2015

# Comparing Basic Computer Literacy Self-Assessment Test and Actual Skills Test in Hospital Employees

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COLLEGE OF EDUCATION

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Jolly Isaac

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Doctoral Study Submitted in Partial Fulfillment

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## Abstract

A new hospital in United Arab Emirates (UAE) plans to adopt health information technology (HIT) and become fully digitalized once operational. The hospital has identified a need to assess basic computer literacy of new employees prior to offering them training on various HIT applications. Lack of research in identifying an accurate assessment method for basic computer literacy among health care professionals led to this explanatory correlational research study, which compared self-assessment scores and a simulated actual computer skills test to find an appropriate tool for assessing computer literacy. The theoretical framework of the study was based on constructivist learning theory and self-efficacy theory. Two sets of data from 182 hospital employees were collected and analyzed. A *t* test revealed that scores of self-assessment were significantly higher than they were on the actual test, which indicated that hospital employees tend to score higher on self-assessment when compared to actual skills test. A Pearson product moment correlation revealed a statistically weak correlation between the scores, which implied that self-assessment scores were not a reliable indicator of how an individual would perform on the actual test. An actual skill test was found to be the more reliable tool to assess basic computer skills when compared to self-assessment test. The findings of the study also identified areas where employees at the local hospital lacked basic computer skills, which led to the development of the project to fill these gaps by providing training on basic computer skills prior to them getting trained on various HIT applications. The findings of the study will be useful for hospitals in UAE who are in the process of adopting HIT and for health information educators to design appropriate training curricula based on assessment of basic computer literacy.

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# Dedication

This study is dedicated foremost to the almighty Lord and savior Jesus Christ whose love and grace sustains me every day. To my husband, Peter, who was my greatest support and strength throughout this period of study. My daughters, Malaika and Jessica, for their understanding, love, and patience when I had to spend long hours for my study. My parents, my siblings, and in-laws for their support and prayers.

# Acknowledgments

My sincere gratitude to my chair Dr. Ramirez and other committee members Dr.Laura Meyer and Dr.Caroline Crawford for their support and counsel throughout the doctoral process. My mentor and ex-boss Dr. Roxanne Nematollahi who encouraged me to enroll in the doctoral program. To Susan Ward and Beth Rodabaugh who helped me with getting approvals at the workplace and for their unwavering support. To my CEO for granting the permission to do the study at my workplace. To my colleague Francess Vicente who helped me to design an e-learning assessment so that it could be administered through the LMS and for coaching me on how to pull out reports from the LMS. To my fellow workers who consented to be participants for my study and took time from their very busy schedules to do the tests. God Bless you all for being an important part of this doctoral journey, which has molded and polished me to be a better scholar, academic writer, practitioner, and much more.

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Section 1: The Problem

## Definition of the Problem

Computers and information technology (IT) have become ubiquitous in the health care industry. Hospitals across the United Arab Emirates (UAE) are increasingly adopting IT applications for maintaining health information systems (HIS). A new hospital in UAE, which at the time of the study was in the project phase, was planning to have a fully IT-integrated hospital right from the first day of operations. The hospital anticipated they would be fully operational by early second quarter of 2015 and would have more than 72 IT applications related to HIS once operational. The employees, the majority of whom are clinical staff, are diverse in terms of nationalities, culture, educational background, age, gender, and computer skills. The challenge was to ensure that the employees were proficient and competent in using the HIS-related IT applications upon beginning work. For this to happen the employees needed to be trained on the use of these IT applications, and the training would have to be tailored to meet the existing knowledge and skill set of the employees. For example, employees with limited skills in using a computer will need training that is extensive in the basics first, and then in the specific HIS applications, while others may need training only for the specific HIS applications.

While analyzing IT applications training, the hospital's committee for activation and training (CAT), which was set up to analyze, plan, and organize organization-wide training requirements emphasized that to ensure the employees receive appropriate training within the specified timeframe, they will first need to be assessed for their basic

computer literacy. A lack of assessment of basic computer skills has been identified as one of the barriers in successful implementation of electronic medical record (EMR) technology across the world. As the hospital would have employees from diverse educational backgrounds and work experience, it was imperative that an accurate assessment be conducted to measure the level of computer literacy among these employees. The assessment of computer literacy could either be accomplished as a self-assessment or by administering a practical assessment. The method used for assessment should be feasible in terms of time consumed and accuracy of the results. The findings of the assessment should aid in developing the training plan for these employees in the IT applications within the stipulated timeframe. According to Turner (2010), measuring and tracking of computer literacy can lead to the development of well-designed and appropriate training programs to fit the specific literacy levels of the users.

## Rationale

### Evidence of the Problem at the Local Level

The 360-bed hospital in UAE, which at the time of the study was in a project phase or preoperational stage, had 800 employees. Once fully operational, the hospital would have 3,500 employees by end 2015. The current plan was to have the majority of the hospital employees onboard by the first and second quarter of 2015. These employees would then undergo hospital orientation and various training to prepare them for a mock hospital operation. The mock operations would help check functioning of all hospital systems and processes and aid in identifying gaps that could then be rectified before the final opening of the hospital to patients and community in the second quarter of 2015.

One of the major concerns was the ability of the new employees to adequately use computers and IT applications, because the hospital would be fully IT integrated with more than 72 IT applications that include both clinical and nonclinical applications.

The clinical and nonclinical staff in the hospital are hired from across the world, and it is assumed that some of them may have experience in using computers, electronic HIS, or other hospital IT applications, and some may not. Therefore, it is necessary to conduct an initial assessment of computer literacy among the hospital employees. An accurate assessment will help formulate a customized training plan. The first question to answer concerned which was a better method of assessing computer literacy, self-assessment or an actual skill test. The purpose of this study was to compare the results of a self-assessment test and actual skills test administered to assess the computer literacy among hospital employees to determine the most effective method of assessing new employees' computer literacy. The most effective method would then be used to assess the basic computer literacy of employees and the results utilized for development of an effective training program.

**Evidence of the Problem from the Professional Literature**

A review of professional literature revealed the need for proper assessment of computer skills among health professionals, especially in health care organizations that are in the process of adopting HIS. In a qualitative study conducted by Szydlowski and Smith (2009), employees were interviewed from different levels of a health care organization to gain a perspective on implementation of health information technology (HIT). One of the barriers identified in successful HIT integration was the inability to

assess basic computer and software skills necessary for the HIT users and in providing appropriate training. In another study, the Agency for Healthcare Research and Quality (AHRQ, 2009) reported that one significant barrier in successful implementation of HIT in long-term facilities was the lack of computer skills among the staff. Yet another study conducted among health care staff in Finland examined the impact of individual factors on staffs' computer use and the factors that inhibit optimal use of computers (Koivunen, Välimäki, Koskinen, Staggers, & Katajisto, 2008). Those authors suggested that a detailed and systematic IT capacity evaluation of health care staff is necessary to design a tailored IT education program and support (Koivunen, Välimäki, Koskinen, Staggers, & Katajisto, 2008). A systematic IT capacity evaluation would involve assessment of basic computer literacy skills of health care staff.

Lack of computer skills has also been seen to affect implementation of computerized systems in medical practices and in pharmacies. Meinert and Peterson (2009), in their study of 358 physicians in a large multispecialty clinic in the Midwest region of the United States, discovered that lack of computer skills accounted for much of the resistance encountered in adopting EMR technology. Likewise, in a study conducted with pharmacists to examine their perceptions of potential barriers to computerization of hospital pharmacy systems, pharmacists with a low level of computer literacy rated themselves higher on the perception of potential barriers with pharmacy automation (Afolabi & Oyebisi, 2007).

Lack of basic computer skills in health care professionals has been identified as one of the barriers in successful implementation and adoption of HIS (Ludwick &

Doucette, 2009; Terry, Brown, Denomme, Thind, & Stewart, 2012). There is a definite need to assess health care professionals' basic computer skills prior to the implementation of HIS in an organization. A review of literature revealed that self-assessments rather than objective skills tests have been increasingly used as a means to assess computer literacy among health care professionals (Qiu, Yu, & Hyland, 2007). Self-assessments are more commonly used because they are easy to administer and less time consuming. There have been almost no studies that tested the actual computer skills of the health professionals.

Self-assessment is an estimate of an individual's personal ability. In a study conducted with first-year business students to evaluate the reliability of self-assessed computer competence, the scores obtained by the students were compared to objective tests and revealed that students overestimated their computer competence (Ballantine, Larres, & Oyelere, 2007). Most studies have reported a moderate relationship between estimates of ability and the actual ability (Ng & Earl, 2008). Still, self-assessments continue to be used extensively as a tool to assess computer literacy among health professionals. This leads to the question, which is a better method of assessment to optimize training of IT applications? This study investigated this question and compared hospital employees' scores on a self-assessment and on an actual computer skills test in order to determine the most effective method to measure the computer skills of new employees of the UAE hospital and offer training according to their levels of literacy.

## Definitions

The key terms related to this study are defined as follows:

*Blended learning:* According to Horn and Staker (as cited in International Association for K-12 Online Learning, 2011),

> Blended learning is any time a student learns at least in part at a supervised brick-and-mortar location away from home and at least in part through online delivery with some element of student control over time, place, path, and/or pace; often used synonymously with hybrid learning (p. 3).

*Clinical staff:* The term *clinical* has to do with when one treats patients or provides direct patient care of any type. Examples of clinical roles are physician, nurse, and allied health professionals such as medical assistants, techs, and therapist (Santiago, 2015).

*Computer literacy*: "Computer literacy content focuses on computer basics and the use of generic software applications such as word processing, databases, presentation software, and the use of electronic communication such as e-mail" (National League of Nursing, 2011, para. 1).

*E-learning: "*Education in which instruction and content are delivered primarily over the Internet" (Watson & Kalmon, as cited in International Association for K-12 Online Learning, 2011, p. 7).

*Health information technology (HIT)*: "HIT consists of an enormously diverse set of technologies for transmitting and managing health information for use by consumers, providers, payers, insurers, and all the other groups with an interest in health and health care" (Blumenthal & Glaser, 2007, p. 2527).

*Instructional designer*: "Someone who uses the principles of learning, pedagogy, and content frameworks to create teaching materials and experiences for online courses" (International Association for K-12 Online Learning, 2011, p. 6).

*Instructor-led training (ILT):* Involves training that occurs in a classroom setting. "This form of training can have one or more instructors; and they teach skills or material to another person or group through lectures, presentations, demonstrations, and discussions" (Mindtools, 2015, para. 3).

*Learning management system (LMS): "*The technology platform through which students' access online courses. A LMS generally includes software for creating and editing course content, communication tools, assessment tools, and other features for managing the course" (International Association for K-12 Online Learning, 2011, p. 7).

*Nonclinical staff*: Nonclinical staffs are that staffs who do not provide any type of medical treatment or testing. Nonclinical staff includes medical billers, coders, transcriptionists, hospital executives, receptionists, and anyone who works behind the scenes such as human resource, IT, and administrative assistants (Santiago, 2015).

*Onboarding:* Onboarding is the process of bringing new employees into an organization (Harmon, 2013). Onboarding is also "known as organizational socialization, onboarding refers to the process by which new employees are made to feel welcome, valued, and prepared for a new role that lies ahead of them" (Director, 2011, p.12)

## Significance

HIT plays a very important role in health care today; it helps in delivery of safe and efficient health care. Health care organizations planning to adopt HIT in UAE need

to take into account the basic computer literacy levels of their employees prior to any implementation. The success of an HIT implementation would depend on the training provided to the employees for the various IT applications. As is the case with any training, it is necessary to gauge the existing knowledge and skills prior to the training to ensure that the training provided is useful. At the local level, assessing the basic computer skills of the hospital employees is a very important factor in the successful implementation and acceptance of HIT among the end users. Identifying an accurate tool to assess computer literacy will address the training needs of the end users and will contribute to tailoring a training program as per individuals learning need and at the same time ensure effective utilization of resources required for training. From a social change perspective, the results of this study project will guide other hospitals in the region who are in the process of adopting and implementing HIT.

## Research Question

The primary purpose of this study was to identify an appropriate tool to assess computer literacy.

In an organization that is planning to be fully computerized for clinical and nonclinical functions, it is important that employees from all job functions and departments be assessed for basic computer literacy. This study helped determine the best tool for assessing computer literacy that will give a true measure of computer skills. This in turn will provide valuable information on the training needs of prospective employees allowing departments to develop effective training programs.

The research questions were as follows:

1. What is the best tool to assess computer literacy among hospital employees while comparing self-assessment tool and actual skills test?
2. Does a relationship exist between the self- assessment scores and the actual skills tests scores for basic computer literacy among hospital employees?

Research Hypothesis: The self-assessed scores of computer literacy will be significantly higher to that of the scores on the actual skills test in hospital employees.

Null Hypothesis: There is no significant difference in the computer literacy scores obtained in self-assessment and actual skill test in hospital employees.

## Review of the Literature

My aim in conducting the literature review was to identify tools currently used in assessing computer literacy in hospital employees and how does computer literacy relate to adoption of HIT or EMR. I also reviewed the literature for HIT and EMR adoption in UAE. I used terms such as *basic computer skills, computer skills assessment, computers in health care, HIT, EMR, barriers in adoption of HIT, barrier is adoption of EMR, computer literacy, computer literacy in health care, factors affecting computer literacy, assessing computer literacy, self-efficacy, self-assessment of computer literacy, constructivism, constructivist learning theory,* and *self-efficacy theory* with the help of basic Boolean search operators of *and, or,* and *not*. I used the Walden Library's Thoreau Multiple Database Search, Ed/IT Lib Digital Library, Computers and Applied Sciences Complete, CINAHL Plus with Fill Text, EBSCO, ERIC, and MEDLINE with Full Text, ProQuest, and SAGE Premier. I also used Google Scholar, local UAE newspapers, and health authorities' websites in UAE.

## Theoretical Foundation

The theoretical framework for this study was based on constructivist learning theory (Yilmaz, 2008) and self-efficacy theory (Bandura, 2006).

**Constructivist learning theory.** Constructivist learning theory is defined as "active construction of new knowledge based on a learner's prior experience" (Koohang, Riley, Smith, & Schreurs, 2009, p. 92). The constructivist learning theory forms a basis for explaining computer literacy in this study. Constructivism assumes that individuals use their prior knowledge, skills, and understanding to create new knowledge or skills (Koohang et al., 2009; Richardson & Schunk, as cited in Yilmaz, 2008). Knowledge is constructed through reflection and abstraction as an individual adapts to his or her environment. Individuals bring their past experiences, beliefs, world views, and cultural histories into the process of learning as they construct knowledge internally by interacting with the environment (Von Glasersfeld, Kamii, Manning, & Manning, as cited in Yilmaz, 2008).

When faced with a new situation or learning environment, an individual can experience a state of disequilibrium in his or her mental schemata as one's previous experiences and understanding are contradictory to the new situation (Yilmaz, 2008). To reach a state of equilibrium, the individual needs to reorganize or modify his or her mental schemata by a process of adaptation, which is accomplished through assimilation and accommodation (Gillian, as cited in Yilmaz, 2008). Assimilation is integration of new knowledge with prior knowledge, and accommodation involves transformation of existing cognitive structures in response to new situation.

When individuals are faced with a new learning situation, they draw on their prior experiences to understand the new experience. Therefore, acknowledging and assessing an individual's prior knowledge or skills before teaching them new concepts or skills is important. This study assessed the basic computer literacy skills of hospital employees prior to them receiving instruction and training on use of various HIT applications.

**Self-efficacy theory.** According to the social cognitive theory proposed by Bandura (2006), self-efficacy is the belief about the perceived capability to do things. In this study, self-efficacy was the belief of hospital employees of their capabilities to perform basic computer functions such as printing, saving documents and so forth, and using computer applications such as word processing, spreadsheets, e-mail, and searching the Internet for information. Bandura asserted that self-efficacy is gained by an individual through mastery of experience. According to Bandura (as cited in Mahon, Nickitas, & Nokes, 2010), "self-efficacy explains a situation specific confidence that indicates the level at which one believes one can successfully perform a task" (p. 616). In this study, mastery of experience was related to the way the hospital employees indicated whether they can successfully perform basic tasks on a computer. In this study, self- assessment was used as a tool to assess the health care employee's perceived ability (self-efficacy) in performing basic computer skills.

## Review of the Broader Problem

While reviewing the broader problem, I started with the role of computers in health care, especially HIT, and what have been the common barriers in adoption of HIT in health care. A common barrier and a concern expressed by health care employees was

the lack of computer literacy. I then focused on computer literacy and how it is measured and what are the tools currently used to measure computer literacy.

**Computers in health care**. Hospitals use a variety of HIT applications for clinical and nonclinical functions, and it is necessary that these IT systems are well integrated to provide safe and coordinated patient care. Hospitals rely heavily on HIS to provide quality patient care and patient safety, and quality care is dependent on integration of computerized HIS in the clinical environment (Blaya, Fraser, & Holt, 2010; Wallis, 2011; Wilbright et al., 2006). Computers are increasingly used for sorting patient information, for documenting patient care, and for accessing health care literature among many other health care related functions. There has been growing evidence that by adopting HIT, health care organizations can improve efficiency, be cost effective, and deliver safe and quality health care by providing clinicians immediate access to best practice guidelines and evidence-based databases and by making computerized patient records available throughout the health care network (AHRQ, 2006; Simon et al., 2008).

**Barriers in HIT adoption**. In the United States, 8% to 10% of hospitals and about 17% of physicians use EMR at the basic level (Herrick, Gorman, & Goodman, 2010). Even though experts have suggested the perceived benefits of HIT implementation, lack of strong evidence of successful HIT implementation has deterred many from adopting it. There is lack of substantial evidence or studies to demonstrate the effectiveness or success of HIT implementation (AHRQ, 2006; Bates, 2010; Encinosa & Bae, 2011; Herrick et al., 2010).

Although IT has permeated into the core functions of health care, the health care industry has been slow to embrace computerization (Blumenthal et al., 2007; Pelletier, as cited in Booysen, 2009). The slow pace of diffusion of computer technology in health care has been mainly due to the huge capital investment required for such initiatives along with the uncertainty over return of investment (ROI) for those who pay and those who benefit (AHRQ, 2006; Boonstra & Broekhuis, 2010; Hersh, 2010). In addition to the monetary or financial investment required to install the IT systems, there are other factors that have slowed down the process of computerization in health care, such as complexity of IT systems, changing work processes and cultures, and ensuring that hospital employees use it efficiently (Blumenthal et al., 2007; McAlearney, Robbins, Kowalczyk, Chisolm, & Song, 2012).

Another reason why some hospitals or physicians have not adopted EMR is due to the concerns about data security, privacy, and confidentiality of patients' health information. Acceptance of EMR systems will depend on the confidentiality offered by the system (Rynning, 2007). Lack of interoperability or interconnectivity between various HIT applications was also cited as a major barrier in adoption of HIT in health care (Balas & Sanousi, 2009; Blumenthal et al., 2007). Interoperability is the ability of the various HIT applications to talk to each other. Lack of consistent data standards makes exchange of data between different systems difficult (Boonstra & Broekhuis, 2010).

User acceptance is a major factor in successful adoption of computers in health care. Users have identified the log on and log off process as a major barrier to electronic health record (EHR) acceptance along with other computer characteristics such as

missing cords, misplaced laptops, and dead batteries (Whittaker, Aufdenkamp, & Tinley, 2009). One other reason for reluctance to use computers in health care by clinicians is that they feel it affects their communication and interaction with patients. Nurses have described electronic documentation as time consuming, which leaves them with very little time for direct patient care (Bride, Delaney, Tietze, 2012; Huryk, 2010; Kunz, 2010).

Lack of adequate technical training and support for HIT systems from vendors was a significant barrier for HIT adoption (Boonstra & Broekhuis, 2010). The timing of the training provided for the HIT also contributed towards the successful implementation of HIT. A study conducted in a rural hospital reported that any delay between the initial training and the actual implementation can be a significant barrier in EHR adoption (Whittaker et al, 2009).

