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E-LEARNING IN MULTI-CULTURAL ENVIRONMENTS: AN ANALYSIS OF
ONLINE CABIN CREW TRAINING

by

Jose Felix de Brito Neto

A Thesis Submitted to the College of Aviation Department of Applied Aviation Sciences
in Partial Fulfillment of the Requirements for the Degree of
Master of Science in Aeronautics

Embry-Riddle Aeronautical University
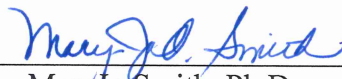Daytona Beach, Florida
December 2012

E-LEARNING IN MULTI-CULTURAL ENVIRONMENTS: AN ANALYSIS OF ONLINE CABIN CREW TRAINING
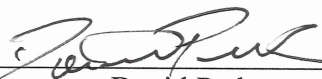
by

Jose Felix de Brito Neto

This Thesis was prepared under the direction of the candidate's Thesis Committee Chair, Dr. MaryJo Smith, Assistant Professor, Daytona Beach Campus, Thesis Committee Member, Dr. David Pedersen, Adjunct Instructor, Daytona Beach Campus, and Thesis Committee Member, Dr. Guy M. Smith, Associate Professor, Daytona Beach Campus, and has been approved by the Thesis Committee. It was submitted to the Department of Applied Aviation Sciences in partial fulfillment of the requirements for the degree of Master of Science in Aeronautics
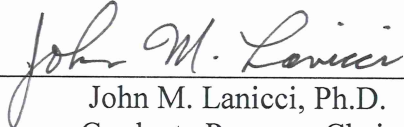
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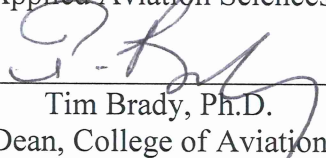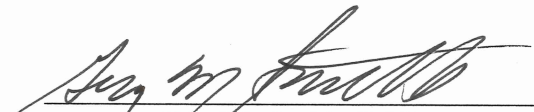MaryJo Smith, Ph.D.
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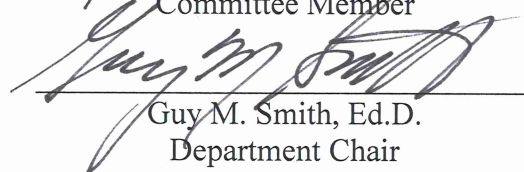
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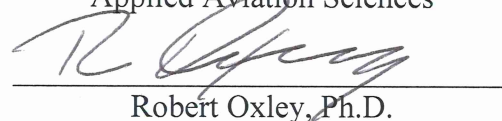
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Abstract

Researcher: Jose Felix de Brito Neto

Title: E-learning in Multi-cultural Environments: An Analysis of Online Cabin

               Crew Training

Institution: Embry-Riddle Aeronautical University

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Throughout the first decade of this century, the airline industry struggled with many

challenges stemming from unstable oil prices and natural disasters. Attention was given

to people as tools for competitive advantage. The airline industry focused on Human

Resource Management and, as a result, e-learning gained increasing attention as it

imparted knowledge on an asynchronous and global basis with substantially reduced

costs. However, while focusing on learning technologies, organizations failed to

acknowledge learners' needs and cultural backgrounds by creating neutral e-learning

environments, which resulted in ineffective training and reduced performance

improvement. This thesis aimed to study the perceptions of a multi-cultural group of

cabin crew members about e-learning courses designed and developed by their

employing airline. A questionnaire verified the opinion of these cabin crew members on

factors regarding course relevance and learner motivation, cultural sensitivity, course

organization and navigation, and course interactivity in neutral e-learning environments.

The results showed that the employing airline developed e-learning courses that were

highly technological and interactive but had little regard for learners' cultural and

language backgrounds. As a result, ineffective online training prevailed.

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Chapter I

Introduction

Significance of the Study

In their pursuit to provide excellence in cabin crew training, numerous airlines across the globe designed, developed, and delivered comprehensive instructional programs, which were generally compliant with the rules and regulations of aviation authorities (Clark, 2006; Emirates Group Careers, 2012b). Training was traditionally delivered through the hands of instructors in classrooms, cabin simulators, flight simulators, fire fighting facilities, and evacuation drills facilities. This training enabled cabin crew members to provide their passengers with an outstanding, memorable, and safe air travel experience.

Many airlines attempted to enhance the professional development of their employees. Some of those organizations made substantial investments in online methods of training, such as e-learning. Fruit of the steady popularization of the Internet, e-learning was essentially a method of training that provided the delivery of instruction exclusively through electronic technology. It presented many advantages to all those involved in it, such as reduced design and development costs, geographical flexibility, and temporal flexibility (Kearns, 2010). These advantages led many organizations around the world to adopt this method of training as a means to minimize costs and deliver consistent instruction to their employees.

One example of that trend was Emirates Airline; the air carrier developed *My Learning Zone* (Emirates Group Careers, 2012b) as a training portal wherein cabin crew members had access to an extensive e-learning environment. Some of the e-learning

courses were prerequisites for upgrade training or cabin crew license renewal, while other

e-learning courses were designed and delivered uniquely for skill enhancement and could

be taken at any time. Cabin crew could gain access to the e-learning environment at

home, at their flight destinations during layovers, or at Learning Resource Centers

(LRC), learning facilities located in various Emirates Group buildings across Dubai

(Emirates Group Careers, 2012b).

British Airways (BA) also developed strategies in the field of e-learning. The BA

learning portal, called *QUEST* (Clark, 2006), used Oracle iLearning integrated with

Oracle Human Resource Management System (HRMS) and was delivered on the airline

intranet. It could be accessed by BA staff via learning centers or at *QUEST* points, which

were rooms with networked computers located near BA offices and similar to Emirates

Airline's LRCs. The airline also created learning cyber-cafes, where employees could

access training materials in a more relaxed environment (Clark, 2006).

The professional advancement strategy conducted by some airlines through

e-learning reflected the worldwide upward trend in the adoption of online training by

different types of organizations, whether they were directly related to the aviation and

aerospace industry or not. When effectively designed and developed, e-learning reached

high levels of cost-efficiency while providing consistent and standardized instruction to a

wide number of learners in distinct locations at different times. These advantages

enhanced the growing attraction of this method of training, which significantly

outperformed its classroom-based counterpart (Kearns, 2010).

Statement of the Problem

Despite the growth of online delivery of training, reality showed that e-learning brought challenges to all those involved in it, as this instructional method usually reflected a Western, specifically Anglo-American, set of values deeply ingrained in the design and development of instruction regardless of the environment where the training was delivered. Hannon and D'Netto (2007) reported that cultural and language dissimilarities in students were not always incorporated into the design of e-learning courses.

Another challenge to the delivery of e-learning courses was the application of the learning technology (software, hardware, and Internet/intranet access). According to Hannon and D'Netto (2007), learning technologies as well as their interface, procedures, and conditions of interaction negatively influenced the level of engagement of a culturally diverse group of learners.

The challenges in the development of e-learning courses described above were likely to present themselves at airlines employing a significant number of cabin crew members coming from different cultures. These challenges would possibly be detected during the delivery of e-learning, thereby, hindering learning outcomes and negatively affecting the learner's experience with training, which directly influenced their performance as cabin crew on-board flights across the globe.

Purpose Statement

The purpose of this thesis was to analyze the interaction of multi-cultural cabin crew with courses in a neutral e-learning environment designed and developed by an international airline, as well as the direct influence of e-learning on their performance on-

board. This thesis intended to provide detailed information about the effectiveness of e-learning on learners coming from different cultures and speaking languages other than English as their native language.

Additionally, this thesis aspired to present alternatives for the mitigation and elimination of possible conflicts triggered during the aforementioned interactions. Ultimately, it aimed to provide Instructional Design departments with pertinent information about multi-cultural learners, which would enable them to strategically maintain excellence in training.

Hypotheses

The review of relevant literature on the intricacies of training, instructional design, and e-learning in multi-cultural environments, such as international airlines, led to the following null hypotheses:

1. There was no significant difference in course relevance and learner motivation in neutral e-learning environments for region of origin of the respondents.

2. There was no significant difference in course relevance and learner motivation in neutral e-learning environments for cultural heritage of the respondents.

3. There was no significant difference in course relevance and learner motivation in neutral e-learning environments for native language of the respondents.

4. There was no significant difference in cultural sensitivity in neutral e-learning environments for region of origin of the respondents.

5. There was no significant difference in cultural sensitivity in neutral e-learning environments for cultural heritage of the respondents.

6. There was no significant difference in cultural sensitivity in neutral e-learning environments for native language of the respondents.

7. There was no significant difference in course organization and navigation in neutral e-learning environments for region of origin of the respondents.

8. There was no significant difference in course organization and navigation in neutral e-learning environments for cultural heritage of the respondents.

9. There was no significant difference in course organization and navigation in neutral e-learning environments for native language of the respondents.

10. There was no significant difference in course interactivity in neutral e-learning environments for region of origin of the respondents.

11. There was no significant difference in course interactivity in neutral e-learning environments for cultural heritage of the respondents.

12. There was no significant difference in course interactivity in neutral e-learning environments for native language of the respondents.

Delimitations

This study was inherently focused on the effectiveness of e-learning in multi-cultural environments within the aviation and aerospace industry. Since there had been an increase in the number of airlines adopting e-learning in an attempt to reduce instructional costs and enhance cabin crew training, this thesis aimed to approach only cabin crew from international airlines as they invariably constituted a multi-cultural workforce. Additionally, due to the convenience sampling process, the scope of this thesis encompassed cabin crew members and associates from a single international airline.

Limitations

This thesis had as its main limitation the dissemination of measuring instruments given the geographical locations of participants and researcher. Therefore, questionnaires were delivered and completed exclusively through electronic mail and the online survey tool, SurveyMonkey®. The geographical limitations also influenced the sampling process. Convenience sampling through this researcher's contacts list had to be used, which resulted in the relatively small number of respondents, thereby limiting the generalization of the results.

Another limitation in this thesis was the demographic data collected by the questionnaire. Only data related to country of origin, native language, and cultural heritage were relevant, and therefore, collected for this thesis.

Definition of Terms

Cabin crew	"In the airline industry, the personnel, other than pilots, who work aboard an aircraft while it is in flight" (Travel Industry Dictionary, 2012a, p. 1).
E-learning	Method of training that enabled the transfer of educational materials and the delivery of instructional content via any computer on an on-demand basis (Kearns, 2010).
HRM	Activities, policies, and practices related to planning, developing, evaluating, maintaining, and retaining the appropriate number and skill mix of employees to achieve the organization's core objectives (Appelbaum & Fewster, 2002).

In-flight	"Describing goods or services provided during an airline flight, as in-flight magazines, in-flight duty-free shopping, and so forth" (Travel Industry Dictionary, 2012b, p. 1).
ISD	"The systematic process through which instructional materials are designed, developed, and delivered" (Instructional Design Central, 2012b, p. 1).
Training	The systematic process of modifying the behavior of employees in the direction towards organizational goals (Ivancevich, 2007).

