style and will do best when delivery mode is matched to learning style.
- Adult learners learn best when instruction is geared towards andragogical (adult) perspective and not from a pedagogical (child) perspective.

### **Purpose of the Study**

The purpose of this quantitative study was to investigate if there is an interaction between the preferred delivery mode of instruction of hospitality employees and their learning styles, as defined by the Index of Learning Styles (ILS) (Felder, 1993).

The study was conducted at InterContinental's Hotels Group (IHG), utilizing both online and traditional instruction modes of delivery. The independent variables in the study were learning styles as defined by Felder and Silverman (1988). The dependent variable in this study was the training delivery mode, as defined as online (synchronous) or traditional (face-to-face). Descriptive data collected included age, gender, ethnicity, years in the industry, experience with online and traditional workshop delivery modes, and income. A pretest and posttest were analyzed for learning and to explore the differences of score for each delivery mode.

This study aims to contribute to current research on learning styles and instructional delivery mode preference within hospitality organizations. In the last decade there has been "notoriously little research" (Donavant, 2009, p. 227) in the professional development and training environment with regards to adult learners. The study will add to the literature in the area of learning styles at the corporate hospitality

training level; the research herein could add to the larger body of literature for all corporate training organizations. Although educational research is important, it is vital to learn from the current practice in the corporate world about how learning styles and delivery mode can best help adult learners to have successful training outcomes.

### **Statement of Problem**

To be competitive, the hospitality industry needs to focus on understanding employee learning styles and designing instruction to complement delivery mode.

### **Research questions**

- 1) Does the employee's learning style determine his/her preference for training delivery mode?
- 2) Does an employee have better learning results via online or traditional instruction mode?
- 3) Does an employee have better learning results if delivery mode is matched to learning style?

### **Summary**

To decrease turnover in the hospitality industry, training programs must be developed that take into account learning styles and match preferred delivery instructional modes to each individual. To stay competitive, it is critical that companies move away from "one size fits all" training. Understanding how adults learn, which delivery modes are available, and matching preferred learning styles are all key components to effectively training the current workforce. If mid-level employees receive the type of training that matches their learning styles and instructional delivery modes, learning increases and worker turnover may decrease. By creating training programs that

match preferred learning styles and instruction delivery modes, hospitality companies can benefit from having more highly-trained employees who are less likely to leave the organization.

### **Definition of Terms**

*Adult Learner.* Employees of the organization attending training. These employees bring with them work and life experiences.

*Adult Learning Theory.* Principles providing instruction to the adult learner. The pedagogy applied to the practices and background of the adult learner.

*Andragogy.* Knowles focused learning strategies based on the idea that adults learn differently.

*Centra Live.* Online synchronous delivery mode used at IHG for their online workshops.

*Centralized Training Department.* One department that is responsible for the learning management system, developing, and delivering training.

*Formal Training.* Training delivered by the centralized training department in a workshop format.

*Franchisee.* Pays the franchisor a royalty for rights to operate. In this study, Intercontinental Hotels Group (IHG) includes the following hotel brands: Intercontinental Hotels, Crowne Plaza, Hotel Indigo, Holiday Inn, Holiday Inn Express, Staybridge Suites, and Candlewood Suites.

*Franchisor.* An organization that offers services in turn for a royalty fee. In this study, Intercontinental Hotels Group is the franchisor.

*Hospitality Industry.* Large sector of the service industry. Includes hotels, lodging, restaurants, events, theme parks, national parks, cruise lines.

*Index for Learning Styles Assessment.* 44 question instrument, with a or b choices. This was designed by Felder and Solomon (1991) based on a theoretical model by Felder and Silverman (1988).

*Informal Training.* Training that occurs outside of the formal workshop guidelines.

*Instructional Systems Design.* An instructional system that uses learning and instructional theory to develop instruction and learner activities (umich.edu, 1996).

*Learning Management System.* Software that assists with the administrative duties to execute training across the organization. This includes documentation, tracking, and reporting. Works with both online learning and traditional instruction methods.

*Learning Organization.* Senge (1990) states that organizations where people continually expand their capacity to create the results they want are 'learning organizations'. It is where people continue to learn view the organization as a whole.

*Learning Styles.* A way of thinking and processing information. How learners "perceive, interact with, and respond to the learning environment" (Keefe, 1979).

*Mid-Level Employee.* An employee who has experience with revenue management systems prior to the workshop.

*Online Learning.* Any educational experience that takes place via the internet. 'E-learning', distance learning', or 'internet learning' are terms that may also be used.

*Organizational learning.* Based on the concept that organizations are always changing and need to adapt to stay competitive.

*Posttest.* Administered after the workshop, ten questions to test knowledge.

*Pretest.* Administered before the workshop, ten questions related to the workshop to test knowledge.

*Synchronous training.* Delivery of a training program via online resources where there is real time interaction between the learner and the trainer. Centra Live is used at IHG.

*Traditional Instruction.* Face-to-face, in-person workshop. For this study, the traditional instruction will take place in a hotel ballroom or breakout room.

## **Chapter 2: Literature Review**

### **Introduction**

In this chapter, a review of the current literature related to the study will be conducted. The review is divided into five sections: hospitality industry sector; organizational training; adult learning (including current theories); learning styles; and delivery modes. Research from both academic and corporate settings will be examined.

### **Hospitality Industry Sector**

The hospitality industry is a unique business sector as the end product produced is guest satisfaction (Stutts, 2001). For much of this industry, it is the people within the organization that make the difference in the guest satisfaction. Employees are the key when producing the end product that for most according to Stutts (2001), are intangible. The guest cannot buy the product before experiencing it, which means that the guests interaction with the hospitality employee can either make or break an experience. And also unique to this business sector is the fluidity of perceptions between an interaction with an employee, and the actual physical environment. One can influence the other in any given situation.

Competition for the fair share of business in any location is also unique. Unlike other products that can be sold from one day to the next and retain the value, a hotel has a set number of rooms to sell, and if those rooms are not sold, they perish in revenue (Hall, 1990). Competition in a market also brings out mandatory superior service at the hotel level through the employees. The service levels that are demanded from the customer put higher pressures on the industry as a whole to incorporate organizational learning theory into the corporate hospitality organization as well as at the hotel property level. Training



is a large part of the organizational learning that helps the industry keeps up with the ever changing demands from the customers.

### **Organizational Training**

As organizations strive to compete in the global economy, skills and knowledge take on an increasingly larger role (Aguinis & Kraiger, 2009). According to the most recent training industry report by the American Society for Training and Development (ASTD), it is estimated that in 2008 U.S. organizations spent \$135.07 billion (ASTD, 2009) on employee learning and development. Learning is essential to improving the productivity, effectiveness, and innovation of organizations trying to thrive in the global economy (Butuza &Hauer, 2008). The complexity of the dynamic business environment requires employees to have a good grasp of their job duties and the flexibility to adapt to constantly changing business climates (Bell, Kanar & Kozlowski, 2008). Successful business leaders understand that greater knowledge in their human capital is essential to growth. Learning plays a very important role in preparing organizations to be competitive (ASTD, 2009).

Training is one component of organizational learning. Organizational learning is a relatively new concept, dating back just a few decades. Theorists from the disciplines of psychology, sociology, economics, political science and management have contributed to the current philosophy of organizational learning (Argyris, 1990, Easterby – Smith & Lyles, 2003). While theorists have not come to a consensus on a clear definition of organization learning, there are key concepts that span across each of the most popular organizational learning theories. These three concepts are present in organizations that incorporate learning: learning, memory and knowledge (Argyris & Schon, 1978).

Learning level (from individual to team), learning modes (cognitive, cultural and action learning), learning types and phases of collective learning (Argyris & Schon, 1978) are also frequently cited as four dimensions of organizational learning. Finger & Brand (1999) suggest that organizational learning is the “activity and process by which organizations eventually reach the ideal of a learning organization” (p. 136.) Argyris & Schon (1978) suggest that in organizational learning, it is the individuals who learn rather than the organizations. Although there are processes, the actual thinking and remembering is done by individuals. It is up to the individual to apply the knowledge at the individual, team and, corporate level (Prange, 1999).

Organizational learning is clearly rooted in the concept that organizations constantly evolve. They change with the economy, globalization, competition, shifts in demographics (both at the consumer and employee level) and with business trends. Organizations need to incorporate change into their strategy and align goals and tasks with that change in mind. This also is with the idea of the acquisition of knowledge and the need to continue learning and gaining new knowledge and skills; there is a tremendous need for employee training.

There has been some confusion with the definitions of organizational learning and learning organizations in current literature. Understanding what each of the terms means is important when studying an organization. The terms ‘organizational learning’ and ‘learning organizations’ are used interchangeably in much of the business literature (Butuza & Hauer, 2008). The terms actually have distinct meanings. Organizational learning is the ability to gain insight from the organization’s own experimentation and then to look at the success and failures of the experimentation (Brown & Duiguid, 1991).

A learning organization has been described by Butuza &Hauer (2008) as “an organization that supports the process of organizational learning and is transitioning to become a knowledge-based enterprise” (p. 1315).

Senge (1990) helped to popularize the phrase “learning organization.” According to Senge (1990), the learning organization is one where the people within the organization are the key to something bigger than just the sum of the people, which he coined as synergy. This is when a successful organization is able to adapt to constantly changing situations and the people in the organization help with the adaptation. It is learning at each level that will help an organization become successful in terms of outputs and human resources. Senge (1990) says that idea of being adaptive and generative are important in helping an organization create something new. Senge (1990) lists five elements that need to converge for a learning organization to thrive: systems thinking, personal mastery, mental models, building shared vision, and team learning.

Nevis, DiBella & Gould (1997) suggest that to be a learning organization, the organization must be able to grow its knowledge from experiences and re-shape itself in the changing business climate. Employees that work for learning organizations learn more quickly and are able to effectively disseminate their knowledge concerning products, technologies, and business processes (Nevis et. al, 1997, Roberts, 2006).

Training is critical to both learning organizations and organizational learning. Business leaders are looking to improve employee job performance and productivity (Kim & Morris, 2006) in a way that aligns with their strategic goals. The shift from production workers to knowledge workers in the last 40 years has been pronounced.

There also has been an increased recognition of the need to focus on the processes that optimize performance in our global economy (Salas and Cannon-Bowers, 2001).

### **Adult Learners**

In the fast-changing business world, employees are adult learners who seek information. Because of the rate of change in technology, employees expect the content of training to be designed to reach a diverse adult audience. For adults, learning is an “integral part of everyday life at work” (Buch & Bartley, 2002, p. 5). As a result, learning is one factor that determines the effectiveness of an organization’s strategies, goals and profits (Donavant, 2009). Understanding adult learners and the foundation of adult learning theories is essential in designing and delivering training for organizations.

Designing instruction based on solid adult learning theory is essential in the hospitality training industry. Understanding adult learning and “how adults learn best” is critical for good development of new training. Several adult learning theories are available to guide instructional designers; however, there is no one “right” theory (Merriam, 2001).

### **Andragogy**

The term “Andragogik” was coined in 1933 by Alexander Kapp, a German educator (Andragogy, 2010). Dr. Jost Reischmann (2003) suggests that andragogy is a term that labels an academic discipline centered on adults and how they learn. The field of practice is considered “adult education” and the scholarly approach is known as andragogy (Reischmann, 2003).

Knowles, who is considered the father of adult learning, developed principles that help guide educators and ISD’s in adult learning. Knowles introduced the term

“andragogy” that was derived from the andragogical model (Knowles, 1989, Kaufman, 2003). Knowles (1970, 1980) defines andragogy as “the art and science of helping adults learn” (p.43); this is different from pedagogy, which is the science of how children learn. Andragogy acts as guidelines in developing curriculum for adult education and instructional design for training.

There are five basic assumptions in describing how adults learn and these are incorporated into andragogy: adults understand why they need to know something and are able to direct their own learning; adults have experience in life and tap into this resource for future learning; adults have a willingness to learn when it relates to their social roles; adults are problem-based learners and are interested in knowledge to solve those problems; and adults are motivated to learn intrinsically rather than extrinsically (Knowles, 1970, Merriam, 2001, TIPS, 2010).

Several principles of adult learning theory are general concepts for andragogy (Kaufman, 2003, TIPS, 2010) and these are also based on Knowles’ original principles. Examples of these principles include:

- Setting up the learning environment so the learners feel comfortable in their surroundings and are not intimidated,
- Involving learners in the process of the planning and the evaluation of what they learn,
- Understanding past experience is essential when applying to the current situation.
- Finding what learners are interested in what interests them. This can be what has immediate relevance to their personal or professional life

- Realizing learners are part of their own learning (Kaufman, 2003; Olsen, 2007).

According to Knowles (1978) adults need to know why they are learning, and why it is important to learn. A large part of learning for adults is to learn by experience (Knowles, 1980). By being actively involved, the learner will learn more than had he or she simply been observing. Most adults are intrinsic problem-solvers (Knowles, 1980), and in the process of solving these problems they learn. Learning also has to have of some type of value to the learner.

Throughout the last few decades there have been critiques of Knowles' understanding of the term "andragogy." Criticism is varied; Gent (1996) suggests that the concept of andragogy is not general but rather a "specific, prescriptive approach" (p. 116). Another critique is that there has been a negative slant towards pedagogy. According to Merriam and Caffarella (1999), "knowledge developed in pedagogy through 400 years could not be made fruitful for andragogy" (p. 273). Although much has been written about andragogy, most researchers, including Knowles, agree that andragogy is less of a theory and more of a guiding principle (Knowles, 1989).

Adult learning is the practice of the principles and assumptions of andragogy. In training, the foundation for writing Instructional Systems Design (ISD) is used when writing the content for the training that is delivered. The ISD is based on adult learning principles and assumptions. It is important to understand that in ISD, it is critical to base the training design on sound principles and to understand how adults best learn.

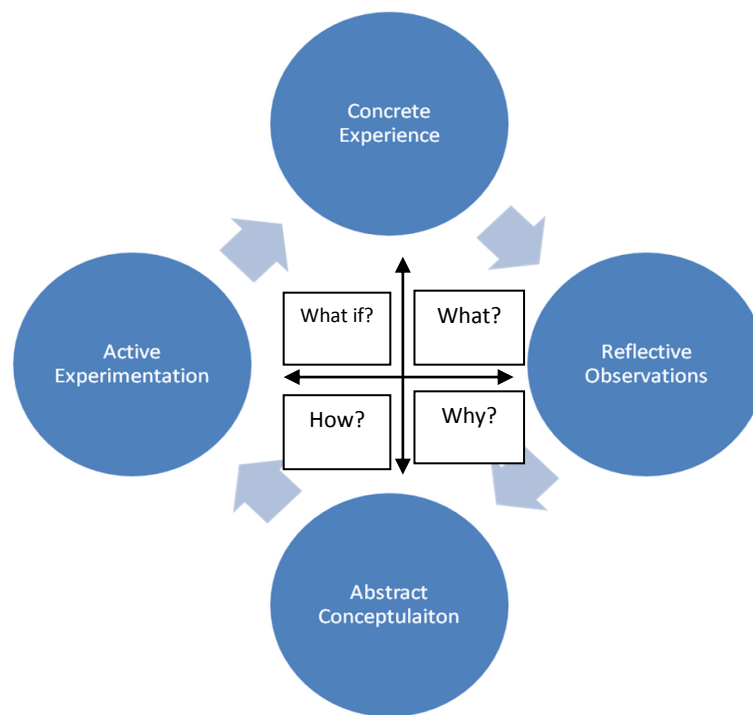
## **Experiential Learning**

Another method of theory used in adult learning is experiential learning. Experiential learning involves making meaning out of an experience (Benander, 2009); that meaning is then applied to the real world in the form of workplace training. For practicum in education or in training this is the theoretical foundation (Benander, 2009)

As an early researcher of adult education, Carl Rogers developed principles based on experiential learning. These (1969) principles include: setting a positive tone for learning; setting the purpose in a way the learner will understand; allowing materials to be available to the learner; balancing and stimulating the emotional and intellectual side of the learner; and sharing ideas with the learners but not dominating the discussion. Along with the principles, one of the key elements Rogers identified is to be open to change (Rogers & Freiberg, 1994).

David Kolb's findings regarding experiential learning, based on the works of John Dewey, Kurt Lewin and Jean Piaget (Kolb 1984), are grounded in the disciplines of psychology, philosophy, and physiology. By comparing the learning modes of Dewey, Lewin, and Piaget, Kolb (1984) identified common themes in the experiential learning process. Kolb believes that each learner is different and that learning itself is a complex process. The theory is based on the premise that learning is not an outcome. When discussing adult learning, it is the "journey" that is important, not just the end result. Kolb (1984) suggests that learning happens best when a process is followed. Learning is more than just memorizing information; it involves the whole self and includes thinking, feeling, and perception (Loo, 2002).