UAE has only adopted HIT recently. In 2010 the Emirate of Dubai launched EMRs, which went live by the year 2012 (Khalaf, 2010; Zain, 2010). SEHA, the Abu Dhabi Health Services Company, implemented EMR in its hospitals in 2008 (Manibo, 2008). The UAE Ministry of Health (MoH) launched the electronic HIS named Wareed in 2008, to be implemented in two phases over a period of three years covering 14 MoH hospitals and 76 primary health care facilities across Dubai and the Northern Emirates (Olarte, 2010).

**Need for computer literacy**. A tool is only good if it is used appropriately. Similarly, introducing HIT applications in hospitals would serve its purpose only if the end users are able to use it appropriately. Hospital employees need to be computer literate

to be able to use the HIT applications to provide safe and quality patient care. One of the barriers identified in the successful implementation and adoption of EMR was lack of computer literacy among the users (Huryk, 2010; Terry, Giles, Brown, Thind & Stewart, 2009). According to Bryson, to be computer literate, health professionals must have basic knowledge of computers, be able to use computer assisted instruction program, and be able to use computers as a tool to deliver patient care (as cited in Hsu, Hou, Chang, & Yen, 2009).

Nurses comprise the single largest discipline in the health care workforce. The American Nursing Association stipulates that experienced nurses are expected to demonstrate basic computer software skills along with other skills like administration, data access, monitoring, and research in their practice (Fetter, 2009). Often, however, nurses lack the basic computer skills to use the HIT applications, which can be a deterrent in successful implementation of HIT in hospitals. In a survey conducted on 454 nurses from various categories such as advanced practical nurse, registered nurses, licensed practical nurses, nursing assistants and nursing unit clerks, it was reported that the majority of the nursing staff were potentially incapable of effectively using computerized HIS related to their work (Wilbright et al, 2006). Similarly, a cross sectional survey conducted in two tertiary teaching hospitals in Korea collected information on nurses' informatics competency, basic computer skills, and attitude towards computerization and revealed that more than half (58.9%) of the nurses rated their computer skills below average (Hwang & Park, 2011). A significant portion of nursing workforce consists of nurses who graduated or entered the workforce before the introduction of computers in

nursing education or health care and it would be interesting to know the levels of computer literacy among these nurses. A study reported that more than 28% of nurses in a hospital perceived themselves as having fair or poor proficiency in basic computer skills and nurses older than 50 years and those who graduated before 1984 scored lower in computer proficiency (Wilbright as cited in Hwang et al., 2011).

The lack of computer literacy among the health care workforce can be a serious problem where computerized HIS is increasingly associated with delivery of safe and quality patient care. Empowering nurses to be computer efficient will make health care delivery safe, efficient, timely, accessible, and patient centered (Kunz, 2010; Technology Informatics Guiding Education Reform Initiative, 2009). A well designed HIS can save staff's time in entering and retrieving patient data if they have the basic computer skills to enter the data accurately and completely. A study in the United Kingdom among National Health Services (NHS) staff which included 69% support staff, 16% of medical, nursing and allied health staff, and 15% of primary care staff that the staff who received training on basic computer skills saved an average of 39 minutes every day at work while working with IT applications (Stephankova & Engova, 2006). Being computer literate can save time for health professionals as they spend less time figuring out how the application works.

***Factors influencing computer literacy***. There are various factors which can influence the level of computer literacy or computer competence of health care professionals such as age, gender, level of education, experience of working with computers , and any education or training undertaken in the use of computers or that

required the use of computers (Hsu et al., 2008; Hwang & Park, 2011; Hsu, Hsiao, Huang, & Lin, 2006). Individuals who have used computers for personal use or at work would be expected to have developed some basic skills related to computer use. Frequent use of computers leads to familiarity in use of computers and increases the ability to use them effectively (Loyd & Gessard as cited in Ogunkola, 2008) and actually owning a personal computer contributed greatly towards frequent use of computers among science teachers (Ogunkola, 2008).

In addition, studies indicate that individuals who had past experience of using computers or had training in the use of computers demonstrated basic skills in computer use. In a study conducted using self-assessment to determine the factors that influence computer anxiety and computer literacy it was shown that computer experience and personal innovativeness in IT contributed towards increased computer competence among nurses in Taiwan (Hsu et al., 2006). A similar study conducted with Taiwanese and South Korean nurses indicated that nurses who had training in the use of computers, or had nursing informatics in their nursing curriculum, had higher computer literacy levels (Hsu et al., 2009).

**Perceived self-efficacy of computer literacy**. The construct of self-efficacy is closely linked in the literature to the construct of self-assessment. Self-assessment is the information provided by learner's themselves about their abilities of what they think they can do or cannot do (Blanche & Merino, as cited in Coronado-Aliegro, 2006). Therefore self-assessment can be considered as a component of self-efficacy. Self-assessments have been commonly used in health care to assess health care professional's computer literacy

levels. A self- assessment survey conducted for assessing computer literacy and skills among dentists and dental care professionals within primary care in Scotland revealed that 43% of the respondents considered their skills to be moderate with one third reporting low computer skills and majority of the respondents had self-acquired computer skills (Gibson, Jack, Rennie, 2006). The study also identified areas where respondents had little or no skills such as, use of spreadsheets, scanners, e-library, Web search skills, and file management skills. In a self-assessment survey of computer literacy skills of 386 pharmacists across two counties in England revealed that the pharmacists lacked skills in use of certain software, use of spreadsheets, presentation packages, and in searching the Internet for information (Thomas & Ruttert, 2008).

Nurses, regardless of whether they were in practice or newly graduated nurses, perceived themselves as lacking basic computer skills. A self-assessment survey of 1,313 nurses, midwives, health care support workers and preregistration students from across United Kingdom by the Royal College of Nurses (RCN) in 2011 revealed that nurses lacked the basic computer skills and confidence in using health care information and communication technology (ICT) and these results were consistent with a self-assessment survey conducted in 2007 by the RCN (Wallis, 2012). In another study conducted to assess the computer and information literacy needs of nurses through a self-assessment survey in a community hospital in the US, it was reported that 47% of the nurses reported little or no self-perceived competency and a correlation was found between year of birth and computer literacy and between educational level and computer literacy (Campbell & McDowell, 2011). The study also identified the areas with the least perceived

competency as use of spreadsheet, database application, presentation graphics, statistical analysis programs, and bibliographic database searching. Self-assessment of graduate nurses of their perceived IT competencies revealed that the majority rated themselves as having moderate IT skills (Fetter, 2008).

**Assessment of Computer Literacy.** One of the barriers identified in successful training and implementation of HIT was lack of a detailed training needs analysis amongst hospital employees. A barrier which is highly recognized but not studied or quantified in successful implementation of HIT is the lack of characterization of the workforce and their training needs (Hersh, 2006, 2010; Perlin & Gelinas, 2008). Assessing computer literacy would be the first step in performing a detailed training needs analysis. There is a lack of research literature on the best method to measure the basic computer skills of hospital employees working in health care organizations. Studies conducted with nursing students to compare their self-rated computer skills to their actual ability to perform the computer skills suggested that the students rated themselves higher than their actual performance of computer skills (Elder & Koehn, 2009; Grant, Malloy, & Murphy, 2009). Similarly, in a study conducted on students it was concluded that self-reporting of computer literacy was not a reliable measure in comparison to actual skills test, nevertheless the researchers recommend performing a similar study with larger sample size and on employees or job applicants for a more generalized result (Merritt, Smith, & Renzo, 2005).

According to Franks-Meeks (2008), a thorough assessment of computer competency prior to implementation of an EMR would allow for better planning and

education. An assessment of basic computer skills prior to implementation of EMR can be an advantage (Terry et al, 2009). Therefore performing an assessment of the newly hired hospital employees before the opening of the hospital will allow for proper training and planning for the EMR implementation.

## Implications

One of the concerns the activation committee of the local hospital which was in preoperational phase and planning to be fully digitalized is whether the newly hired and future employees will have the basic computer literacy to learn and adapt to the hospitals IT systems. It is expected that results of this study will help determine a better method of assessing computer literacy among hospital employees. The findings of the study will identify the gaps in computer literacy and training needs of the hospital employees. The project can address these identified gaps in computer literacy and contribute towards a well-planned training plan based on individual needs. Far reaching implication of this study project might be guidance for other hospitals in the region which are in project or preoperational phase or are in the process of implementing or adopting HIT systems.

## Summary

HIT is permeating the health care industry at a very fast pace and most of the hospitals in the UAE and in the neighboring Gulf States are increasingly adopting HIT and going paper light. This means that most of the clinical and nonclinical functions are now been computerized. For successful implementation of HIT, the end users who are the employees of the health care organization need to be proficient and competent in using computers. Various researches have highlighted that health care professionals lack the

basic computer skills necessary to operate the various IT applications. The lack of basic computer skills has been identified as one of the barriers in successful implementation of HIT.

When introducing HIT in a health care organization the employees need to be trained extensively prior to the go-live to ensure successful implementation. To provide a training which is practical and useful to the employees whilst using the resources adequately requires assessment of basic computer skills of the employees.

A review of literature reveals that health care professionals like nurses, dentists, pharmacists, and physicians lack the basic computer skills required to operate in a computerized health care system. Lack of basic computer skills among these health care professionals greatly affects the adoption and implementation of HIS in health care. The need to assess the computer literacy of health care professionals prior to introduction of HIT is emphasized in the literature. Most often in health care the basic computer skills are measured using self-assessment even though studies have proved that self-assessments are not a true measure of actual skills that an individual possesses.

Studies conducted among nursing students to compare their self-assessment to actual skills revealed that students rated themselves higher on the self-assessment. There are no similar studies done on working health care professionals and there is a lack of literature on the measure of actual computer skills of health care professionals. The present study compared the results of a self-assessment to actual skills test to identify a tool for accurately measuring the computer skills of hospital employees, which has implications at the local level and for the region and UAE.

The next section details the research methodology, instruments, data collection, and analysis of data.

# Section 2: The Methodology

## Introduction

The focus of this study was to compare hospital employees' self-assessment of basic computer skills with their actual computer skills using a quantitative research design. This section presents the research design, setting of the study, population, sample and sampling technique, data collection instruments, data collection methods, and data analysis.

## Quantitative Research Design and Approach

An explanatory correlational research design was considered appropriate for this study as correlational designs allow prediction of scores and explain relationships among the variables (Creswell, 2012). The two variables being studied were the scores from the self-assessment test and scores from the actual skills test. Correlational research design uses the correlation statistical test to measure the degree of association or relationship between sets of scores (Creswell, 2012). In this study, the correlational design related the scores from the self-assessment of computer literacy and scores from actual skills test of computer literacy for each tested hospital employee.

According to Creswell (2012), in correlational research, data are collected at one point in a time and the researcher obtains at least two scores for each individual in the study. In this study, I collected the data at one time and collected two set of scores for each hospital employee, the first set of scores from the self-assessment and the second set of scores from the actual skills test.

## Setting and Sample

### Setting

The setting for this study was a new quaternary care hospital that was in a project phase or preoperational phase in the UAE. The hospital has a 360-bed capacity. As the hospital was not yet operational, the employees were working from an office building that was very close to the hospital.

### Population

During this preparation phase, the hospital had employees, both clinical and nonclinical. The population for the study included the clinical staff and nonclinical staff of the hospital in Abu Dhabi. The clinical staff, who at that time were not practicing and were in the preparation phase, were comprised of employees who would be directly involved in patient care such as nurses, physicians, respiratory therapist, physiotherapists, phlebotomists, x-ray technicians, pharmacists, and so forth. The nonclinical staff involved employees who would not be directly involved in patient care such as housekeeping staff, catering staff, receptionists, parking personnel, security personnel, patient navigators, social workers, and so forth. The workforce was international and diverse with employees representing 53 countries or nationalities. They included 58% female employees and 42% male employees. When considering the educational background, 71% had a bachelor's or associate's degree, 21% had a master's degree, 2.5% had a doctoral degree, and 5.5% had a high school diploma. All the employees had basic English language skills as the organizations official language is English.

**Sample Size**

One way to determine the sample size is by selecting a sufficient number of participants based on the statistical procedures one plans to use. For applying correlational statistics a sample size of minimum 30 participants is needed (Creswell, 2012). In addition to that, when the intent of the correlational study is to generalize from a sample to a population, a sampling error formula should be utilized to determine the sample size (Creswell, 2012). A sampling error formula is based on the chance that the sample will be evenly divided on a question, amount of sampling error, and a confidence interval (Creswell, 2012). For this study, I chose the possibility that there was a 50/50 chance that an individual might get a question right or wrong. A sampling error of 4% to 6% is considered appropriate, so I decided to set the sampling error at 6% with a confidence interval of 95%. I used the Fowler's sample size table to estimate the sample size based on chance, sampling error, and confidence interval. According to Fowler's sample size table, the estimated sample size for this study would be 300 participants (Creswell, 2012). I decided to have a sample size of 500 to account for any missing data or incomplete data that may necessitate dropping a participant or more.

**Sampling Method**

A stratified sampling technique was used to select the participants. A stratified sampling helps the researcher to stratify the population based on some characteristics and then use simple random sampling on each subgroup, which ensures that the sample includes the characteristics that the researcher wants to include in the study (Creswell, 2012). In this study, the two main subgroups were the clinical staff and the nonclinical

staff, as I wanted an equal representation from these two subgroups. Another reason for choosing a stratified sampling technique is that while using Fowler's sample size table it is recommended to use stratified sampling to reduce the percentage of sampling error (Fowler, as cited in Creswell, 2012). Therefore, using a stratified sampling technique helped me to reduce the sampling error to less than 6%.

The hospital employees, which constituted a total population of 800, were divided into two subgroups of clinical and nonclinical staff. Staffs in each subgroup were numbered from 1 to 400. A randomizer was used to pick 10 numbers at a time from each group. The selected numbers were then deleted from the pool of numbers and run through the randomizer again to get another 10. This process was continued until the required sample size of 500 participants was obtained.

### Eligibility Criteria for Study Participants

The eligibility criteria for the study were that participants should be able to read and communicate in English and be willing to take the actual skills test on the computer.

## Instrumentation and Materials

A self-assessment survey questionnaire was used to assess the computer literacy of the hospital employees, following which, the employees were administered a simulated actual basic computer skills test. Each participant was provided with a personalized report on request, so that he or she could seek additional training for the areas where skills were less than adequate.

Both the instruments were composed in English as employees in the hospital are required to be proficient in English as part of the recruitment selection process. A new

instrument for self-assessment and actual computer skills test was created instead of using a preestablished measure so that items in both the tests matched one another. Creating a new instrument allowed for including items that are considered important computer skills for health care employees to operate the different HIT applications within the hospital.

Prior to construction of the instruments for data gathering, an informal interview was completed with managers and heads of the various departments to identify the basic computer skills they felt were necessary for the employees to use the various HIT applications. The research instruments where then constructed to reflect these basic computer skills. Components such as multimedia presentation and troubleshooting common technology problems were left out as these skills were not considered to be basic or essential for the hospital employees to have in order to use the hospital IT applications.

**Self-Assessment Survey Questionnaire**

The self-assessment questionnaire (Appendix E) was segregated into modules that corresponded to the components of computer literacy such as word processing, spreadsheet, e-mail, Internet, and general PC skills. Each module had items that tested the perceived ability to perform particular computer applications tasks. A Likert scale with responses of *always*, *sometimes*, and *not at all* was used. The survey questionnaire was reviewed by IT specialists to ascertain content validity and wording of the questions. The survey questionnaire was piloted on 50 hospital employees from various departments.

**Computer Skills Test**

The computer skills test (Appendix F) was administered using a computer simulation test created using Adobe® Captivate. Creating a simulation test provided me with the flexibility to choose questions that matched the items on the self-assessment questionnaire. The simulated computer skill assessment instrument was pilot tested to establish validity and reliability. The pilot test was conducted with 50 participants. The pilot test participants included both clinical and nonclinical hospital employees who represented the research participants and were excluded from the final research sample to avoid any bias or contamination of sample. The items on the skills test corresponded to the items on the self-assessment test. The computer simulated test measured whether the employee could actually perform the task on a computer.

**Reliability of Instrument**

The reliability of the self-assessment instrument was ascertained by test-retest wherein the retest was administered four weeks after the initial test. The Pearson product moment correlation was used and value of *r* was calculated to be 0.90, which is considered a positive correlation. A measure of 0.80 or higher indicates high degree of consistency or reliability (Lodico, Spaulding, & Voegtle, 2010, p.87)

The actual skills test was tested for internal consistency using split half reliability after administering the initial test. Split half reliability was carried out to rule out any bias that may occur with test-retest. The test was split into odd and even numbered questions. The value of Cronbach's alpha ($\alpha$) and Kuder Richardson Formula 20 (KR 20) was 0.70 and a Spearman Brown Prophecy Formula had a value of 0.80. A Cronbach's alpha of

value 0.70 to 0.90 is considered acceptable measure of reliability (Tavakol & Dennick, 2011, p.54)

A reliability of actual skills test was also completed using test-retest method and the Pearson product moment correlation *r* was 0.80, which is an acceptable measure of reliability. The self-assessment test and actual skills test was proved to be a reliable tool to measure basic computer literacy.

**Validity of Instrument**

Content validity was accomplished for both self-assessment and actual skills test. A panel of ten experts from the IT department who work with the different IT applications within the hospital were provided the tools to provide feedback on the wording of the questions, ease of understanding the instructions, difficulty in comprehending the questions, and whether the questions measured the basic skills related to the skills set such as general windows, Internet, e-mail, Word, and Excel. The feedback was positive with no recommended changes.

## Data Collection and Analysis

A pilot test was done to test the reliability and validity of the tool. I administered the tests through the hospital learning management system (LMS). The data was collected by administering the participants' with a self-assessment survey followed by an actual simulated skills test on basic computer literacy. The participants' logged into the LMS with their username and password to take the self-assessment survey and the actual simulated skill test. The scores from the self-assessment and actual skills test were exported from the LMS into an Excel file.

**Ethical Treatment of Human Participants**

Measures were taken to protect participants' rights. For this study, after I obtained permission from the hospital and the institutional review board (IRB) approval from Walden University (Appendix C), an application was submitted to the chief of human resource (HR) and chief executive officer (CEO) for their final approval. On obtaining the final approval (Appendix D) data collection process was started. It was communicated to the hospital employees' that participation in the study is voluntary and they could withdraw anytime. The participants were explained the purpose of the study and a written informed consent (Appendix B) was obtained from each participant. The participants' were administered the self-assessment survey and skills test online using the LMS. The participants' were required to login into the LMS with their unique username and password. The results were kept confidential because as a training administrator on LMS, I could create an audience and get reports on the LMS without anyone else having access to the information.

The participants' were provided with a personalized and fully confidential report of their computer literacy at the end of the data collection on their request. This personalized report would help them to plan their professional development in areas they need to develop. The hospital management will be provided with a compiled report of the findings of the test results while maintaining the confidentiality of the participants'. The management can then make provisions to provide basic computer literacy sessions for their staff prior to implementation of HIS.

**Pilot Test**

Both the measurement instruments self-assessment survey for computer literacy and actual skills test for computer literacy were piloted using a test- retest. The pilot was conducted on 50 participants' from various departments. The retest was administered four weeks after the initial test. Permission to conduct the pilot was obtained from the CEO and the chief of HR. The chief of HR sent out an internal communication to all the departments about the pilot. The participation for this pilot was on a voluntary basis. I met with the participants' of the pilot after it was completed to obtain feedback on the tool.