List of Acronyms

ADDIE	Analysis, Design, Develop, Implement, Evaluate
AICC	Aviation Industry Computer Based Training Committee
BA	British Airways
CBT	Computer Based Training
CD-ROM	Compact Disc Read-only Memory
CPR	Cardiopulmonary Resuscitation
CRM	Crew Resource Management
DE	Distance Education
HRM	Human Resource Management
HRMS	Human Resource Management System
IATA	International Air Transportation Association
ISD	Instructional Systems Design
LMS	Learning Management System

LRC	Learning Resource Center
NASA	National Aeronautics and Space Administration
PCs	Personal Computers
SMEs	Subject Matter Experts
SPSS	Statistical Package for Social Sciences

Chapter II

Review of the Relevant Literature

Recent Developments in the Airline Industry

During a period that started in 2005 and reached its height in 2008, the airline industry faced stormy skies given the increase in the cost of fuel and the financial downturn that ravaged the world, especially the United States and Europe (Goetz & Vowles, 2009). The effects of those events lasted for the subsequent years. According to Flint (2010), the industry registered losses around $16 billion in 2008 followed by $9.9 billion in 2009. Increasing oil prices and volcanic-ash related airspace closures, among many factors, resulted in significant financial loses for airlines across the globe. Thus, the industry, as we knew it, was reshaped (Buyck, 2010).

Consequently, the challenging and unstable environment in which the airlines operated resulted in the removal of the financially weaker air carriers. However, the industry showed its inherent strength and managed to slowly recover from the financial turmoil. Although industry revenues fell from $564 billion to approximately $483 billion in 2009, the International Air Transport Association (IATA) estimated that 2010 revenues increased to $545 billion, easily exceeding the $510 billion in 2007 and approximately 3.4% below the 2008 revenues (Flint, 2010). The recovery gradually continued in 2011, as the industry registered revenues of $598 billion (Air Transport World, 2011), which was seen as a cautiously positive sign by the airlines.

This increase in revenue was partially attributed to the remarkable performance of some airlines, especially in Asia, the Middle East, and Latin America, as they were supported by the strong financial performance of local economies in those regions (Ray,

2010). Efficient management and competitive strategy played a significant role as airlines tried to survive financial downturns, such as the one the world experienced between 2008 and 2009. The loss of benefits or the forced requirement to take unpaid leave became some of the standard operating procedures for many airlines (Flint, 2010).

The Relevance of In-flight Service

As airline business became an extremely competitive environment, in-flight service turned into an important differentiating factor for air carriers in their constant pursuit for market share through quality and innovation. Along with extensive route network, dynamic operations, and effective marketing, in-flight service influenced the success or failure of an airline. Reflecting the evolving pressures of the economic environment, excellence in customer service became a quest for all air carriers (Street, 1994).

Therefore, several airlines developed innovative strategies to enhance their passengers' experience, especially regarding improvements to the delivery of in-flight service. To its business travelers, Qantas (2012) offered the *Skybed*, a seat that fully reclined and turned into a bed. Singapore Airlines (2012b) offered suites, providing the highest level of privacy with sliding doors, to its first class passengers. Emirates Airline (2012) had on-board its Airbus A380-800 fleet the innovative *shower spa*, where first class passengers indulged in an energizing shower at 43,000 feet. Delta Airlines (2012) offered flat beds in its BusinessElite® product in an attempt to increase the level of comfort on-board and differentiate itself from the other legacy North-American airlines.

Research by Appelbaum and Fewster (2002) highlighted the extreme safety-conscious and highly technological nuances within the airline industry. People,

employees, and customers, instead of products and machines, should have been the arena of an organization's core competence. Innovations that technologically enhanced the aviation and aerospace industry, along with the strengthening of safety and security procedures, transformed the way the public flew. However, these innovations were relevant only when they were analyzed alongside their human interfaces.

In fact, the understanding about the importance of qualified personnel in the airline industry gained more and more strength in light of the changes that occurred. This reality led Appelbaum and Fewster (2002) to assert that:

> Research has long shown that accidents and poor service quality are primarily rooted in socio-technical human factors, not technology per se. Sub-optimization, or poor quality in regards to management, decision-making, teamwork, employee motivation, or communication can translate into loss of customers, loss of market share, loss of organization assets, and above all, loss of life. (p. 67)

The real-time nature of services, allied with the fact that customer actions, attitude, and demands varied from experience to experience, presented challenges for many organizations in the service industry, especially aviation. Therefore, service employees, particularly cabin crew who are constrained by the spatial limitations of airliners, often found themselves in situations that required quick and effective responses. Positive attitude and resourcefulness, along with improvisational skills and creativity, certainly played a significant role in this environment in that these attributes affected customer's perceptions of excellence (Daly, Grove, Dorsch, & Fisk, 2009).

Recruitment and Training Strategies

In an attempt to improve workforce input, some airlines realigned their focus to Human Resource Management (HRM), specifically to recruitment, selection, and training. HRM comprised the activities, policies, and practices related to planning, developing, evaluating, maintaining, and retaining the appropriate number and skill mix of employees to achieve the organization's core objectives (Appelbaum & Fewster, 2002).

The effective and dynamic process of recruitment and hiring of staff took center stage in strategic management as it essentially selected the most adequate personnel to carry on the organization's mission, strategy, and culture. Recruitment included those practices conducted by an organization with the primary purpose of identifying and attracting potential employees (Johnson, Winter, Reio, Thompson, & Petrosko, 2008).

According to Parry and Wilson (2009), recruitment performed the fundamental function of drawing the important resource of human capital into the organization. Given the limited resources available for cabin crew staffing at their bases, some international airlines launched regional and worldwide recruitment strategies in a pursuit for the most suitable workforce to perpetuate their mission and showcase their vision (Emirates Group Careers, 2012a; Qatar Airways, 2012; Singapore Airlines, 2012a).

Selecting candidates with the right set of skills and attitudes was a big step towards the accomplishment of an organization's mission, but certainly not the only one. Along with recruitment, training ensured that the staff naturally fitted the interpersonal requirements of the job position (Gountas, Ewing, & Gountas, 2007).

Therefore, training was regarded as the systematic process of modifying the behavior of employees in the direction towards organizational goals. Training essentially helped employees gain mastery in the specific skills and abilities required to be successful (Ivancevich, 2007). Consequently, training became an essential avenue to equip the new employees with adequate tools to deliver an outstanding performance.

Training and Instructional Systems Design

Training was essentially the final product of a performance-improvement process called Instructional Systems Design (ISD). ISD synthesized research and theory into methodologies for a systematic transference of instruction. The main goals of ISD were "to create successful learning experiences and to engender transfer of learning" (The Herridge Group, Inc., 2004, p. 7).

Through the years, many ISD models were designed based on a variety of learning theories. Regardless of the theories on which they were rooted, however, ISD models were inherently systematic processes aimed at analyzing the need for instruction, designing content, developing training in accordance with learning principles, delivering instruction, and, lastly, evaluating the results of training (Kearns, 2010).

One of the most important requirements for the implementation of any ISD model was the performance analysis, a process that aimed at the initial identification of deficiencies leading to performance discrepancies, their root causes, and the whole spectrum of their influence. According to Rothwell and Kazanas (2011), performance analysis was conducted to distinguish problems, situations, and projects that could be effectively addressed through instruction, from those related to managerial solutions, such as feedback, job performance aids, rewards, and organizational re-design.

The performance analysis process was followed by a needs assessment; needs assessment was usually the very first step in many ISD models. The needs assessment went one step further than the performance analysis and involved the detailed examination of an organization's needs, i.e., the knowledge, skill, and ability required to effectively and efficiently perform the job, and the person or jobholder's needs (Ivancevich, 2007). Needs assessment proved to be extremely important; it provided relevant and accurate information on which the following steps of an ISD model were based.

Subsequently, the analysis phase had as its first step the investigation of relevant characteristics of the learners, such as previous knowledge, skills, attitude, and demographics, which would usually include data pertaining to age, gender, level of education, and income. This phase provided important data concerning learning styles, levels of learner motivation, and learner perception towards the organization, the job, and the training (Kearns, 2010; Rothwell & Kazanas, 2011).

Additionally, this phase aimed at examining the work setting, which entailed the collection and analysis of information on the physical and social conditions of the environment in which work took place, as well as exterior factors influencing work performance. This phase also included the analysis of the content or the task subject to the training, including all elements that were relevant to the improvement of performance (Kearns, 2010; Rothwell & Kazanas, 2011).

The last step of the analysis phase was the design of the learning objectives, which specified the outcomes of training, regardless of the content or delivery method. Learning objectives provided guidance to instructional designers in the development of

effective training, and a framework on which evaluation instruments were written. Additionally, learning objectives gave students an overview of what was expected from the training they were about to undertake (Kearns, 2010).

The design phase was essentially the architecture of the training and spread itself through a wide array of actions including (a) instructional delivery strategy planning, which involved sequencing content in accordance with learning objectives, choosing the most suitable tactics and methods, and designing assessment tools; and (b) course formatting, which selected the most adequate delivery channel (instructor-led, paper-based, synchronous, asynchronous, etc.). These steps culminated in the instructional plan, which outlined in detail the strategy to be conducted throughout training delivery (Intulogy, 2012).

The development phase transformed the instructional plan into action. It extensively used the principles of project management by forming a sequence of hands-on activities that were conducted by instructional designers who worked in conjunction with project managers, Subject Matter Experts (SMEs), writers, software programmers, graphic artists, video producers, audio producers, and reviewers (Kearns, 2010). The products of the development phase were prototypes, which would provide a preview of what the materials would look like, and the instructional materials, which would undergo pilot testing before being fully implemented (Intulogy, 2012).

Subsequent to the development phase, the implementation phase dealt with the full delivery of training through the application of course materials and assessment instruments. Like the development phase, the steps in implementing training thoroughly utilized project management practices. Delivery challenges would still arise; therefore,

the effectiveness of the training implementation was deeply contingent on the strict observance of data collected during the analysis phase, the information processed in the design phase, and the delivery format resulting from the development phase (Intulogy, 2012).

The last phase involved the evaluation of the project and provided instructional design teams with the opportunity to review the entire instructional design process. Two types of evaluation were conducted: formative evaluation and summative evaluation. Formative evaluation was a continuous program improvement process that moved through the ISD phases and allowed the instructional designers to revise the products of their work in order to move to the next phase. Conversely, summative evaluation occurred at the end of the ISD process after the training had been delivered. The summative evaluation was generally used by training managers, instructional designers, organization decision-makers, and all those involved in the creation of instruction to assess the effectiveness of the training (Kearns, 2010).

The phases described above, which were loosely based on the ADDIE (Analysis, Design, Develop, Implement, Evaluate) model (Figure 1), were an overall representation of the systematic design of instruction (Instructional Design Central, 2012a). Generally, the most important ISD models considered and advocated for (a) the thorough analysis of data; (b) the creative design of the instructional plan; (c) the systematic development of the materials; (d) the efficient implementation of instruction; and (e) the constant and consistent evaluation of training products, in an attempt to achieve effectiveness in instructional design (Instructional Design Central, 2012a).

Figure 1. ADDIE Model. Adapted from "The Portfolio Development Process" by P. Hamada (2012), San Diego University, College of Education.

Training in Aviation

The aviation and aerospace industry was fundamentally an enormous system, which incorporated an extensive array of distinguished yet closely interconnected sub-systems. Since its inception, the industry demanded highly trained personnel to support the operations on which it was based. According to Kearns (2010), the life of aviation training could be broadly divided into four generations: apprenticeship, simulation, safety, and customized training.