Four basic modes of learning are found in Kolb's model. Learning is conceived as a four-stage cycle (Loo, 2002) and within the cycle there also could be "wheels within wheels" (Kolb, 1984). The four stages start with Concrete Experience (CE), followed by Reflective Observation (RO), Abstract Conceptualization (AC), and, finally, Active Experimentation (AE). The Kolb Learning Cycle also asks "why" "what" "how" and "what if" about the learning.



*Figure 1.* Adapted from Kolb Learning Cycle, Tying it All Together in the CS2 Course, (Howard, Carver, & Lane, 1996).

The model also has two independent dimensions (Loo, 2002) based on perceiving and processing. It is from these two dimensions that Kolb formed four learning modes.



## **Learning Styles**

Liu (2007) suggests that when using learning styles inventories (assessments), educational and training programs can use the information and adapt instructional strategies to design curricula that are compatible with the student's learning styles. Although the origin of learning styles has been traced back further than four decades, most research in the area has occurred in the past thirty years (Cassidy, 2004). While the intensity of the research has increased and decreased over time, during the last decade there has been an upturn in the number of researchers working in this area (Cassidy, 2004).

Other variables, which include motivation, perception of information, and self-efficacy (Costa, 2001) are parts of learning. Most of the literature surrounding learning styles and delivery mode is from the field of education and is situated in educational settings (Berings, Poell & Simmons, 2008). Graf & Kinshuk (2007) suggest that educational researchers and theorists agree that students learn in different ways and that the consideration of learning styles can help the student learn more effectively. Research studies have focused on how effective it is to match learning style with delivery mode of instruction; findings from these studies are now being applied to the classroom (Graf & Kinshuk, 2007).

Learning styles can be understood as how learners describe their attitude and behavior toward a certain way of learning (Honey & Mumford, 1992). There are several models for learning styles as well as several instruments that have been developed to measure those styles. Kolb (1984), Honey and Mumford (1982), Pask (1976), and Felder and Silverman (1988) are all models used currently in education and business in the

United States. Some educational theorists consider learning styles to be an important factor in how learners learn and see them as a vital part of the facilitation process (Graf, Kinshuk & Liu, 2009).

**Kolb learning styles theory.** Kolb (1984) identified a dimensional type of learning style that offers a four-quadrant model based on learner preferences. Kolb categorized the learning style types as accommodators, convergers, divergers, and assimilators (Frontczak, 1990). A teacher may use the Kolb instrument in class to assess learning styles. With that information, the teacher then can design the class to provide material and activities for deeper learning (Graf et al., 2009). In organizations, the same principle applies to training. Learning styles can help instructional designers capture different methods of delivering instruction (Liu, 2007).

**Felder learning styles.** Felder and Solomon (1991) created an index that categorizes learners into dimensions of the learner's preferences. Each dimension for learning styles offers insight into what learners prefer for perceptual mode and information attributes. The ILS is based on the Felder and Silverman (1988) learning style model that offers four different dimensions. This instrument can be considered internally valid and reliable (Felder & Brent, 2005). The ILS is available free on the Internet. According to Felder & Spurlin (2005) the instrument was created to help students in engineering education. Since the instrument has been created, the ILS has been translated into six languages and the web site receives about 100,000 hits every year (Genovese, 2004). One learning style is not preferable and another inferior; it is how people prefer to learn, and each individual has a different style that works best for him or

her (Felder & Brent, 2005). Table 2.1 describes the key learning style models and instruments prevalent in the United States.

<b>Name</b>	<b>General</b>	<b>Key Terms/Descriptors</b>	<b>Design of Model</b>	<b>Reliability /Validity</b>	<b>Andragogy/ Pedagogy</b>	<b>Assessment of Instrument</b>	<b>Date Introduced</b>
Honey and Mumford's Learning Styles Questionnaire (LSQ).	<p>"Flexibly Stable Learning preferences"</p> <p>Not psychometric but is a checklist of how people learn</p>	Activist/Reflector-theorist/pragmatist	Based on Kolb's model, with new terms which are aligned with the stages in the learning cycle	<p>Only some internal reliability has been found, more test/retest needed.</p> <p>Validity is claimed by authors</p>	<p>Helps managers to set up personal plan for learning.</p> <p>Suggestions to help people understand their styles</p>	Is used in Business – needs more testing.	1982
Kolb's learning Style Inventory (LSI)	<p>"Flexibly Stable Learning preferences"</p> <p>Learning styles are not fixed personality traits, but are steady patterns of behavior.</p>	Accommodating, diverging, converging, assimilating	Based on the theory of experiential learning, which incorporates growth and development.	<p>Currently the third version is a bit better, there are debates.</p> <p>Construct validity has been challenged.</p>	The foundation provides the framework for design of all learning experiences.	One of the first models used, and still widely used in education and business. The questions about reliability and validity are still at the forefront.	1976 1985 1999
Myers-Briggs Type Indicator (MBTI)	Learning styles are one component of a stable personality type. A view of the "whole person".	Perceiving/judging, sensing/intuition, thinking/feeling, extroversion/introversion	Based on Jung's theory on four bipolar scales, and possible 16 types.	Reliability of co-efficients are high. The face validity is accepted, but the construct validity is controversial.	Used for career counseling.	There is still discussion on MBTI for being used in education.	1962
Felder /Solomon Index for Learning Styles	"Flexibly Stable Learning preferences"	Active/reflective, sensing/intuitive, visual/verbal, sequential/global	Based on Felder/Silverman model	Claim to have construct and internal validity.	Used both in the business and education setting.	Free, widely used online	1996

## **Learning Style Concerns**

While it is accepted that learning styles can be used as a tool for both educators and businesses, there are a host of issues to consider. Coffield (2004) suggests that learning styles are “not unified, but divided into three linked areas of activity: theoretical, pedagogical and commercial” (p.11). The research on learning styles spans across the disciplines of psychology, sociology, business, and education. Researchers working “in the field of learning styles across or within these disciplines tend to interpret evidence and theories in their own terms” (Coffield, 2004, pg. 11). The cross-disciplinary study of learning styles has led to researchers competing with, rather than collaborating with, one another.

Another concern is the multitude of ways in which ‘learning style’ is defined; this lack of agreement has led some researchers to posit that this is not a “pure theory” (Cassidy, 2004, p. 417). Some researchers believe that there are two ways to view learning styles: as a trait that is stable over time and as a trait that can be changed through learning experiences (Choi, et. al, 2009). The issues with how researcher’s view the definition with learning styles and their interactions with performance in education has been has caused some controversy (Choi, Lee & Kang, 2009). Some research argues that learning styles are related to an instructional preference and may influence learning outcomes. Other researchers such as Loo (2004) argue that learning styles do not affect learning preferences and that “instead of trying to match learning methods to individual learning styles, teachers should encourage students to adapt to different learning methods (p.29).

Another concern regarding learning style theory is the lack of empirical-based literature on the subject. Mayer (2009) believes that there are only “a handful of scientifically rigorous experimental tests” that looks at learning styles and how they are being used in the classroom (pg. 1). Mayer (2009) also suggests that there is not enough evidence in the literature that interactions exist between learning styles and instructional delivery method.

### **Delivery Modes of Instruction**

In recent years, there has been a flurry of activity concerning delivery mode of instruction in formal education settings. Much of the literature comparing online and traditional modes of delivery began with the advent of technology that helped deliver instruction. According to Donavant (2009) there has been “notoriously little research” (p.227) in the area of formal training settings relative to the occupation of the adult learner within an organization. Consequently, most of the existing research has been conducted within the education community; adult education practitioners are “often forced to fill this gap” (p. 228) with studies from academia.

As the concept of distance education has been embraced by the educational community over the last 15 years, there have been many studies conducted that examine online and traditional (or face-to-face) teaching. Although individual studies may have found that online education and traditional instruction varies, as far as transfer of learning, the “majority found no significant difference between the delivery mode” (Donavant, 2009, p. 228), this is better known as the *no significant difference* phenomenon in educational research circles. A great deal of research regarding educational instruction delivery modes, comparing online with traditional instructional

delivery (Liu, 2007) has been conducted. However, there has been very little research performed within the training industry with regards to online learning or traditional instruction preference (Donavant, 2009).

In organizations there are two basic types of training: one-to-one training and group training (Rakicevik, Miladinovski & Strezoska, 2008). For the group training method there are different techniques and delivery modes available. These include classroom lecture, demonstrations, and hands-on experiential learning (Rakicevik, et. al., 2008). Recently, advances in technology have opened the door to online delivery modes for training for group training or for the individual training.

**Traditional instruction delivery mode.** In traditional instructional delivery mode, the definition most commonly accepted is: face-to-face instruction is in a brick and mortar class. In the educational setting, lecturing and instructor led classes is thought of as direct instruction method in which there is time for students and teachers to interact. There can be a variety of instruction methods such as lecture, presentation (media, PowerPoint), discussion and activities (Behnke & Ghisselli, 2004). Traditional instructional delivery can offer more personal involvement, a focus of time on one subject, and synchronous communication. There may be limits to the face-to-face delivery method due to differences in learning styles, unequal skills, and cultural differences between the instructors and the learners (Behnke & Ghisselli, 2004).

**Online instruction delivery mode.** Online learning is gaining in popularity as trainers and educators realize that learning no longer has to take place in the traditional classroom setting (Sitzmann, Kraiger, Stewart, & Wisher, 2006). This type of learning can refer to any instructional approach in which the instructor/trainer and learner are

separated by time, space, or distance (Klein, Noe & Wang, 2006). Online training, or e-learning, is being used in organizations to provide worldwide training, increase learner convenience, and lower expenses by reducing travel costs (Welsh, Wanberg, Brown, & Simmering, 2003).

Online learning has become an important option both in education (Yilmaz & Wang, 2005) and in training organizations (Felix, 2006). With advances in technology, there are many different modes and approaches to employee training (Zenger, Lazzarini & Poppo, 2002). In the State of the Industry 2009 report, ASTD (2009) suggests that, up until the year 2007, e-learning numbers have grown. While those opportunities decreased somewhat in 2008 (ASTD, 2009), online learning in the United States is expected to “rebound by the end of 2009” (ASTD, 2009, p. 5). Technology-based solutions have become popular in the training industry (ASTD, 2009) due to centralization, flexibility, reach, and efficiency.

Online learning can incorporate course management systems that include interactive video, virtual bulletin boards, chat rooms, e-mail, instant messaging, and document sharing systems (Martins & Kellermanns, 2004). Distance learning makes it possible for content to be delivered across the globe and gives learners the opportunity to collaborate and share information with people outside of their “geographic area” (Klien, Noe & Wang, 2006). Online learning opportunities can reach a diverse population of learners, tearing down geographical boundaries that may have existed in the past. In a traditional setting, the cost and effort to physically be in a class may prohibit people from obtaining more education/knowledge.



Online learning can be asynchronous, which means that content can be presented and made available online for a longer period of time. The learner can access the materials when he or she wants to learn. Synchronous online delivery is where the instructor leads the class in real time, with voice, text and sometimes video (Akkoyunlu & Soylu, 2008). Advances in technology have brought many new opportunities to the online learning community. The Internet has allowed learners to take control of their program of study and arrange for it to fit into lifestyle and time constraints. Online learning is not tied to a physical structure and has the advantage of different online venues such as WebCT, elluminate, and Centra. Its popularity has increased, as more people are comfortable using the Internet.

Recently, there has been a realization in the business training industry that in order to remain competitive, ISD needs to have a pedagogical or andragogical approach that incorporates the learner and learning (Aguinis & Kraiger, 2009). It is not the technology of the delivery that imparts learning: it is the design of the delivery of the material.

Organizations can also benefit from online training. An increase in online delivery modes with virtual classroom training and (O'Leonard, 2010) online delivery modes is a way to reach more people for less training dollars. Much of the interest in online delivery instruction modes is in response to the failing economy. The perception is that online training costs less to deliver to the learner and can save the organization money versus training in a face-to-face mode.

## **Summary**

Over the past four decades, there have been many research studies on learning styles and the relationship between learners' preferences and instructional delivery modes. Much of the research has been based in educational settings. Attention has been paid to the study of learning styles and the importance in incorporating the knowledge to the classroom (Liu, 2007), but there has not been substantial research in the corporate sector. In order to achieve higher satisfaction for all learners in various situations, it is worthwhile to examine how learning styles fit into the design of instruction and online courses.

Corporate learning programs have traditionally developed instruction without considering how an employee can best learn and apply the instruction to everyday work. As the shift for training moves away from traditional training programs and toward using technology as part of the delivery options, there is a greater need to understand the adult learner. This literature review suggests that there needs to be more research in the area of learning styles assessments. Additionally, identifying and incorporating what is known about learning styles will help organizations have a better understanding of how their employees learn and how to differentiate instruction for each employee. This study attempts to add to the body of knowledge by closing the gap between educational research on the topic and research from the organizational world.

## **CHAPTER 3: METHODS**

### **Introduction**

This chapter outlines the methods and procedures that were utilized for the research study. The participants, research questions, instruments, and procedures are discussed in detail.

### **Purpose of Study**

The purpose of this study was to determine if an interaction exists between learning styles of employees and their preferred instructional delivery mode in hospitality training. This study is based on a pilot study completed at East Carolina University (ECU) in the Fall of 2009 titled Optimal Learning Methods, the results from the study may be found in Appendix A. The participants in the study were hospitality students taking a class either online or traditional. The ECU research question was “To what extent do learning styles have an impact when it comes to selecting a course either online versus face to face at a university?” and this hypothesis: H1 - There is no significant statistical difference in the learners’ learning style and preference for mode of delivery, either online or face to face. Based on the research findings from ECU, it warranted further investigation. The researcher saw that there was an opportunity to apply the findings from ECU students to real life practice (employee’s) by using a hospitality training organization to further explore the area of research.

It is essential in centralized hospitality training departments to be able to develop effective training if there is an understanding of how to match learning styles to instructional delivery modes. Effective training will increase the learning of materials presented in a workshop and will aid in the decrease of turnover. Hospitality

organizations, trying to stay competitive in the fast-changing global economy, are continually looking for alternative ways to deliver training materials to the current workforce. Knowing how employees learn best could help organizations gain a competitive advantage.

The study focused on real world, corporate hospitality industry employees who were enrolled in training classes offered by “corporate” (franchisor). The data was collected from IHG the “Americas” training sector. As discussed in chapter 2, there is little research in the current literature that addresses learning styles and instructional delivery mode preference and even less when looking specifically at hospitality employees.

The study examined learning styles in both a synchronous online learning environment and a traditional face-to-face instructional setting. The investigation determined if there were differences in learning styles among employees who select a “preferred” type of delivery mode. One of the goals of this study was to help instructional designers develop training materials that address different learning styles. When learning styles are taken into consideration, the hospitality industry will possibly find more success in training and retaining employees.

### **Research Questions**

- 1) Does the employee’s learning style determine his/her preference for training delivery mode?
- 2) Does an employee have better learning results via online or traditional instruction mode?

- 3) Does an employee have better learning results if delivery mode is matched to learning style?

Learning style is the independent variable (continuous) and delivery mode – online or traditional instruction -- is the dependent variable (categorical).

### **Type of Research**

The study was quasi-experimental; the participants were not selected at random, and therefore, the study does not fit the true definition of an experiment. The participants in each of the workshops were given the chance to join the study or to opt out of participating. The participants were not randomly assigned to a delivery mode; corporate employees that participated had the option to select their own workshop, either online or traditional. The goal was to use a minimum of 120 participants for this study (60 participating online and 60 participating via traditional instruction mode).

### **Context and Access**

IHG employs an average of 8,334 people worldwide. More than 330,000 people are employed globally when accounting for all IHG real estate (managed and franchised hotels) (2008 IHG Annual Report and Financial Statement, 2009). IHG currently has a total of 4,186 global hotels – 3,260 of which are considered to be in the Americas (2008 IHG Annual Report and Financial statement, 2009). Over 3,051 franchised hotels and 219 hotels are owned/leased and managed by IHG. For this study, the researcher was interested only in the “Americas” employees working for franchisees or managed hotels by IHG in the United States.

The study was conducted at workshops delivered by IHG during the summer and fall of 2010. There were several workshops offered to IHG employees; for this study, a

purposive sample was the PERFORM Workshop. PERFORM is a workshop that delivers the “how to” of a revenue optimizing program that works with HOLIDEX, the reservation systems used by IHG. The PERFORM workshop is written for mid-level employees with some knowledge of revenue management as well as a basic level of understanding of the HOLIDEX system.

The workshops at IHG are offered to employees throughout the year using both online and traditional instruction methods. For this study, there were several PERFORM workshops conducted during the timeframe specified to gather data. The PERFORM course was selected for use in the study because of its consistently high attendance records, which will help guarantee an appropriate number of participants in the study. According to IHG, PERFORM is a popular course and is well attended in both its online and traditional forms. For this study, the same instructor taught 10 workshops and both delivery modes of the course. There was one additional traditional workshop added, in which a different instructor was used. Both of the instructors who delivered the training were experienced revenue management trainers and both had taught this course both online and in-person for several years.