**Data Analysis**

The tests were administered to a sample size of 500 hospital employees' of which 200 employees' actually completed both tests. Some of the data had to be discarded as it was incomplete and, in certain cases, the employees' had taken only one of the two tests. After sorting through the data collected and discarding unusable data the total number came down to 182 ($N$=182). Each module or skill set in the self-assessment questionnaire and computerized skills test was scored based on the number of tasks or items within the module or skill set that the participant was able to accomplish. The range of scores for each skill set or module and the overall test were set from 0%-100%. For each item on the self-assessment test participants' had to choose the appropriate response on the Likert scale of *always*, *sometimes*, and *not at all*. For analysing the data, a score of one was assigned if the response was *not at all*, a score of two for *sometimes*, and a score of three for the response *always*. In case of the actual skill test, if the participant performed the

right skill they received a score of one and if they did not perform the skill they got a score of zero. For each module the scores were totalled and a percentage was calculated for both self-assessment and actual skills test. The data from the instruments were entered into a computer file and then data was analyzed using SPSS software. The percentage scores for each skills set or module and overall scores was calculated for both self-assessment and actual skills tests and compared for each participant, keeping a margin of ± 10. If the scores for both the tests matched, then it was classified as accurate assessment. If the scores from self-assessments were greater than the actual skills test scores then they were classified as over assessment of skills. If the actual skills test scores was greater than the self-assessed scores, then it was considered as under assessment of skills (Table.1). An accuracy range of -10 and + 10 was considered.

Table 1

*Classification of Scores*

| Comparison of Scores | Classification |
|---|---|
| Self-assessment scores = Actual skills score with accuracy range of ± 10 | Accurate |
| Self-assessment scores > Actual skills score with accuracy range of ± 10 | Over assessment |
| Self-assessment scores < Actual skills score with accuracy range of ± 10 | Under assessment |

## Study Assumptions, Limitations, Scope and Delimitations

### Study Assumption

My assumptions were that the employees may overrate themselves and that their scores on self-assessment might be higher than their actual skills test.

### Study Limitations

This study had some limitations; one of them was the sample size of 182. I had difficulty in getting the selected sample to participate in the study as the hospital was moving from a project phase to the preoperational phase and employees' were busy meeting all the health care regulation requirement for inspection and licensing. I had expected a sample size of 500 so that the results could be generalized to a larger population. The sample size of 182 limits the generalizability of the results. Another limitation is that I did not explore the effect of culture on participants' response to self-assessment test. This could have a considerable effect on the findings of the study.

### Scope and Delimitations

The scope of the study was to find an appropriate instrument to measure computer literacy in hospital employees' prior to providing IT training on different applications. The delimitations identified in this study were:

- The participants' were limited to one hospital, as I failed to get permission from other hospitals that were in similar preoperational phase. Including participants' from other hospitals would have made the results more generalizable.

- Only full time employees were included in the study, there are contracted employees working on the project that are usually contracted for short period of 3 months, 6 months or a year. These contracted employees are mainly consultants working on the project and would not have been a true representation of the population. The other set of contracted employees are operational support staff like gardeners, drivers, window facade cleaners, and valet parking that would not be using IT applications for their day to day work.
- All participants could read and understand English.

## Protection of Participants' Rights

Measures were taken for protecting participants' rights including maintaining confidentiality, obtaining informed consent, and protection from any harm. I obtained permission from Walden University's IRB and from the local organization where the study was conducted. The organization does not have an IRB as it is still in a preoperational phase. I presented my research proposal to the CEO and chief human resource officer (CHRO) of the organization and was granted permission to do the study.

The research participants' were asked for an informed consent prior to their participation in the research. The informed consent explained participants' their rights, voluntary nature of participation, right to ask for information and clarification, and also the right to withdraw from the study anytime they wanted to.

I assured the participants' and the CHRO that all information will be kept confidential. I created a separate testing account on the LMS so that only I had access to

the information and results of the tests. No personal or demographic information was gathered from the participants'. All the reports generated from the LMS in an Excel format were saved on my computer that is password protected.

## Data Analysis Results

The first step was to analyze the results to find whether the data supported the research hypotheses or not.

Research Hypotheses: The self-assessed scores of computer literacy will be significantly higher to that of the scores on the actual skills test in hospital employees.

Null Hypothesis: There is no significant difference in the computer literacy scores obtained in self-assessment and actual skill test in hospital employees.

As per the research hypotheses it was thought that the hospital employees might over assess themselves based on the literature review. An analysis of the overall scores from the self-assessment test and the actual skills test was conducted and results categorized as accurate, over assessment, or under assessment. Next, a mean frequency and percentage was calculated using SPSS which is displayed in Table 2, where *n*=182 and majority of the participants (70 %) accurately assessed their computer skills.

Table 2

*Frequency Distribution of Overall Basic Computer Skills*

| Score Category | Frequency | Percentage |
|---|---|---|
| Accurate | 128 | 70.3 |
| Over Assessment | 45 | 24.7 |
| Under Assessment | 9 | 4.9 |

To check whether this was significant a paired t- test was done. The results indicated that the mean for self-assessment scores ($M$= 97.80, $SD$ = 5.13) was significantly greater than the mean for actual test score ($M$= 87.87, $SD$ = 9.29), $t$ (181) = 13.53, $p < 0.01$. The 95% confidence interval for the mean difference between the two scores was 8.48 to 11.37. On basis of this the null hypotheses was rejected as $p$ value was significant at 0.01. Therefore, it can be concluded that hospital employees score higher on self-assessment than on actual skills test.

The next step was to find an answer to the research question.

Research question: Does a relationship exist between the self- assessment scores and the actual skills tests scores for basic computer literacy among hospital employees?

A scatterplot was used for the graphical display of data between the overall scores from the self-assessment and the scores from actual skills test for each individual. A scatter plot is very useful in displaying the relationship between two quantitative variables which is measured on the same individual (Moore & McCabe, 2006). The scatter plot (see Figure 1) was analyzed to search for an overall pattern and for any deviations from the pattern. The scatter plot (see Figure 1) showed a roughly linear form, a positive direction, and strength of relationship between the two quantitative variables was weak.

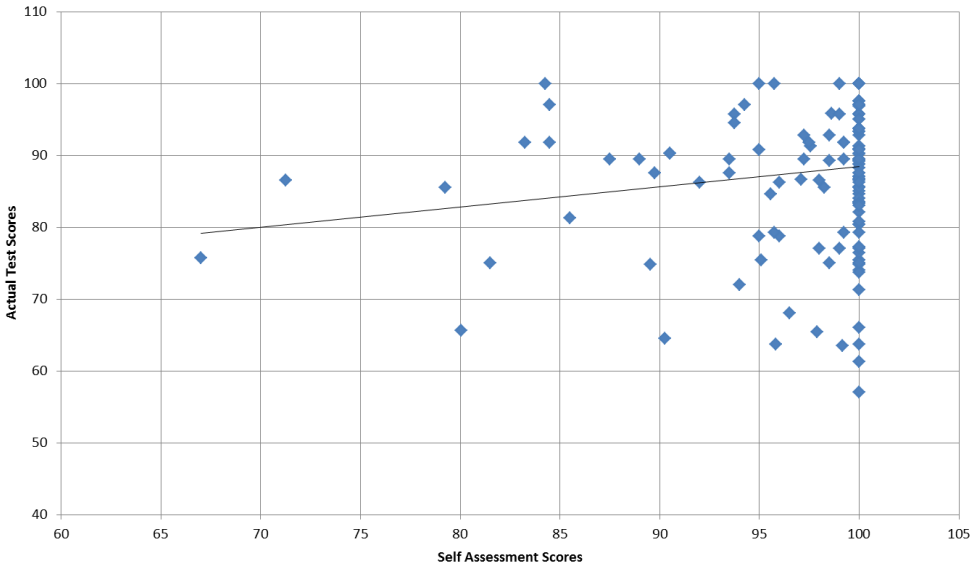


*Figure 1.* Scatter plot of self-assessment scores and actual skills tests scores of basic computer literacy.

As the relationship between the two variables was linear, a correlational statistics such as Pearson product moment correlation was applied to measure the strength and direction of the relationship between the two variables. A Pearson product moment correlation is appropriate as the variables are categorical. There was a weak correlation or negligible correlation between self-assessment scores and actual skills scores although there was positive linear correlation, $r$ (180) = 0.156, $p$ = 0.035. To measure the strength of correlation, I calculated the coefficient of determination, which is obtained by squaring the value of $r$. Here $r^2$= 0.024, which means that only two percent of the variability in actual skill test scores can be determined or explained by scores of the self-assessment test.

The next step was to measure the significance of this value, which was $t$ (180) = 2.119, $p < 0.05$. This means that correlation was significant at 0.05 level and the results can be inferred from the sample size to the larger population.

I compared the performance of computer skills in each module based on the categorization of under assessed, accurate and over assessed to identify the areas where hospital employees lacked actual skills.

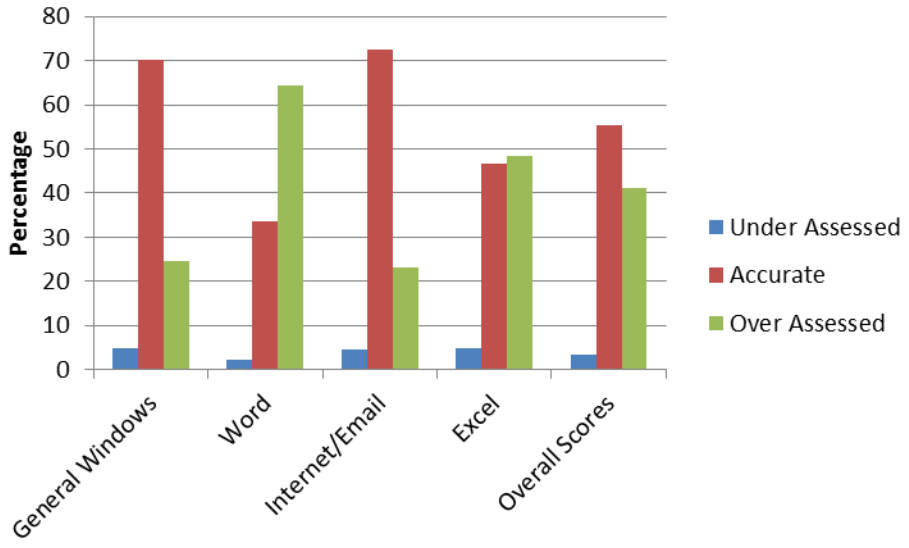


*Figure 2*. Comparison of computer skills in different modules or areas and overall scores.

According to Figure 2, employees over assessed themselves in performing skills on Word and Excel, these were areas where they lacked actual skills

## Conclusion

The purpose of this research was to find an appropriate tool between a self-assessment test and an actual skills test, for assessing basic computer literacy in hospital employees prior to engaging in training on specific health IT applications. It was expected that the results of this study would then inform the development of computer

training for basic skills. The paired t- test showed that the mean of the self-assessment scores were significantly higher than the mean of the actual test scores and there was a weak correlation between the scores on self-assessment and actual skills test, $r$ (180) = 0.156, $p$ = 0.035. These results show that hospital employees in general tend to score higher on self-assessment test compared to the actual skills test. On comparing the scores on individual IT modules employees over assessed themselves on skills pertaining to Word and Excel applications. Statistically there was no relation or a weak relationship between self-assessment scores and scores on the actual skills test, and the correlation was significant at value of 0.05. Considering all the above data, a self-assessment test cannot be used as a measure to predict the performance of an individual in the actual skills test while assessing basic computer literacy among hospital employees. It can also be concluded that an actual skill test is a better and reliable tool to measure basic computer literacy among hospital employees.

Section 3: The Project

## Introduction

The main purpose of this study was to find an appropriate and reliable tool to assess basic computer literacy amongst hospital employees in a hospital, which was in a preoperational phase and gearing up to get operational by 2015. The intention was that the assessment of basic computer literacy would help in optimizing the available resources and provide direction on how to provide effective training on the various IT applications required of hospital employees once operational. The explanatory correlational research focused on determining an appropriate tool to measure basic computer literacy by comparing the scores of self-assessment test and actual skills test.

The study results reflected that hospital employees scored higher on self-assessment test when compared to actual skills test and there was a weak statistical correlation between the scores of self-assessment and actual skills tests. Based on the findings of the study, an actual skills test is a reliable indicator of their basic computer skills. The study also identified skills gap in Word and Excel application. The next step was to utilize the findings of the study and develop a project. This section focuses on how an actual skills test will be used to categorize hospital employees and how IT training on basic computer skills will be provided to prepare them for the hospital wide IT applications.

# Description and Goals

## Description of the Project

In this project, the actual skills test will be administered to all new hospital employees during their onboarding week and the results will be used to identify learning gaps and training provided accordingly. This project will focus on developing a training plan for the basic computer skills. The training will be delivered using a blended format, which is a combination of ILT and e-learning, for which the LMS will be used. A blended learning approach was used as the hospital in future would be using e-learning as a delivery method for training.

## Rationale for Project Genre

According to Cortelyou-Ward, Noblin, and Martin (2011), before implementation of EMR, the level of computer skills of staff should be evaluated and proper training of basic computer skills should be provided before implementation can begin, especially when there is strain in resources for providing training. The hospital that was in the preoperational phase was slated to be fully digitalized once open to patients in UAE. This translates into hospital employees using more than 72 IT applications throughout the hospital for various clinical and nonclinical functions. Resources being limited in terms of trainers and time; the biggest foreseen challenge was the training of hospital employees in all these IT applications. Another perceived challenge was the complexity of the composition of employees who constitute more than 52 nationalities and having varying levels of computer skills. The study focused on assessing the basic computer

literacy levels of the hospital employees using an appropriate tool. The findings of the study showed that an actual skills test is a reliable tool to assess basic computer skills.

In their study, Bredfeldt, Awad, Joseph, and Snyder (2013) found that new users of EHR/EMR were overwhelmed with the training and their initial focus was on gaining basic proficiency rather than efficiency and mastery. The basic computer skills necessary to work effectively with HIT include ability to use office software such as Word and Excel spreadsheet, communicating electronically via e-mail, and conduct Internet searches (Gripenberg, 2011; Peace, 2011). In the study, I assessed hospital employees' basic computer skills in areas such as general Windows, Word, Excel spreadsheet, use of Internet, and e-mail. The project will utilize the findings from the actual skills test to provide training in basic computer skills, which will prepare the hospital employees for the more advanced or complex IT applications while optimizing the available resources.

**Project Purpose**

The purpose of the project is to address the gaps in basic computer skills identified during the assessment of the basic computer literacy through training.

**Project Goals**

The goal of the basic computer skills training program is to integrate the computer skills into content areas so that the computer skills are not taught in isolation. The expected result is that the hospital employees not just learn to operate computers but are able to use the skills as a tool of communication, organization, research, and problem solving. The basic computer skills training program acts as a foundation for learning other hospital IT applications.

**Project Learning Outcomes**

The project learning outcome is that the new employees are equipped with the basic computer skills so as to enable them to learn more advanced computer skills required for the various hospital IT applications.

**Project Target Audience**

The target audiences for the project are the new hospital employees who will be joining the organization.

**Addressing the Problem Through the Content of the Project**

The project is to provide training on basic computer skills based on the results of the actual skills test. After the new employees do their actual skills test, they will be categorized into three groups: beginners, intermediate, and advanced. There are some basic skills that every new employee should have to work with the computer systems in the hospital. Therefore, I will have a core IT orientation Level 1 program that will be mandatory for every employee to attend; this will include orientation to their laptops or desktops, use of virtual private network (VPN), use of Microsoft Lync, use of LMS, use of hospital intranet, use of Internet Explorer, Microsoft Outlook, and use of secure printer. After they have completed the core program, the beginners and intermediate group will attend the core IT orientation Level 2 courses on Word and Excel, and then proceed into different tracks, Track 1 for beginners and Track 2 for intermediate, while the advanced group can go into the hospital IT applications directly. The below (see Figure 3) is a framework that will be used for the project.

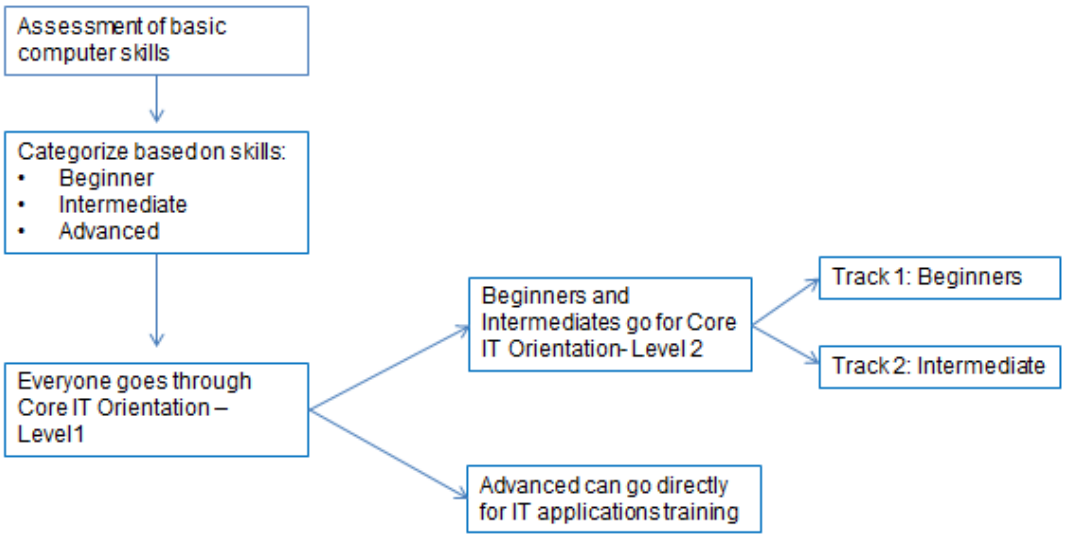


*Figure 3*. Framework of IT training for basic computer skills.

The aim is to incorporate this training into the present onboarding program and departmental orientation period, so that they are equipped with the basic computer skills before they go in for their IT applications training. The below (see Figure 4) is the current plan in place for onboarding new employees.

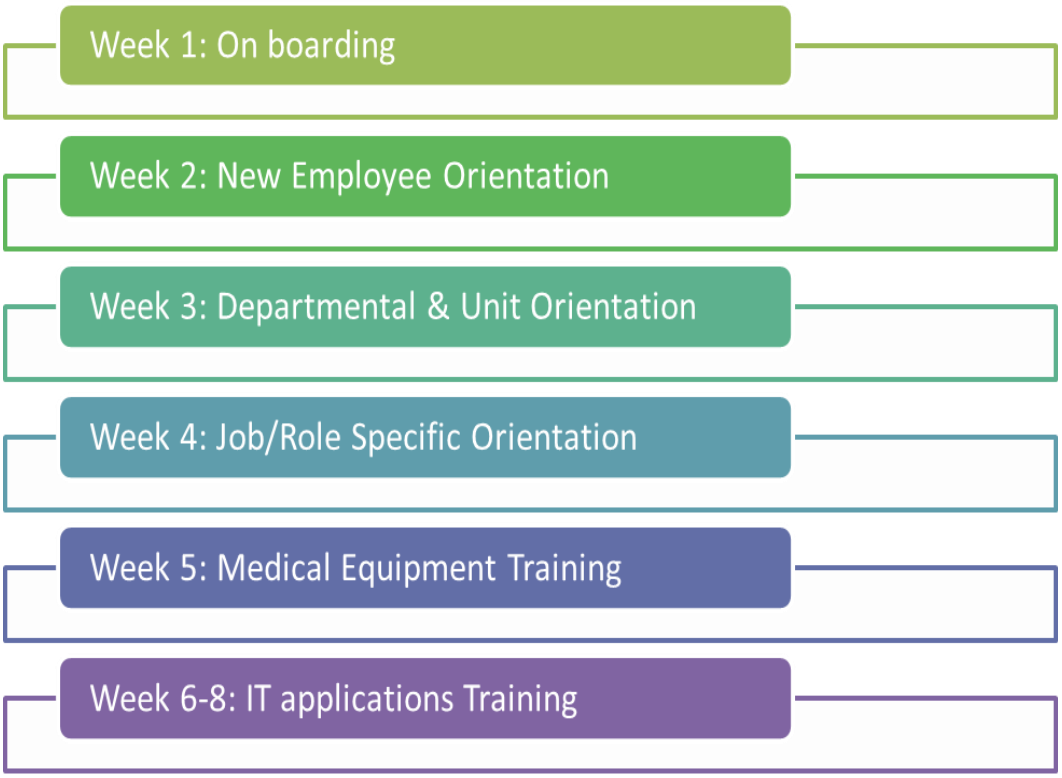


*Figure 4*. Current onboarding plan of new employees.