The apprenticeship phase, born with the Wright brothers' first powered flight in 1903, established the basic structure for training – classroom training (ground training) and in-aircraft training. This structure was conducted through the apprenticeship model,

where experienced pilots trained novice pilots by demonstrations and knowledge transmission until the learners reached a certain level of competency (Kearns, 2010).

The simulation phase came with the advent of the Link trainer in the 1930s, which introduced flight simulation to flight training. With flight simulators, flight training schools were no longer dependent on weather conditions to conduct training. This phase also saw significant improvements in aircraft systems and components, including airworthiness certification, pilot licensing, the introduction of jet engines, and the introduction of ground and traffic collision avoidance devices (Kearns, 2010).

The safety phase began with the National Aeronautics and Space Administration (NASA) conference in 1979, where representatives from major air carriers discussed the increasing number of accidents triggered by human error. The discussions resulted in the creation of Crew Resource Management (CRM) training. CRM was gradually implemented into each element of training (ground school, simulator, and in-aircraft training).

The customized training phase proposed a shift from the training approach based on the standardization of instruction to customization of instruction. In this phase, training was focused on maximizing the performance of individuals rather than sorting and classifying them. This performance-based approach stimulated training catered to the skill set of each learner. In the customized training phase, learners had the opportunity to work on skills they were weakest in and to avoid wasting time practicing skills they had already mastered (Kearns, 2010).

Although closely associated with flight crew training, the phases described above, in particular the customized training phase, may also be easily identified in cabin crew

training. Effective and efficient training prepared cabin crew to manage difficult

situations and emergencies. Safety training usually included emergency evacuation

procedures, firefighting, first aid, cardiopulmonary resuscitation (CPR), decompression

emergencies, crew resource management, and emergency landing procedures. Quality

training also provided cabin crew with instructions and scenarios to deal with disruptive

passengers and hijacking situations. Flight Attendants Training Online (2011) stated that

during training, cabin crew underwent simulated training exercises and assessment drills

to evaluate how they would handle emergency situations.

Additionally, new cabin crew members learned flight regulations and duties,

learned about company operations and policies, and received instruction on personal

grooming and weight control (Cabin Crew Jobs, 2011). Towards the end of their training

program, cabin crew received instruction regarding service procedures, where they had

their customer-oriented skills polished and aligned to the products offered by the

employing air carrier.

The shift in the approach of designing and developing instruction from

standardization to customization was part of the constant evolution that education and

training have undertaken through the years. Technology played a significant role in this

transition as new technology consistently paved the way for innovative methods of

instructional delivery (Kearns, 2010).

The popularization of the Internet as a global telecommunications medium

triggered significant innovations in training, especially in the delivery of instruction.

According to Thomas (2003), a variety of elements surrounding the learning process,

such as presentation of information and assessment of learning outcomes that were

supported through "widely accessible Internet-based formats" (p. 346), changed the way people learned and interacted with each other.

Training and E-learning

Innovation long inhabited the design, development, and delivery of instruction. In fact, military training films were considered the very first type of innovative delivery of instruction ever created; these early flight training films were developed to maintain consistency in training for military workforce deployed all over the world (Kearns, 2010).

Electronic delivery of instruction experienced a significant growth in the late 1980s, as personal computers (PCs) became popular. PCs triggered the development of a new method of delivery called Computer Based Training (CBT). With CBT, the transfer of educational or training content occurred through electronic media, such as software installed on a specific computer's hardware or via Compact Disc Read-only Memory (CD-ROM). Albeit quite revolutionary in the beginning, CBT presented major issues regarding the diversity of platforms; hardware and software limitations; high development costs; and lack of understanding about electronic delivery of instructional content (Kearns, 2010).

The Internet led to substantial changes in the design, development, and delivery of instruction. The transfer of knowledge conducted via the Internet or intranet connection proved to be the most adequate alternative to the challenges presented by CBT. The Internet triggered the development of a new channel for instructional delivery called e-learning. E-learning was defined as a method of training that enabled the transfer of educational materials and the delivery of instructional content via any computer on an on-demand basis (Kearns, 2010).

While distance education (DE) was defined as a broad term that included all sorts of training provided to learners who were not physically present in a classroom with an instructor, e-learning was actually a refinement of DE and encompassed courses that were uniquely delivered via distance through electronic instructional medium (Kearns, 2010). Regarding the intricacies of e-learning, Kearns (2010) affirmed that:

> E-learning allows for innovative instructional design practices that are not feasible in a classroom setting. For example, e-learning enables worldwide training that learners can access when job requirements allow; it can also reduce information overload, adapt to the skill level of individual employees, and provide immediate feedback. (p. 25)

When compared to classroom training, e-learning presented several advantages. The advantages included (a) cost-efficiency; (b) geographic flexibility, as learners may take e-learning courses at any location; (c) temporal flexibility, as learners may take e-learning courses at any time; (d) content consistency; (e) high levels of interaction; (f) software compatibility; (g) automatic feedback; and (h) automatic tracking of learner performance (Kearns, 2010).

Conversely, e-learning also presented many disadvantages. The disadvantages included (a) high costs of production; (b) non-engaging and/or demotivating instruction for learners; (c) difficulty for instructors to verify learners' level of attention; (d) lack of organizational readiness; and (e) learners' inability to use computers. These disadvantages came to fruition when e-learning was not created upon sound instructional design principles. Another disadvantage was the total disregard for the needs of the

learner and the organization, which proved to be a significant challenge to course developers and learners alike (Kearns, 2010).

The delivery of instruction via educational technologies was pioneered by the airline industry. In fact, the Aviation Industry Computer Based Training Committee (AICC) was the first professional organization to defend the idea that online training was to be delivered in accordance with a specific set of guidelines. Unlike many other industries, aviation is an extremely regulated activity. The complexity of the aviation industry requires airline personnel to receive training and recurrent training according to statutory obligations. Those obligations involve all aspects of the aviation system, such as mechanics, security, and even food service (Bratengeyer, Albrecht, & Schwarz, 2012).

E-learning, therefore, came as a solution to the airlines' attempts to enhance and streamline the delivery of instruction, which gained a wider and more timeless reach. The delivery of e-learning on a large scale was optimized by the development of Learning Management Systems (LMS). LMS was a flexible platform wherein organizations (a) managed, administered, and tracked training with enrollment, certification, reporting; and (b) created, delivered, and assessed training (Bratengeyer, Albrecht, & Schwarz, 2012; Kearns, 2010). Those functionalities fitted the needs of the aviation and aerospace industry like a glove.

Given the grandiosity of LMSs, their development and implementation demanded extensive and meticulous planning, and involved risks related to cost, time, and level of acceptance. Professionals with expertise in both a computer management domain and an education domain were necessary to effectively deploy LMSs (Bratengeyer, Albrecht, & Schwarz, 2012). Similar to the steps of ISD models, the development and

implementation of LMSs required a deep understanding of the instruction, the environment, and, most importantly, the learner.

E-learning and Culture

The implementation of e-learning technologies marked a significant and profound change in teaching and learning, resulting in a 'technological revolution.' Learning technologies were considered more than a content repository, in fact, they were part of an e-learning environment with an extensive variety of tools and competencies (Hannon & D'Netto, 2007), on which LMSs were based.

Learning technologies were described as cognitive tools. Those cognitive tools were focused on transforming, augmenting, and supporting cognitive engagement among learners. Technology was also considered a cultural amplifier, as it reshaped the nature of human productivity, altered the process of cognition, and amplified the cultural dimensions of communication (McLoughlin & Oliver, 2000). In their study about cultural issues on blended e-learning design, Al-Hunaiyyan, Al-Huwail, and Al-Sharhan (2008) asserted that culture affected individuals in a society because it shaped their values, assumptions, perceptions, and behavior.

E-learning environments were developed based on the assumption that cultural values were deeply ingrained in the use of technology to mediate the systematic transfer of instruction. In theory, technology came to amplify the socio-cultural idea that learning was a channel to enculturation, wherein learners were socialized through progressive participation in tasks until full competence was achieved. Closely knit with the principles of constructivism, this idea preached that learning was best attained when it was based on real world contexts (McLoughlin & Oliver, 2000).

The approach developed by McLoughlin and Oliver (2000) considered the foundations of student-centered learning and cultural inclusivity, through which learners would have access to instructional resources that were congruent to their values, beliefs, and learning styles. Consequently, technology-oriented curriculum design approaches became commonalities within e-learning platforms. E-learning developers were known for designing, developing, and implementing instructional materials that addressed the needs of the learners. Educational solutions, including e-learning, were effectively developed when instructional designers understood the multiple ways people learned as well as people's needs as a group and as individuals (Little, 2001).

Concerns about the design and development of instruction, in accordance with cultural attributes, steered the research conducted by McLoughlin and Oliver (2000). Their study called for a serious debate regarding issues about the social and cultural dimensions of task design, communication channels, and structuring of information in instructional environments. Despite the internationalization of curricula that was fuelled by and congruent with the growth of e-learning, the consequences of cultural observance in the design of instructional resources lacked meaningful research and remained relatively unknown.

Unfortunately, research in the field of educational technology also showed that the observance of cultural elements in the e-learning environment was far from a reality. Although e-learning promoted the delivery of courses on a global and asynchronous basis, some organizations failed to acknowledge the learners' needs and system limitations during the analysis and design phases of instruction. Those organizations wrongly developed learning strategies based on the assumption that effective and

successful learning resulted exclusively from the creation of technologically advanced environments. The designers within these organizations believed in the effective and seamless transfer of learning from face-to-face settings to multi-cultural e-learning environments (Hannon & D'Netto, 2007).

Studies developed by Hannon and D'Netto (2007) showed that cultural differences between learners and instruction, or the technological challenges with the computer interface experienced by students, were usually overlooked by e-learning course developers. The lack of attention to these important details resulted in ineffective training, little or no performance improvement, and unnecessary additional costs.

In their discussion about technological issues in e-learning, Hannon and D'Netto (2007) mentioned 'cyberculture values' (p. 421) as a thrusting force behind the neutrality in the approach adopted by online learning environments. The 'cyberculture values' called for communications marked by speed, reach, quick-response, and informality. As a result, e-learning environments tended to create platforms primarily as content repositories based on the software's own cultural values.

Additionally, 'cyberculture values' could be attributed to a trend extensively observed in e-learning environments wherein instructional design models followed an Anglo-American assumption and appeared to reflect the values of the English-speaking world (Hannon & D'Netto, 2007). Al-Hunaiyyan et al. (2008) pointed out the fact that user interface design was based on psychological and social models derived from European and American research traditions. Al-Hunaiyyan et al. (2008) also discussed the Anglo-American assumption of 'cyberculture values' and cited language as a critical

constraint on portability of education software, as the majority of computer-related instructional materials were designed for English-speakers.

Language was not the only cultural element usually overlooked in the design and development of instruction. The Anglo-American assumption regarding language was a ramification of a much broader context called Western social philosophy, which was underpinned mainly by human rights, freedom, and individual equality (Al-Hunaiyyan et al., 2008), as well as capitalism, science, and technology (Western Culture Global, 2009). Given this reality, national and cultural identities along with religion and politics were pivotal in the establishment of computer-based learning materials, which should be carefully developed in order to avoid cultural clashes.

Whether unconsciously or not, instructional designers were extremely important to the design and development of learning environments as they influenced culture. According to Al-Hunaiyyan et al. (2008), individualistic values were implicit in technology and were encoded with the peculiarities of the culture that developed it.