The content covered in PERFORM was the same in both delivery modes; however, there may have been some difference in the actual delivery materials because of adherence to distance learning pedagogies. The online training was conducted via Centra Live, part of IHG’s learning management system, Saba™. The online training mode was synchronous and instructor-led. The traditional instructional delivery mode was located in the “field” - taking place in a hotel meeting room.

The traditional workshops took place from 9 a.m. to 4 p.m. and were configured for face-to-face instruction by using equipment such as a LCD projector and screen. The set-up for the room is typically of round table “crescent” style that allows for discussion at the table and a clear view of the instructor. The average attendance for each traditional style of workshop in 2009 was 16 participants (IHG, 2010).

The Centra Live online workshops duplicated the content and material covered in the traditional instructional mode. Centra Live also uses special integrated system tools, such as the ability to raise hands virtually and “check” for knowledge. The average attendance for this type of workshop in 2009 was 41 participants (IHG, 2010).

The participants completed a pretest and posttest. The intent of the assessment was to evaluate the difference between online and traditional modes: are the scores different between the modes?

### **Participants in the Study**

The population of this study was the hospitality industry employees. The target population was all of the hospitality industry employees who attend training. The accessible population for this study was participants attending training at IHG, either franchised or owned/managed hotels. The sample population was employees who were enrolled in PERFORM (delivered online or via traditional instruction) offered during May through December 2010 at IHG. All participants were adults employed in positions ranking higher than entry-level.

Each of the participants enrolled in PERFORM training during the time frame of May 2010 through December 2010 were invited to participate in the study. The data collection goal was 60 participants online and 60 participants in the traditional delivery

mode. This data collection happened over several workshops, and the data was then combined and analyzed.

### **Data Collection**

A week before the workshop, participants were asked via email if they would like to participate in the study. An announcement was sent to the participant with a link to the ILS/Demographic survey. Prior to class, students received a link to an online pretest, which was submitted at least one hour prior to the workshop. Upon completion of the workshop, an online posttest link was sent to participants. The revenue ISD team at IHG developed the tests, because the team was familiar with the workshop. This provided IHG with the opportunity to test the knowledge of each participant prior to and upon completion of the workshop. Currently, IHG does not test for knowledge; however, they do survey the workshop participants to discern how the “delivery” of the workshop is perceived.

### **Methods Used to Collect Data**

The ILS was administered by the first day of the workshop. The participants completed the 44-question instrument and demographic information online. Opinio, an online survey software, was used to collect the data.

### **Instruments Used to Collect Data**

**Felder/Solomon ILS.** To measure each individual’s learning style, the ILS assessment was selected. Although there were many different instruments that could be utilized to measure the learning styles of participants, the ILS was chosen for several reasons. First and foremost, in a test-retest reliability measurement, the results reported high correlations (Seery, Gaughran, & Waldmann, 2003). Also, internal consistency



reliability was studied by measuring the homogeneity of items on the ILS. All of the results show an acceptable  $\alpha = 0.5$  or greater. Use of the ILS comes at no cost to the researcher, as long as the instrument is used for educational research purposes.

Developed by Richard Felder and Barbara Solomon at North Carolina State University in 1996, the 44 question ILS was designed to measure learning styles and has since been translated into 6 languages. The ILS can be obtained from Dr. Felder's website, which receives over a million page views each year (Genovese, 2004). Educators and researchers are permitted to use the instrument without seeking further permission from Dr. Felder. The web-based version of the ILS has been taken over 100,000 times a year (Litzinger, Lee, & Wise, 2005) with the results published in a variety of publications.

The learning styles are categorized into four dimensions and are continuous. According to Felder and Spurlin (2005) the instruments measure the following styles that are on a continuum:

Table 3.1 *Index for Learning Styles*

11a (or -)	<b>Index of Learning Styles</b>	11b (or +)
<b>Active</b>	Question #'s -	<b>Reflective</b>
Way of processing information. Active learners enjoy being a part of the “action”, they try things out and apply the learning material.	1,5,9,13,17,21,25,29,33,37,41	Reflective learners like to think things out, reflect on what is being said and then like to work alone.
<b>Sensing</b>	Question #'s –	<b>Intuitive</b>
Sensing learners like to learn the facts and have concrete learning materials and experiences. They like to solve problems and have an attention to details. The sensing learners are also considered more realistic and sensible and tend to be practical.	2,6,10,14,18,22,26,30,34,38,42	Intuitive learners learn better from concepts and theories.
<b>Visual</b>	Question #'s –	<b>Verbal</b>
Visual learners remember from seeing pictures and diagrams, flow charts and tables of data.	3,7,11,15,19,23,27,31,35,39,43	Verbal learners remember by spoken words
<b>Sequential</b>	Question #'s –	<b>Global</b>
Sequential learners like to have information in a linear, step by step process. This is logical and systematic	4,8,12,16,20,24,28,32,36,40,44	Global learners see things in a larger picture, and then focus on the details.

**Demographic survey.** In addition to the ILS instrument, demographic information related to each participant’s age, gender, educational level, years of industry experience, and number of online classes taken was collected. These questions were included in the survey at the end of the ILS instrument.

**Pretest/Posttest.** The pretest and posttest administered in this study were generated by the ISD team at IHG. The ISD team was comprised of the instructor, a program supervisor, and a revenue management specialist. This was not necessary since the total amount of questions being was at 11. The instrument asked revenue management questions that were specific to PERFORM. The same questions were on both the pretest and posttest, with the posttest having one more added to determine the preference of delivery mode from the participants.

Table 3.2 *Research Question and Analysis.*

<b>Research Question</b>	<b>Participants</b>	<b>Instrument</b>	<b>Analysis</b>
Does the employee’s learning style determine his/her preference for training delivery mode?	IHG Online and Traditional	ILS	T-Test
Does an employee have better learning results via online or traditional instruction mode?	IHG Online and Traditional	ILS/Pre and Posttest	2x1 ANOVA
Does an employee have better learning results if delivery mode is matched to learning style?	IHG Online and Traditional	Pre and Posttest	2x1 ANOVA

## **Procedure**

To compare the learning style preference for delivery mode, each participant's learning style was first determined. The ILS/Demographic survey was completed before the workshop. Then, the pre/posttest was analyzed for knowledge, for both the online and traditional instructional mode. Learners within both delivery modes received the same email prior to the workshop that explained the study and provided access to the ILS links and the pretest link. At the conclusion of the workshops, all learners were provided with access to the posttest link.

**Step-by-step procedure.** One week to one minute prior to the workshop, participants read and signed the consent form, agreeing to participate in the study.

- 1) Participants were given a link to the online ILS and demographic survey Opinio. The survey was filled out prior to the start of the workshop.
- 2) Prior to the workshop, participants completed the pretest. This test was comprised of 11 objective-type questions. A link for a pretest was available to collect the data. The pretest questions were designed to determine subject matter knowledge prior to the training.
- 3) After the workshop, participants completed the posttest. The test was comprised of 11 objective-type questions. A link was available for the posttest to collect the data. Opinio was used. The link was sent to the participants via IHG's LMS.
- 4) The researcher used Excel to determine the four dimensions of the learning styles for the individuals. The data was then imported into SPSS.

- 5) The pretest and posttest data was imported into Excel and into a .sav file for SPSS analysis.

## **Data Analysis**

**Organization of the data.** The data was collected in Opinio and imported into an SPSS.sav file. The data imported to the Excel spreadsheet from the ILS survey allowed the researcher to properly code the outcome of each individual's learning style, as well as learning styles by delivery mode group.

The completed pretests and posttests were analyzed to determine the number of questions that were correct; the posttests were compared to the pretests to determine a score. This was completed for the online participants first, and then for the participants who attended the face-to-face training.

**Analysis.** A two-way analysis of variance (ANOVA) was used to test the data for the pre and posttests and to determine how the scores of the online learners differed or related to those of the face-to-face learners T-tests were used to test the differences in learning preference across learning styles.

## **Summary**

The purpose of this study was to determine if an interaction exists between a hospitality employee's learning style and his or her preference for participating in online or traditional instruction modes of training. The study was a result of careful and thoughtful planning and used the correct procedures, instruments and analysis to provide the corporate training industry with useful empirical data on the topic. Felder & Solomon's (1988) ILS was used in this study determined the learning style of each employee and how he or she falls in the Active/Reflective, Sensing/ Intuitive,

Visual/Verbal, and Sequential/Global continuums. Scores on the pretest and the posttest were calculated for each delivery mode. The demographic data collected will be used for future publications by the researcher.

## **Chapter 4: Analysis**

### **Introduction**

The purpose of this study was to investigate learning styles and delivery modes in training at the organizational level--specifically, the corporate hospitality organization. The researcher was interested in determining if any significant correlation exists between the learning styles of the participants and their preference to delivery mode. The results of the study are presented in this chapter and include an analysis of the data and summary of the data analysis results. This chapter will begin by discussing the descriptive analysis, and then each research question with the appropriate analysis.

### **Research Questions**

The following research questions helped guide this study.

1. Does the employee's learning style determine his/her preference for training delivery mode?
2. Does an employee have better learning results via online or traditional instruction mode?
3. Does an employee have better learning results if delivery mode is matched to learning style?

An additional question arose from the analysis of data.

4. Should hospitality-training organizations match instructional systems delivery (ISD) content with learning styles?

### **Demographic Characteristics**

The participants in the study were hotel employees within the Intercontinental Hotels Group franchise system. The PERFORM workshop was selected for the purposes

of this study. During the summer of 2010 there were a total of 6 online and 5 traditional PERFORM workshops offered. A total of 259 participants completed the workshop: 61 traditional attendees and 198 online attendees. Those that *agreed* to participate in this study totaled 79, with 58 from online and 21 from traditional workshops. Table 4.1 describes the workshop data.

Table 4.1 *PERFORM workshops June - November 2010*

Workshops Offered			
	Traditional	6	
	Online	5	
Total Workshop Attendees			
	Traditional	61	
	Online	198	
Participants in Study			Response Rate
	Traditional	21	34%
	Online	58	29%

Fewer employees participated in the traditional workshops. There was a 5% difference in response rate for participation between respondents attending traditional workshops and those attending the online workshops. Although there were a greater number of participants in the online workshops, the response rate was similar to the traditional workshop response rate.



The ILS included 44 questions to satisfy the ILS dimension outcome and an additional 6 questions about the participant’s demographics. Please see Appendix C for the ILS/demographic survey. The frequencies and percentages from the ILS/demographic survey are presented in the following tables. The study had a sample population ( $n=79$ ) in which there were 58 online participants and 21 traditional participants. The descriptives and frequencies in totality are all located in Appendix B.

A total of 21 participants in traditional workshops and 58 in online workshops participated. Table 4.2 gives the number of participants and the delivery mode.

Table 4.2 *Delivery mode of study group*

	<i>n</i>	%
Mode		
Traditional	21	26.6
Online	58	73.4
Total	79	100

There were 51 females that participated and 28 males as seen in table 4.3. Approximately two-thirds of the participants were female and one-third was male. These numbers are in sync with the U.S. hospitality population. As of 2005, U.S. Lodging statistics showed about 68 percent of line level employees were female and 32 percent were male (2005, AH&LEF).

Table 4.3 *Gender*

	<i>n</i>	%
Gender		
Female	51	64.6
Male	28	35.4
Total	79	100.0

The ages of the participants were categorized into generational age spreads: ages 18-32, Gen Y; ages 33-44, Gen X; ages 45-63, Baby Boomers; and 64 and up, Silent Generation. These generations could be examined in future studies to determine if there are any generational correlations. Sixty-six percent of the study's participants fell in the mid-age range of 33 – 54. This data is reflected in Table 4.4.

Table 4.4 *Age of Participants*

	<i>n</i>	%
Age		
18-24	10	12.7
25-32	14	17.7
33-44	29	36.7
45-54	23	29.1
55-63	1	1.3
64-72	2	2.5
Total	79	100.0

Most of the respondents had some type of formal college experience. About one-third of the group had a BA/BS or Masters degree. Table 4.5 shows the education of the participants.

Table 4.5 *Education*

	<i>n</i>	%
Education		
Completed:		
Only High School	8	10.1
1 Year of College	10	12.7
2 Years of College	15	19.0
3 Years of College	6	7.6
4 Years of College (did not complete)	13	16.5
BA/BS Degree	23	29.1
Masters Degree	4	5.1
Total	79	100.0

All of the participants had some sort of online class or workshop experience. Half of the participants had taken between 1 and 3 online classes while the other half had taken more than three. Table 4.6 shows the number and percentage of the online class/workshop experience.

Table 4.6 *Online Class/Workshop Experience*

	<i>n</i>	%
Online Experience		
1 Class	17	21.5
2-3 Classes	19	24.1
More than 3 Classes	43	54.4
Total	79	100.0

Table 4.7 gives a breakdown of years of experience in the hospitality industry. The workshop for this study was selected due to its higher barrier of entry -- participants were required to have some type of industry experience with reservations or yield management. About 50% had more than 11 years of experience, 25% had 6 – 10 years of experience and about 25% had less than 5 years of experience.

Table 4.7 *Years of Experience in Hospitality Industry*

	<i>n</i>	%
Years of Experience		
0-1	3	3.8
2 to 5	17	21.5
6 to 10	20	25.3
11 to 20	29	36.7
21 or More	10	12.7
Total	79	100.0

An overwhelming number of participants classified themselves as a General Manager (43%). Table 4.8 details the distribution of occupation by title.

Table 4.8 *Occupation*

	<i>n</i>	%
Title		
Sales Manager	3	3.8
GM	34	43.0
Front Desk	10	12.7
AGM	8	10.1
Guest Services	11	13.9
Director of Ops	8	10.1
Reservations	3	3.8
Revenue Manager	2	2.5
Total	79	100.0

Prior to running the analyses of the data, a correlation was run to see if there were any relationships of interest. There were several relationships present in the data which can be found in Table 4.9. The relationship between sequential/global and sensing/intuitive learning styles show that there was a strong correlation between the two variables,  $r=.516$ ,  $n=79$ ,  $p<.000$  with high levels of sequential/global and sensing/intuitive. Additionally, it was found that there was a strong correlation between

Table 4.9 Correlations

	Active Reflective	Sensing Intuitive	Visual Verbal	Sequential Global	Age	Education	Online Experience	Years of Experience	Title
Active Reflective	1	-.179	.177	-.188	.092	-.004	.163	.006	-.186
Pearson Correlation			.177	-.188					
Sig. (2-tailed)		.114	.119	.098	.420	.975	.151	.959	.100
N	79	79	79	79	79	79	79	79	79
Sensing Intuitive	-.179	1	-.091	.516**	-.051	.247	.020	.064	-.101
Pearson Correlation			-.091	.516**					
Sig. (2-tailed)	.114		.426	.000	.657	.028	.861	.574	.377
N	79	79	79	79	79	79	79	79	79
Visual Verbal	.177	-.091	1	-.090	.115	-.159	.020	.042	.018
Pearson Correlation			1	-.090					
Sig. (2-tailed)	.119	.426		.431	.311	.162	.859	.714	.872
N	79	79	79	79	79	79	79	79	79
Sequential Global	-.188	.516**	-.090	1	-.108	.228	.161	.000	.099
Pearson Correlation				1					
Sig. (2-tailed)	.098	.000	.431		.343	.043	.156	.997	.385
N	79	79	79	79	79	79	79	79	79
Age	.092	-.051	.115	-.108	1	.071	.224	.500**	-.266
Pearson Correlation					1				
Sig. (2-tailed)	.420	.657	.311	.343		.536	.047	.000	.018
N	79	79	79	79	79	79	79	79	79
Education	-.004	.247	-.159	.228	.071	1	.180	.052	.083
Pearson Correlation						1			
Sig. (2-tailed)	.975	.028	.162	.043	.536		.113	.648	.469
N	79	79	79	79	79	79	79	79	79

Table 4.9 Continued

	Active Reflective	Sensing Intuitive	Visual Verbal	Sequential Global	Age	Education	Online Experience	Years of Experience	Title
Online Experience	.163	.020	.020	.161	.224	.180	1	.375**	-.131
	.151	.861	.859	.156	.047	.113		.001	.249
	79	79	79	79	79	79	79	79	79
Years of Experience	.006	.064	.042	.000	.500**	.052	.375**	1	-.298**
	.959	.574	.714	.997	.000	.648	.001		.008
	79	79	79	79	79	79	79	79	79
Title	-.186	-.101	.018	.099	-.266*	.083	-.131	-.298**	1
	.100	.377	.872	.385	.018	.469	.249	.008	
	79	79	79	79	79	79	79	79	79

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

the two variables education and sensing/intuitive,  $r=.247$ ,  $n=79$ ,  $p<.028$ , as well as the two variables education and sequential/global,  $r=.228$ ,  $n=.043$ ,  $p<.043$ . These results will be further discussed in chapter 5.