With the project, I propose to equip the new employees with the basic computer skills prior to their IT applications training (see Figure 5).

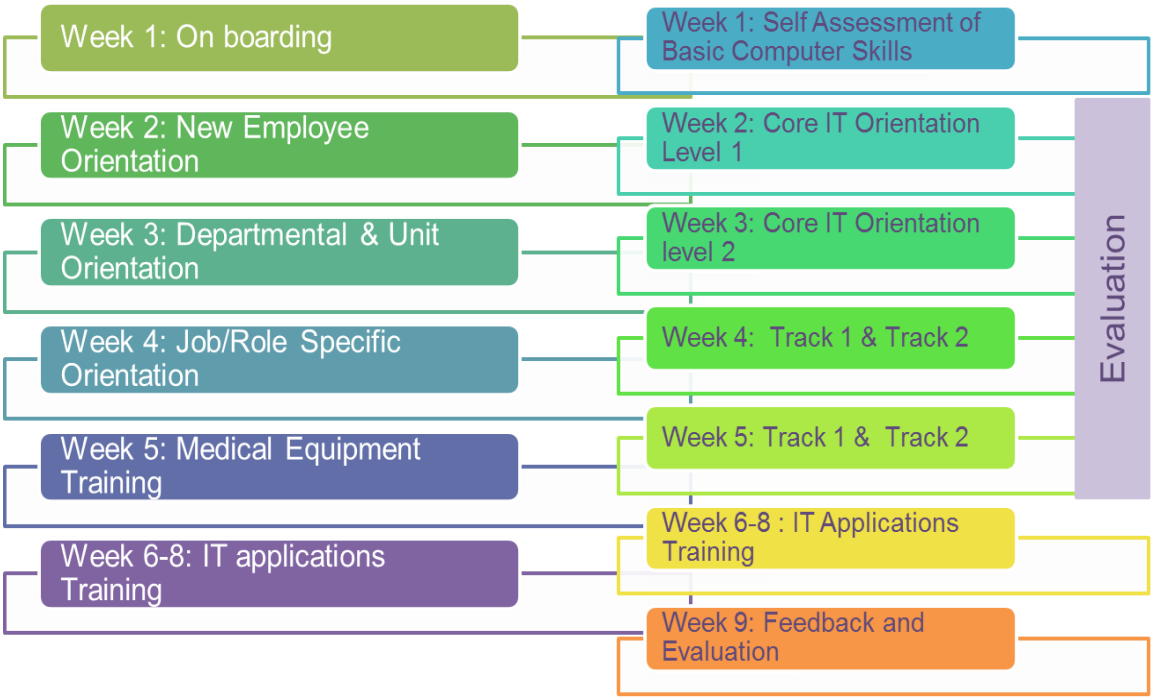


*Figure 5*. IT training project incorporated within the onboarding plan.

**Project Outline**

This is an outline of the project. The complete detail along with the PowerPoint slides, trainers manual along with tasks and activities are provided in Appendix A.

**Week 1**. Assessment of basic computer skills using the actual skills assessment tool

**Week 2**. Core IT Orientation Level 1 (Duration 2 hour includes 15 min Break) This is mandatory for all employees and this is scheduled on week two of the orientation program.

***Objective.*** To orient the new employees to the IT applications needed for day to day business functioning. This includes:

- How to login to the computer using username and password

- Using Microsoft Outlook and Microsoft Lync for communication
- Accessing organization XXX's intranet and searching for information
- Accessing the Virtual Private Network (VPN)
- Print using the follow-me printing using the ID badge
- Access the Learning Management System (LMS)

**Week 3.** IT Orientation Level 2 (3 hrs. including 15 min break)

This is mandatory for all employees who fall under the beginner and intermediate category and this is scheduled on week three of the orientation program.

***Objective.*** By end of this orientation, participants will be able to:

- Perform Internet search
- Perform basic functions of Microsoft Word
- Perform basic functions of Microsoft Excel

**Week 4 – 6.** Completion of Track 1 and Track 2

***Note to trainers*.** Assign the following courses on LMS as per the participants' level of IT skills.

***Course completion requirements***. Participants have to score more than 80% in each module to consider it as completed. Participants can attempt the tests multiple times.

***Beginners*.** Will complete Track 1 in LMS, which includes the following:

- Beginner Skills in Microsoft Word
- Beginner Skills in Microsoft Excel
- Intermediate Skills in Microsoft Word
- Intermediate Skills in Microsoft Excel

***Intermediates***. Will complete Track 2 in LMS, which includes:

- Intermediate Skills in Microsoft Word
- Intermediate Skills in Microsoft Excel
- Advanced Skills in Microsoft Word
- Advanced Skills in Microsoft Excel

**Week 6-8.** Participants' will be attending the IT hospital applications training.

***Objective.*** The employees will get to apply the skills that they learned in week 4-6

***Note for trainers***.

- Assess transfer of learning by observing how the participants perform in the IT applications class
- For interested participants in the beginner level, you can assign advanced courses on LMS

**Week 9**. Feedback and evaluation. This includes feedback from IT trainers and the survey.

## Rationale of How the Problem will be Addressed Through the Project

The local problem was the concern of whether hospital employees will have the necessary basic computer skills to learn and adapt to the various HIT applications across the hospital functions. The project will utilize the results from the basic computer literacy assessment to identify the gaps in basic computer skills and propose a training curriculum to address the gaps.

## Review of the Literature

While conducting the literature review I was looking for an effective methodology for teaching basic computer skills and used terms such as, *basic computer skills, computer skills training, IT skills training, IT skills , training, teaching, health care, blended learning, explicit instruction, constructivism, Scaffolding,* and *adult learning theory* with the help of basic Boolean search operators of *and, or*, and *not*. I used the Walden Library's Thoreau Multiple Database Search, Ed/IT Lib Digital Library, Computers and Applied Sciences Complete, CINAHL Plus with Fill Text, EBSCO, ERIC, and MEDLINE with Full Text, ProQuest, and SAGE Premier and filtered my search to include articles from the year 2010 to 2014.

The blended learning methodology used for providing basic computer skills training is based on adult learning theory, constructivism, explicit instruction, and scaffolding.

### Adult Learning Theory

One of the principles of adult learning is that adult learners need to know why they need to learn something, and learn better if they perceive it to be relevant to real life situations (Class, 2013; Luna & Cullen, 2011; Mirci & Hensley, 2010; Rapchak & Behary, 2013; Quinney, Smith, & Galbraith, 2010). For my project, I would be meeting with the hospital employees during their first week of onboarding and explain to them the reason for administering the actual skills test and how the results will be used to provide basic computer skills training, which will prepare them for the more advanced IT applications training. The actual skills test will help to demonstrate a gap and develop the

desire to learn basic computer skills. To make the learning more relevant and applicable to real life, I would be teaching the skills which they will require at work.

Integrating e-learning with traditional instructor led training is a catalyst towards applying adult learning theory in practice, where teachers or educators are no longer mere distributors of content, but are involved as facilitators of learning and assessors of competency (Blobel, Engelbrecht, Shifrin, Trukhacheva & Pupyrev, 2012; Goddu, 2012). The trainers involved in this project will play the role of a facilitator and support person and all learning activities and evaluations are learner centered.

Another principle of adult learning theory is that individual differences increase with age, therefore adult education should be tailored in such a way to cater to differences in learning style, time, and pace of learning (Knowles, Holton, & Swanson, as cited in Herbold, 2011). The asynchronous format of the project allows learners to absorb the learning at their own pace.

**Constructivism**

Constructivism encourages learners to be actively involved in the learning process. Constructivists believe that learners achieve deep learning when they are actively engaged in learning and process the new information gained and integrate it with their prior knowledge (Vogel-Walcutt, Gebrim, Bowers, Carper, & Nicholson, 2011; Overbay, Patterson, Vasu, & Grable, 2010). Through this project I would be providing the hospital employees with the basic computer skills in a blended format so they are actively involved in creating their own personal experience. Constructivist suggest that teachers should pay attention to what learners already know prior to them getting

involved in constructing new knowledge or learning new skills (Çalik, Ayas, & Coll, 2010; Rolloff, 2010; Brandon & All, 2010; Yoder, 2014). I would be assessing the hospital employees' basic computer skills using the actual skills test prior to providing training on the computer skills.

Use of technology for instruction supports the constructivist approach, where learners use technology to discover and construct knowledge (Overbay et al, 2010; Gracia, Pacheco, & Gracia, 2010; Chitanana, 2012; Al-Huneidi et al, 2012). Furthermore, adopting a learner centered constructivist approach to teaching and learning develops learners into lifelong learners (Winstone & Millward, 2012). This supports my approach of using blended format for delivering training on basic computer skills and in using constructivist approach to developing learner centered lesson plans, instructional materials, and evaluation. Constructivist approach encourages learners to take ownership for their learning (Rolloff, 2010; Chitanana, 2012; Cook, 2014). The blended format of learning allows learners to have control and flexibility during the learning process.

**Blended Learning**

A blended learning is a combination of the traditional classroom or face to face instruction with web based online approaches, or it could be a combination of technologies or a combination of methodologies or pedagogic approaches (Al-Huneidi & Schreurs, 2012; Sharma, 2010; Tucker & Jones, 2010). In my project I used a combination of classroom teaching and online learning, and a combination of pedagogic approaches such as, explicit instruction, constructivism, and adult learning theory. According to Carte, Dharmasiri, and Perera (2011), using a blended learning format can

serve the purpose of simultaneously delivering content and improve IT skills. Using a blended approach in my project will help the employees to improve the skills which they learn in class and give them an opportunity to apply those skills on the online learning environment.

Considering the practical nature of the training the biggest challenge was to find a methodology which would actively engage the employees and ensure that the skills that they learn are transferrable to other areas of their work. According to Tshuma (2012), this can be achieved when learning occurs with computers rather than about computers, wherein the computer functions as an intellectual partner with the learner to keep them engaged and facilitates critical thinking, and encourages deep learning. Integration of technology in pedagogy contributed greatly towards acquiring technology literacy (Gardner, Emanuels, & Aleksejūnienė, 2011).

For the project, I used asynchronous format for online learning. Asynchronous learning allows great flexibility as it allows students to complete their assignments or learning tasks at a time which is convenient for them (Sherrod & Sherrod, 2013). The employees will be assigned courses or tasks through LMS to be completed at their own convenience. These are courses available as additional resources from Microsoft for use by the organization. I used these resources to supplement the classroom instruction which I had developed.

While implementing an EMR/HIS training program for 4000 end users in a quaternary hospital in India, the trainers successfully used a blended format for training when faced with challenges such as, constraints with duration of training block, lack of

training space and equipment, limited number of trainers, and lack of protected time for training for end users with their busy hospital work schedule (Kumar, Bhatia, & Chiang, 2013). Though I am providing training on basic computer skills rather than EMR/ HIS, the challenges are similar to a great extent in terms of time available for training, and resources in the form of trainers and using a blended format will address these challenges.

**Explicit Instruction**

In explicit instruction the students are guided through the learning process by providing them with clear purpose and rationale for learning the new skill and includes demonstration of skill with opportunity for practice along with feedback till they achieve independent mastery of the skill (Archer & Hughes, 2011; Clark, Krischner, & Sweller, 2012). Explicit instruction is based on the principle that if the learner can understand how learning the new concept or skill can be applied to their daily life or work life, they will be motivated to learn the new concept or skill (Ashby, Tollefson, Whalen, & Zager, 2012). For the classroom instruction I used the I-We-You framework which is based on explicit instruction, which guides the learner from observation to guided practice to individual practice of a skill. For example, the trainer will show a skill of how to print a document and the learner will just observe, then in the next step the learner follows step by step instruction along with the trainer, lastly the learner will independently perform the skill.

**Scaffolding**

Explicit instruction and constructivism along with the blended approach allows for scaffolding , which describes how learning should be supported until novice learners are able to master and perform tasks independently (Gripenberg, 2011; Winstone et al, 2012; Yoder, 2014; Rourke & Coleman, 2010; Melero, Hernandez-Leo, & Blat, 2012; Salyers, 2014; Rodrigues & Smith, 2014). The trainers along with the LMS administrators and IT helpdesk will be the support system for the learners. Job aids or user guides will also be provided as a support.

There are different types of scaffolding used in ICT education. One of the most common ways of classification is based on the granularity of the learning process, which is macro scaffolding and micro scaffolding (Melero et al, 2012; Engin, 2014). Macro level scaffolding includes the pedagogical approach and instructional strategies used to deliver the training (Engin, 2014; Winstone et al, 2012). This project is based on macro scaffolding as the instructional design and materials are based on constructivism, explicit instruction, and adult learning theory. The micro level scaffolding includes the interaction which occurs between the facilitator, or trainer and the learner, which could be in the form of cues, questions, elaboration, confirmation, or summarizing (Engin, 2014). The project includes classroom face to face interaction with the trainer/facilitator which provides the micro scaffolding to the learners.

One other way of classification is based on the guidance or support provided to the learner. This includes social guidance scaffolding and system guidance scaffolding. Social guidance scaffolding occurs when more experienced or knowledgeable people

guide or assist the learner (Melero et al, 2012; Ozan, 2013). In this project the learners have social guidance scaffolding in the form of trainers, IT helpdesk personnel, their peers, and other experienced work colleagues. System guidance scaffolding occurs when technological approaches or different environmental supports are provided to the learners during the process of learning (Melero et al, 2012; Lu & Zhang, 2013; Jančařík, 2013). This project provides system guidance scaffolding in the form of LMS and other web based resources.

## Project Description

### Project Resources

The resources required for this project are already available within the organization. There is a computer lab set up for hospital IT applications training, which can be utilized for the basic computer skills training. There are two labs with each having a capacity to accommodate 25 learners. The organization uses a Learning Management System (LMS) which can be used to deliver the online learning modules. The Learning and Development (L&D) team has instructional designers who can help convert the content of training into Shared Content Object Reference Model (SCROM) packages which is compliant with the LMS system being used. There are two business applications trainers who can deliver the face-to-face training. If additional trainers are required, we could do a train the trainer program and empower employees with advanced computer skills to provide the training and support required by their fellow employees.

**Existing Supports**

I have the support of the Senior Director, Learning and Development, the CHRO, and CEO of the organization to do what is needed to up skill the new employees to facilitate IT training in different applications throughout the hospital. The senior leadership is supportive and is aware of my research project and sees it as a value added proposition. The hospital IT applications training is outsourced and the project team is already on boarded, who are very supportive and keen to offer assistance when needed. I plan to get the content and materials reviewed by the members of that team.

There are desktops or laptops provided to employees and clinical staffs receive tablets for use throughout the hospital, department, and unit orientation. For employees who do not have individual desktops, laptops, or tablets, there are desktops provided in common areas throughout the hospital, offices, and the staff accommodation where they can access the LMS.

**Potential Barriers**

The only challenge I perceive is incorporating the basic computer skills training during the onboarding and orientation period which is the first two weeks. The onboarding program and orientation program is already designed and approved and I will have to work around it to include the training. Timing and duration of the classroom sessions will have to be carefully managed so that new employees do not find it overwhelming.

**Potential Solution to Barriers**

Potential solution would be to negotiate with stakeholders and propose a two days of training dedicated for core IT orientation level one and level two prior to the hospital based IT applications training.

**Proposal for Project Implementation and Timetable**

The project implementation will start by presenting the findings of the study and the project plan to Committee for Activation and Training (CAT), this committee oversees all the training required for activation of the hospital. The next step will be to get the curriculum reviewed by experienced IT professionals and submit the curriculum to the CAT, along with all training materials, resources, and evaluation plan. Once the plan and curriculum is approved, the training for basic computer skills will be initiated by Jan 2015. During implementation, there will be overlap of dates as the employees are on boarded in small batches every week starting January 2015.

Week 1: Assessment of computer literacy from Jan 2015- Feb 2015

Week 2: IT orientation level 1 from Jan 2015 – March 2015

Week 3: IT orientation level 2 from Jan 2015 – March 2015

Week 4-6: Track 1 and Track 2 from Jan 2015 – April 2015

Week 6-8: IT applications training from Feb 2015 – May 2015

Week 9: Evaluation and survey March 2015 – May 2015

**Roles and Responsibilities of Learners and Others**

**Learners**. This project uses a blended learning format and learners who are the new employees need to understand that major portion of this training is self-directed.

Being the project lead it will be my responsibility to make sure the learners learn how to use the LMS and they know what is expected of them as learners. This information will be imparted to them during the Core IT orientation. The learners need to understand how they can use the support available to them in the form of trainers, IT helpdesk, LMS administrators, and colleagues.

**Other stakeholders**. Prior to implementation, I will have to meet with other stakeholders who are vital for the success of the project. These include the IT support or helpdesk staff who would be providing assistance with any IT issues, the LMS administrators who will be supporting the learners to overcome technology issues with the LMS, onboarding team as I will providing the actual skills test during the onboarding week, the L&D team as they deliver the orientation and I will need their help to coordinate the schedule to include IT orientation training, and the room scheduling team who manage all the training rooms and labs, so that I can book rooms for the training.

The IT business application trainers who will be assisting me the implementation of the program need to understand that their roles and responsibilities, which include deliver of training and being available as a support person for the learner throughout their nine week learning journey.

## Project Evaluation Design and Approach

The evaluation design and approach used for this project is the Kirkpatrick four level evaluation model, as it incorporates both summative and formative evaluation. The new Kirkpatrick model proposes to start the project with business value in mind and to start with level fours results, which is the Return of Expectation (ROE) considered as the

ultimate indicator of value (Kirkpatrick & Kirkpatrick, 2009; Kirkpatrick & Kirkpatrick, 2013). The following are the four levels (Kirkpatrick et al, 2009):

**Level 4: Results.**

Degree to which the targeted outcomes are achieved, as a result of the learning events and reinforcement.

**Level 3: Behaviour**

Degree to which learners apply what they learned back on the job, which is transfer of learning.

**Level 2: Learning**

Degree to which the learners acquire the intended knowledge, skills, and attitudes based on their participation in learning.

**Level 1: Reaction**

Degree to which learners react favorably to learning event.

**The Kirkpatrick Four Levels Applied To The Project**

**Level 4 (ROE)**. Hospital employees successfully complete the hospital IT applications training within the specified time frame which is from week six to week eight and are equipped to use the various applications in the hospital.

Metrics:

a) Number of training hours will be tracked for each employee.
b) Number of IT complaints related to lack of skills or knowledge will be tracked during the mock operations period

**Level 3**. Hospital employees apply the basic IT skills learned during the hospital

IT applications training.

Metrics:

a) Observation of employees as they apply their skills in IT applications training
b) Feedback from trainers who provide training on IT applications on hospital employees' performance during the training. Example: Did they find any employee struggling with the basic skills and whether they had to spend extra time teaching the basic skills.

**Level 2**. Hospital employees acquire the basic IT skills, knowledge, and attitude.

Metrics:

a) Scenario based tasks to check the skills
b) Hands on activity
c) Observation of skills in the class

**Level 1**. Hospital employees are satisfied with the classroom and online learning.

Metrics:

a) Survey
b) Face to face discussions

The results will be analyzed and summarized to measure the effectiveness of the project and will also be used to make any required changes in the curriculum or the methodology of teaching and learning. The results will be shared with the stakeholders.