McLoughlin and Oliver (2000) discussed the instructional design paradigms that reflected pedagogies resulting from the designers' own views, values, and societal contexts. Regarding the cultural dimensions of pedagogy, McLoughlin and Oliver found that the instructional design paradigms usually:

- imported social, cultural, and historical peculiarities of minority groups, but refrained from challenging the dominant culture; therefore, the process assumed a cosmetic nature;

- designed instructional elements from the minority perspective, but failed to provide the learners with valid experiences since the instructional design paradigm did not consider them as mainstream culture; or

- denied cultural diversity based on the belief that educational experiences were the same for students from dominant and minority cultures alike.

Although instructional design models generally worked on cognitive, social, and basic pedagogical issues, the need for cultural contextuality was overlooked (McLoughlin & Oliver, 2000). Through their non-observance of core pedagogical values, instructional designers failed to ensure that the content and tasks formed during the ISD process were flexible and aligned to learners' perspectives. The non-observance by instructional designers was what Daalsgard (as cited in Hannon & D'Netto, 2007) defined as 'pedagogical neutrality' (p. 421).

The design of an ideal learning environment, especially in organizations with wide international reach, should have ignored cultural neutrality and required a multiple cultural model of instructional design, which considered and upheld several cultural realities. This model involved the design of instructional resources fundamentally rooted on variability and flexibility as a means to enable students to learn through materials that reflected the multi-cultural realities of society, covered multiple ways of learning and teaching, and advocated equity of learning outcomes (McLoughlin & Oliver, 2000).

According to McLoughlin and Oliver (2000), this multi-cultural model of instructional design called for a global perspective and a thorough understanding of the ways the inclusion of cultural aspects (or lack thereof) influenced learning. Therefore, constructivist principles were extremely relevant and necessary for e-learning developers

in their attempt to design culturally appropriate instruction, which could also be defined as culturally pluralistic instruction, according to Scheel and Branch (as cited in McLoughlin & Oliver, 2000, p. 4).

This culturally pluralistic instruction would be supported by cultural learning objects. According to Al-Hunaiyyan et al. (2008), learning objects were elements in knowledge databases that provided flexibility in virtual learning environments for reusability, generativity, adaptability, and scalability. Cultural learning objects would be learning objects enriched by a vast array of information about the target culture.

The design and development of training in multi-cultural environments required a new paradigm that included an extensive understanding of issues involving psychology of culture and the peculiar differences culture brought to a truly global workplace. Flexible learning environments were necessary to facilitate and enhance communication between learners and instruction (Al-Hunaiyyan et al., 2008). These ideas should have been highly stressed and extensively observed by multi-cultural organizations, such as international airlines, in order to avoid cultural neutrality during the design, development, and delivery of effective and efficient online cabin crew training.

Summary

The review of the relevant literature illustrated the recent developments that reshaped the aviation industry (Buyck, 2010; Flint, 2010), impacted airline performance (Air Transport World, 2011; Ray, 2010), and led air carriers to focus on in-flight service as a strategic management tool to regain market share (Street, 1994). The extreme safety-conscious and highly technological nuances of the aviation and aerospace industry served only to highlight the importance of people in the success of an airline (Applebaum

& Fewster, 2002). Organizations within the aviation industry required qualified personnel with positive attitude and resourcefulness to enhance customer experience (Daly et al., 2009).

Focus was given to HRM as airlines attempted to improve workforce input (Applebaum & Fewster, 2002). Recruitment was the primary step in the airlines' HR strategic management to attract and select the most qualified individuals (Johnson et al., 2008; Parry & Wilson, 2009). Recruitment was followed by training, which ensured that their staff fit the interpersonal requirements of the job position (Gountas et al., 2007).

Transfer of instruction was effectively conducted through ISD (The Herridge Group, Inc., 2004). Instructional design models varied greatly albeit having essentially similar processes. These processes involved (a) the analysis of learners, content, and context; (b) the design of instruction; (c) the development of instructional plan; (d) the implementation of training; and, lastly, (e) the evaluation of the entire process (Intulogy, 2012; Kearns, 2011; Rothwell & Kazanas, 2011).

Training was widely present in the history of aviation. Since its inception, the field of aviation training had gone through four distinct yet intertwined generations: apprenticeship, simulation, safety, and customized training (Kearns, 2011). Cabin crew training was easily identified in those generations, as it was deeply regimented and structured (Cabin Crew Jobs, 2011). Aviation training was extensively affected by technology. From military training films to CBT, technology influenced the design, development, and delivery of training.

The Internet transformed the entire training process (Kearns, 2010; Thomas, 2003) and triggered the establishment of e-learning as the most convenient form of

training for a variety of organizations. E-learning made training geographically and temporally flexible. However, it was also costly and proved to be ineffective when designed and developed through non-observance of learners' needs and characteristics (Kearns, 2010). E-learning environments were better managed by LMSs that were used as a tool for design, development, and delivery, as well as tracking and record keeping (Bratengeyer et al., 2012).

The development of learning technologies, like LMS, was considered a technological revolution, as these technologies profoundly changed teaching and learning. Deemed as 'culture amplifiers,' learning technologies were supposed to enhance the process of learning and widen the cultural dimensions of training (Hannon & D'Netto, 2007; McLoughlin & Oliver, 2000).

Research showed that cultural differences among learners were overlooked by course developers during the design and development of instruction, thereby posing a challenge for students during the delivery of instruction. Typically the language, national identity, cultural heritage, religion, politics, values, and beliefs of course developers and instructors were observed in the instructional design process (Al-Hunaiyyan et al., 2008; Hannon & D'Netto, 2007; McLoughlin & Oliver, 2000).

The effective design and development of instruction that generated positive and everlasting results in multi-cultural environments were tightly connected to the observance of cultural gaps among learners. This approach formed the backbone of a multiple cultural instructional design model and generated culturally pluralistic instruction (McLoughlin & Oliver, 2000).

Chapter III

Methodology

In a constant pursuit for quality and innovation, airlines have been pioneers in the development of educational technologies for decades (Bratengeyer et al., 2012). Despite the advantages of online instruction, however, it has been noticed that "the acceptance, use, and impact of WWW sites is affected by cultural perception, values, needs, and preferences of learners" (McLoughling & Oliver, 2000, p. 1). Therefore, this research study was aimed at evaluating the effectiveness of e-learning courses designed and delivered by international airlines to their multi-cultural cabin crew in an attempt to maintain excellence in training.

Research Approach

The research approach used for this study was a descriptive comparative method utilizing questionnaires in order to establish and validate the relationship of non-observance of culture in the design of courses to the inefficiency of e-learning in multi-cultural environments, like international airlines.

Design and procedures. A multiple-choice questionnaire was developed for cabin crew members who had taken e-learning courses during their employment period at international airlines. The questionnaire aimed at collecting information regarding the effectiveness of e-learning courses designed and delivered by international airlines and at identifying possible challenges faced by the learners while taking the e-learning courses. Demographical data, such as language, country of origin, and cultural heritage were collected.

Additionally, detailed information on the elements of interaction between learner and instruction, program organization, content, and technology were evaluated through the questionnaire. The geographic region derived from the country of origin of the respondents as well as their cultural heritage (Western and non-Western), and their native language (English and non-English) were the main independent variables in this thesis. Learner experience; course organization and structure; course relevance; engagement, motivation, and interactivity; and cultural aspects in neutral e-learning environments were regarded as dependent constructs.

Apparatus and materials. Because of geographical limitations and the type of learning being assessed, this thesis aimed at designing and delivering the questionnaire in a similar method that the training was delivered – online. SurveyMonkey®, an Internet-based survey software program, was utilized for the delivery and collection of responses from the participating cabin crew. A link with the questionnaire was sent to the participating cabin crew members, who responded at their leisure (within the established period of four weeks). Furthermore, the Statistical Package for Social Sciences (SPSS®) was utilized as means of data analysis.

Population/Sample

Population was restricted to multi-cultural cabin crew who had taken e-learning courses offered by the employees' airlines. This specific type of workforce could be found within any large international airline. In the United States, there were 90,500 individuals occupying cabin crew positions in 2010 (Department of Labor, Bureau of Labor Statistics, 2012). The sample was collected through a convenience sampling of contacts working as cabin crew for an international airline and was extended by snowball

sampling, through which questionnaire respondents recruited other respondents among their acquaintances.

Data Collection Device

 Instrument validity. The questionnaire had content validity and construct validity that accurately assessed the topic proposed in this thesis. A pre-test was conducted with a selected group of cabin crew members from an international airline, as a means to evaluate the face validity of the questionnaire and its alignment with the proposed hypotheses.

 The review of the relevant literature was extremely important in the definition of the constructs to be verified by this research project. The constructs related to learner experience (Questions 1, 6, 11, 16, and 25); course content organization and structure (Questions 2, 7, 12, 17, and 22); and level of learner engagement, motivation, and interactivity (Questions 4, 9, 14, 19, and 24) were influenced by the study developed by Paechter and Maier (2010), which discussed students' experiences and preferences towards e-learning training in 29 Austrian universities.

 The development of constructs that explored the relevance of e-learning courses for learners (Questions 3, 8, 13, 18, 21, 23, and 26); as well as the significant cultural aspects influencing e-learning (Questions 5, 10, 15, 20, and 27) were influenced by the research conducted by Hannon and D'Netto (2007), which verified the relevance of cultural diversity in e-learning environments. The cultural aspects influencing e-learning were also influenced by a study developed by McLoughlin and Oliver (2000). In their study, McLoughlin and Oliver discussed in detail the intricacies of the relationship between culture and e-learning, and offered alternatives to the design of culturally

pluralistic instruction, which could be achieved through a multi-cultural model of instructional design based on flexibility and constructivism.

Instrument reliability. The internal consistency of the questionnaire was assessed using a Cronbach's alpha reliability analysis for each of the question pairs that were summarized for each dependent variable/construct.

Treatment of Data

Descriptive statistics. The data collected from the questionnaire items exploring the demographics of the participating sample were nominal, and data were displayed graphically. The data gathered from questionnaire items exploring the perception of the participating population towards neutrally cultural e-learning environments were interval data; the mean, median, minimum, maximum, and standard deviation were presented in tables by construct.

The participating sample was divided into five independent groups based on their geographic region of origin. Therefore, respondents from South Africa, Zimbabwe, Kenya, and Mauritius were classified as "Africa;" respondents from the United States, Brazil, Haiti, and Paraguay were classified as "Americas;" respondents from India, Malaysia, Indonesia, and the Philippines were classified as "Asia;" respondents from the United Kingdom, Greece, Spain, Portugal, Finland, Czech Republic, and Republic of Moldova were classified as "Europe;" respondents from Australia and New Zealand were classified as "Oceania" (World Atlas, 2012). The counts resulting from the collection of these nominal data were presented through a pie chart.

Also based on their country of origin, the participating sample was divided into two other independent groups: non-Western and Western. Respondents from India,

Malaysia, Indonesia, the Philippines, Zimbabwe, Kenya, and Mauritius were classified as "non-Western." Respondents from Australia, New Zealand, United States, United Kingdom, Brazil, Paraguay, Haiti, Greece, Spain, Portugal, Finland, Czech Republic, Republic of Moldova, and South Africa were classified as "Western" (KC Distance Learning, 2012).

Given that e-learning environments were designed and developed based on Anglo-American standards, the participating sample was divided into two independent groups. The first group was composed of respondents whose first language was English, and the second group was composed of respondents whose first language was not English.