### **Analysis of the Data**

Research Question 1 – *Does the employee's learning style determine his/her preference for training delivery mode?*

An independent-samples t-test was conducted to compare delivery mode and learning style dimensions. Table 4.10 offers the means and standard deviations, t-test results for the delivery modes, and t-test results for each of the learning dimensions in the ILS model. Also contained in this table are the results of the t-test for significant differences between the two delivery mode groups. As indicated, there was no significant difference for the dimensions and the delivery mode. It appears that learning styles is not related to the preference for delivery mode for hospitality training. Each of the dimensions, was shown to be close and has a large standard deviation.



Table 4.10 *Means, Standard Deviations, and T-test Results*

Learning Style Dimension	Delivery Mode	<i>n</i>	Mean	Std. Deviation	t-value	Df	Sig. (2-tailed)
Act/Ref	Traditional	21	-1.62	4.522	0.6	31.474	0.58
	Online	58	-2.24	3.908			
Sen/Int	Traditional	21	-2	6.527	0.64	77	0.522
	Online	58	-2.97	5.647			
Vis/Ver	Traditional	21	-5.57	4.567	-1.6	77	0.114
	Online	58	-3.38	5.638			
Seq/Glo	Traditional	21	-0.62	4.455	1.04	77	0.301
	Online	58	-1.66	3.697			

Research Question 2: *Does an employee have better learning results via online or traditional instruction mode?*

There was no significance found for the question of learning results, as determined by the pretest and posttest scores. Table 4.11 offers the mean scores and standard deviations for both delivery modes. The online mode (M=8.27, SD1.81) did slightly better on the posttest than the traditional mode (M=7.57, SD=1.60). The difference in the posttest score is 1.56 in that the online participants scored higher than did the face to face participant.

Table 4.11 *Pre and Post Test Scores*

Pre and Post Tests/Mode					
Delivery Mode		Tests	Mean	Std. Deviation	<i>n</i>
Traditional	0	Pre	6.64	1.50	22
		Post	7.57	1.60	14
		<b>Total</b>	7.00	1.59	36
Online	1	Pre	6.71	1.78	56
		Post	8.27	1.39	15
		<b>Total</b>	7.04	1.81	71
		<b>Overall</b>			
		Pre Test	6.69	1.69	78
		Post Test	7.93	1.51	29
		<b>Total</b>	7.03	1.73	107

A two-way between-groups analysis of variance (ANOVA) was conducted to explore the impact of the pretest and posttest on delivery mode. The subjects were in two groups, traditional and online. Each participant completed a pretest before the workshop and a posttest after the workshop. The interaction effect between delivery mode and pretest and posttest were not statistically significant,  $F(1,281)=.69$ ,  $p=.41$ . There was a statistically significant main effect for the pre and posttest scores  $F(1,281)=11.27$   $p=.001$ . The ANOVA summary for scores and delivery mode are presented in Table 4.12.

Table 4.12 ANOVA results

Tests of Between-Subjects Effects						
Dependent Variable:score						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	
Corrected Model	36.035a	3	12.012	4.405	0.006	
Intercept	4230.16	1	4230.156	1551.21	0	
Mode	2.97	1	2.968	1.088	0.299	
pre_post mode *	30.72	1	30.721	11.265	0.001	
pre_post	1.89	1	1.892	0.694	0.407	
Error	280.88	103	2.727			
Total	5602.00	107				
Corrected Total	316.92	106				

a. R Squared = .114 (Adjusted R Squared = .088)

Question 3: *Does an employee have better learning results if delivery mode is matched to learning style?*

This question could not be answered with the current data set. As a hospitality training organization, it is part of the corporate culture to not test employee understanding before or after training sessions. All of the participants in this study were voluntary and did not have the incentive or motivation to complete the posttest (as evidenced by the lack of test results turned in after the workshop). The success of the training is currently not measured in the form of comparing the pretest and the posttest; however, the scores can be seen as an aggregate of the sample. In the design of the study, the researcher looked for group interaction; due to the lack of number of responses on the posttest, they were not matched with the pretest. Table 4.13 shows the test results for the pretest and posttest.

Table 4.13 *Pretest and Posttest scores.*

	<b>Mode</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
PreTest	Traditional	22	6.64	1.497
	Online	56	6.71	1.776
PostTest	Traditional	14	7.57	1.604
	Online	15	8.27	1.387

Question 4: *Should hospitality-training organizations match instructional systems delivery (ISD) content with learning styles?*

Table 4.10 shows that there is no significance in traditional (M=-5.57, SD=4.57) and online delivery modes (M=-3.38, SD 5.64) and learning style dimensions  $t(77) = -1.60$ ,  $p = .11$ . However, it does suggest that out of the four dimensions, the visual/verbal styles need to be examined more closely.

### **Summary**

Chapter four of this dissertation presented the results of the research study. Descriptive statistics of the study were outlined for a better understanding of the participant pool. The research questions were answered by the correct test being applied to help find significance. A t-test was used to investigate learning styles and the delivery modes of the participants. Next, an analysis of variance was used to determine if the pre and posttest had significance with the delivery mode. Finally, it was found that the third research question could not be answered by applying a statistical test to the experimental design. While looking at the data as a whole, a fourth question arose *Should hospitality-*

*training organizations match instructional systems delivery (ISD) content with learning styles?* and was able to be investigated with a t-test. Although there was no significance found in any of the testing, there are definite implications that arise from the study. Those implications, as well as a discussion and suggestions for future research, will be examined in chapter 5.

## **Chapter 5: Discussion**

### **Introduction**

Over the course of the last decade, experts in the training industry have struggled with how to find the best delivery platform for training session attendees. In the hospitality industry, where turnover rates are high and change happens quickly, this struggle is no different - hospitality organizations trying to stay afloat in today's economy need to effectively yet efficiently train employees. In this research study, the learning styles of hospitality industry employees were explored in relation to the delivery modes of training offered to them. Understanding how to match training and delivery modes could produce positive outcomes for both the employee and the hotel. This final chapter focuses on the findings of the study and how they can be applied to the hospitality industry as a whole. In addition, this chapter includes a summary of the study, discussion of the results, implications, and recommendations for future research.

### **Summary of Current Study**

According to the World Tourism Organization (2011), the hospitality and tourism industry employs more than 10% of the global workforce, will support the creation of 5.5 million jobs over the next decade and is 11.7% of the world's gross domestic product. With such staggering statistics, there are also numerous issues in the workforce. With the large number of employees in this sector, there are also large turnover numbers that are unique to the industry as discussed in chapter 1. Training employees is essential in *any* industry, yet according to Smith and Kemmis (2010) training in the service sector is inferior to other industries due to costs, turnover and employee longevity.

In tandem with the lack of quality of training, little attention has been placed on how employees prefer to learn (learning styles) and how they prefer to be trained (delivery mode). There is a need to understand how employees of this industry learn and how that learning is applied on the job; doing so may lead to lowering industry turnover rates.

The purpose of this study was to explore the learning styles and the preference for delivery modes in hospitality training. Three research questions guided this study and then a fourth question was added as the data was being analyzed.

The three questions:

- 1) Does the employee's learning style determine his/her preference for training delivery mode?
- 2) Does an employee have better learning results via online or traditional instruction mode?
- 3) Does an employee have better learning results if delivery mode is matched to learning style?

An additional question was added:

- 4) Should hospitality-training organizations match instructional systems delivery (ISD) content with learning styles?

### **Methods, Participants and Instruments**

This quantitative study used several tests to determine the significance of the research questions. The study was conducted in a hospitality training setting and a quasi-experimental design was used. The real-life, real-time nature of the training classes used in this study did not allow for random assignment. The quantitative data was collected by

Opinio, an online survey software. The data was then imported into PASW/SPSS version 18 statistical software for analysis.

### **Training Workshop and Participants**

A total of 11 workshops, 6 traditional (face-to-face) and 5 online, offered by Intercontinental Hotels Group (IHG) were included in the study. The title of the workshop was “PERFORM” and the content was centered on the topic of revenue management. The PERFORM workshop was selected because of the following features: (a) the ISD was the same in both delivery modes; (b) this was not for entry-level employees; (c) the workshop was taught by experienced trainers in both the online and traditional formats. The data was collected over a six-month period of time.

Seventy-nine employees participated in the study. There was a total accessible population of 259; 61 from the 6 traditional workshops and 198 from the 5 online workshops. The convenience sample included 21 employees from the traditional workshops and 58 employees from online workshops.

### **Data Collection**

One week prior to the workshop start date, an email outlining the research project, institutional review board (IRB) consent forms and a link to the online survey were sent to the entire accessible population of the PERFORM workshops. If an employee agreed to be a participant, a link to a pretest would then be sent. After the workshop, the employee would receive an email with a link to the posttest. This was consistent for both the online and traditional participants and each delivery mode filled out the surveys online.



## **Instrument/Measurement**

For this study the Felder-Solomon Index of Learning Styles (ILS) was chosen as the instrument to measure learning styles. The ILS is based on the Felder-Silverman Learning Style Model and has a total of 44 questions to determine four dimensions: Active/Reflective, Sensing/Intuitive, Visual/Verbal, and Sequential/Global. The dimensions are detailed below. Each dimension has 11 questions and the preferences are then expressed in values of 11a to 11b or a scale of -11 to +11. See Table 5.1 for an example of the scale used to plot the results.

The four dimensions in the model are as follows:

**Active/Reflective.** Active learners understand by doing. They tend to enjoy trying things out. Reflective learners would rather think things through first and take time to think about the concept or theory being presented.

**Sensing/Intuitive.** Sensing learners like to “learn facts” first and typically solve problems by proven methods. They tend to memorize facts. Intuitive learners enjoy learning from the possibilities of a concept. Intuitive learners don’t care for memorization and routine types of learning and would rather be innovative.

**Visual/Verbal.** Visual learners remember what they learn by seeing. Pictures, diagrams, and demonstrations are helpful to visual learners. Verbal learners like to hear how things relate to the topic and get more out of written and spoken explanations.

**Sequential/Global.** Sequential learners prefer to learn in a linear fashion, step by step. Global learners would rather see the whole picture and begin learning at any point, not just at the beginning.

Table 5.1 *ILS Score Sheet*

-11	0	+11
Strong Preference	Well Balanced	Strong Preference
<b>Active</b>		<b>Reflective</b>
<b>Sensing</b>		<b>Intuitive</b>
<b>Visual</b>		<b>Verbal</b>
<b>Sequential</b>		<b>Global</b>

(Felder & Soloman, 2005).

There were six demographic questions added to the 44 question ILS that asked the participant’s gender, age, education, online course experience, years of hospitality experience and job title. See Appendix C for the ILS and demographic survey.

The pretest and posttest instrument was an 11-item test developed by the revenue management team at IHG; please see the tests in Appendix C. The instrument included multiple choice and true or false questions. The posttest had one additional question which was: if you had your choice, without regarding time, space or money, would you rather take this workshop: a) online, at your own pace, b) face to face in a traditional workshop setting, c) online with a “live” facilitator.

The demographic data was analyzed using descriptive statistics. T-tests were used to analyze learning styles as well as the pre and posttest scores. A two-way analysis of variance (ANOVA) was conducted to analyze the delivery mode and learning outcomes.

## Summary of Results

There were several relationships present in the data. The first was a relationship between two learning styles. The relationship between sequential/global and sensing/intuitive show that there was a strong correlation between the two variables,  $r=.516$ ,  $n=79$ ,  $p<.000$  with high levels of the learning style sequential/global and sensing intuitive. In addition, two of the learning styles showed a relationship with education. As the education level increased, so did the positive relationship with sensing/intuitive,  $r=.247$ ,  $n=79$ ,  $p<.028$  and sequential/global  $r=.228$ ,  $n=.043$ ,  $p<.043$ . The entire table of correlations can be found in Appendix D. This can be applied to the corporate training design by allowing the ISD team to incorporate more of the sensing/intuitive and the sequential/global dimension into the training that is geared for higher educated employees. Such as leadership workshops or director level workshops. Since there is a strong relationship with the higher the education, the above dimensions are stronger.

The scoring of the ILS revealed that the workshop participants fell into “balanced” areas, which is between 1 and 3 (-1 to -3) on the scale. In further exploration of the delivery modes and the ILS dimensions, the traditional workshop Visual/Verbal ( $M=-5.57$ ,  $SD=4.6$ ) dimension was much stronger than the online Visual/Verbal ( $M=-3.38$ ,  $SD=5.6$ ) dimension. The traditional workshop attendees preferred that the content and presentation be more visual. Online participants indicated that the learning style was less visual, more verbal when presented online.

A two-way between-groups ANOVA was conducted to explore the impact of delivery mode and test results. Participants were divided into the delivery modes, traditional or face-to-face. The interaction  $F(1,281) = .69$ ,  $p = .41$  and there was a

statistically significant main effect for the pre and posttest scores  $F(1,281) = 11.27$ ,  $p = .001$ . This suggests that the delivery mode did not affect the scores of the tests. When looking at the scores on the tests, however, there was a positive impact on the posttest score after the intervention. Additionally, online attendees received higher scores on the posttest than the traditional participant workshop participants. This is important for the corporate hospitality training due to the idea that the culture has not allowed for testing. It is shown that testing at some level, either on a workshop by workshop basis, or random testing would allow for over-all evaluation of the training program. With the evaluation, the training ISD can be updated from the results of the testing by incorporating the results from the pretest and posttest.

## **Discussion**

The demographic profile of the participants is as follows and can be found in Appendix B. Study participants were 65% female and 35% male. The majority of the participants were between the ages of 33 – 54, with 37% between 33-44 and 29% ages 45-54. Most of the participants had some college education and 29% had a BA/BS degree. The online experience was strong, over 54% of the participants had taken more than three online classes. The overall hospitality experience varied; 22% had 1-5 years, 25% had 6-10 and 37% had 11-20 years of experience. Experience was defined as industry wide, and not property specific. Forty-three percent of the participants had a title of general manager. Overall, the participants were employees with experience in the industry, formal education, and online class experience.

There were several correlations that showed a positive relationship in the data. When looking at learning styles and education, it showed that the more the education

level rose, so did the positive strength of the relationship for sensing/intuitive and sequential/global. What this may indicate is that as a person grows in educational experiences, which are both formal and informal, then the stronger the shift would be to the right side of the number line in the ILS. Thus, the higher the education, the more intuitive the participant would be and they would think more globally than sequential.

A two-way ANOVA indicated that there was no interaction effect between the pre and posttest with regard to the delivery mode. There was no observed interaction effect between test scores and time and the delivery mode. The interaction between scores and delivery mode is not statistically significant and suggests that in either of the delivery modes (traditional or online) there would not be different scores.

The two-way ANOVA did show that there was a difference between the testing scores in the online and traditional workshops. Although slight, a significance stating that the online workshop participants improved more than the traditional workshop participants after the training occurred.

To explore the differences further, several t-tests were used to compare learning mode preference with each style. What was seen in the analysis was that there was no significance in the learning style dimensions and the delivery mode. However, it was found on the histogram, Figure 2, that the visual/verbal dimension was the closest to being modal. Visual was the strongest for the traditional workshop and verbal the strongest for the online workshop.

This is important for both trainers delivering the content of the training and the ISD department. By incorporating more visuals into the traditional workshop, such as pictures, videos, and charts, it would help those attending the training that has a

preference for the visual dimension. This is true for those writing the content, to think about strategically placing visual material throughout the training workshop. For those that are online, the data shows that the preference is not as visual as traditional, and closer to a balanced verbal dimension. For these online workshops, the verbal tone and cues are essential while online since for these workshops, there is no face to face interaction, only a live voice. The voice is heard while there are live screen shots of the revenue management system or a PowerPoint. Overall, this dimension, the visual/verbal, stands out among the others due to the application it has to the stages of ISD and the delivery of the content.