# Project Implications

## Social Change Implications

Hospitals are increasingly using IT applications for automating each and every operation within the health care system. Health care workers are expected to have computer skills to effectively and safely use these systems. IT systems vary from hospital to hospital and health care workers are expected to adapt and learn the new systems in a limited period of time. Health care workers, when they are diverse in terms of education, years of experience in hospital setting, and skills with use of computers it becomes challenging for them to adapt to new IT applications and learn new skills.

A project like this which assesses their basic computer skills when they join an organization as new employee and provides basic computer skills training accordingly will prepare them to learn new IT applications and adapt easily to new systems and environment.

## Implications to Local Stakeholders

Equipping new employees with basic computer skills enables them to learn new skills and navigate the day to day functions at the workplace. Prepping the new employees with basic computer skills also eases the effort required by the IT trainers to train the employees in hospital wide IT applications. Most of the hospital applications training are outsourced to the vendor who supplies the applications and if the basic computer skills training if developed in-house and incorporated into the new employee orientation program can save resources like trainers, time required for training, and cost. If this project is successful, other hospitals in the region which are in the project phase or

are in the process of digitalizing their operations can replicate the same approach to assess and train their staff.

## Conclusion

In this section the project design with its overall goals and outcomes was described. A project implementation plan was detailed based on literature search and learning theories which included assessing basic computer skills using an actual skills test and providing basic computer skills training to employees based on their present skill level. Supports and barriers anticipated in the implementation of the project were discussed. Key stakeholders, social change implications, and implications for local stakeholders were also discussed. In section 4, the study's strengths, limitations, and implications for further research will be addressed. It will also include an analysis of what I learned about scholarship, project development, evaluation, and about leadership and change.

Section 4: Reflections and Conclusions

## Introduction

The purpose of this study was to find an accurate tool to assess basic computer skills in employees in a hospital still in the preoperational phase and which is aimed to be the first fully digitalized hospital in the region. The data collected through quantitative means revealed that an actual skills test was a reliable tool to assess the basic computer skills in hospital employees. The study also identified areas where there was a skill gap in basic computer skills amongst hospital employees. The project was aimed at bridging this gap in basic computer skills by developing an IT orientation curriculum. In this section, the project's strengths and recommendation for identified limitations will be discussed. This section will also include insight into my learning journey during this research project and what I learned about scholarship, leadership and change, and project development and evaluation. This section will also include my reflections and analysis of being a scholar, practitioner, and project developer. The section concludes with the project's implications, applications, and direction for future research.

## Project Strengths

The project was developed based on data gathered from the research and that is one of the foremost strength of the project. Another strength of the project is that it was incorporated into the regular orientation schedule of new employees after collaborating with respective stakeholders, which led to better and effective utilization of resources like time, space for training, and trainers.

Adult learners are active agents in planning and executing their learning and they value immediately relevant and problem solving based learning (Knowles, Holton, & Swanson, as cited in Chen, 2014). The strength of the project also lies on the framework of learning theories it is based on, which makes the IT orientation very relevant to the employees. The basic computer skills are taught in such a way that the skills are incorporated into teaching computer skills that new employees will need to function on a day-to-day basis at work. For example, the IT orientation Level 1 is called *tools to succeed*. In this manner, the employees will find it relevant and will be more accepting to learn computer skills.

The scaffolding provided in in the form of trainers, IT help desk personnel, and other fellow employees provides the learners with adequate support to ask questions and learn from collaboration. The blended format of the curriculum allows for greater flexibility and control over learning for the learners who are in their orientation phase and undergoing various other trainings at the same time. It sets the stage for employees to be self-directed in their learning journey.

## Project Limitations

There are a couple of limitations to this project. As the hospital is in preoperational phase, the employees are currently using various devices such as tablets, laptops, and some desktops, which makes it a bit challenging for the trainers to cater to individual learners' needs; during training the lab has desktops set up, which allows for some uniformity. The small study sample size makes generalizability difficult in the use of actual skills test to assess basic computer skills. Another perceived limitation is related

to the timing of the IT orientation, as to the possibility of employees getting cognitively overloaded with all the information they receive during the orientation phase.

## Recommendations for Alternative Approaches

This study was done to address a local problem as employees were onboarded from diverse backgrounds and it was noticed they had varied IT skills, which was of concern as they had to be trained on various hospital IT applications within a fixed time frame prior to getting operational. The study focused on finding an appropriate tool to assess basic computer skills and the project aimed at filling in the skills gaps identified during the assessment of basic computer skills.

One of the recommendations is that the assessment of basic computer skills be done during the interview process itself, which will help to screen candidates with required skills. It will also allow recruiters to counsel candidates as to what skills are expected from them and will allow candidates to brush up skills as they go through the hiring process. This will allow for training resources to be utilized in a more efficient manner.

## Scholarship

When I started on this journey, it was very daunting as I was working in a hospital that was still in a project phase, far from being preoperational, and I had to choose a problem related to the workplace. I was one amongst the first 100 employees who were onboard at that time. Being a part of the Learning and Development Team helped as I was involved in orientation of new employees and I was collaborating with various departments, divisions, and institutes to understand their training needs. As I interacted

with people from the IT and informatics department, I realized that the biggest concern they had was around training new employees on all the IT applications that will be used in the hospital. I started delving deeper into this problem and decided to explore it further by going over the vast literature available and critiquing research articles, which led to my research.

Writing the proposal and going through the iterative process with my chair was a great learning curve for me. Along with scholarly writing, I had to learn to say a story with a flow, which was a bit challenging in the beginning. Performing a literature review for the research study and for the project enriched my knowledge about the problem and about various learning theories and teaching learning methodologies. While deciding on the research methodology, sample size, and applying statistics for data analysis I learned that reading and critiquing similar studies through literature search helped, but what helped tremendously were the discussions with colleagues and friends who directed me to think and probe further.

Though challenging and frustrating at times, I gained tremendous knowledge about research and project development and have gained confidence in applying my skills as a researcher. I am more confident now to explore, identify problems, and do research and find solutions. Going through this doctoral program has made me more receptive to the needs of adult learners and how I can effectively facilitate their learning. This doctoral journey has made me engage with critical problems faced by the teaching learning communities and work towards bringing about social change.

## Project Development and Evaluation

When I started with the project development I was feeling lost, as I am not an IT trainer. An extensive literature search directed me to develop the project based on a framework of learning theories. I wanted to know what would be the best teaching methodology for teaching computer skills, so I talked to IT trainers and all of them had the same approach, which was demonstrating a skill and asking learners for return demonstration. This approach was not new to me coming from a nursing background. It was an enlightening learning journey for me. I developed an IT orientation curriculum, which I would not have done otherwise. Through this project development, I learned that if you take a systematic approach and have a theoretical framework you can develop any project. I decided to apply Kirkpatrick four levels to evaluate the project as it is an amalgamation of formative and summative evaluation. Evaluation of the project will help understand how the employees perceive the project and how effective it was in achieving the desired outcomes. It will also help measure transfer of skills learned to workplace.

## Leadership and Change

As the project lead, I collaborated with the key stakeholders and got them involved at a very early stage when I started my research. The key to being an effective leader is communication and collaboration. Change is always difficult and people tend to resist any form of change; nonetheless, what I learned during my project development is that the resistance can be managed properly if there is constant communication and collaboration, and more importantly when a project plan is based on hard facts and data. If value is created before it is being demonstrated, then it is not difficult to get a buy-in

from the stakeholders. I showed the stakeholders the value of the project and how it supports the business needs and I had their full support.

## Analysis of Self as Scholar

When I started my doctoral program with Walden, I found it very challenging to write my first scholarly paper. The last research paper I wrote was 10 years back for my Masters dissertation, which I had done in India. What was expected of me from Walden was way beyond what I was used to. It took me 2-3 days to write a paper of 300 words.

I took help from the Walden writing center and got constructive feedback, which I worked on diligently. I learned how to paraphrase, avoid plagiarism, and cite articles using the APA format. Videos from the Walden Library helped me perform proper literature search and use tools to organize my references and articles, so I effectively utilized my time. I am more confident now as compared to when I started my program with Walden and able to help other colleagues who are on their Masters or Doctoral journey.

I learned how to search the vast available literature for evidence based literature. I got to apply analytical and critical thinking while critiquing researches done previously and learn from them.

## Analysis of Self as Practitioner

I have been in the education field for a while now and this experience has made me grow into a more aware practitioner. I am able to see a bigger picture and what I can do for the business as a practitioner. Working side by side my doctoral degree has been challenging, but a very rewarding experience. I could apply what I learned during my

doctoral course at my workplace and vice versa. As an educator I know how important it is to transfer what you learned into practice, and I am empowered by the knowledge that I am able to do that. I am always looking at ways to improve the current learning programs that I am involved in. I am also able to take on the role of a consultant advising other departments and divisions on identifying their learning needs and filling in those gaps.

## Analysis of Self as Project Developer

In my present workplace and in the past I have been part of various projects, but this was the first time that I was totally in charge of the project from scratch. It was a very humbling experience for me, I realized how important it was for me to collaborate and communicate clearly with all stakeholders. There were so many complex pieces to the puzzle and it has made me appreciate people around me. I remember the time I had to present to the CEO, I was all nerves and I was advised by the CHRO that I need to limit my whole presentation to just three slides and I had just 15 minutes to put my idea across.

This was a learning experience for me, where I learned to present information which was brief and created an impact.

## Reflection on the Importance of the Work and Lessons Learned

Overall the doctoral journey has been a very enriching and enlightening learning experience. I have grown spiritually and intellectually, and am more confident as a scholar, practitioner, and a leader. I am ready to take on more responsibilities and face challenging situations and am not afraid to stretch my limits. More importantly I have learned how to create business impact and a social change.

I have had very challenging time trying to get approvals from organizations to do my data collection as our hospital was still in project phase. I had to wait a while to get the permission to do the data collection in my place of work. Even when I started data collection, though the participants were enthusiastic and supportive, I did not get the response I expected. I realize and am aware of the challenges when a hospital is in project phase and employees are busy getting it into operational phase. Throughout this journey, I learned the importance of persevering and not letting go of my goal, and the importance of people around you such as family, friends, colleagues, classmates, and more importantly the chair who supported and motivated me in this journey.

## Implications, Applications, and Directions for Future Research

Lack of basic computer skills has been identified as one of the main reason for poor adoption of EHR in health care. Assessing the basic computer skills and providing initial training on improving basic skills would lead to improved confidence and ease in learning more advanced skills required for applications related to EHR and better adaptation to change and acceptance of IT applications.

Proper training and robust support systems and scaffolds leads to better utilization of training resources and better acceptance of systems. The small sample size than what was intended limits the generalizability of the results. In future, a research with a larger sample size would be recommended. While doing this research one of things which intrigued me was the impact of culture in doing a self-assessment, as I had a varied multicultural group. Therefore, a future research on how culture impacts a self-

assessment score would be of value in a world where workplace demographic is becoming more varied and multicultural.

## Conclusion

Health care organizations throughout UAE have started on a journey of integrating electronic health care. The delivery of safe and effective health care depends on employees' ability to effectively use all these different electronic applications. The transition to these electronic health care systems requires employees to adapt to these new systems and learn new skills. Having basic computer skills makes learning new skills easier. The study has explored appropriate tool for assessing basic computer literacy and developed a curriculum to fill the gaps identified during assessment.

The doctoral journey has been a learning journey where I got to stretch my capabilities which have transformed me into a better human being, a scholar, practitioner, a more effective leader and change agent. When I work on projects at workplace, I think of how it will impact to bring about a social change.

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# Appendix A: The Project

**Week 1**: Assessment of basic computer skills using actual skills test

**Week 2**: Core IT Orientation Level 1 (Duration 2 hour includes 15 min Break)

This is mandatory for all employees and this is scheduled on week two of the orientation program.

**Objective:**

To orient the new employees to the IT applications needed for day to day business functioning. This includes:

- How to login to the computer using username and password
- Using Microsoft Outlook and Microsoft Lync for communication
- Accessing organization XXX's intranet and searching for information
- Accessing the virtual private network (VPN)
- Print using the follow-me printing using the ID badge
- Access the learning management system (LMS)

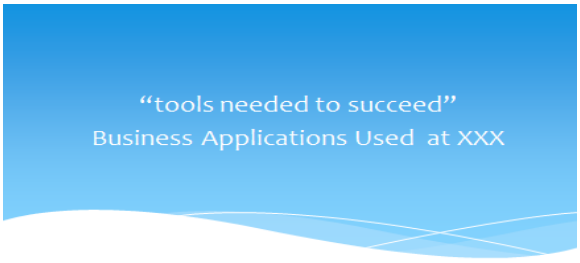
**Checklist for trainers and facilitators**:

- Prior to the class, make sure the computers in the training lab have Internet access
- Ensure all the new employees are in the global address list and have been assigned username and password
- Ensure IT help is available during the class to address any technical issues which may arise
- Check if the audio visual equipment are functioning

**IT Orientation Level One Manual**

**Introduction**:

**Slide 1**




One way to become successful at work is to know what are the tools that you would need and how you will use them effectively.

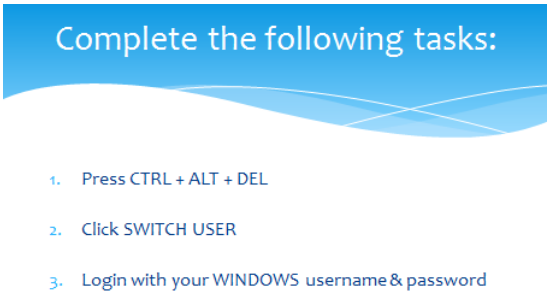
So today, I will introduce you to the basic applications that you will use on a daily basis. In this way, you will become more productive and effective in your job.

This training is composed of two things – a slide presentation, where I'll be explaining the concept and the steps on how to use an application and hands-on activities so you could practice.

Just observe as I demonstrate the steps, next you will do the steps along with me and then lastly you will do the steps independently.

**Computer Login (15 min)** :

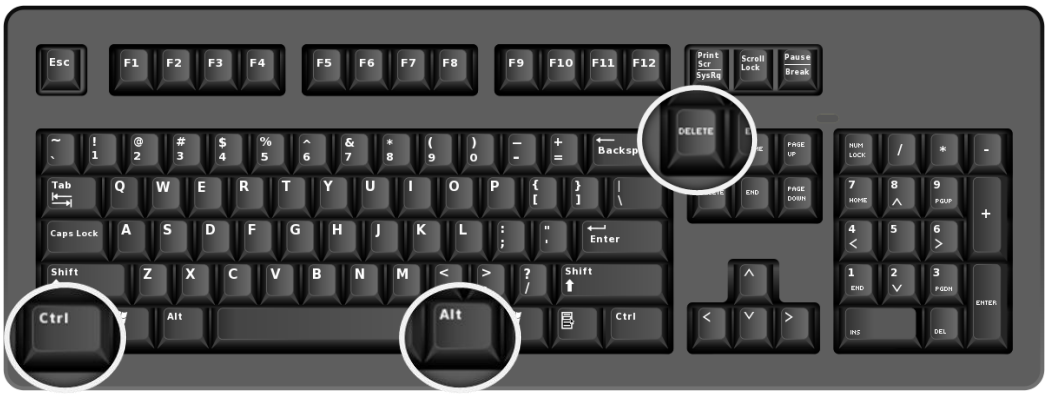
**Slide 2**




Demonstrate and observe the participants as they login to the computers.

**Changing Your Password**

Please ensure to change the default password. The new password has to be 8 characters with a combination of uppercase, lowercase, number and special characters.




**Task Steps**:

- Press CTRL + ALT + DELETE keys simultaneously.
- Click the CHANGE A PASSWORD option.

- Enter your OLD PASSWORD.
- Enter your NEW PASSWORD.
- Re-enter your NEW PASSWORD to confirm.
- Click the arrow button or press enter to login.

**Microsoft Outlook Basics (40 min)**

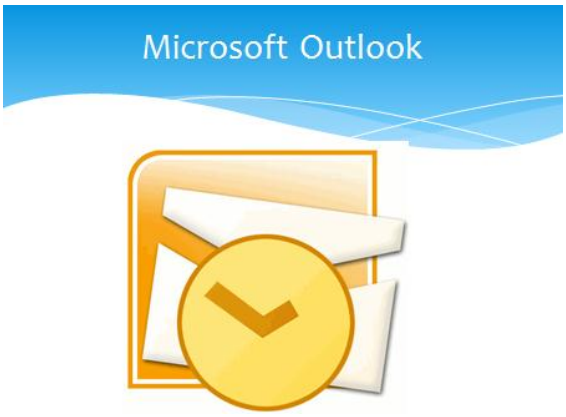
**Objectives**:

We use Microsoft Outlook for e-mails and meeting requests.

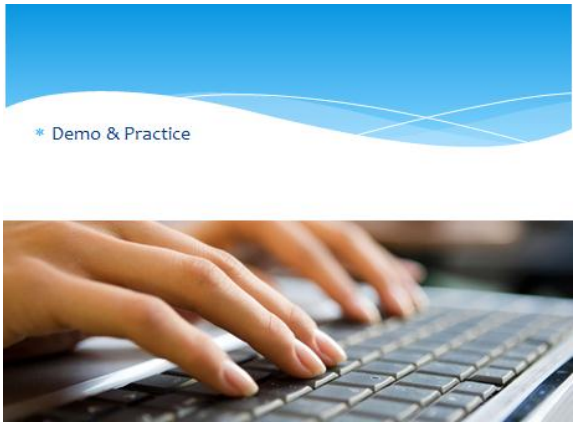
***By end of this session, you will be able to***:

- Find fellow employees and their contact details through address book
- Book a meeting request and a room through calendar
- Archive and search e-mails using the Enterprise Vault
- Add  signature to your e-mail.

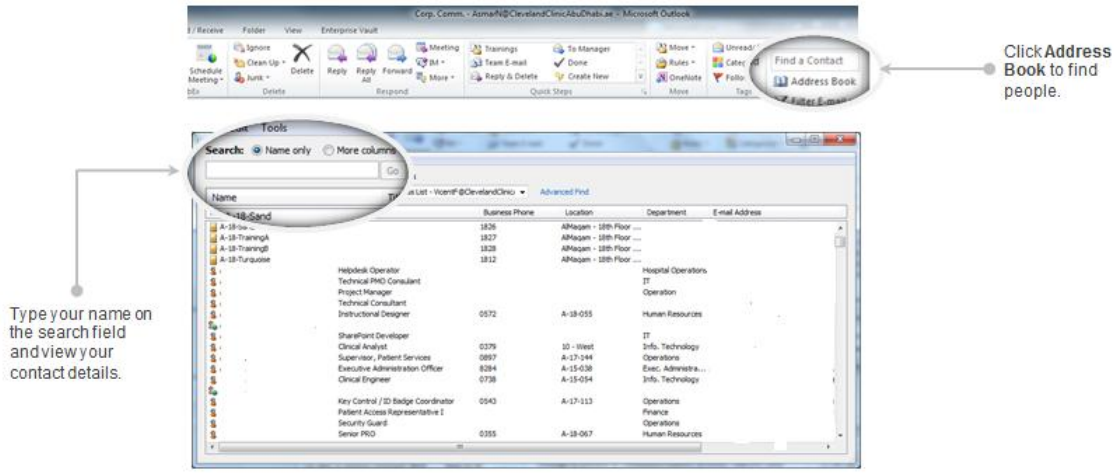
**Slide 3**




**Slide 4**



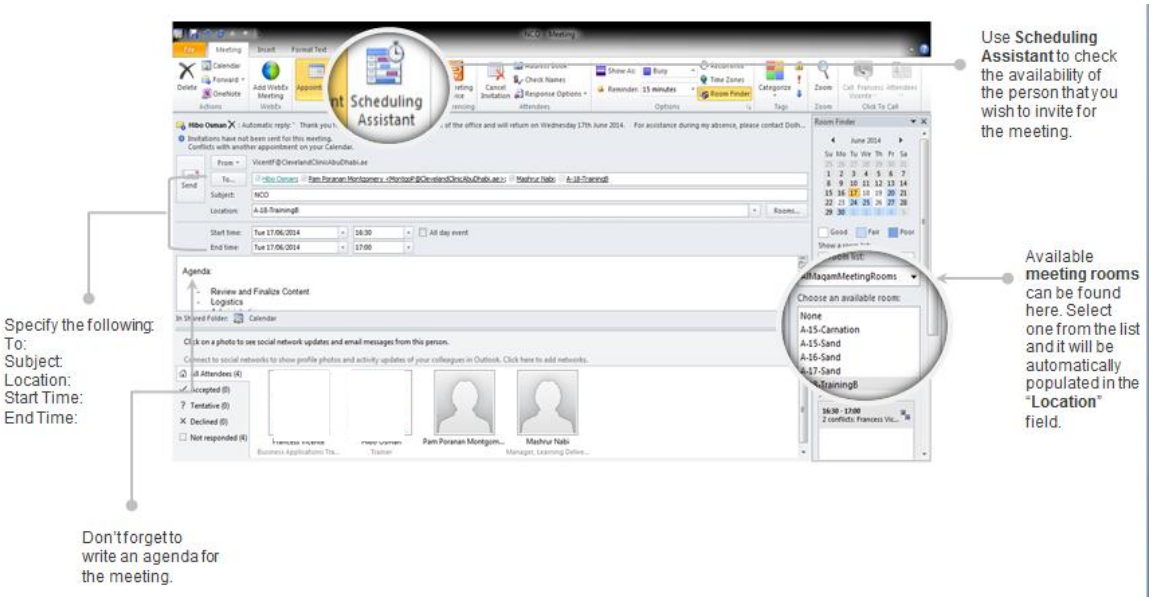
**Scenario 1: Search for your name and view your contact details**.