The perceptions of the participating sample regarding e-learning environments were analyzed through constructs explored by the hypotheses. Numerical values were attributed to the answers in all questions except 1, 6, and 11 and were based on the Likert scale: "Totally agree" was assigned number 1, "Agree" was assigned number 2, "Neutral" was assigned number 3, "Disagree" was assigned number 4, and "Totally Disagree" was assigned number 5.

For question 1, "Barely Competent" was assigned number 1, "Fairly Competent" was assigned number 2, "Competent" was assigned number 3, "Proficient" was assigned number 4, and "Highly Proficient" was assigned number 5. For questions 6 and 11, "No Online Courses" was assigned number 1, "1-2 Online Courses" was assigned number 2, "3-5 Online Courses" was assigned number 3, "Above 5 Courses" was assigned number 4, and "I don't remember" was assigned number 5.

Reliability Testing

The reliability questions designed into the study were assessed through a Cronbach's alpha internal consistency test. Parallel questions were developed to evaluate the consistency of the respondents. When two items were written in reverse order (one positive and one negative), for reliability testing, one score was reversed for parallel comparisons. "Totally Disagree" was assigned number 1, "Disagree" was assigned number 2, "Neutral" was assigned number 3, "Agree" was assigned number 4, and "Totally Agree" was assigned number 5. The data derived from the verification of those constructs were presented through box plots. The following question pairs were analyzed: Questions 2 and 7; Questions 4 and 9; Questions 5 and 10; Questions 8 and 13; Questions 12 and 17; and Questions 16 and 22.

Factor Analysis

A factor analysis was run to confirm the related variables found within the questionnaire and to verify if the statistically-based factors matched the literature-based factors. The factor analysis used a Varimax rotation to help with the interpretation of the resulting factors. The established factors were subsequently used in the testing of the hypotheses.

Hypotheses Testing

For Hypothesis 1, the null hypothesis was that there was no significant difference in course relevance and learner motivation in neutral e-learning environments for region of origin of the respondents. The null hypothesis was tested using ANOVA.

For Hypothesis 2, the null hypothesis was that there was no significant difference in course relevance and learner motivation in neutral e-learning environments for cultural heritage of the respondents. The null hypothesis was tested using a *t*-test.

For Hypothesis 3, the null hypothesis was that there was no significant difference in course relevance and learner motivation in neutral e-learning environments for native language of the respondents. The null hypothesis was tested using a *t*-test.

For Hypothesis 4, the null hypothesis was that there was no significant difference in cultural aspects in neutral e-learning environments for region of origin of the respondents. The null hypothesis was tested using ANOVA.

For Hypothesis 5, the null hypothesis was that there was no significant difference in cultural aspects in neutral e-learning environments for cultural heritage of the respondents. The null hypothesis was tested using a *t*-test.

For Hypothesis 6, the null hypothesis was that there was no significant difference in cultural aspects in neutral e-learning environments for native language of the respondents. The null hypothesis was tested using a *t*-test.

For Hypothesis 7, the null hypothesis was that there was no significant difference in course organization and navigation in neutral e-learning environments for region of origin of the respondents. The null hypothesis was tested using ANOVA.

For Hypothesis 8, the null hypothesis was that there was no significant difference in course organization and navigation in neutral e-learning environments for cultural heritage of the respondents. The null hypothesis was tested using a *t*-test.

For Hypothesis 9, the null hypothesis was that there was no significant difference in course organization and navigation in neutral e-learning environments for native language of the respondents. The null hypothesis was tested using a *t*-test.

For Hypothesis 10, the null hypothesis was that there was no significant difference in course interactivity in neutral e-learning environments for region of origin of the respondents. The null hypothesis was tested using ANOVA.

For Hypothesis 11, the null hypothesis was that there was no significant difference in course interactivity in neutral e-learning environments for cultural heritage of the respondents. The null hypothesis was tested using a *t*-test.

For Hypothesis 12, the null hypothesis was that there was no significant difference in course interactivity in neutral e-learning environments for native language of the respondents. The null hypothesis was tested using a *t*-test.

Chapter IV

Results

Descriptive Statistics

Participants. The survey instrument was sent via e-mail to a total number of 148 cabin crew members working for a single international airline. Sixty of the 148 cabin crew members accessed the questionnaire, which led to an access rate of 41%. A total of 88 (59%) cabin crew members did not access the questionnaire. From the 60 respondents who accessed the questionnaire, 47 cabin crew members completed the survey, which generated a response rate of 31.7%.

The sample's demographics were divided into three independent variables. The geographic region of origin had five independent categories: Africa, the Americas (North, Central, and South), Asia, Europe, and Oceania. The respondents were from Oceania ($n = 13$, 28%), the Americas ($n = 13$, 28%), Europe ($n = 10$, 21%), Africa ($n = 6$, 13%), and Asia ($n = 5$, 10%), as shown in Figure 2.
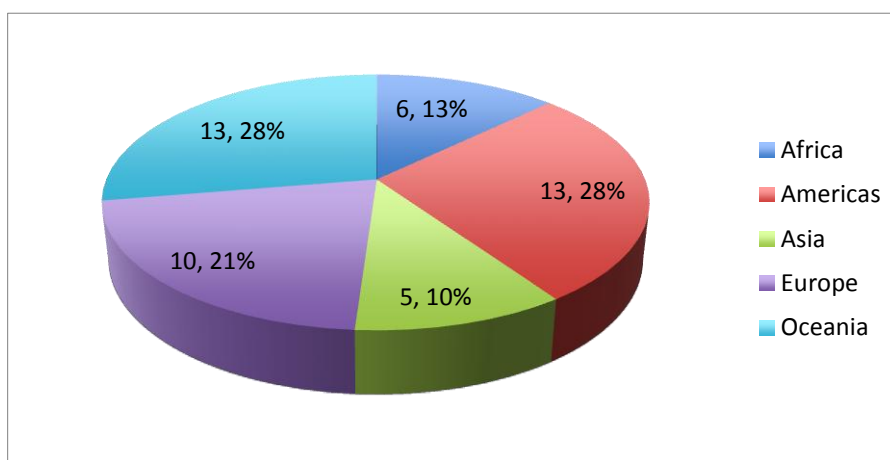
Figure 2. Regions of origin.

Regarding their native language, 21 respondents (45%) were native English speakers and 26 (55%) were non-English speakers. As for the their cultural heritage, 38 cabin crew members (81%) were classified as Western, while nine cabin crew members (19%) were classified as non-Western.

The learner experience was verified by the questionnaire. Questions focused on the level of computer literacy and the number of e-learning courses taken by each participant yielded the results in Table 1 and Table 2.

Table 1

Level of Computer Literacy (Learner)

Item	BC	FC	C	P	HP	Mean
1. My level of computer literacy is	2.1%	10.6%	21.3%	**44.7%**	21.3%	3.72

Note. BC = Barely Competent, FC = Fairly Competent, C = Competent, P = Proficient, HP = Highly Proficient.

Table 2

Learner Experience with E-learning Courses

Item	NO	1-2	3-5	A5C	IDR	Mean
6. My experience with online courses before working as cabin crew was	19.6%	21.7%	15.2%	**41.3%**	2.2%	2.85
11. In the past six months, I have taken	4.3%	23.9%	19.6%	**52.2%**	0.0%	3.20

Note. NO = No Online Courses, 1-2 = 1-2 Online Courses, 3-5 = 3-5 Online Courses, A5C = Above 5 Courses, IDR = I don't remember.

Factor Analysis

The initial factor analysis found that the questionnaire's statistically-based factors did not match with the literature-based factors. Additionally, although the Bartlett's Test

of Sphericity presented positive results, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy index generated by the factor analysis (.492) was not acceptable as there were not enough respondents to the number of variables in the questionnaire.

A thorough review of the questionnaire was conducted in accordance with the literature on which this thesis was based. Irrelevant variables were excluded and the remaining variables were re-grouped according to a new list of constructs. A second factor analysis was run on the new group of variables.

In the second factor analysis, both the Kaiser-Meyer-Olkin Measure of Sampling Adequacy and the Bartlett's Test of Sphericity presented positive results. Additionally, the variables confirmed the literature-based constructs. The second factor analysis created the following four new constructs (see Table 3): (a) course relevance and learner motivation, (b) cultural aspects, (c) course organization, and (d) course interactivity; the column headings a-d in Table 3 represent these four new constructs.

Table 3

Rotated Component Matrix[a]

Specific Questions from Questionnaire	Construct			
	a	b	C	d
23. At my workplace, I was able to apply the knowledge I gained during the online courses	**.843**	-.105	-.146	.097
24. I felt motivated to take the online courses offered by the airline I work(ed) for	**.729**	.493	.158	-.020
18. The online courses were important for my performance as a member of the cabin crew	**.716**	.088	.232	.254
9. I had to struggle to remain engaged while taking the online courses	**.700**	-.059	.293	.006
19. The airline I work(ed) for provides(ed) motivation regarding participation in online courses	**.692**	.117	-.014	.428
21. The online courses reflected the reality found in my work place	**.666**	.388	.218	-.227
15. I recognized elements of my own culture in the online courses	-.111	**.854**	-.056	.172
20. My culture was referenced in the online courses (e.g., values, behavior, language, etc.)	.271	**.739**	-.108	-.231
27. I had a chance to provide feedback about the cultural issues that I found in the online courses	.565	**.623**	-.110	.021
16. The online courses were easy to understand	.010	.005	**.792**	-.112
2. The online courses were well organized	.330	-.181	**.700**	.311
12. The online courses were difficult to navigate	-.109	.280	**-.623**	.483
5. The online courses were culturally sensitive	-.099	.529	**.579**	.340
3. The content of the online courses was relevant	.494	.079	**.565**	.401
14. The online courses offered sufficient interactivity	.180	-.042	.045	**.738**

Note. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
[a] Rotation converged in 13 interactions.

Reliability Testing

The reliability of the variables used the Cronbach's alpha (α) based on the standardized items. George and Mallery (2011) provided the rule of thumb for interpreting the significance of the reliability coefficients.

Questions 2 and 7 assessed the organization of e-learning courses; for these questions, $\alpha = 0.667$, which is considered a questionable reliability. Questions 4 and 9 assessed course interactivity; for these questions, $\alpha = 0.731$, which is considered an acceptable reliability.

Questions 5 and 10 assessed cultural sensitivity of e-learning courses; for these questions, $\alpha = 0.049$, which is considered an unacceptable reliability. Questions 8 and 13 assessed the relevance of e-learning courses; for these questions, $\alpha = 0.578$, which is considered a poor reliability.

Questions 12 and 17 assessed the navigation of e-learning courses; for these questions, $\alpha = 0.568$, which is considered a poor reliability. Questions 16 and 22 assessed the level of course organization; for these questions, $\alpha = 0.564$, which is considered a poor reliability.

Constructs. The input from the participating sample for the new constructs is presented below. These new constructs are statistically valid from the factor analysis and have construct validity from the literature.

Course relevance and learner motivation. This construct was established by the design of variables related to the relevance of e-learning for both the airline and the cabin crew members, and how it influenced the motivation of the learner. The variables supporting this construct yielded the results in Table 4.