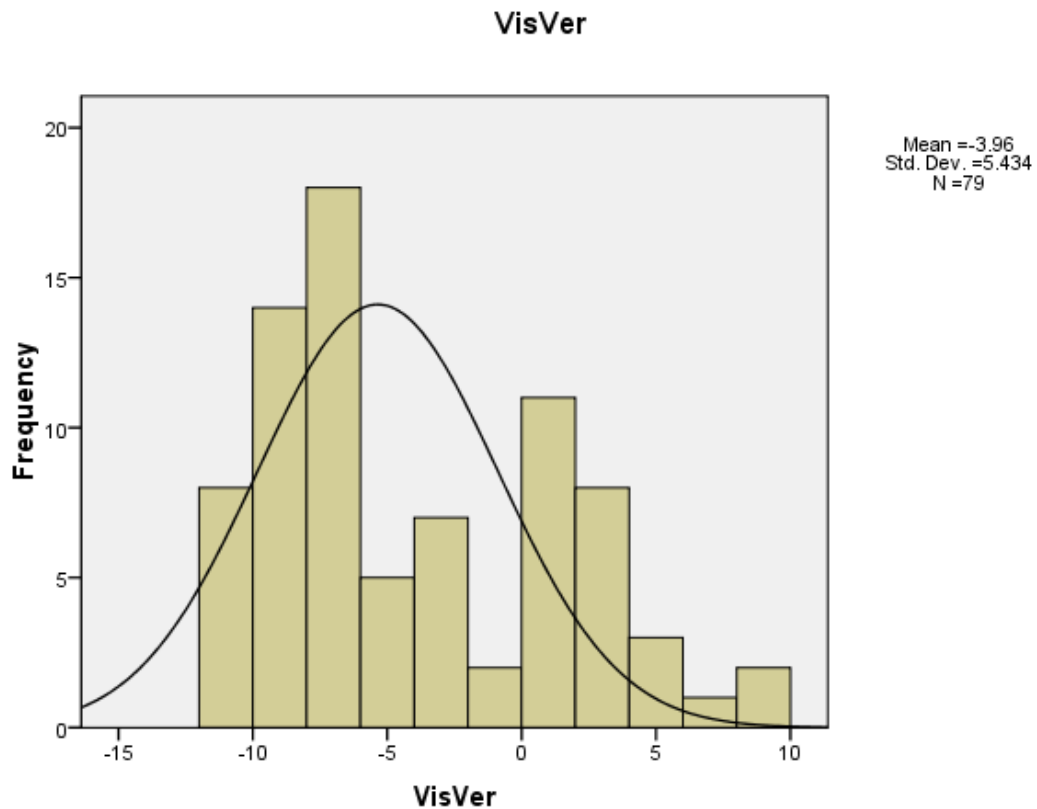


Figure 2. Visual/ Verbal Dimension from ILS.

There was not a significant preference in the other three dimensions for traditional or online users. The findings suggest that once the overall preference of delivery mode was taken out, the learning style dimensions were close to being the same (with the exception of the visual/verbal dimension).

### **Implications**

The purpose of this study was to investigate if there was a relationship between learning styles and preference for delivery mode in a corporate hospitality setting. Based on the results, there was no significant difference for the participants with regards to delivery mode and the learning styles. However, even with the results as such, the study has implications to the training industry as a whole and, more specifically, to the hospitality industry.

There have been several studies focusing on matching learning styles and delivery modes. Most of these studies have been located at a university setting with students. Although the studies are of interest and add to the larger body of literature, it is essential to take the step from university to practice. This study contributes to the sparse pool of learning style research aimed at helping the training industry understand employee learning styles and how those styles are important to the delivery modes of instruction offered.

Most corporate hospitality organizations have a formal learning team that focuses on the development of training materials and the delivery of the content to franchisees. The main goal of this learning team is to deliver the end product, without looking at how people learn. Hospitality corporations need to take into account that there are different type of learners and that materials should be developed to address different learning

styles. It would also seem that the cookie cutter approach is the not the best approach to training individuals across the four learning style dimensions.

From this study, it was found that out of the four dimensions in the ILS, the visual/verbal should be noted as important to hospitality training. The data revealed that online learners' preference was verbal and the traditional learners' preference was visual. Although this finding does not indicate to write ISD content in one way or another, it does say that ISD needs to incorporate more visual aids for the traditional learner and more verbal aids for the online learner.

The implication that may be greatest felt are those at the hotel level where turnover is the highest. Turnover at the hotel level can be due to reasons which may include low wages, hours expected to work, and customer service expectations. At the root of these issues is the actual training of employees and the matching of the delivery mode to learning styles. If the employee can be matched to his or her learning style and receive the material in a way in which he or she prefers, then the employee may retain more information and be more likely to stay in a position.

This research also has wider implications for the training departments across industry sectors. There has been a shift to online training over the last few years due to the perception that online training will "save" money. Although it could be the case for some of the participants, it cannot be assumed that the corporate learner wants to receive online training. At first glance, it may look like the savings are real in terms of training-related travel and expenses; if a person attends training and does not grasp the competencies set forth, however, it could ultimately result in turnover, which may be a greater expense.



If corporate learners do not embrace the fully online delivery mode, there may be need to focus on helping them embrace the mode. Having “mini” workshops online or providing a blended delivery approach may ease the employee into distance learning. Allowing for different online training modes, such as using asynchronous delivery, may help strengthen technical skills.

The final implication is that there should be some type of testing at corporate hospitality training, to measure the outcome of the workshop and the transfer of skills to the workplace. It is widely known that the culture in hospitality training is not to test. The participants that attend training get a certificate of completion for attending the training, rather than checking for the transfer of knowledge in skills. Many organizations evaluate the training by only looking at who delivers of the content (the trainer), or the value of the training to the participant. Such evaluations in the industry are known as smile sheets.

What is suggested is that hospitality organizations test for knowledge after the workshop. For workshops that teach technical skills, such as reservations systems, property management systems, and revenue management systems, this could be a good way to follow up training. The testing can be done a few weeks after the workshop is completed and can be accomplished by an online software survey. Allowing the employee to use the skills taught in a workshop and then testing for knowledge would help evaluate the final goal of the training, which is the transfer of knowledge/skills into the workplace.

From this study there are many different ways to incorporate the findings. Hospitality organizations that write training content as a “one size fits all” can use

learning styles as a guideline to augment content and reach the different types of learners. The training industry as a whole can benefit from these findings in the hospitality industry.

### **Limitations**

There were some limitations to this study. The first was the low number of participants in the traditional workshop. This may have been due to time constraints, internal hotel issues or simply budget restraints. Therefore, only 21 traditional workshop participants agreed to join the study. This was compared to 59 online participants.

There were also challenges in design of the study. The return of the posttests was less than expected and were not matched to the pretest or the ILS. The reason for this is simply the culture of hospitality training organizations. Most of the hospitality industry does not currently test after the workshop. For this study, there was no incentive for the participants to take a posttest, thus, the number of participants that returned a posttest suffered. The results had to be generalized to the sample, instead of the individual.

Another limitation of the study was that only one corporate hospitality company was used. IHG might not be representative of all hotels in the United States. This is due to company culture, as well as the leadership at the corporate level and at the hotel level with regards to learning within the organization.

The final limitation was using just one type of workshop, PERFORM. It would be advisable to get more participants by setting up the study using several different hospitality content workshops held in different locations across the country. This study was carefully designed to limit the participants to one type of workshop in order to strengthen the reliability of the instrument that was used in the pilot test.

Although there were some limitations in this study, this is the first known study in hospitality practice that explored learning styles and workshop delivery mode. The findings will serve as a base for future research and will promote understanding of how learning styles are applied in hospitality learning organizations and contribute to the greater good of the training industry.

### **Future Research**

This study provided additional information to the current literature in learning styles and workshop delivery modes; there is additional opportunity to replicate the study and expand the reach to a larger sample. Future researchers are encouraged to use the ILS instrument and the foundations of this study to investigate across different hospitality corporate platforms. This includes smaller corporate hospitality companies as well as hospitality management companies.

It is also advisable for future research to match the learning styles to the pre and posttest outcomes. This can be done during the initial steps designing the research study. For smaller organizations, it would be interesting to include all employees in the organization and then be able to write ISD for the learning styles found in the organization.

If this study is replicated in the future, it would be interesting to look the demographics of the brands that attend training. For this study, most of the brands attending the training were Holiday Inn Express and Holiday Inn brands. However, to look at the correlations between brand, title, age, and years of experience would be interesting.

Future researchers are also encouraged to investigate if there is a link between instructional delivery modes and learning transfer. Taking this study one step further, researchers could follow the participants after the study to determine actual use of the knowledge and if one workshop group applied the skills learned in the workshop more than the other group. Future studies could also investigate whether there are any differences in learning styles, retention of materials presented and (a) age (b) gender, and/or (c) current position/title.

### **Final Thoughts**

This research study was designed to help open the doors of large hospitality organizations to see what their current practices are and how to improve the learning organization. With that in mind, continuing to research how employees learn best in a corporate setting is critical to ensuring industry success.

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## **Appendices**

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## Appendix A

### Eastern Carolina University Fall 2009 Study Results

The data were analyzed with a multivariate analysis of variance (MANOVA). The dependent variables were the learning styles and the independent variable was the delivery mode of instruction. Bartlett's test of sphericity (25.20,  $df=9$ ,  $p>.001$ ) indicated that a MANOVA was appropriate. The results of the MANOVA are presented.

Dependent Variables	Online Delivery Mode		Face to Face Delivery Mode	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Active/Reflective	-1.5	3.66	-3.51	3.95
Sensing/ Intuitive	-4.25	4.89	-3.57	4.91
Visual/Verbal	-3.00	4.90	-3.97	3.12
Sequential/Global	-2.77	2.82	-3.5	3.66

Table 1

The hypothesis was to see if students, when self selecting online or face to face classes, had certain learning styles. The hypothesis posited that there is no significance in the learning styles between online section and the face to face section of a hospitality class. Table 1 shows the means and standard deviations for the dependent variables by delivery mode. The multivariate main effect for delivery mode was not significant, Wilk's lambda = .941,  $F(4, 38) = .592$ ,  $p>.001$ . All of the univariate effects were not significant: active reflective,  $F(1,41) = 1.73$ ,  $p > .001$ ,  $\eta^2 = .041$ , sensing and intuitive  $F(1,41) = .124$ ,  $p > .001$ ,  $\eta^2 = .003$ , visual verbal  $F(1,41) = .505$ ,  $p > .001$ ,  $\eta^2 = .012$ , sequential global  $F(1,41) = .389$ ,  $p > .001$ ,  $\eta^2 = .009$ .

**Statistics**

	ActRef	SenInt	VisVer	SeqGlo	Gender	Age	Educ
Valid	43	43	43	43	43	43	43
Missing	0	0	0	0	0	0	0
Std. Deviation	3.937	5.458	3.909	3.754	.412	391	1.031

**Statistics**

	OnlineCl	Status	Ethic	StateBorn	Major	Work
Valid	43	43	43	43	43	43
Missing	0	0	0	0	0	0
Std. Deviation	.861	.338	.588	2.985	.152	.499

**Statistics**

	Hrswrked	Mode
Valid	43	43
Missing	0	0
Std. Deviation	.667	.394

**Gender**

	Frequency	Percent	Valid Percent	Cumulative Percent
Female	34	79.1	79.1	79.1
Male	9	20.9	20.9	100.0
Total	43	100.0	100.0	

**Age**

	Frequency	Percent	Valid Percent	Cumulative Percent
18-24	39	90.7	90.7	90.7
25-32	3	7.0	7.0	97.7
33-44	1	2.3	2.3	100.0
Total	43	100.0	100.0	

**Educ**

	Frequency	Percent	Valid Percent	Cumulative Percent
High School	3	7.0	7.0	7.0
2 Years of College	12	27.9	27.9	34.9
3 Years of College	19	44.2	44.2	79.1
4 Years of College	9	20.9	20.9	100.0
Total	43	100.0	100.0	

**OnlineCl**

	Frequency	Percent	Valid Percent	Cumulative Percent
1	21	48.8	48.8	48.8
2-3	10	23.3	23.3	72.1
More than 3	12	27.9	27.9	100.0
Total	43	100.0	100.0	

**Status**

	Frequency	Percent	Valid Percent	Cumulative Percent
Single	41	95.3	95.3	95.3
Married	1	2.3	2.3	97.7
Divorced	1	2.3	2.3	100.0
Total	43	100.0	100.0	

**Ethnic**

	Frequency	Percent	Valid Percent	Cumulative Percent
White	38	88.4	88.4	88.4
African American	3	7.0	7.0	95.3
Asian Pacific Islander	1	2.3	2.3	97.7
Hispanic	1	2.3	2.3	100.0
Total	43	100.0	100.0	

**StateBorn**

	Frequency	Percent	Valid Percent	Cumulative Percent
ALABAMA	2	4.7	4.7	4.7
CALIFORNIA	2	4.7	4.7	9.3
FLORIDA	1	2.3	2.3	11.6
GEORGIA	1	2.3	2.3	14.0
ILLINOIS	1	2.3	2.3	16.3
MARYLAND	3	7.0	7.0	23.3
MINNESOTA	1	2.3	2.3	25.6
NEW JERSEY	3	7.0	7.0	32.6
NEW YORK	3	7.0	7.0	39.5
NORTH CAROLINA	22	51.2	51.2	90.7
TEXAS	1	2.3	2.3	93.0
VIRGINIA	3	7.0	7.0	100.0
Total	43	100.0	100.0	

**Major**

	Frequency	Percent	Valid Percent	Cumulative Percent
Hospitality	42	97.7	97.7	97.7
English	1	2.3	2.3	100.0
Total	43	100.0	100.0	

**Work**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	25	58.1	58.1	58.1
No	18	41.9	41.9	100.0
Total	43	100.0	100.0	

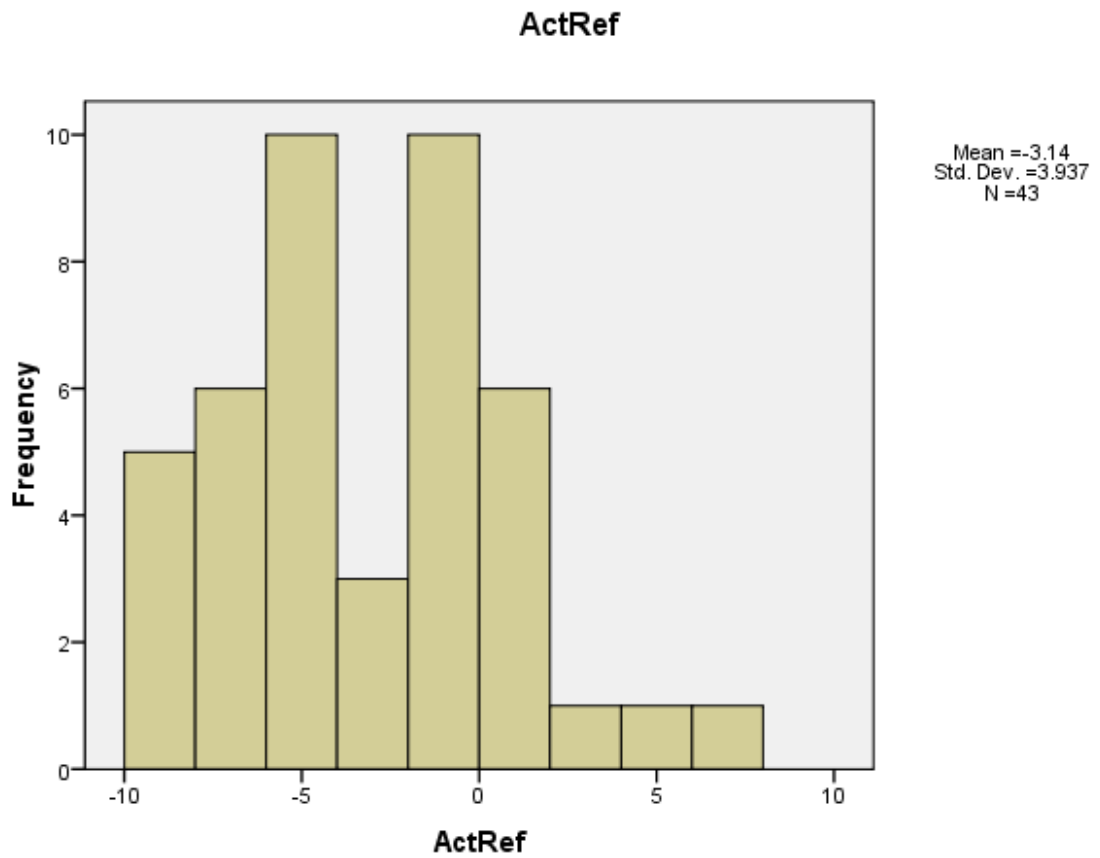
**Hrswrked**

	Frequency	Percent	Valid Percent	Cumulative Percent
Full Time	24	55.8	55.8	55.8
Part Time	15	4.9	34.9	90.7
Seasonal	4	9.3	9.3	100.0
Total	43	100.0	100.0	