**Task Steps**

- From your desktop, click the **Start** button.
- Type "**Outlook**" in the search field.
- Select **Microsoft Outlook 2010**.
- Click the **Address book** button.
- Type your name on the **search** field and view your contact details.
- Write down your contact details.
  - Title: _____
  - Business Phone: _____
  - Location: _____
  - Department: _____

**Scenario 2: Create a meeting request with room booking and send it to the person sitting next to you**




**Task 1: Creating a Meeting Request with Room Booking**

- From Outlook, click **Calendar** and select **New Meeting**.
- Click the **To** button and type the name of the person that you wish to invite.
- Type the **Subject** of the meeting. For example: **Budget Allocation**
- Specify the **start time** and **end time** of the meeting.
- Click **Show a room List** and select the location where you want your meeting to be held. In this example, we will choose **Baniyas Meeting Rooms**

- Select an available meeting room. (This will vary depending on the availability of the rooms)
- Type the agenda for the meeting. For example: **Review and finalize budget for first quarter of 2015**
- Send the meeting invite by clicking the **Send** button.

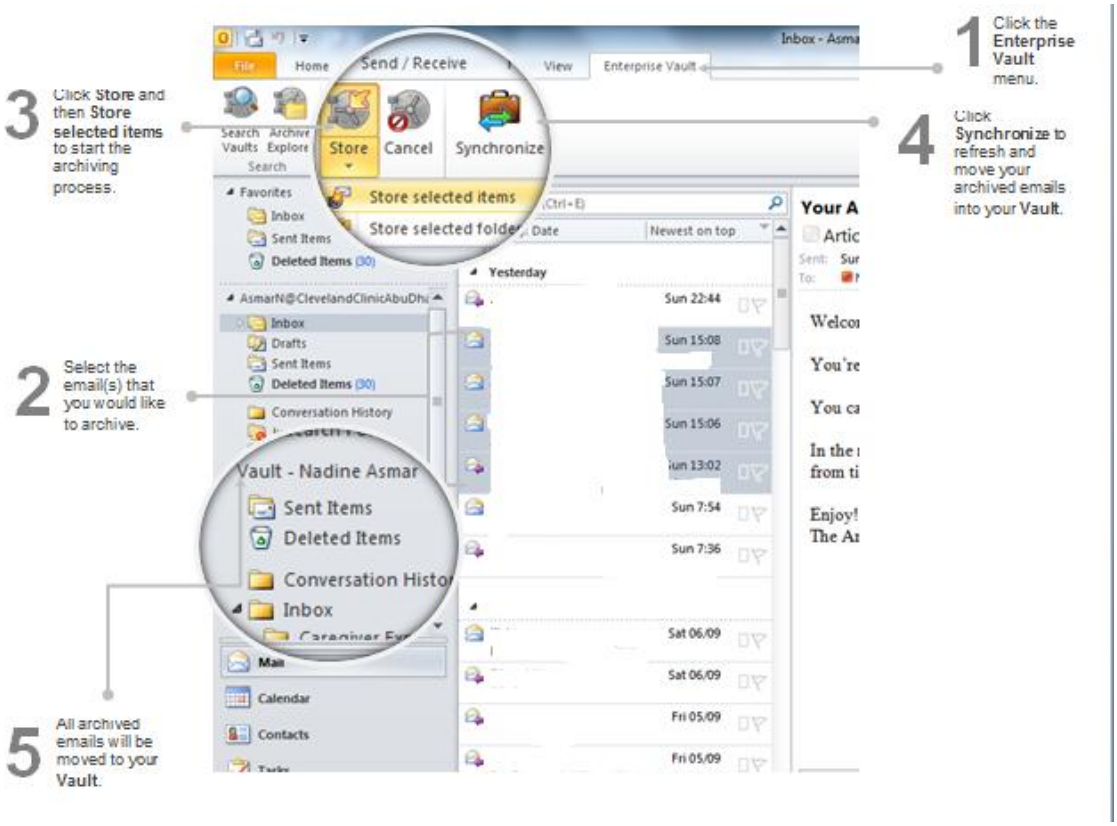
**Task 2: Accepting a Meeting Request**

- Open the meeting request from your inbox.
- Send the meeting invite by clicking the **Send** button.
- Click **Accept**.

**Task 3: Cancelling a Meeting Request**

- From the **Calendar** screen, select the meeting that you want to cancel.
- Click **Cancel Meeting**.
- Click **Send Cancellation**

**Scenario 3: Archive any e-mail by using the Enterprise Vault**




**Task 1: Archive any e-mail from your inbox**.

- Click the **Enterprise Vault** menu.
- Select the e-mail that you want to archive.
- Click **Store** and then **Store Selected Items**.
- Click **Synchronize** to refresh and move your archived e-mails into your Vault.

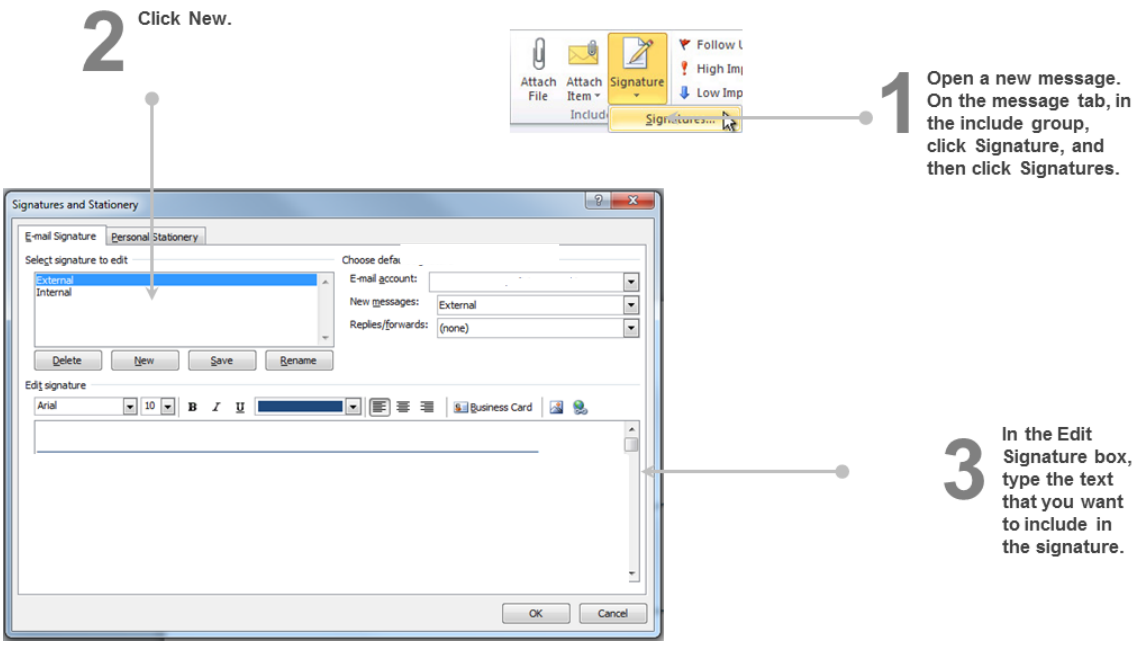
***Note***: Synchronization might take time. Your e-mail might be moved instantly or sometimes the next day depending on the network speed or server traffic.

**Task 2: Search e-mails in your vault**

- Click the **Enterprise Vault** menu.
- Select your **Vault** folder.
- Click **Search Vaults** to search any item saved in your vault.

**Scenario 4: Add signature**

A signature can automatically be added to outgoing messages, or you can manually add the signature to only the messages that you choose




**Note**:
Use plain text Arial 10 Regular, only your name should be bold.
Do not use more than 4 lines.
Use | to separate text.

**First Last Name** | Title | Name of Organization
Office: +971 2 Your Number | Mobile: +971 Your Number | Email: [make sure it is hyperlinked]
Website: www.XXXXXX.com [make sure it is hyperlinked]

Logo of organization

**Microsoft Lync (25 min)**

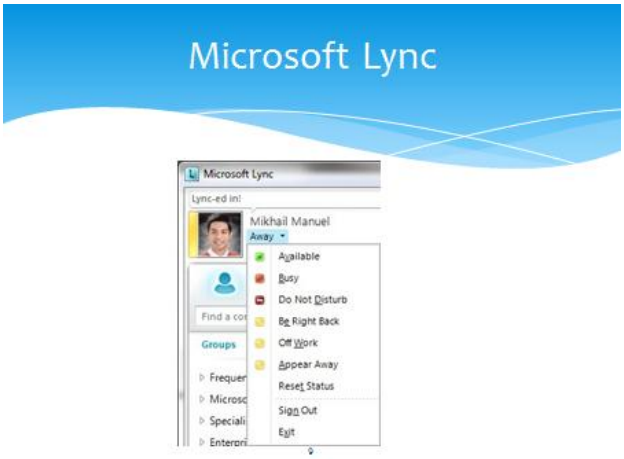
**Objectives**

Microsoft Lync is an instant messaging system. Through this you will be able to communicate with others easily.

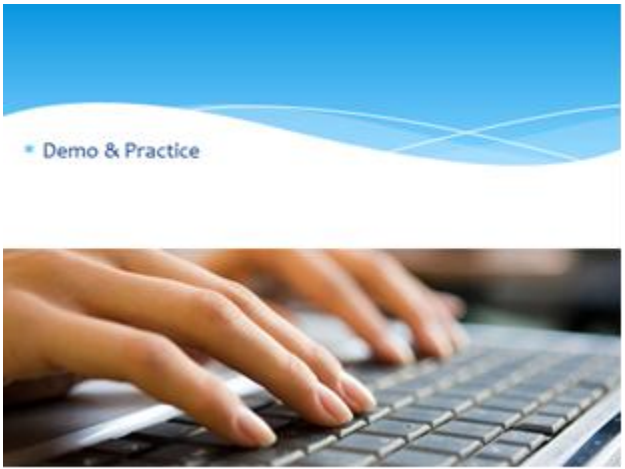
***By end of this lesson, you will be able to***:

- Send instant message to other employee.
- Set availability options.
- Add a contact.
- Share a file and desktop to someone.

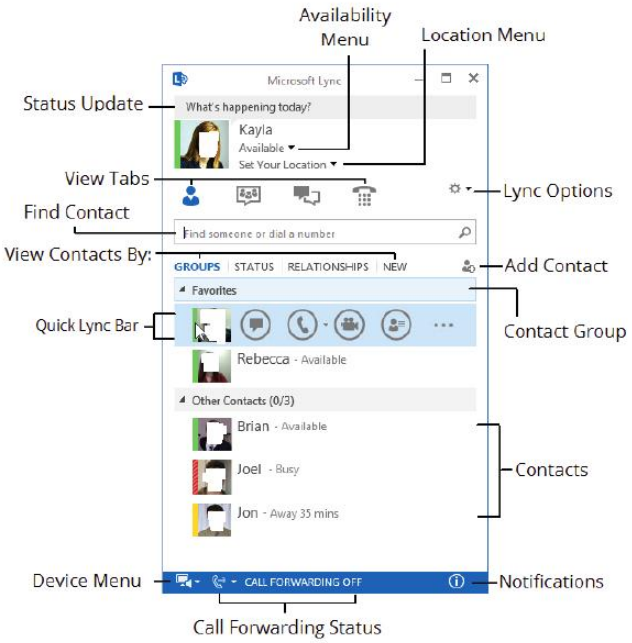
**Slide 5**




**Slide 6**



**Scenario 1: Explore the basic functions of Lync - such as availability menu, status update, messaging, file and desktop sharing.**




**Task 1: Update your status and availability option**

- Set your status by clicking **Status Update** and type "**Attending IT Orientation**".
- Click the **Availability Menu** and select "**Do Not Disturb**".

**Task 2: Send an instant message, share a file and desktop with someone**

- To send a message, double-click the name of the employee and type your message. Press enter.
- Drag and drop any file to the message box to send a file.
- Click **Share** and select **Desktop**.

**Organizations Intranet – Connect (20 min)**

**Objectives**

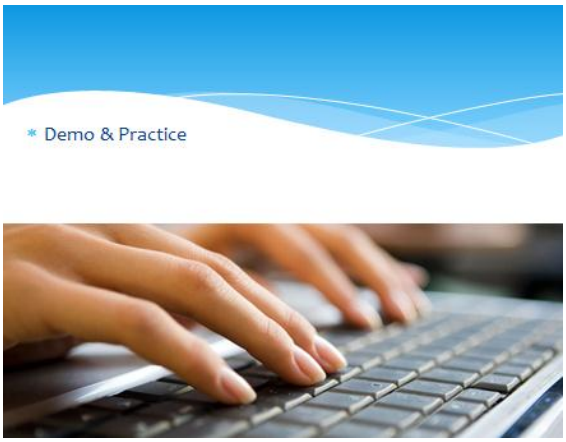
Connect is an  intranet site. This is your default web page. You can use this to access several key information such as – Policies and Procedures, Health Headlines, Corporate Discounts, Employee Celebrations, New Employee Portal and etc.

***By end of this lesson, you will be able to view and explore the following sections***:

- Contact list
- Quick Links
- Employee Experience
- Policies and Procedures

**Slide 7**

**Slide 8**




**Scenario 1: Explore different sections and links.**

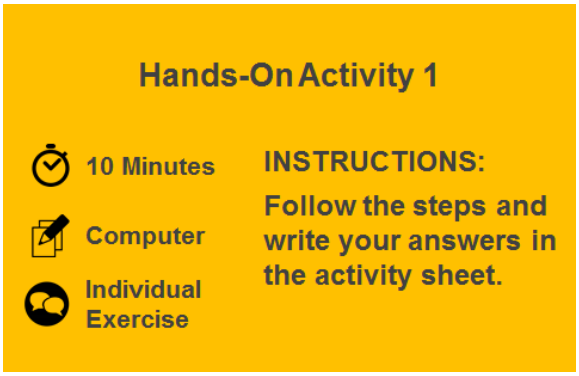
**Task 1: View Contact List**

- Open the **Internet Explorer** to access **Connect** ( Intranet). **Connect** is the default web page of your Internet browser.
- Go to the **Contact List** section.
- Write down the contact information for:
  - Reception _____
  - IT Service desk _____
  - Protective Services _____

**Task 2: Search for non-smoking policy**

- From the home page of Connect, click Policies and Procedures.
- On the search field, type “non-smoking”.
- Search results will appear, click “Non-Smoking Policy.docx”.
- Close the document after reading the policy.

**Slide 9**



**Hands-On Activity 1 (10 min)** **60 Marks**

1. Open your Microsoft Outlook and click Address Book.
2. Search for David Oars and write down his contact details.

   Title: _____

   Business Phone: _____

   Location: _____

   Department: _____

3. Open your Microsoft Lync. What is the current Lync status of your manager?

   A. Available

   B. Offline

   C. Busy

   D. None of the above

4. Access the Intranet site and go to the Contact List section. What is the IT Service Desk contact number? _____
5. On Intranet Site Connect, go to Policies and Procedures. What are the 3 links available under "Getting Started with Policies and Procedures".

   A. _____

   B. _____

   C. _____

6. Search and access the Non-smoking Policy. Fill-in the blanks below:

   Target Group: _____

   Policy Number: _____

   Date of Issue: _____

**Virtual Private Network (VPN) (15 min)**

VPN allows you to connect to the organizations network from home or outside the organization

Connecting to VPN may vary depending on your device

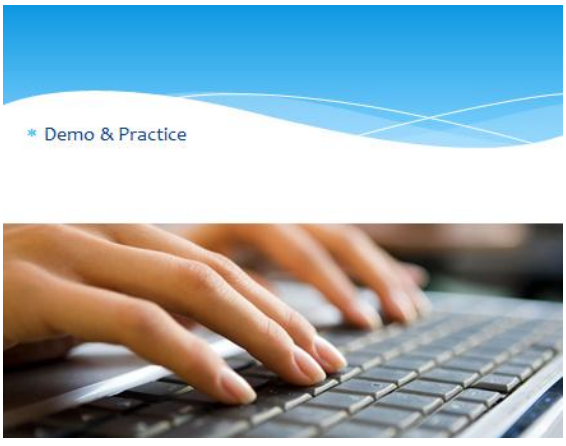
**Objective**

***By end of this lesson, you will be able to***:

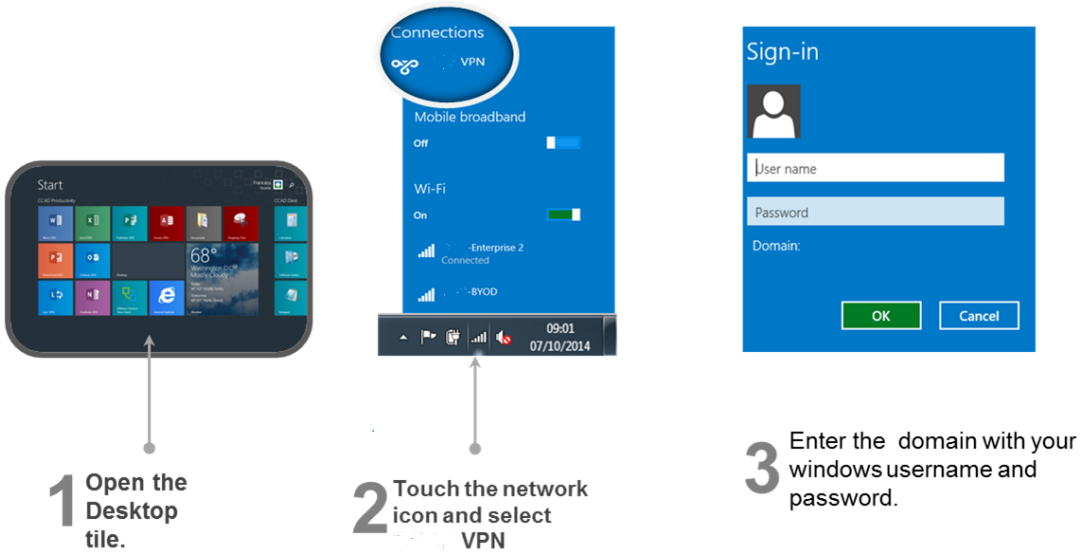
- Connect to VPN anywhere outside the organization

**Slide 10**


**Slide 11**



**Tablet Users**




**Task Steps:**

- From your **Start Screen**, open the **Desktop** tile.
- On your taskbar, click the **Network** icon and select **VPN**.
- Click **Connect**.
- The sign-in screen will appear. Enter your windows username with domain name and password

**For Laptops:**


**Task Steps:**

- Ensure to have an Internet connection.
- On your taskbar, click the **Network icon** and select **VPN**.
- Click **Connect**.
- The sign-in screen will appear. Leave the fields blank
- Click **Connect**.