Table 4

Course Relevance and Learner Motivation

Item	SA	A	N	D	SD	Mean
23. At my work place I was able to apply the knowledge I gained during the online courses	6.4%	**51.1%**	23.4%	17.0%	2.1%	2.57
24. I felt motivated to take the online courses offered by the airline I worked for	0.0%	19.1%	29.8%	**31.9%**	19.1%	3.51
18. The online courses were important for my performance as cabin crew	2.1%	**48.9%**	25.5%	17.0%	6.4%	2.77
9. I had to struggle to remain engaged while taking online courses	23.4%	**38.3%**	23.4%	12.8%	2.1%	3.68
19. The airline I worked for provided motivation regarding participation on online courses	6.4%	27.7%	14.9%	**40.4%**	10.6%	3.21
21. The online courses reflected the reality found in my work place	0.00%	**36.2%**	34.0%	19.1%	10.6%	3.04

Note. SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree.

Cultural aspects. This construct was established by the design of variables related to cultural aspects surrounding the design and development of e-learning in multi-cultural environments. The variables supporting this construct yielded the results in Table 5.

Table 5

Cultural Aspects

Item	SA	A	N	D	SD	Mean
15. I recognized elements of my own culture in the online courses	2.1%	23.4%	**48.9%**	14.9%	10.6%	3.09
20. My culture was referenced in the online courses	2.1%	17.0%	**42.6%**	27.7%	10.6%	3.28
27. I had a chance to provide feedback about cultural issues that I found in the online courses	0.0%	21.3%	23.4%	**36.2%**	19.1%	3.53

Note. SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree.

Course organization. This construct was formed by variables designed to assess the organization of the e-learning courses, such as navigation and relevance of content structure. The questions supporting this construct yielded the results in Table 6.

Table 6

Course Organization

Item	SA	A	N	D	SD	Mean
16. The online courses were easy to understand	10.6%	**68.1%**	19.1%	21.1%	0.0%	2.13
2. The online courses were well organized	6.4%	**76.6%**	12.8%	4.3%	0.0%	2.15
12. The online courses were difficult to navigate	0.00%	19.6%	6.5%	**58.7%**	15.2%	3.70
5. The online courses were culturally sensitive	6.4%	**76.6%**	17.0%	0.0%	0.0%	2.11
3. The content of the online courses was relevant	10.6%	**70.2%**	10.6%	4.3%	4.3%	2.21

Note. SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree.

Course interactivity. This construct was established by the design of a variable aimed at assessing the level of interactivity provided by e-learning courses. The variable yielded the results in Table 7.

Table 7

Course Interactivity

Item	SA	A	N	D	SD	Mean
14. The online courses offered sufficient interactivity	2.1%	**44.7%**	27.7%	17.0%	8.5%	2.85

Note. SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree.

Descriptive statistics of the constructs. An analysis of the frequencies was conducted for each of the constructs. The analysis yielded the results in Table 8. The median, minimum, and maximum are not whole numbers because the construct is the average of all the questions within them.

Table 8

Descriptive Statistics of the Constructs

Factors	N	Mean	Median	SD	Min	Max
Course relevance and learner motivation	47	3.15	3.00	.79	2.00	4.80
Cultural aspects	47	3.30	3.33	.79	2.00	5.00
Course organization	47	2.46	2.40	.42	1.60	4.00
Course interactivity	47	2.85	3.00	1.02	1.00	5.00

Note. N = Number of respondents, SD = Standard Deviation, Min = Minimum, Max = Maximum.

Hypotheses Testing

  Hypothesis 1. An ANOVA was conducted to test the null hypothesis that there

was no significant difference in course relevance and learner motivation in neutral

e-learning environments for region of origin of the respondents. The ANOVA compared

the perceptions of five groups of learners (Africa, Americas, Asia, Europe, and Oceania)

regarding course relevance and leaner motivation in neutral e-learning environments. See

Table 9.

  The ANOVA results for Hypothesis 1 were $F(4, 42) = 6.171$, $p < .001$, which

meant that there was a statistically significant difference in course relevance and learner

motivation in neutral e-learning environments among learners coming from the

researched regions of origin. The null hypothesis was rejected.

Table 9

Course Relevance and Learner Motivation Based on Region of Origin

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Africa	6	3.36	.46	.19	2.88	3.85
Americas	13	*2.86*	.71	.19	2.43	3.29
Asia	5	*2.40*	.49	.22	1.80	3.00
Europe	10	*2.90*	.73	.23	2.37	3.42
Oceania	13	**3.81**	.64	.17	3.42	4.20
Total	47	3.15	.78	.11	2.92	.38

  The Levene Statistic showed that there was no significant difference among the

variances ($p = .377$); therefore, the Bonferroni post-hoc test was used. The Bonferroni

test results showed that there was a significant difference between the means of Oceania and the Americas; Oceania and Asia; and Oceania and Europe. Therefore, Oceania had a statistically higher mean than the regions of origin of Asia, Americas, or Europe. There was no significant difference in means between Oceania and Africa.

   Hypothesis 2. An independent samples *t*-test was conducted to test the null hypothesis that there was no significant difference in course relevance and learner motivation in neutral e-learning environments for cultural heritage of the respondents. The independent samples *t*-test compared the perceptions of a group of learners of non-Western cultural heritage and a group of learners of Western cultural heritage regarding course relevance and learner motivation in neutral e-learning environments. See Table 10.

   The Levene's Test for Equality of Variances showed that there was no significant difference between the variances ($p = .456$); therefore, the equal-variances-assumed *t*-test results were used. The equal-variances-assumed *t*-test results showed that there was no significant difference in the scores of non-Western respondents ($M = 2.82$, $SD = .714$) and in the scores of Western respondents ($M = 3.22$, $SD = .79$); $t(45) = -1.399$, $p = .169$. The null hypothesis failed to be rejected.

Table 10

Course Relevance and Learner Motivation Based on Cultural Heritage

	My cultural heritage is	*N*	Mean	Std. Deviation	Std. Error Mean
Course relevance and learner motivation	Non-Western	9	2.82	.71	.23
	Western	38	3.22	.79	.12

Hypothesis 3. An independent samples *t*-test was conducted to test the null

hypothesis that there was no significant difference in course relevance and learner

motivation in neutral e-learning environments for native language of the respondents.

The independent samples *t*-test compared the perceptions of a group of learners whose

native language was English and a group of learners whose native language was not

English regarding course relevance and learner motivation in neutral e-learning

environments. See Table 11.

The Levene's Test for Equality of Variances showed that there was no significant

difference between the variances ($p = .611$); therefore, the equal-variances-assumed *t*-test

results were used. The equal-variances-assumed *t*-test results showed that there was a

significant difference in the scores of English-speaking respondents ($M = 3.52$,

$SD = .723$) and in the scores of non-English-speaking respondents ($M = 2.81$, $SD = .648$);

$t(45) = 3.54$, $p < .001$. The null hypothesis was rejected. The mean for English-speaking

respondents was statistically higher than the mean for non-English-speaking respondents.

Table 11

Course Relevance and Learner Motivation Based on Native Language

	My native language is	*N*	Mean	Std. Deviation	Std. Error Mean
Course relevance and learner motivation	English	21	3.52	.72	.15
	Non-English	26	2.81	.64	.12

Hypothesis 4. An ANOVA was conducted to test the null hypothesis that there was no significant difference in cultural aspects of neutral e-learning environments for region of origin of the respondents. The ANOVA compared the perceptions of five groups of learners (Africa, Americas, Asia, Europe, and Oceania) regarding cultural aspects of neutral e-learning environments. See Table 12.

The ANOVA results for Hypothesis 4 were $F(4, 42) = .889$, $p = .479$, which meant that there was no significant difference in cultural aspects of neutral e-learning environments among learners coming from the researched regions of origin. The null hypothesis failed to be rejected.

Table 12

Cultural Aspects Based on Region of Origin

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound
Africa	6	3.55	1.20	.49	2.29	4.82
Americas	13	3.46	.82	.22	2.96	3.95
Asia	5	2.86	.69	.30	2.00	3.72
Europe	10	3.06	.81	.25	2.48	3.64
Oceania	13	3.36	.53	.14	3.03	3.68
Total	47	3.30	.79	.11	3.06	3.53

Hypothesis 5. An independent samples *t*-test was conducted to test the null hypothesis that there was no significant difference in cultural aspects of neutral e-learning environments for cultural heritage of the respondents. The independent samples *t*-test compared the perceptions of a group of learners of non-Western cultural

heritage and a group of learners of Western cultural heritage regarding cultural aspects of neutral e-learning environments. See Table 13.

The Levene's Test for Equality of Variances showed that there was no significant difference between the variances ($p = .107$); therefore, the equal-variances-assumed t-test results were used. The equal-variances-assumed t-test results showed that there was no significant difference in the scores of non-Western respondents ($M = 3.29$, $SD = 1.08$) and in the scores of Western respondents ($M = 3.29$, $SD = .72$); $t(45) = -.007$, $p = .995$. The null hypothesis failed to be rejected.

Table 13

Cultural Aspects Based on Cultural Heritage

	My cultural heritage is	N	Mean	Std. Deviation	Std. Error Mean
Cultural aspects	Non-Western	9	3.29	1.08	.36
	Western	38	3.29	.72	.11

Hypothesis 6. An independent samples t-test was conducted to test the null hypothesis that there was no significant difference in cultural aspects of neutral e-learning environments for native language of the respondents. The independent samples t-test compared the perceptions of a group of learners whose native language was English and a group of learners whose native language was not English regarding cultural aspects of neutral e-learning environments. See Table 14.

The Levene's Test for Equality of Variances showed that there was no significant difference between the variances ($p = .358$); therefore, the equal-variances-assumed t-test results were used. The equal-variances-assumed t-test results showed that there was no

significant difference in the scores of English-speaking respondents ($M = 3.20$, $SD = .67$)

and in the scores of non-English-speaking respondents ($M = 3.37$, $SD = .88$);

$t(45) = -.707$, $p = .483$. The null hypothesis failed to be rejected.

Table 14

Cultural Aspects Based on Native Language

	My native language is	N	Mean	Std. Deviation	Std. Error Mean
Cultural aspects	English	21	3.20	.67	.14
	Non-English	26	3.37	.88	.17

Hypothesis 7. An ANOVA was conducted to test the null hypothesis that there

was no significant difference in course organization in neutral e-learning environments

for region of origin of the respondents. The ANOVA compared the perceptions of five

groups of learners (Africa, Americas, Asia, Europe, and Oceania) regarding course

organization in neutral e-learning environments. See Table 15.

Table 15

Course Organization Based on Region of Origin

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Africa	6	2.53	.46	.19	2.04	3.02
Americas	13	2.37	.32	.08	2.17	2.56
Asia	5	2.16	.32	.14	1.75	2.56
Europe	10	2.50	.38	.12	2.22	2.77
Oceania	13	2.60	.51	.14	2.28	2.91
Total	47	2.46	.42	.06	2.33	2.58

The ANOVA results for Hypothesis 7 were $F(4, 42) = 1.228$, $p = .313$, which meant that there was no significant difference in course organization in neutral e-learning environments for learners coming from the researched regions of origin. The null hypothesis failed to be rejected.

Hypothesis 8. An independent samples *t*-test was conducted to test the null hypothesis that there was no significant difference in course organization in neutral e-learning environments for cultural heritage of the respondents. The independent samples *t*-test compared the perceptions of a group of learners of non-Western cultural heritage and a group of learners of Western cultural heritage regarding course organization in neutral e-learning environments. See Table 16.