### Mode

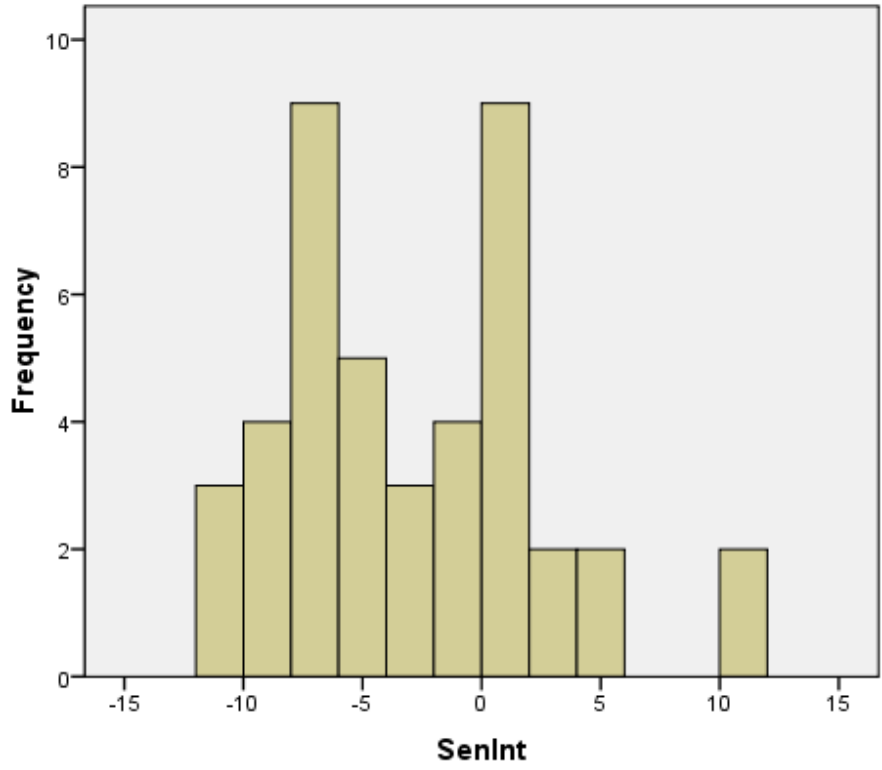
	Frequency	Percent	Valid Percent	Cumulative Percent
Online	35	81.4	81.4	81.4
Traditional	8	18.6	18.6	100.0
Total	43	100.0	100.0	