**Follow Me Printing (20 min)**

With this service you can now print to the single Follow ME printer and collect your print job(s) on any multifunction printer by simply walking up to it and tapping your ID card on its card reader and selecting what to print! This service is more secure and will help the organization shrink its carbon footprint by saving paper and toner. To use this service please follow the instructions of the guide below.

**Objective:**

***By end of this lesson, you will be able to***:

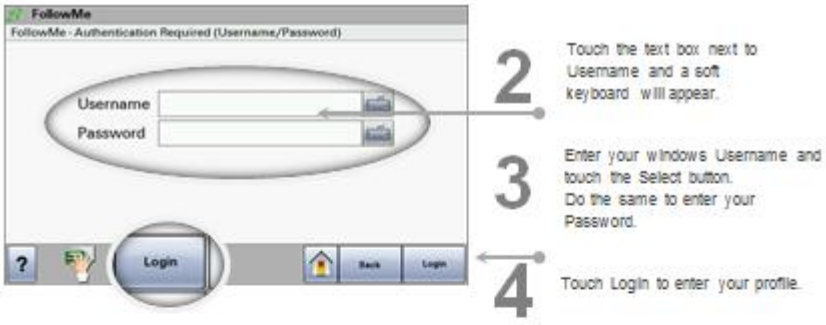
- Print securely using follow me print

**Slide 12**


**Slide 13**


**Scenario 1:** Enroll your Smart Card to Follow ME Printing


You will be prompted to enter your windows user name and password

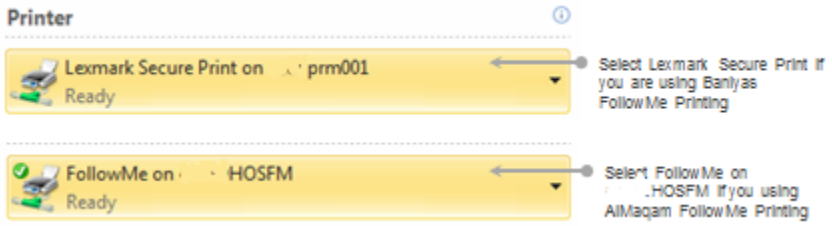




**Scenario 2: Start using the Follow ME Printing.**

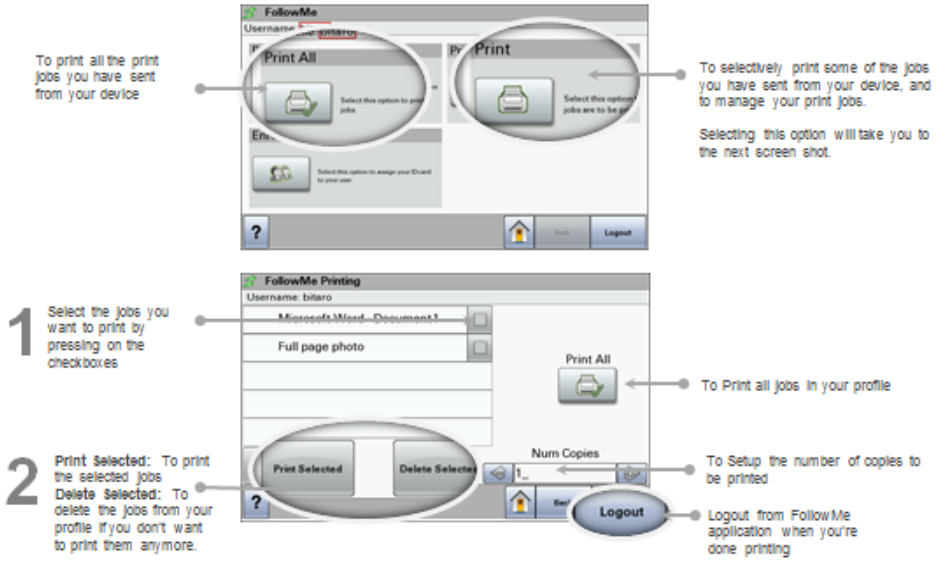
**Task1: Sending print jobs to any printer**.

Below are the printers that you can use for Follow ME Printing, select the printer depending on your location




**Task2:Using Follow ME Printing service**:

After sending the job to the Printer, the job will be held at the secure print queue. Go to the printer you would like to receive the job from and touch the Follow ME button. When prompted to enter your domain credentials, place your badge at the smart card reader. You will be then logged in to your Follow ME menu.



**Learning Management System (LMS) (30 min)**

**Objectives**

The organization supports comprehensive development by providing individual employees with a one-stop shop for courses and other learning opportunities.
From the LMS you can search a catalogue to see what learning is available, review what learning has been assigned, register, view training history, or print training records.
This means all your training needs, such as courses, conferences, workshops plus your training records and certificates are all located in a central application LMS.

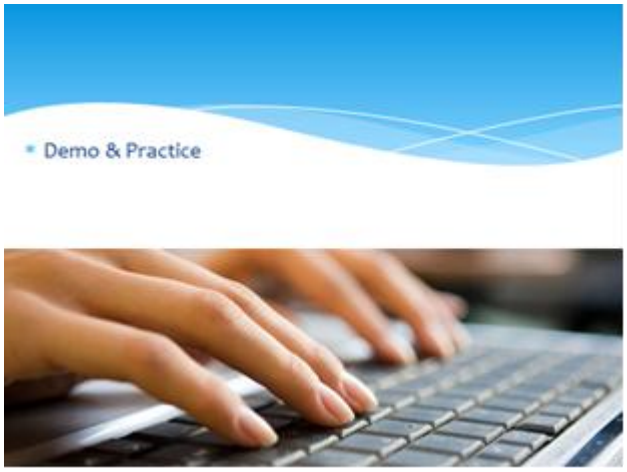
***By end of this lesson, you will be able to***:

- Access the LMS website
- Navigate the LMS home page and catalogue
- Search and Launch an e-Learning course
- Search and register for an Instructor Led Training ILT course
- Cancel a course registration
- View and print certificate of completion
- Upload external trainings

**Slide 14**

Learning Management System

**Slide 15**

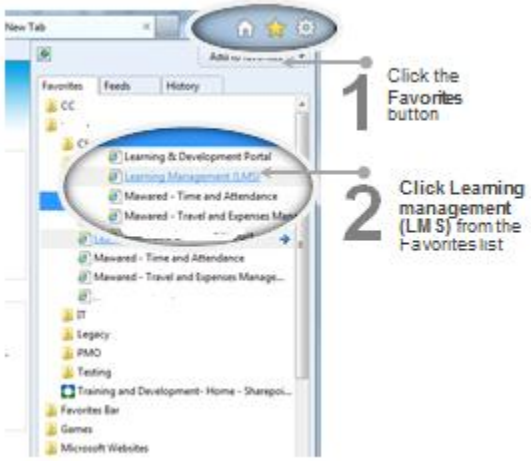



**Scenario 1:** Access the LMS website.

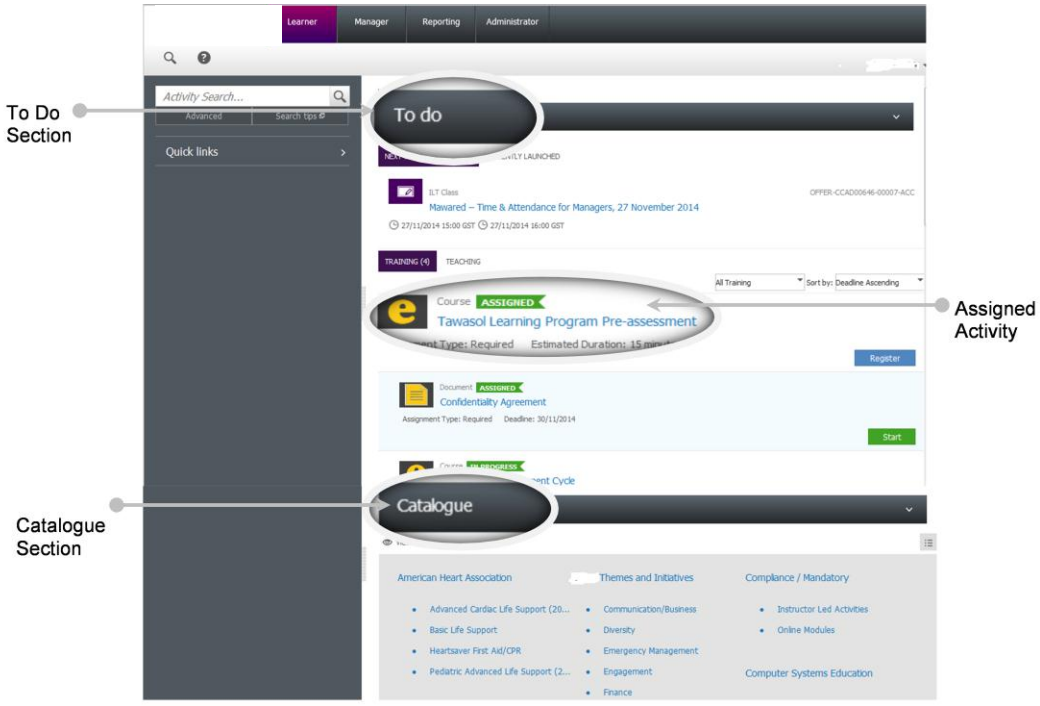
**Task Steps**

To open the LMS site:

- Open your web browser, click Favorites button
- Click the organization folder, then HR, and select LMS



**Scenario 2: Overview of LMS Welcome Screen, To Do List, and Catalogue sections:**




**Task Steps**

This is what you will see when LMS Home page opens: The page will contain 2 parts:

- The TO DO section allows you to see all your newly assigned activities and the ones that are still in progress.
- The Catalogue is where you can browse all available learning activities from Instructor Led Training Courses, to e-Learning videos according to your interests and needs

**Scenario 3: Search and launch an e-learning activity**


**Task Steps**

You can find a course by:

- Using the Catalogue as mentioned above, or
- Using the Search field located at the top left corner of the window.

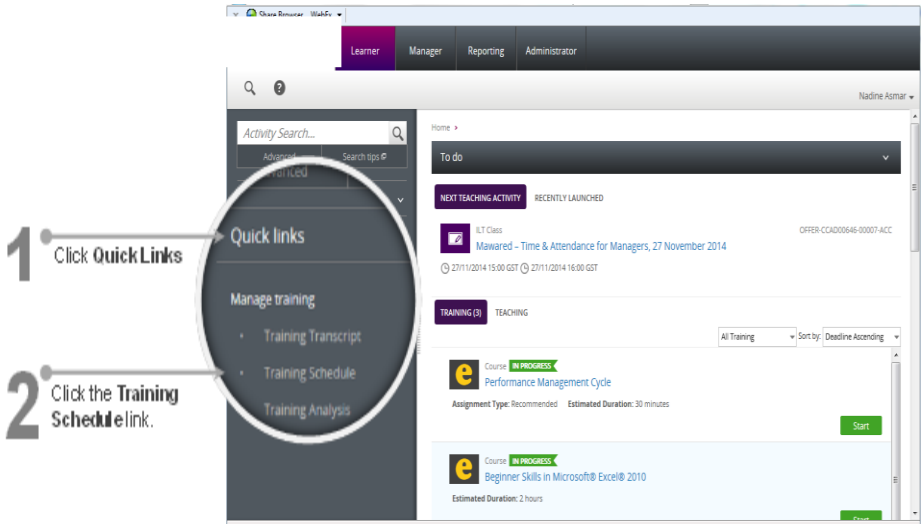
For example if you want to know how to approve your timecard on Mawared time and attendance:

- Click in the Search field box and type "Approve Timecard"
- How many searches have you got? _____
- Click the **Start** button to start your activity.

*Note: (Clicking on the Activity Name Link will not start an activity, but will open a pop up window to show more details about the activity). If you click the name Link, Click the Close Link at the Top/middle corner of the screen to go back to the previous screen)*

- After you have been through the learning activity, write down the steps on how to approve your timecard:
  - _____
  - _____
- Close the activity, and click OK. You will be then directed to the Training Schedule window, where you will find your incomplete activities so that you can finish what you haven't completed yet.

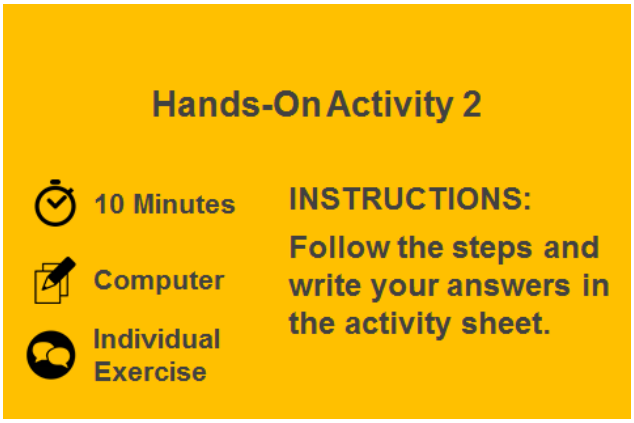
## Scenario 5: Cancel a course registration




**Task Steps**

- From the **LMS Home page**, click the **Quick Links** button to the left of your screen.
- Then select **Training Schedule**. A list of all incomplete activities will show, activities that you have already started but didn't complete yet. You can either click the Start button to continue this activity, or you can cancel it.
- To cancel an incomplete activity, select the **Tick box** next to the activity you want to cancel then click the Cancel Registration **Go** Button.
- You will get a confirmation, click **Cancel Marked**.

**Slide 16**



**Hands-On Activity 2: LMS (10 min)** **80 Marks**

1. Access Learning Management System (LMS) through your Favorites.
2. On the home page on the top of your screen, list down the tabs that you can see.
   A. _____
   B. _____
   C. _____
3. List down the courses available under your TO DO list.
   A. _____
   B. _____
   C. _____
   D. _____
4. Go to CATALOGUE section and select COMPUTER SYTEMS EDUCATION. What's the total number of courses or records on this category? _____
5. Search for the **Performance Management Cycle** course and then click **START**. There are two modules in this course:
   _____ and _____.
6. Close the course by clicking the **EXIT** button, and then **Exit now**.
7. Upon closing the course, the next screen that you will see is the Learning Activity Progress Detail page. What's the topic status of the course that you recently opened? _____
8. Go to LEARNER → LEARN → LEARNING ACTIVITY REPORTS → TRAINING TRANSCRIPTS. What can you see on this page? Have you completed any learning activity? ☐ Yes ☐ No

**Week 3: IT Orientation Level 2 (3 hrs. including 15 min break)**

This is mandatory for all employees who fall under the beginner and intermediate category and this is scheduled on week three of the orientation program.

**Objective:**

***By end of this orientation , participants will be able to***:

- Perform Internet search
- Perform basic functions of Microsoft Word
- Perform basic functions of Microsoft Excel

**IT Orientation Level Two Manual**

**Introduction**

This is level 2 of the orientation and we will be learning the basics of utilizing the Internet for searching information, word and Excel.

**Internet Search (20 mins)**

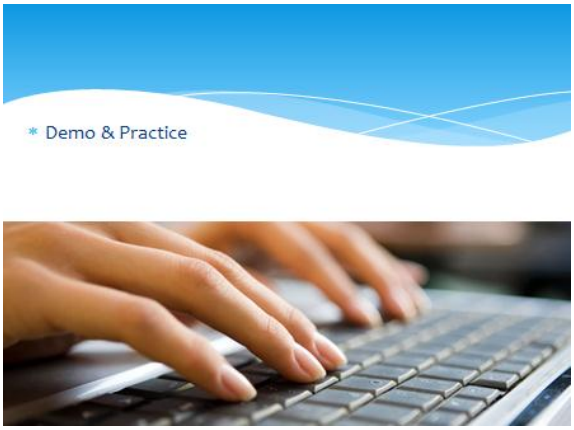
**Objective:**

***By end of this lesson, the participant will be able to***:

- Launch Internet explorer
- Type an URL
- Search for information using google search engine

**Slide 1**


**Slide 2**



**Scenario 1: Launch Internet Explorer**

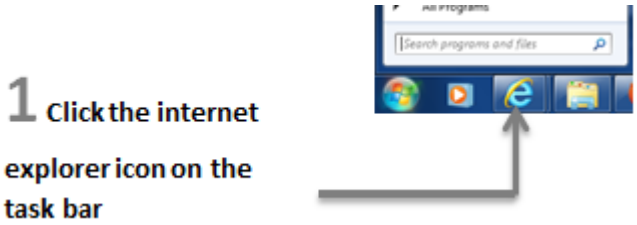
Internet Explorer is the default web browser for windows computers and tablets


**Task Steps:**

To launch the Internet Explorer

- Click on the start which is the Microsoft Windows icon
- Next click on the Internet Explorer icon

**Scenario 2: Launch the Internet Explorer from task bar**



**Task Steps:**

- Click on the Internet Explorer from the task bar

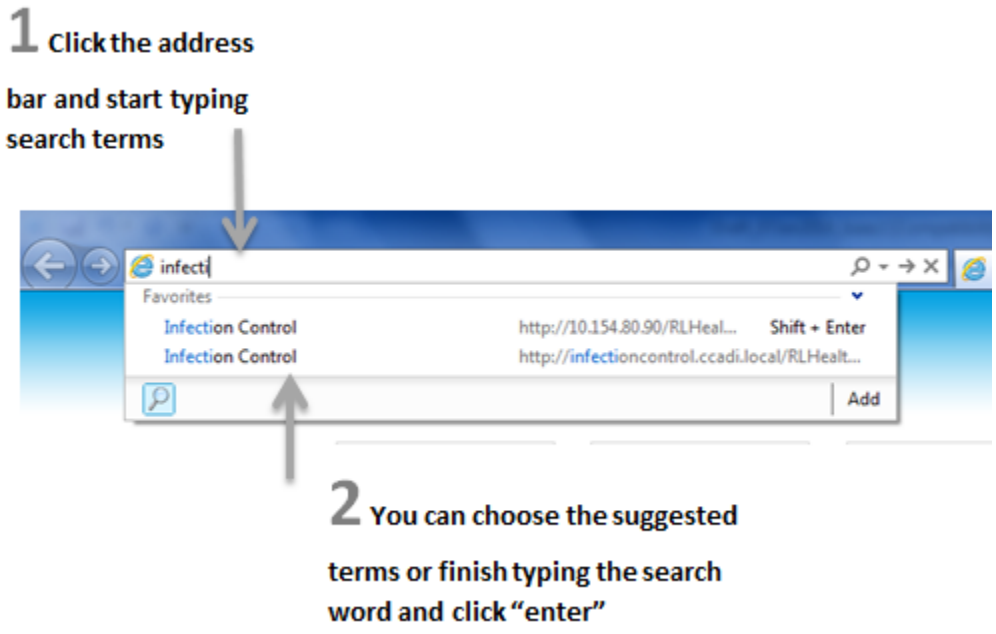
**Scenario 3: To navigate to a website with Internet Explorer**


**Task steps:**

- Type a web address, also known as a URL, into the address bar, then press Enter.