The Levene's Test for Equality of Variances showed that there was no significant difference between the variances ($p = .755$); therefore, the equal-variances-assumed *t*-test results were used. The equal variances assumed *t*-test results showed that there was no significant difference in the scores of non-Western respondents ($M = 2.40$, $SD = .469$) and in the scores of Western respondents ($M = 2.47$, $SD = .413$); $t(45) = -.477$, $p = .636$. The null hypothesis failed to be rejected.

Table 16

Course Organization Based on Cultural Heritage

	My cultural heritage is	N	Mean	Std. Deviation	Std. Error Mean
Course organization	Non-Western	9	2.40	.47	.15
	Western	38	2.47	.41	.06

Hypothesis 9. An independent samples *t*-test was conducted to test the null hypothesis that there was no significant difference in course organization in neutral e-learning environments for native language of the respondents. The independent samples *t*-test compared the perceptions of a group of learners whose native language was English and a group of learners whose native language was not English regarding course organization in neutral e-learning environments. See Table 17.

Table 17

Course Organization Based on Native Language

	My native language is	*N*	Mean	Std. Deviation	Std. Error Mean
Cultural aspects	English	21	2.48	.40	.08
	Non-English	26	2.42	.36	.07

The Levene's Test for Equality of Variances showed that there was no significant difference between the variances ($p = .935$); therefore, the equal-variances-assumed *t*-test results were used. The equal-variances-assumed *t*-test results showed that there was no significant difference in the scores of English-speaking respondents ($M = 2.48$, $SD = .40$) and in the scores of non-English-speaking respondents ($M = 2.42$, $SD = .36$); $t(45) = .586$, $p = .561$. The null hypothesis failed to be rejected.

Hypothesis 10. An ANOVA was conducted to test the null hypothesis that there was no significant difference in course interactivity in neutral e-learning environments for region of origin of the respondents. The ANOVA compared the perceptions of five groups of learners (Africa, Americas, Asia, Europe, and Oceania) regarding course interactivity in neutral e-learning environments. See Table 18.

The ANOVA results for Hypothesis 10 were $F(4, 42) = .884$, $p = .482$, which meant that there was no significant difference in course interactivity of neutral e-learning environments for learners coming from the researched regions of origin. The null hypothesis failed to be rejected.

Table 18

Course Interactivity Based on Region of Origin

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Africa	6	2.33	1.03	.42	1.24	3.41
Americas	13	2.84	1.06	.29	2.20	3.49
Asia	5	2.80	.83	.37	1.76	3.83
Europe	10	2.70	.82	.26	2.11	3.28
Oceania	13	3.23	1.16	.32	2.52	3.93
Total	47	2.85	1.02	.14	2.55	3.15

Hypothesis 11. An independent samples *t*-test was conducted to test the null hypothesis that there was no significant difference in course interactivity in neutral e-learning environments for cultural heritage of the respondents. The independent samples *t*-test compared the perceptions of a group of learners of non-Western cultural heritage and a group of learners of Western cultural heritage regarding course interactivity in neutral e-learning environments. See Table 19.

The Levene's Test for Equality of Variances showed that there was no significant difference between the variances ($p = .876$); therefore, the equal-variances-assumed *t*-test results were used. The equal-variances-assumed *t*-test results showed that there was no

significant difference in the scores of non-Western respondents ($M = 2.66$, $SD = 1.00$)

and in the scores of Western respondents ($M = 2.89$, $SD = 1.03$); $t(45) = -.598$, $p = .553$.

The null hypothesis failed to be rejected.

Table 19

Course Interactivity Based on Cultural Heritage

	My cultural heritage is	N	Mean	Std. Deviation	Std. Error Mean
Course interactivity	Non-Western	9	2.66	1.00	.33
	Western	38	2.89	1.03	.16

Hypothesis 12. An independent samples *t*-test was conducted to test the null

hypothesis that there was no significant difference in course interactivity in neutral

e-learning environments for native language of the respondents. The independent

samples *t*-test compared the perceptions of a group of learners whose native language

was English and a group of learners whose native language was not English regarding

course interactivity in neutral e-learning environments. See Table 20.

Table 20

Course Interactivity Based on Native Language

	My native language is	N	Mean	Std. Deviation	Std. Error Mean
Cultural aspects	English	21	3.14	1.15	.25
	Non-English	26	2.61	.85	.16

The Levene's Test for Equality of Variances showed that there was a significant difference between the variances ($p = .025$); therefore, the equal-variances-not-assumed t-test results were used. The equal-variances-not-assumed t-test results showed that there was no significant difference in the scores of English-speaking respondents ($M = 3.14$, $SD = 1.15$) and in the scores of non-English-speaking respondents ($M = 2.61$, $SD = .85$); $t(36) = 1.747$, $p = .089$. The null hypothesis failed to be rejected.

Chapter V

Discussion, Conclusions, and Recommendations

Discussion

  Course relevance and learner motivation. Hypotheses 1, 2, and 3 stated that there was no significant difference in course relevance and learner motivation in neutral e-learning environments for region of origin, cultural heritage, and native language of the respondents respectively. The reality depicted by the results showed that the learners involved in this research had diverging opinions about course relevance and learner motivation, based on the region of origin and native language.

  For Hypothesis 1, the results showed that respondents from Oceania did not share the same opinion on course relevance and learner motivation with respondents from the Americas, Asia, and Europe. According to their means, the respondents from Oceania had lower opinions about course relevance and learner motivation and their responses were between Neutral and Disagree, while the results from the other groups were around Neutral or between Agree and Neutral.

  For Hypothesis 2, the results suggested that learners of Western cultural heritage and learners of non-Western cultural heritage shared the same opinion on course relevance and learner motivation in neutral e-learning environments. According to their means, the responses from both groups were around Neutral regarding course relevance and learner motivation in neutral e-learning environments.

  For Hypothesis 3, the results showed that English-speaking learners did not share the same opinions as non-English speaking learners about course relevance and learner motivation in e-learning courses. According to their means, learners whose native

language was English had lower opinions about course relevance and learner motivation and their responses were between Neutral and Disagree, while the responses from learners whose native language was not English were between Agree and Neutral, regarding course relevance and learner motivation in neutral e-learning environments.

Cultural aspects. Hypotheses 4, 5 and 6 stated that there was no significant difference in cultural aspects of neutral e-learning environments for region of origin, cultural heritage, and native language of the respondents respectively. The reality depicted by the results showed that the learners involved in this research had similar opinions about cultural aspects of e-learning, based on region of origin, cultural background, and native language.

For Hypothesis 4, the results suggested that learners coming from Africa, the Americas, Asia, Europe, and Oceania shared the same opinion on cultural aspects of neutral e-learning environments. According to the total mean, the responses from learners of all groups were between Neutral and Disagree regarding cultural aspects of neutral e-learning environments.

For Hypothesis 5, the results suggested that learners of non-Western cultural heritage and learners of Western cultural heritage shared the same opinion on cultural aspects of neutral e-learning environments. According to their means, the responses from the learners of both groups were between Neutral and Disagree regarding cultural aspects of neutral e-learning environments.

For Hypothesis 6, the results suggested that learners whose native language was English and learners whose native language was not English shared the same opinion on cultural aspects in neutral e-learning environments. According to their means, the results

from both groups of learners were between Neutral and Disagree regarding cultural aspects in neutral e-learning environments.

Course organization. Hypotheses 7, 8, and 9 stated that there was no significant difference in course organization in neutral e-learning environments for region of origin, cultural heritage, and native language of the respondents respectively. The reality depicted by the results showed that the learners involved in this research had similar positive opinions about course organization in e-learning courses, based on region of origin, cultural heritage, and native language.

For Hypothesis 7, the results suggested that learners coming from Africa, the Americas, Asia, Europe, and Oceania shared the same opinion on course organization in neutral e-learning environments. According to the total mean, the responses from learners of all groups were between Agree and Neutral regarding course organization in neutral e-learning environments.

For Hypothesis 8, the results suggested that learners of non-Western cultural heritage and learners of Western cultural heritage shared the same opinion about course organization in neutral e-learning environments. According to their means, the results from both groups of learners were between Agree and Neutral regarding course organization in neutral e-learning environments.

For Hypothesis 9, the results suggested that learners whose native language was English and learners whose native language was not English shared the same opinion about course organization in neutral e-learning environments. According to their means, the results from both groups were between Agree and Neutral regarding course organization in neutral e-learning environments.

Course interactivity. Hypotheses 10, 11, and 12 stated that there was no significant difference in course interactivity in neutral e-learning environments for region of origin, cultural heritage, and native language of the respondents respectively. The reality depicted by the results showed that the learners involved in this research had similar experiences and opinions about course interactivity in e-learning courses, based on region of origin, cultural heritage, and native language.

For Hypothesis 10, the results suggested that learners coming from Africa, the Americas, Asia, Europe, and Oceania shared the same opinion on course interactivity in neutral e-learning environments. According to the total mean, the responses from learners of all groups were between Agree and Neutral regarding course interactivity in neutral e-learning environments.

For Hypothesis 11, the results suggested that learners of non-Western cultural heritage and learners of Western cultural heritage shared the same opinion about course interactivity in neutral e-learning environments. According to their means, the results from both groups of learners were between Agree and Neutral regarding course interactivity in neutral e-learning environments.

For Hypothesis 12, the results suggested that learners whose native language was English and learners whose native language was not English shared the same opinion about course interactivity in neutral e-learning environments. According to their means, the results from both groups were around Neutral regarding course interactivity in neutral e-learning environments.

Conclusions

A thorough analysis of the constructs and the results of hypotheses testing led the researcher to conclude that the respondents had mixed opinions about neutral e-learning environments. A review of the means of the constructs, supported by a study of the proposed hypotheses, was conducted to verify the perceptions of the respondents about each factor.

Course relevance and learner motivation. Regarding course relevance and learner motivation, the results from Hypothesis 1 showed that learners from Oceania had negative opinions about e-learning in multi-cultural environments while learners from Africa, America, Asia, and Europe had neutral to positive opinions about the same subject matter. The results from Hypothesis 2 showed that both Western and non-Western learners shared an overall neutral to negative perception about the subject matter. The results from Hypothesis 3 showed that non-English-speaking learners had a positive opinion, while English-speaking learners had a negative opinion about course relevance and learner motivation.

This disparity presented in the results of Hypotheses 1 and 2 confirmed the theory proposed by Hannon and D'Netto (2007), which stated that learners from different cultural backgrounds did not experience e-learning environments as culturally inclusive regarding engagement with content. The results presented by Hypothesis 3 confirmed the assumption made also by Hannon and D'Netto (2007), which stated that learners from different language backgrounds respond differently to imperatives built in e-learning courses.

Although respondents had an overall opinion that e-learning training was relevant to their performance as cabin crew, they had little motivation to take e-learning courses. The low level of engagement from the learners was mainly a result of the lack of motivational strategies from their employing airline.

Cultural aspects. Regarding cultural aspects in e-learning courses, learners from all groups (regions of origin, cultural heritage, and native language) shared the same opinions on e-learning. According to the mean of the construct, all respondents had an overall neutral to negative perception about cultural aspects within e-learning. Although the respondents recognized elements of their own culture in the e-learning courses, they had no chance to provide feedback regarding any cultural issue that they might have found while taking e-learning courses during their employment with the airline.