### Histogram



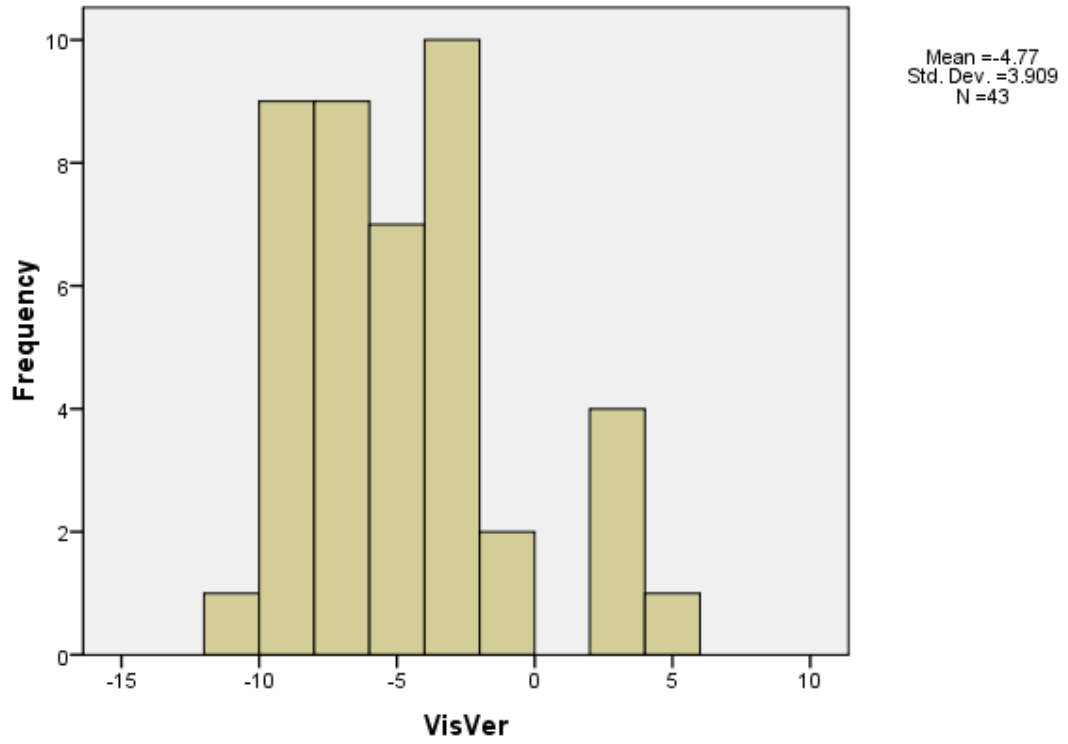


SenInt

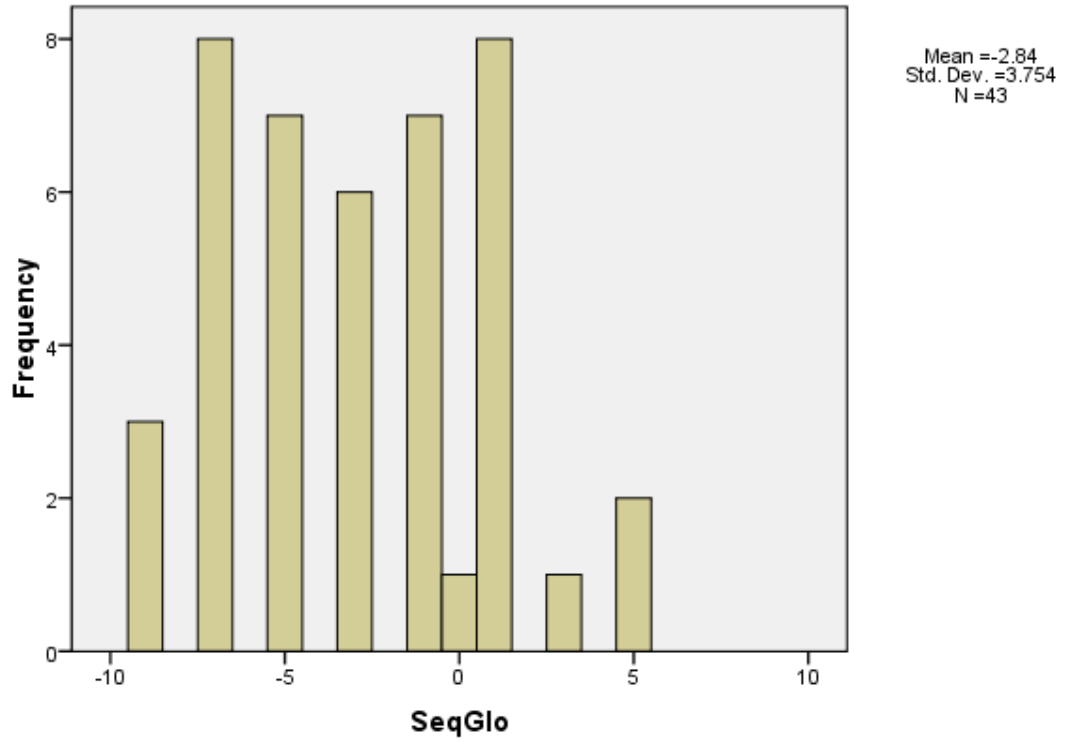


Mean = -2.86  
Std. Dev. = 5.458  
N = 43

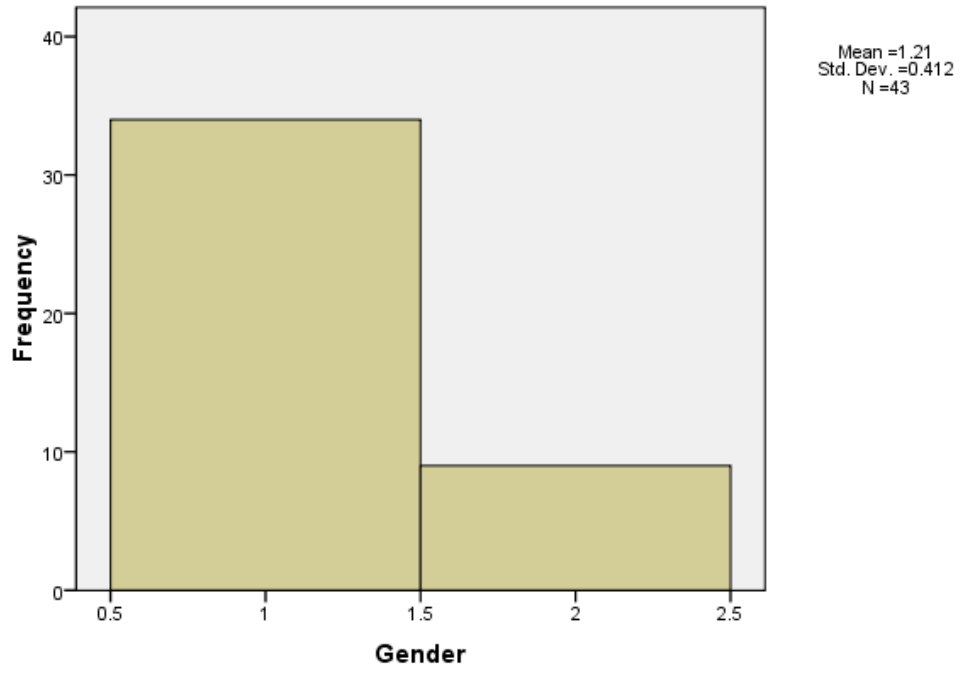
### VisVer



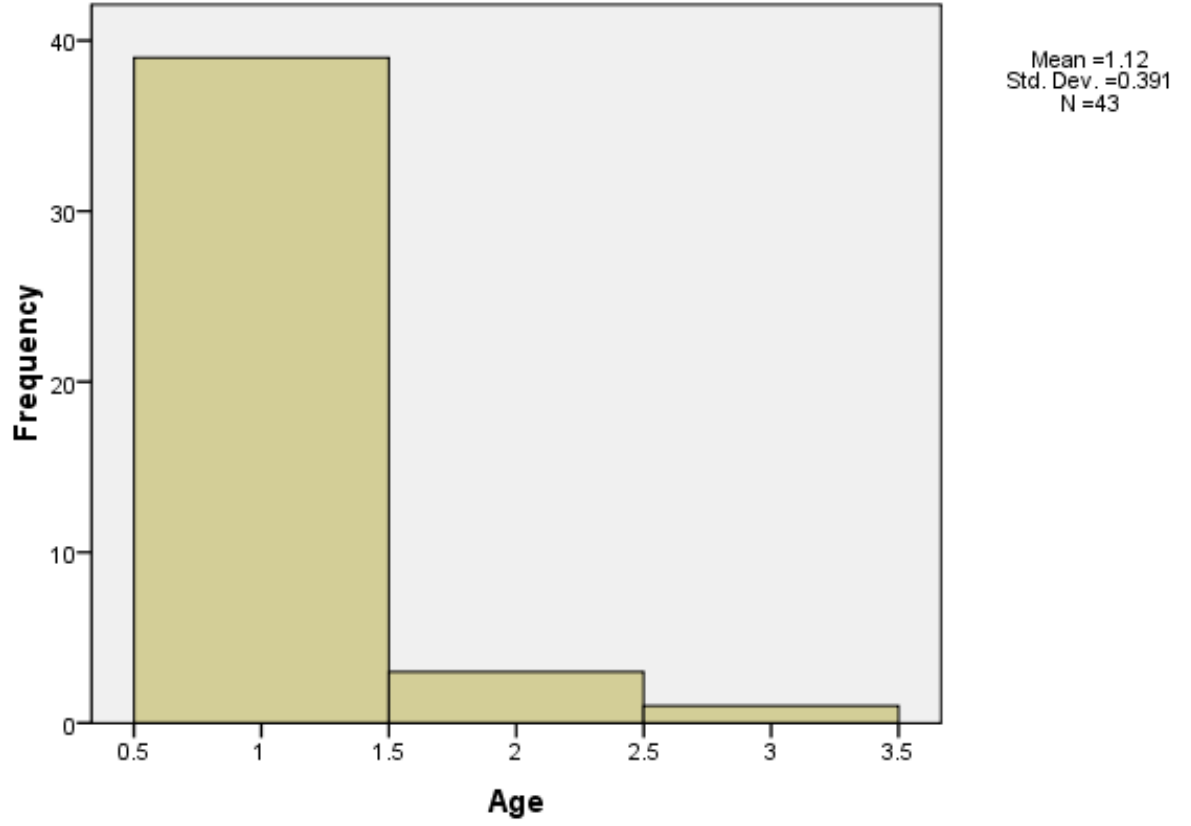
### SeqGlo



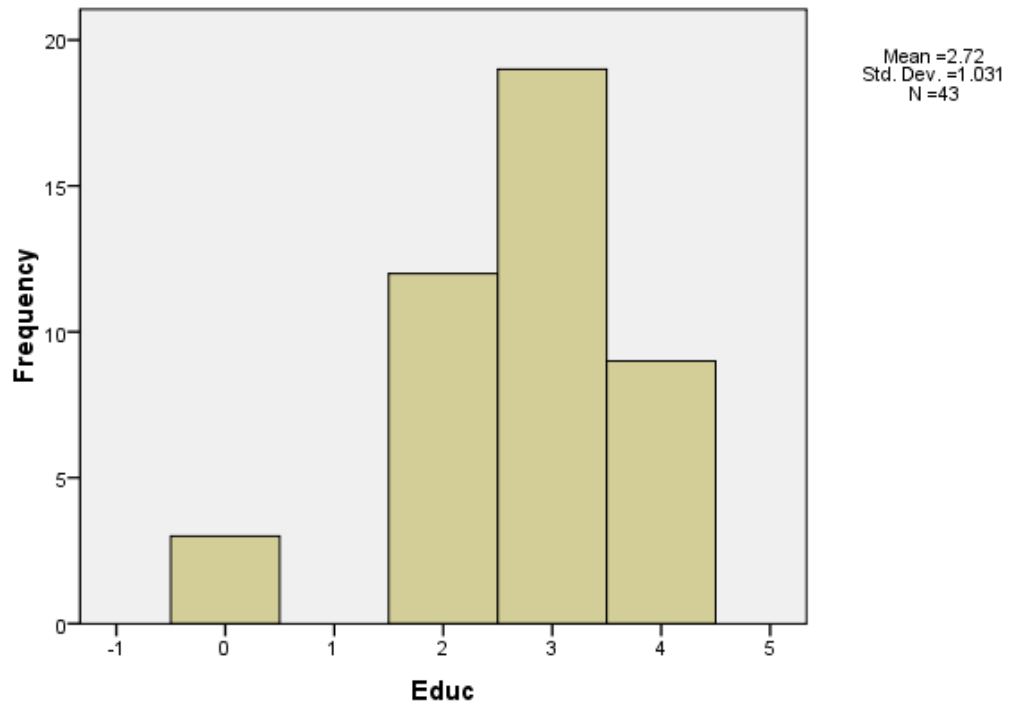
### Gender



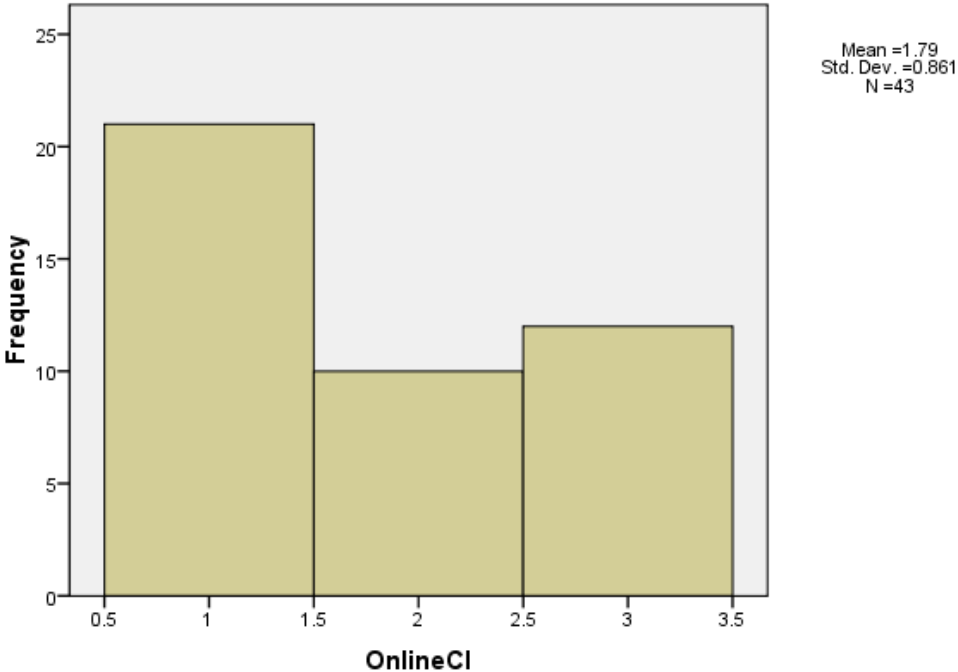
# Age



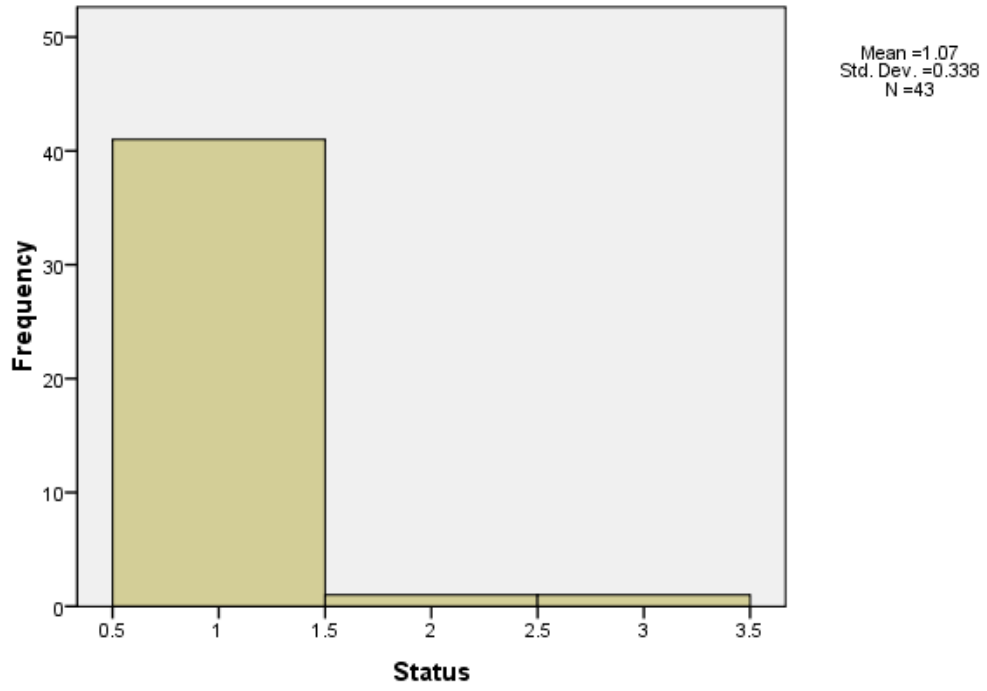
### Educ



OnlineCI

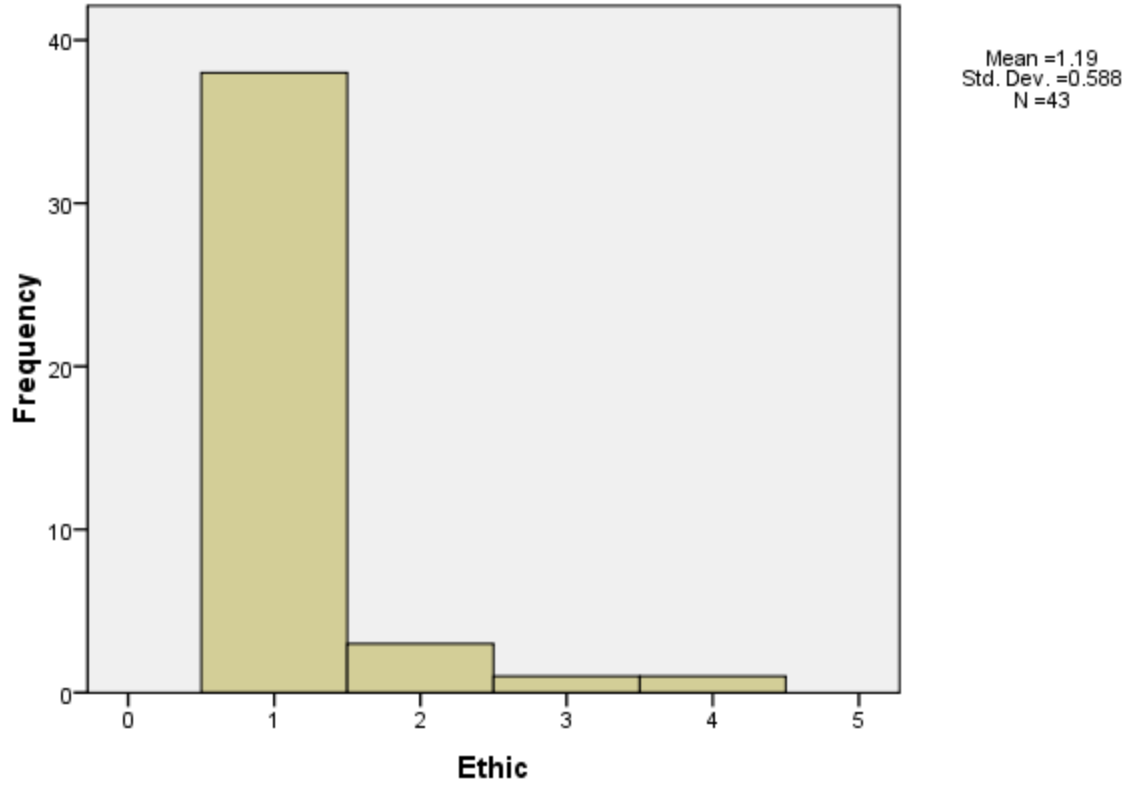


### Status

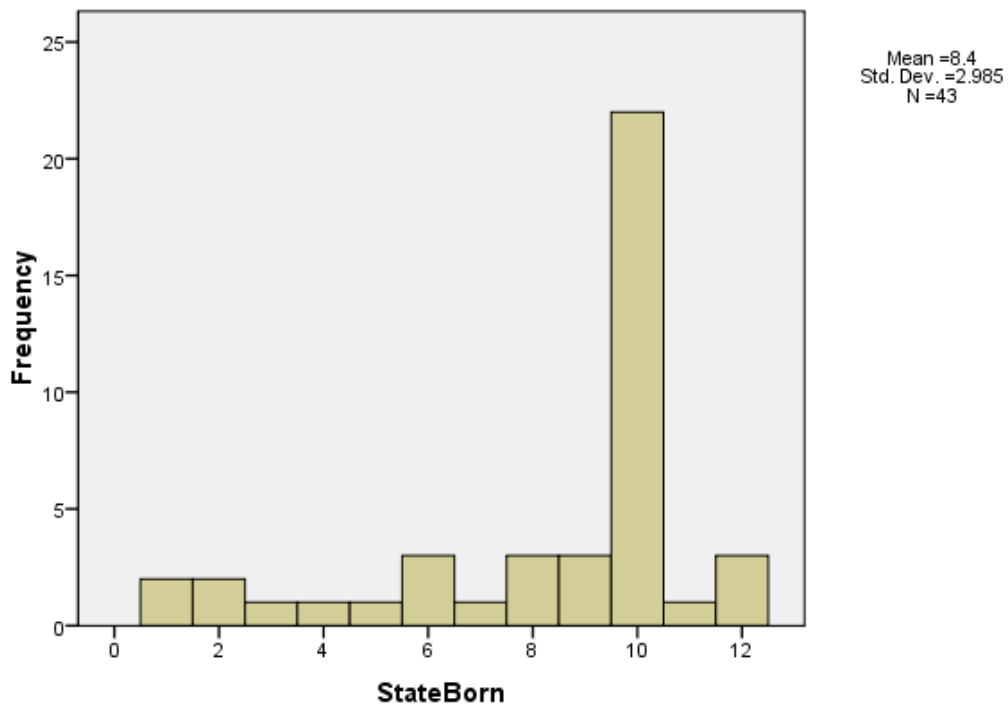


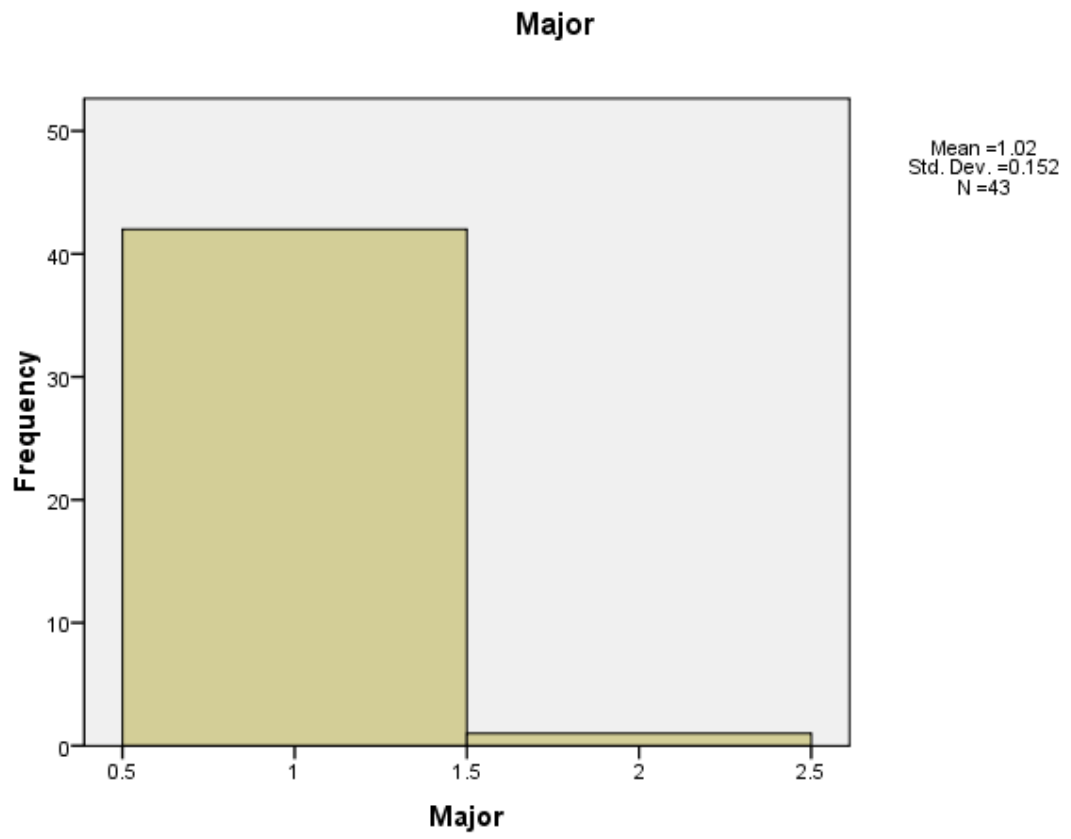


### Ethic

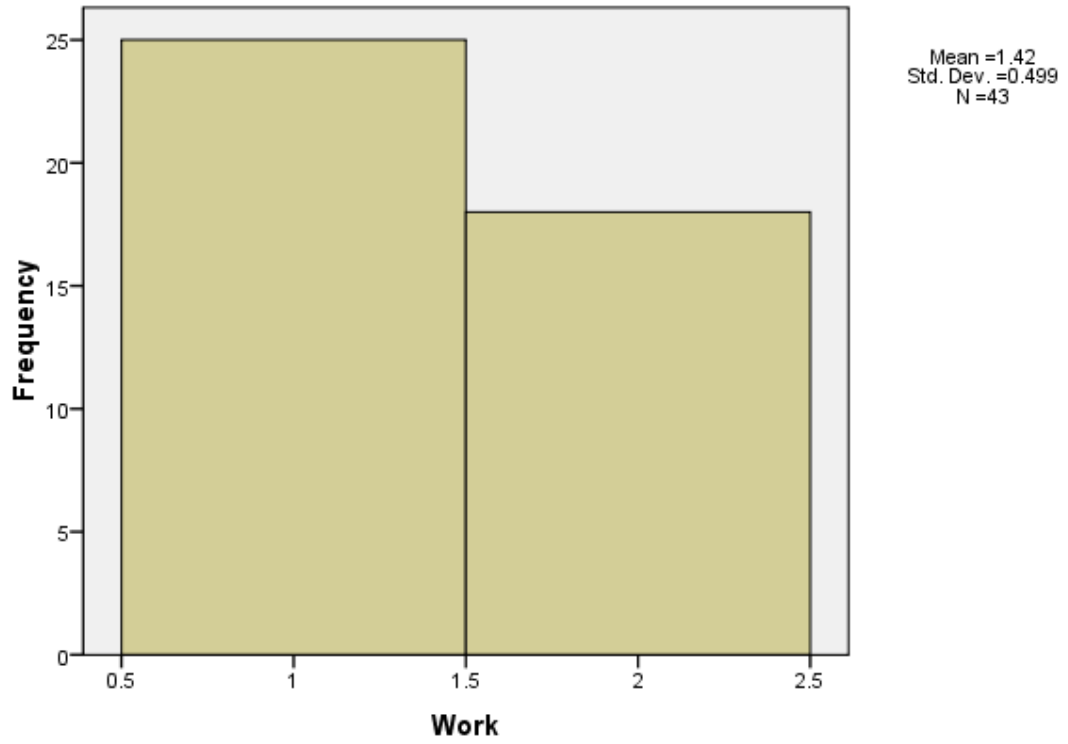


### StateBorn

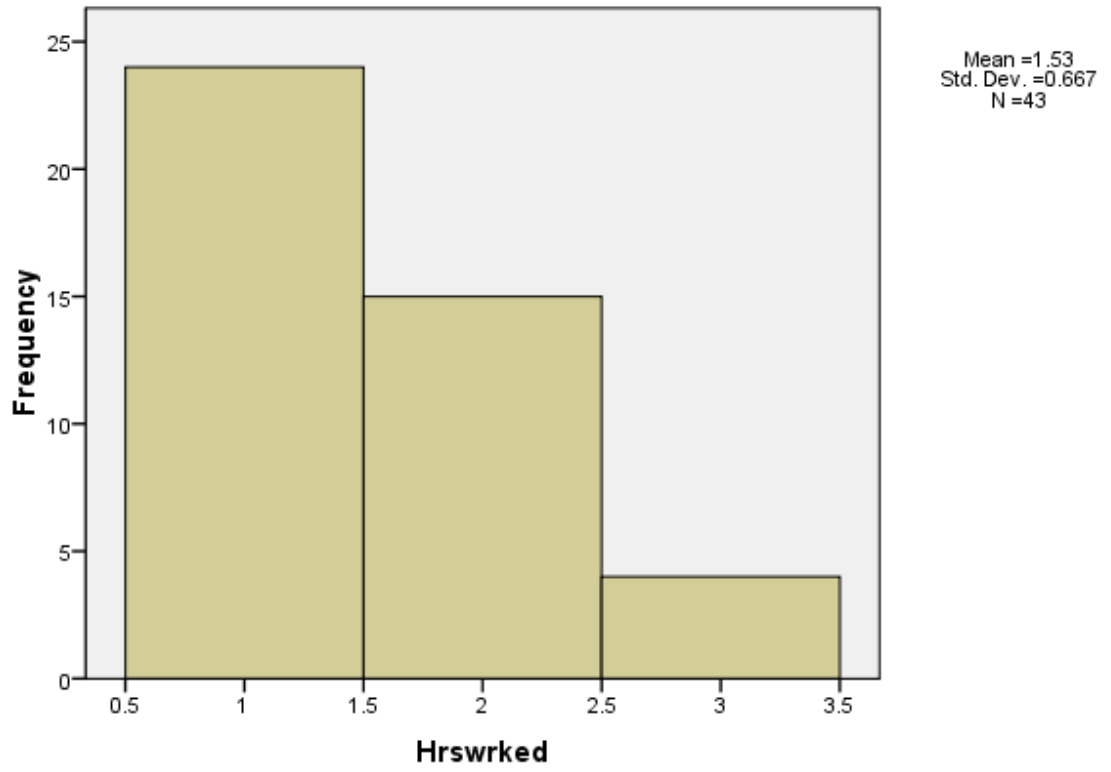


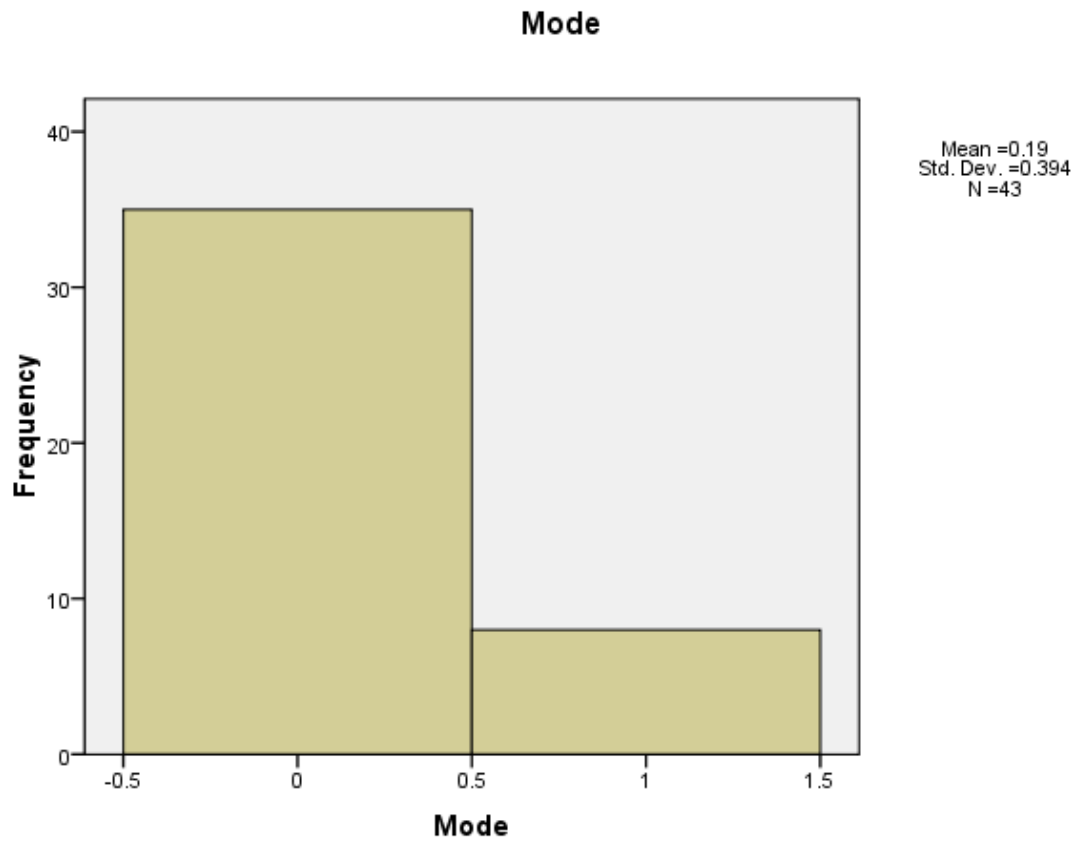


### Work



### Hrswrked





## Appendix B

### Demographics of Participants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Traditional	21	26.6	26.6	26.6
	Online	58	73.4	73.4	100.0
	Total	79	100.0	100.0	
<b>Gender</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	51	64.6	64.6	64.6
	Male	28	35.4	35.4	100.0
	Total	79	100.0	100.0	
<b>Age</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	10	12.7	12.7	12.7
	25-32	14	17.7	17.7	30.4
	33-44	29	36.7	36.7	67.1
	45-54	23	29.1	29.1	96.2
	55-63	1	1.3	1.3	97.5
	64-72	2	2.5	2.5	100.0
	Total	79	100.0	100.0	
<b>Education</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School	8	10.1	10.1	10.1
	1 Year of College	10	12.7	12.7	22.8
	2 Years of College	15	19.0	19.0	41.8
	3 Years of College	6	7.6	7.6	49.4
	4 Years of College	13	16.5	16.5	65.8
	BA/BS Degree	23	29.1	29.1	94.9
	Masters Degree	4	5.1	5.1	100.0
	Total	79	100.0	100.0	
<b>Online Experience</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Class	17	21.5	21.5	21.5
	2-3 Classes	19	24.1	24.1	45.6
	More than 3 Classes	43	54.4	54.4	100.0
	Total	79	100.0	100.0	
<b>Years of Experience</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-1	3	3.8	3.8	3.8
	1-5	17	21.5	21.5	25.3
	6-10	20	25.3	25.3	50.6
	11-20	29	36.7	36.7	87.3
	21 or More	10	12.7	12.7	100.0
	Total	79	100.0	100.0	
<b>Title</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sales Manager	3	3.8	3.8	3.8
	GM	34	43.0	43.0	46.8
	Front Desk	10	12.7	12.7	59.5
	AGM	8	10.1	10.1	69.6
	Guest Services	11	13.9	13.9	83.5
	Director of Ops	8	10.1	10.1	93.7
	Reservations	3	3.8	3.8	97.5
	Revenue Manager	2	2.5	2.5	100.0
	Total	79	100.0	100.0	

## Appendix C

### ILS, Pre Test, and Post Test Surveys

#### Learning Survey

1. I understand something better after I
  - (a) try it out.
  - (b) think it through.
  
2. I would rather be considered
  - (a) realistic.
  - (b) innovative.
  
3. When I think about what I did yesterday, I am most likely to get
  - (a) a picture
  - (b) words.
  
4. I tend to
  - (a) understand details of a subject but may be fuzzy about its overall structure.
  - (b) understand the overall structure but may be fuzzy about details.
  
5. When I am learning something new, it helps me to
  - (a) talk about it.
  - (b) think about it.
  
6. If I were a teacher, I would rather teach a course
  - (a) that deals with facts and real life situations
  - (b) that deals with ideas and theories
  
7. I prefer to get new information in
  - (a) pictures, diagrams, graphs, or maps
  - (b) written directions or verbal information.
  
8. Once I understand
  - (a) all the parts, I understand the whole thing.
  - (b) the whole thing, I see how the parts fit.
  
9. In a study group working on difficult material, I am more likely to
  - (a) jump in and contribute ideas.
  - (b) sit back and listen.
  
10. I find it easier
  - (a) to learn facts.
  - (b) to learn concepts.



11. In a book with lots of pictures and charts, I am likely to
- (a) look over the pictures and charts carefully.
  - (b) focus on the written text.
12. When I solve math problems
- (a) I usually work my way to the solutions one step at a time.
  - (b) I often just see the solutions but then have to struggle to figure out the steps to get to them.
13. In classes I have taken
- (a) I have usually gotten to know many of the students.
  - (b) I have rarely gotten to know many of the students.
14. In reading nonfiction, I prefer
- (a) something that teaches me new facts or tells me how to do something.
  - (b) something that gives me new ideas to think about.
15. I like teachers
- (a) who put a lot of diagrams on the board.
  - (b) who spend a lot of time explaining.
16. When I'm analyzing a story or a novel
- (a) I think of the incidents and try to put them together to figure out the themes.
  - (b) I just know what the themes are when I finish reading and then I have to go back and find the incidents that demonstrate them.
17. When I start a homework problem, I am more likely to
- (a) start working on the solution immediately.
  - (b) try to fully understand the problem first.
18. I prefer the idea of
- (a) certainty.
  - (b) theory.
19. I remember best
- (a) what I see.
  - (b) what I hear.
20. It is more important to me that an instructor
- (a) lay out the material in clear sequential steps.
  - (b) give me an overall picture and relate the material to other subjects.
21. I prefer to study

- (a) in a study group.
  - (b) alone.
22. I am more likely to be considered
- (a) careful about the details of my work.
  - (b) creative about how to do my work.
23. When I get directions to a new place, I prefer
- (a) a map.
  - (b) written instructions.
24. I learn
- (a) at a fairly regular pace. If I study hard, I'll "get it."
  - (b) in fits and starts. I'll be totally confused and then suddenly it all "clicks."
25. I would rather first
- (a) try things out.
  - (b) think about how I'm going to do it.
26. When I am reading for enjoyment, I like writers to
- (a) clearly say what they mean.
  - (b) say things in creative, interesting ways.
27. When I see a diagram or sketch in class, I am most likely to remember
- (a) the picture.
  - (b) what the instructor said about it.
28. When considering a body of information, I am more likely to
- (a) focus on details and miss the big picture.
  - (b) try to understand the big picture before getting into the details.
29. I more easily remember
- (a) something I have done.
  - (b) something I have thought a lot about.
30. When I have to perform a task, I prefer to
- (a) master one way of doing it.
  - (b) come up with new ways of doing it.
31. When someone is showing me data, I prefer
- (a) charts or graphs.
  - (b) text summarizing the results.

32. When writing a paper, I am more likely to
- (a) work on (think about or write) the beginning of the paper and progress forward.
  - (b) work on (think about or write) different parts of the paper and then order them.
33. When I have to work on a group project, I first want to
- (a) have "group brainstorming" where everyone contributes ideas.
  - (b) brainstorm individually and then come together as a group to compare ideas.
34. I consider it higher praise to call someone
- (a) sensible.
  - (b) imaginative.
35. When I meet people at a party, I am more likely to remember
- (a) what they looked like.
  - (b) what they said about themselves.
36. When I am learning a new subject, I prefer to
- (a) stay focused on that subject, learning as much about it as I can.
  - (b) try to make connections between that subject and related subjects.
37. I am more likely to be considered
- (a) outgoing.
  - (b) reserved.
38. I prefer courses that emphasize
- (a) concrete material (facts, data).
  - (b) abstract material (concepts, theories).
39. For entertainment, I would rather
- (a) watch television.
  - (b) read a book.
40. Some teachers start their lectures with an outline of what they will cover. Such outlines are
- (a) somewhat helpful to me.
  - (b) very helpful to me.
41. The idea of doing homework in groups, with one grade for the entire group
- (a) appeals to me.
  - (b) does not appeal to me.
42. When I am doing long calculations
- (a) I tend to repeat all my steps and check my work carefully.
  - (b) I find checking my work tiresome and have to force myself to do it.

43. I tend to picture places I have been

- (a) easily and fairly accurately
- (b) with difficulty and without much detail.

44. When solving problems in a group, I would be more likely to

- (a) think of the steps in the solution process.
- (b) think of possible consequences or applications of the solution in a wide range of areas.

45. Are you Female or Male

- Female
- Male

46. What is your age

18-24

47. What is the highest level of education you have completed?

High School

48. How many courses/workshops have you taken online?

- a) 1
- b) 2-3
- c) more than 3

49. How many years have you been in the hospitality industry?

- 0-1
- 1-5
- 6-10
- 11-20
- 21 or more

50. What is your job title?

Finish

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## Pre Workshop Test Online

### Pre Workshops Questions - Traditional

1. Which of the following is NOT a key component of revenue management?
  - a. Supply
  - b. Demand
  - c. Expenses
  - d. Price
  
2. Where does PERFORM collect its DEMAND information from?
  - a. GDS
  - b. OPERA
  - c. Merlin
  - d. HOLIDEX Plus
  
3. How is SUPPLY represented in the PERFORM System?
  - a. Hurdle Point
  - b. Product Class
  - c. Competitive Rate Analysis
  - d. Rate Category Availability
  
4. PERFORM “Segments” are the equivalent of Market Segmentation.
  - a) True
  - b) False
  
5. What Yield Management Option in HOLIDEX Plus should be used for accounts promised “Last Room Availability”?
  - a. Yield At Own Value
  - b. Yield At IGCOR
  - c. Override Restrictions
  - d. Rate Adjustment Value
  
6. What is the name of the dynamic inventory control produced by PERFORM?
  - a. Demand
  - b. Hurdle Point
  - c. Rate Category Availability
  - d. System Adjustments
  
7. Which of the following Rate Programs is NEVER impacted by PERFORM?
  - a. Best Flexible Rate
  - b. Government Rate

- c. Advance Purchase
- d. Employee Rate

8. What System Adjustment would you use to block discount programs from booking during a high demand period where you only wanted Best Flexible rates or better to sell?

- a. Modify Demand
- b. Overbooking
- c. Alerts
- d. Hurdle Point Restriction

9. Which is NOT an option of the Overbooking Feature in PERFORM?

- a. System Values
- b. Change Room Counts
- c. User Values
- d. Overbooking Cap

10. How much time can a user be inactive before PERFORM logs the user out?

- a. 5 minutes
- b. 10 minutes
- c. 20 minutes
- d. 30 minutes

11. What feature allows a user to identify a high demand period which is not normal & is not expected to re-occur?

- a. Alerts
- b. Event Indicator
- c. Overbooking
- d. Modify Demand

Finish

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## Pre Workshop Test Online

### Post Questions - Online

1. Which of the following is NOT a key component of revenue management?
  - a. Supply
  - b. Demand
  - c. Expenses
  - d. Price
2. Where does PERFORM collect its DEMAND information from?
  - a. GDS
  - b. OPERA
  - c. Merlin
  - d. HOLIDEX Plus
3. How is SUPPLY represented in the PERFORM System?
  - a. Hurdle Point
  - b. Product Class
  - c. Competitive Rate Analysis
  - d. Rate Category Availability
4. PERFORM "Segments" are the equivalent of Market Segmentation.
  - a) True
  - b) False
5. What Yield Management Option in HOLIDEX Plus should be used for accounts promised "Last Room Availability"?
  - a. Yield At Own Value
  - b. Yield At IGCOR
  - c. Override Restrictions
  - d. Rate Adjustment Value
6. What is the name of the dynamic inventory control produced by PERFORM?
  - a. Demand
  - b. Hurdle Point
  - c. Rate Category Availability
  - d. System Adjustments
7. Which of the following Rate Programs is NEVER impacted by PERFORM?
  - a. Best Flexible Rate
  - b. Government Rate

- c.Advance Purchase
  - d.Employee Rate
8. What System Adjustment would you use to block discount programs from booking during a high demand period where you only wanted Best Flexible rates or better to sell?
- a.Modify Demand
  - b.Overbooking
  - c.Alerts
  - d.Hurdle Point Restriction
9. Which is NOT an option of the Overbooking Feature in PERFORM?
- a.System Values
  - b.Change Room Counts
  - c.User Values
  - d.Overbooking Cap
10. How much time can a user be inactive before PERFORM logs the user out?
- a.5 minutes
  - b.10 minutes
  - c.20 minutes
  - d.30 minutes
11. What feature allows a user to identify a high demand period which is not normal & is not expected to re-occur?
- a.Alerts
  - b.Event Indicator
  - c.Overbooking
  - d.Modify Demand
12. If you had your choice, without regarding time, space or money, would you rather take this workshop
- Online, at your own pace
  - Face to face in a traditional workshop setting
  - Online, with a "live" facilitator

Finish

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## Appendix D

### Overall Descriptive ILS Results and Correlations

#### Descriptive Statistics

	Mean	Std. Deviation	N
Active Reflective	-2.08	4.060	79
Sensing Intuitive	-2.71	5.866	79
Visual Verbal	-3.96	5.434	79
Sequential Global	-1.38	3.910	79
Age	2.96	1.126	79
Education	4.15	1.847	79
Online Experience	2.33	.812	79
Years of Experience	3.33	1.071	79
Title	3.48	1.866	79

Correlations

	Active Reflective	Sensing Intuitive	Visual Verbal	Sequential Global	Age	Education	Online Experience	Years of Experience	Title
Active Reflective	1	-.179	.177	-.188	.092	-.004	.163	.006	-.186
Pearson Correlation									
Sig. (2-tailed)		.114	.119	.098	.420	.975	.151	.959	.100
N	79	79	79	79	79	79	79	79	79
Sensing Intuitive	-.179	1	-.091	.516 <sup>**</sup>	-.051	.247	.020	.064	-.101
Pearson Correlation									
Sig. (2-tailed)	.114		.426	.000	.657	.028	.861	.574	.377
N	79	79	79	79	79	79	79	79	79
Visual Verbal	.177	-.091	1	-.090	.115	-.159	.020	.042	.018
Pearson Correlation									
Sig. (2-tailed)	.119	.426		.431	.311	.162	.859	.714	.872
N	79	79	79	79	79	79	79	79	79
Sequential Global	-.188	.516 <sup>**</sup>	-.090	1	-.108	.228	.161	.000	.099
Pearson Correlation									
Sig. (2-tailed)	.098	.000	.431		.343	.043	.156	.997	.385
N	79	79	79	79	79	79	79	79	79
Age	.092	-.051	.115	-.108	1	.071	.224	.500 <sup>**</sup>	-.266
Pearson Correlation									
Sig. (2-tailed)	.420	.657	.311	.343		.536	.047	.000	.018
N	79	79	79	79	79	79	79	79	79
Education	-.004	.247	-.159	.228	.071	1	.180	.052	.083
Pearson Correlation									
Sig. (2-tailed)	.975	.028	.162	.043	.536		.113	.648	.469
N	79	79	79	79	79	79	79	79	79

	Active Reflective	Sensing Intuitive	Visual Verbal	Sequential Global	Age	Education	Online Experience	Years of Experience	Title
Online Experience	.163	.020	.020	.161	.224*	.180	1	.375**	-.131
	.151	.861	.859	.156	.047	.113		.001	.249
	79	79	79	79	79	79	79	79	79
Years of Experience	.006	.064	.042	.000	.500**	.052	.375**	1	-.298**
	.959	.574	.714	.997	.000	.648	.001		.008
	79	79	79	79	79	79	79	79	79
Title	-.186	-.101	.018	.099	-.266*	.083	-.131	-.298**	1
	.100	.377	.872	.385	.018	.469	.249	.008	
	79	79	79	79	79	79	79	79	79

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).