These results confirmed the idea proposed by Hannon and D'Netto (2007), which stated that cultural and language differences in learners were not always explicitly incorporated in the design and development of online technologies. The somewhat negative perception of the respondents towards culture in e-learning resulted from the little consideration the employing airline had towards the learners and their cultural heritage while designing and developing e-learning courses.

Course organization. Regarding course organization, learners from all groups (regions of origin, cultural heritage, and native language) shared the same opinion on e-learning. According to the mean of the construct, all respondents had a positive to neutral perception about course organization in e-learning courses. The overall structure of the e-learning courses as well as the navigational tools were highly regarded by the

respondents. The organization of e-learning courses facilitated the understanding of the learners on course content and positively influenced learner perception on e-learning.

These results contradicted the idea proposed by Hannon and D'Netto (2007), which stated that learners from different cultural and language backgrounds responded in different ways to organizational imperatives and arrangements built in e-learning technologies. This research concluded that the employing airline designed and developed highly structured e-learning courses, which made use of efficient navigational tools and generated positive feedback from the learners.

Course interactivity. Regarding course interactivity, learners from all groups (region of origin, cultural heritage, and native language) shared the same opinion on e-learning. According to the means of the construct, respondents had an overall positive to neutral perception of course interactivity in e-learning. The interactivity of e-learning courses taken by the respondents was intrinsically connected to the above average opinions about the organization of the course, which was enhanced by efficient navigational tools.

These results contradicted the ideas proposed by Hannon and D'Netto, which in essence stated that the use of e-learning communication tools differed interculturally. However, the results also confirmed the idea proposed by Paechter and Maier (2010), which stated that interactivity and ease in learning management systems could affect course satisfaction. In this case, the high level of interactivity presented in e-learning courses by the employing airline led to course satisfaction from the learners.

Other conclusions. The researcher concluded that the employing airline designed, developed, and implemented highly organized e-learning courses that utilized

efficient navigational tools and provided expressive interactivity. This reality was an example of an organization that substantially invested in learning technologies based on the assumption that effective and successful learning resulted uniquely from the design and development of technologically advanced learning environments.

In their pursuit of excellence in training, the employing airline relied heavily on technology as a cultural amplifier to mediate the systematic transfer of knowledge. The airline created a learning platform that served solely as a content repository based on its own cultural values.

In this process, however, course developers at the employing airline failed to acknowledge the learners' needs during the analysis and design phases of instruction. The e-learning courses taken by the respondents were designed and developed through an instructional design paradigm that denied cultural diversity. This paradigm was based on the belief that educational experiences were the same for students from dominant and minority cultures alike. Course developers failed to ensure that the intricacies of the e-learning environment were flexible and aligned to the perspectives of the learners.

Course developers at the employing airline did not observe core pedagogical values. Instead, 'cyberculture values' were prioritized with the idea that fast and informal technology could impart knowledge equally and consistently to all learners. The course developers ignored a multi-cultural model of instructional design, where learners and their core characteristics were given the appropriate importance and were used as a valuable source of information in the instructional design process.

This multi-cultural model of instructional design called for a truly global perspective and a thorough understanding on the positive effects of the inclusion of

cultural aspects in e-learning environments. The lack of attention to such important

details led to negative perceptions from the learners toward e-learning. Consequently,

effectiveness in training and in performance improvement, which is of utmost importance

to create competitive advantage in the aviation business, was jeopardized.

Recommendations

Given the results from the Cronbach's alpha reliability test, it is recommended for

future researchers to re-design the reliability questions. Internal consistency among

questions should be observed in order to reach more accurate responses from the

questionnaire.

Furthermore, the questionnaire designed and utilized by this thesis cast the

responses of a rather small non-probability sample. Therefore, the results may have been

permeated with inaccuracies regarding the perceptions of cabin crew about neutral

e-learning environments. In order to avoid possible inaccuracies, it is recommended for

future research to utilize larger samples and/or to focus on a single construct instead of

four constructs (course relevance and learner motivation; cultural aspects; course

organization; and course interactivity).

The results originated by the questionnaire responses validated the instructional

design practices and models researched by this thesis, which were extensively studied in

Chapter II. The mitigation of 'cyberculture values' in favor of a multi-

0cultural approach based on constructivist ideas should be paramount in the

design and development of e-learning instruction, whether corporate or academic.

In order to reach this goal, the analysis phase of instructional design models

should be highly emphasized, as it is an extremely valuable source of information

regarding learners' needs, limitations, and backgrounds. This information should be taken into account when designing and developing effective training.

Additionally, focus should be given to formative and summative evaluations as they are also a reliable source of information. Feedback from recipients of instruction is an excellent measuring tool to gauge the effectiveness of training, whether it is delivered though e-learning or face-to-face.

The aforementioned phases are present in the majority of instructional design models. The observance of such phases, which relies of active learner participation, results in course effectiveness, through which the element of 'neutrality' ceases to exist.

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Appendix A

Data Collection Device

Questionnaire

1. My level of computer literacy is (Computer literacy: practical knowledge on Internet browsing and word processing) [Index: Learner experience/Source: Paechter & Maier, 2010]
   - ( ) Barely Competent
   - ( ) Fairly Competent
   - ( ) Competent
   - ( ) Proficient
   - ( ) Highly Proficient

2. The online courses were well organized. [Index: Course organization and structure/Source: Paechter & Maier, 2010]
   - ( ) Strongly Agree
   - ( ) Agree
   - ( ) Neutral
   - ( ) Disagree
   - ( ) Strongly Disagree

3. The content of the online courses was relevant. [Index: Course relevance/Source: Hannon & D'Netto, 2007]
   - ( ) Strongly Agree
   - ( ) Agree
   - ( ) Neutral
   - ( ) Disagree
   - ( ) Strongly Disagree

4. The online courses were engaging. [Index: Engagement, motivation, and interactivity/Source: Paechter & Maier, 2010]
   - ( ) Strongly Agree
   - ( ) Agree
   - ( ) Neutral
   - ( ) Disagree
   - ( ) Strongly Disagree

5. The online courses were culturally sensitive. [Index: Cultural aspects/Sources: Hannon & D'Netto, 2007; McLoughlin & Oliver, 2000]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

6. My experience with online courses before working as cabin crew was (number of online courses taken) [Index: Learner experience/Source: Paechter & Maier, 2010]

( ) No Online Courses

( ) 1-2 Online Courses

( ) 3-5 Online Courses

( ) Above 5 Courses

( ) I don't remember

7. The content of the online courses was poorly structured. [Index: Course organization and structure/Source: Paechter & Maier, 2010]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

8. The pre-requisite online courses helped me understand the required classroom training. [Index: Course relevance/Source: Hannon & D'Netto, 2007]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

9. I had to struggle to remain engaged while taking online courses. [Index: Engagement, motivation, and interactivity/Source: Paechter & Maier, 2010]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

10. The online courses showed little respect towards my culture. [Index: Cultural aspects/Sources: Hannon & D'Netto, 2007; McLoughlin & Oliver, 2000]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

11. In the past six months, I have taken [Index: Learner experience/Source: Paechter & Maier, 2010]

( ) No Online Courses

( ) 1-2 Online Courses

( ) 3-5 Online Courses

( ) Above 5 Online Courses

( ) I don't remember

12. The online courses were difficult to navigate. [Index: Course organization and structure/Source: Hannon & D'Netto, 2007]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

13. The pre-requisite online courses were unrelated to the required classroom training. [Index: Course relevance/Source: Hannon & D'Netto, 2007]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

14. The online courses offered sufficient interactivity. [Index: Engagement, motivation, and interactivity/Source: Paechter & Maier, 2010]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

15. I recognized elements of my own culture in the online courses. [Index: Cultural aspects/Sources: Hannon & D'Netto, 2007; McLoughlin & Oliver, 2000]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

16. The online courses were easy to understand. [Index: Learner experience/Source: Paechter & Maier, 2010]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

17. The online courses provided sufficient navigation tools. [Index: Course
    organization and structure/Source: Hannon & D'Netto, 2007]

    ( ) Strongly Agree

    ( ) Agree

    ( ) Neutral

    ( ) Disagree

    ( ) Strongly Disagree

18. The online courses were important for my performance as cabin crew. [Index:
    Course relevance/Source: Hannon & D'Netto, 2007]

    ( ) Strongly Agree

    ( ) Agree

    ( ) Neutral

    ( ) Disagree

    ( ) Strongly Disagree

19. The airline I worked for provided motivation regarding participation on online
    courses. [Index: Engagement, motivation, and interactivity/Paechter & Maier,
    2010]

    ( ) Strongly Agree

    ( ) Agree

    ( ) Neutral

    ( ) Disagree

    ( ) Strongly Disagree

20. My culture was referenced in the online courses. [Index: Cultural aspects/Sources:
    Hannon & D'Netto, 2007; McLoughlin & Oliver, 2000]

    ( ) Strongly Agree

    ( ) Agree

    ( ) Neutral

    ( ) Disagree

    ( ) Strongly Disagree

21. The online courses reflected the reality found in my work place. [Index: Course relevance/Source: Hannon & D'Netto, 2007]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

22. I had difficulty understanding the course content. [Index: Course organization and structure/Source: Hannon & D'Netto, 2007]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

23. At my work place I was able to apply the knowledge I gained during the online courses. [Index: Course relevance/Source: Hannon & D'Netto, 2007]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

24. I felt motivated to take the online courses offered by the airline I work for. [Index: Engagement, motivation, and interactivity/Source: Paechter & Maier, 2010]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

25. The airline I worked for offered the appropriate level of support when I had difficulty understanding the content of the online courses. [Index: Learner experience/Paechter & Maier, 2010]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

26. At the airline you worked for, to what degree were you able to apply the contents of your three most recent online courses? [Index: Course relevance/Source: Hannon & D'Netto, 2007]

	Did not apply at all	Applied little	Applied some	Applied a lot	Applied everything
Course 1					
Course 2					
Course 3					

27. I had a chance to provide feedback about the cultural issues that I found in the online courses. [Index: Cultural aspects/Sources: Hannon & D'Netto, 2007; McLoughlin & Oliver, 2000]

( ) Strongly Agree

( ) Agree

( ) Neutral

( ) Disagree

( ) Strongly Disagree

28. My country of origin is _____ [Index: Demographic question]

29. My cultural heritage is _____ [E. g. White, Latino, African-American, Slavic, Germanic, Latin (Europe), Celtic, Turkic, Parsi, Bengali, Punjabi, Khasi, Tamang, etc.] [Index: Demographic question]

30. My native language is English. [Index: Demographic question]

    ( ) Yes

    ( ) No

Appendix B

Permission to Conduct Research

Embry-Riddle Aeronautical University

Application for IRB Approval

Determination Form

12-137

Principle Investigator: Graduate Student Jose Felix de Brito Neto under advisement of Dr. MaryJo Smith

Project Title: **e-Learning in multi-cultural environments: An analysis of online cabin crew Training**

Submission Date: <u>May 1, 2012</u>

Determination Date: <u>May 11, 2012</u>

<u>Review Board Use Only</u>

Initial Reviewer: <u>Teri Vigneau/Bert Boquet</u>

Exempt: <u>X</u> Yes   ___ No

Approved: <u>X</u> Yes   ___ No

Comments: This research will analyze the influence of e-learning on multi-cultural environments within international airlines. As this research is a survey to be completed through Survey Monkey, it poses no physical risk to participants and may be considered **exempt**. [Teri Vigneau 5-3-12]

This protocol is exempt. [Bert Boquet 5-14-12]