  URL http://www.jointcommissioninternational.org

**Scenario 4: Search the web**

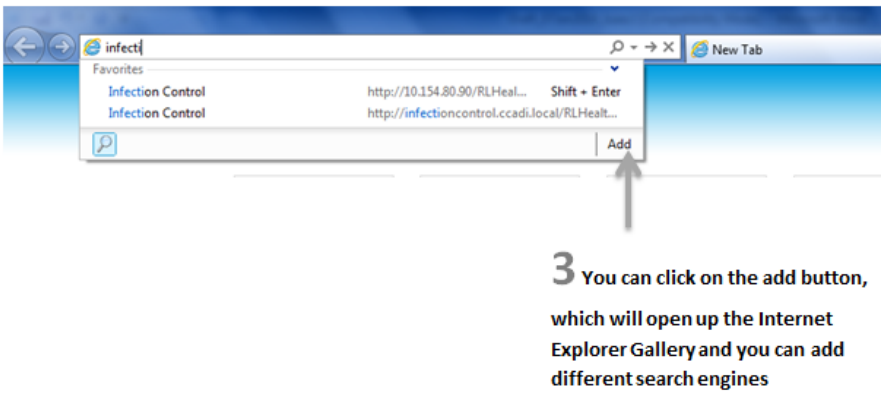



**Task Steps:**

- Click on the address bar and type in search word " infection control" and click enter

***Note***: Internet Explorer uses the Bing search engine by default.

**Scenario 5: Using a different search engine like Google or Yahoo**

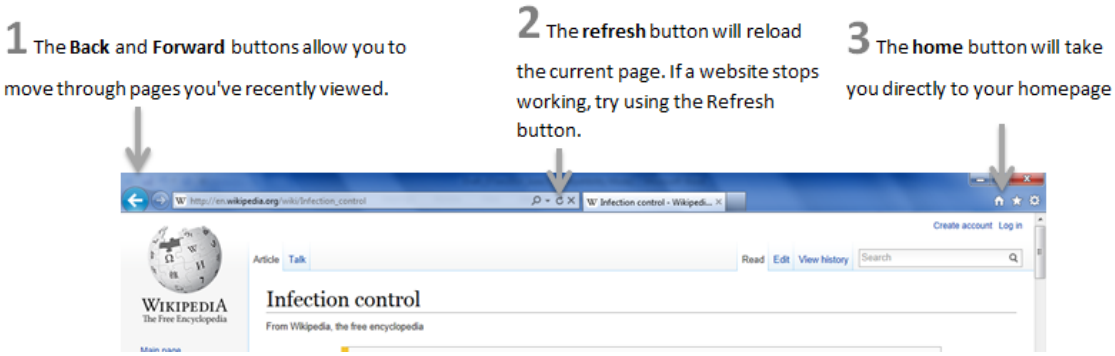


**Task Steps:**

- Click on the add button, which will open up the Internet Explorer Gallery and you can add different search engines or you can type the URL http://www.google.com or http://www.yahoo.com which will open up the home page

**Scenario 5: Using the navigation buttons**

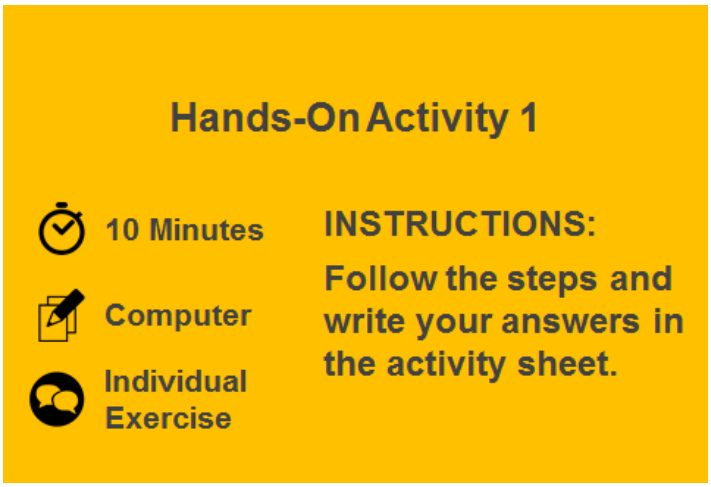
Internet Explorer uses four buttons for navigation: the **Back**, **Forward**, **Refresh**, and **Home** buttons.




**Task Steps:**

- Access couple of websites for infection control
- Next use the back and forward button to move through recently browsed pages
- Use the refresh button
- Click on the home button to get back to the home page

**Slide 3**




**Hand On Activity 1 : Internet Search (10 mins) 70 Marks**

1. Launch the Internet Explorer from the 'Start Menu' and close
2. Launch the Internet Explorer from the task bar
3. In the address bar type in the following URL http://www.instructionaldesign.org and then close the web browser
4. Launch the Internet Explorer and in the address bar type in search word 'holiday destinations'
5. Browse the first four websites under holiday destinations
6. Use the back and forward button to move through recently browsed pages
7. Use the refresh button and then click home button to get back to home page

**Microsoft Word (45 min)**

**Introduction:** Word 2010 is a word processor that allows you to create various types of documents such as letters, papers, and flyers. In this lesson, you will be introduced to the Ribbon , and learn how to create new documents, save documents, and print the documents.

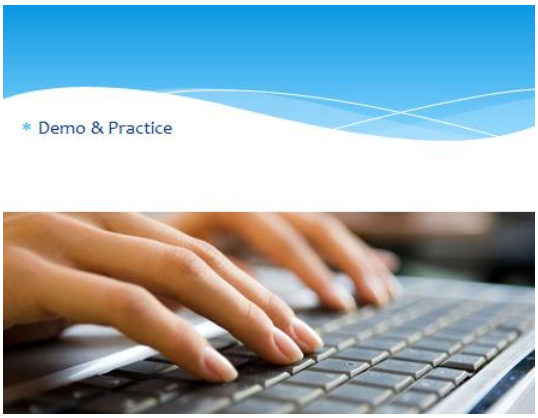
**Objectives:**

***By the end of the lesson participants will be able to***:

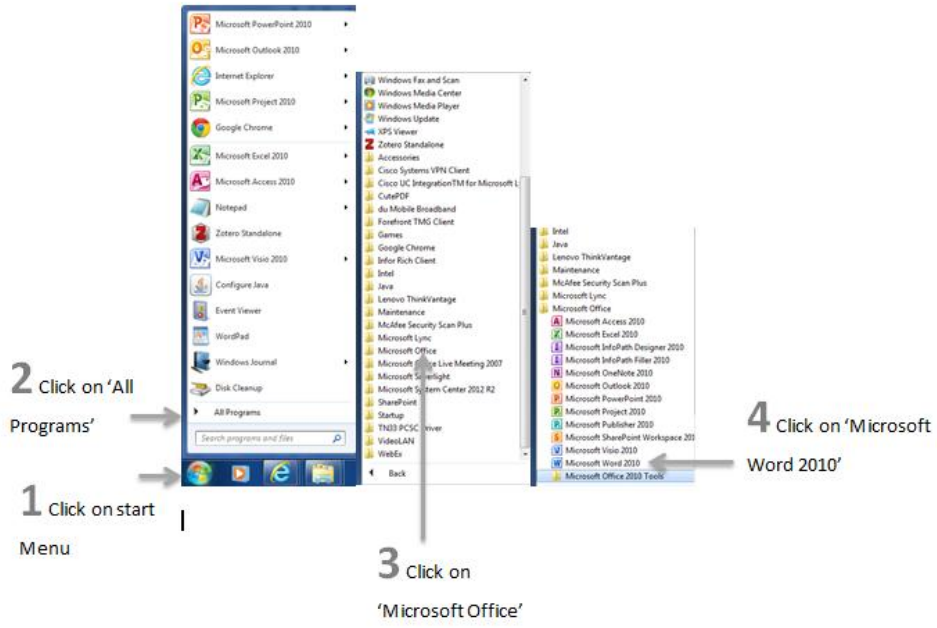
- Open a new word document
- Type text in the word document
- Save the new document and name the document
- Print a word document
- Close the word application

**Slide 4**

**Slide 5**



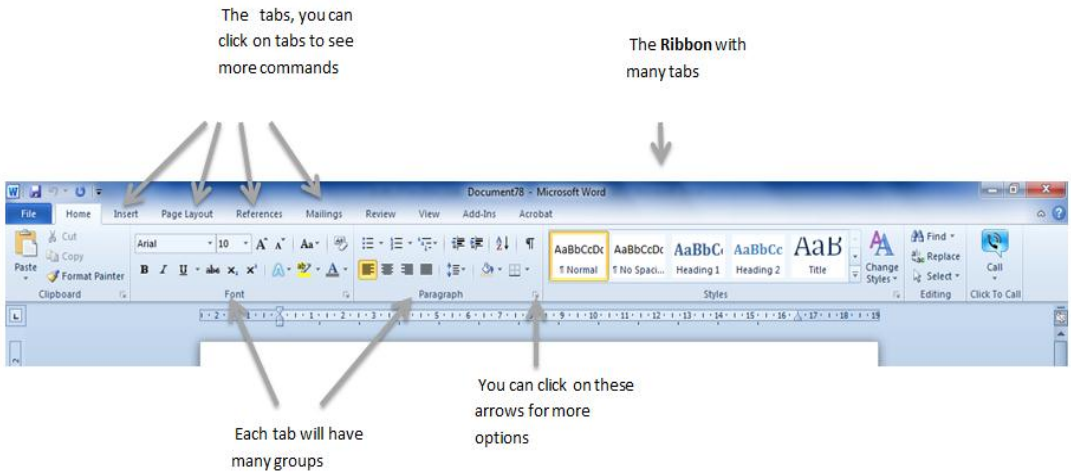

**Scenario 1: Open Microsoft Word application**




**Task Steps:**

- Click on the "Start Menu"
- Next click on "All Programs"
- Next click on "Microsoft office"
- Lastly click on "Microsoft Word"

**Scenario 2: Getting to know the "Ribbon"**

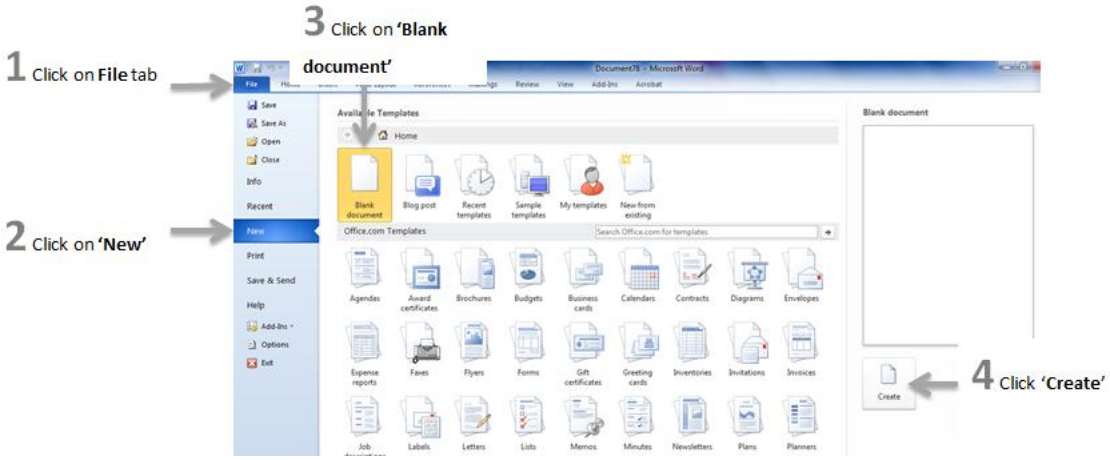



**Task Steps:**

- Click on the tab 'page layout' on the ribbon and List down the 5 groups which you see:

1. _____
2. _____
3. _____
4. _____
5. _____

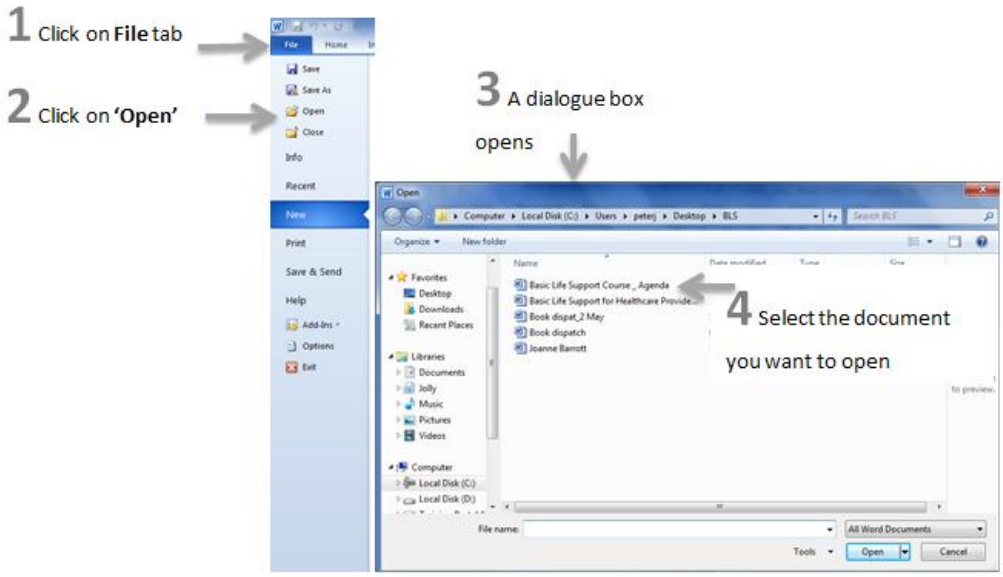
**Scenario 3: Opening a new word document**




**Task Steps**:

- After opening the word application from the start menu, click on File
- Next click New
- Select Blank Document under Available Templates. It will be highlighted by default.
- Lastly click create

**Scenario 4 : To open an existing document**



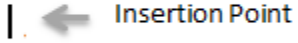

**Task steps**:

- Click File tab
- Next click on Open
- From the dialogue box which opens up, choose the document you want to open

***Note***: From the File tab, if you select Recent you can view the recent documents you have worked on

**Scenario 5: Typing text including how to insert, delete, select, copy, cut, paste, and drag and drop text**.

**5A: To insert text**



**Task steps**:

- Move your mouse to the location where you want text to appear in the document.
- Click the mouse. The insertion point appears.
- Type the below text.

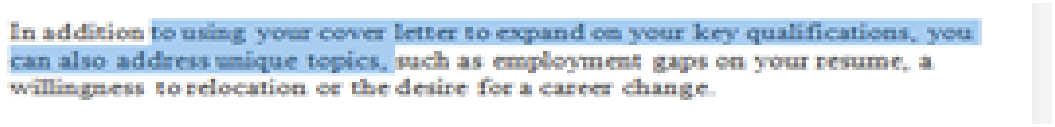
In addition to using your cover letter to expand on your key qualifications, you can also address unique topics, such as employment gaps on your resume, willingness to relocation or the desire for a career change.

**5B: To delete text**

**Task steps**:

- Place the insertion point next to the text you want to delete.
- Press the Backspace key on your keyboard to delete text to the left of the insertion point.
- Press the Delete key on your keyboard to delete text to the right of the insertion point.

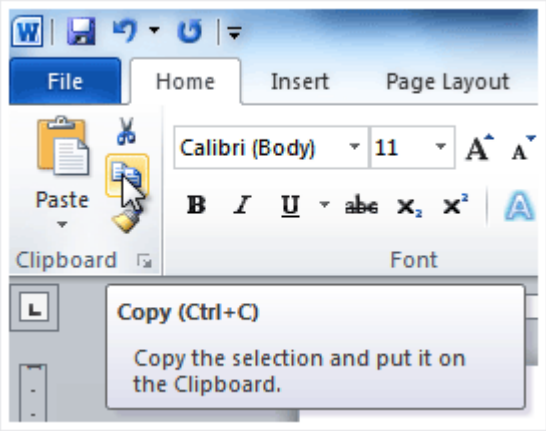
**5C: To select text**




**Task Steps**:

- Place the insertion point next to the text you want to select.
- Click the mouse. While holding it down, drag your mouse over the text to select it.
- Release the mouse button. You have selected the text. A highlighted box will appear over the selected text**.**

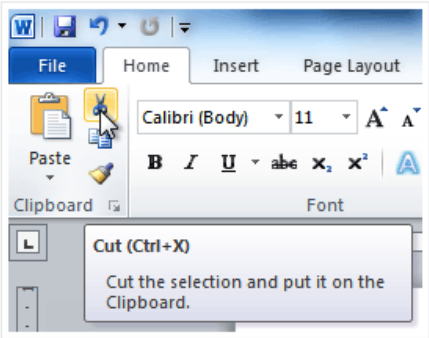
**5D: To copy and paste text**




**Task steps:**

- Select the text you want to copy.
- Click the **Copy** command on the **Home** tab. You can also right-click your mouse and select **Copy**
- Place your insertion point where you want the text to appear.
- Click the **Paste** command on the **Home** tab or right click the mouse and select **paste**. The text will appear.

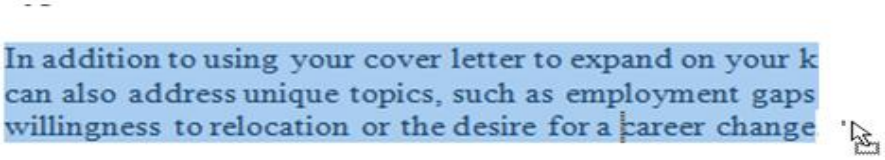
**5E: To cut and paste text**



**Task steps:**

- Select the text you want to copy.
- Click the **Cut** command on the **Home** tab. You can also right-click the document and select **Cut.**
- Place your insertion point where you want the text to appear.
- Click the **Paste** command on the **Home** tab. The text will appear.

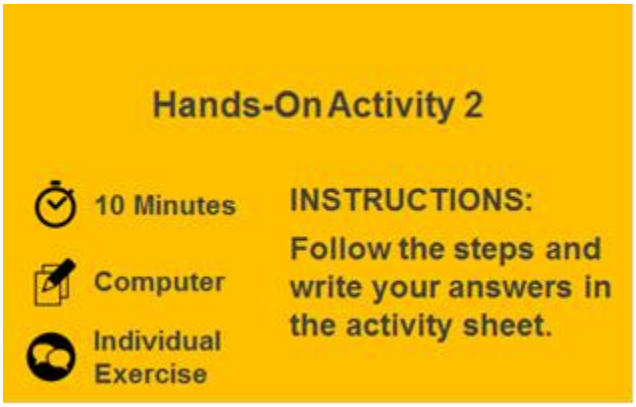
**5F: To drag and drop text**




**Task Steps**:

- Select the text you want to copy.
- Right Click and drag the text to the location where you want it to appear. The cursor will have a rectangle under it to indicate that you are moving text.
- Release the mouse button, and the text will appear.

**Slide 6**



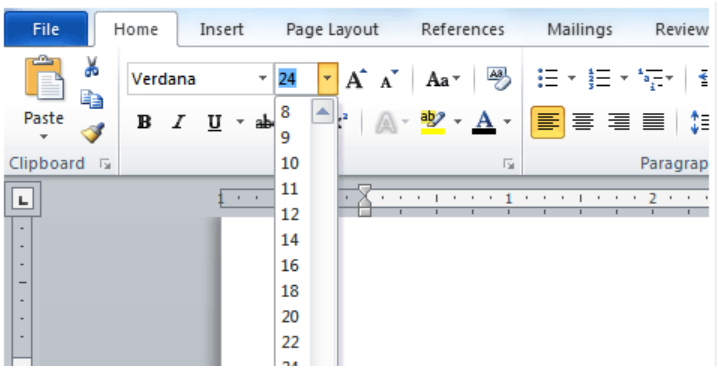
**Hands on Activity 2 : Word** **80 Marks**

1. Open a new word document from the start menu
2. Type the following text :

   "If there's a need to relocate, use the cover letter as an opportunity to point out that you're open to relocation, especially if you already have a connection to the area through family or school," Wittman said. "This will help alleviate any apprehensions that a hiring manager has about hiring someone who is new to the area. If you're changing careers or industries, relate examples of your experience that will help you prepare [for the change] and are relevant to the new job."
3. Select a sentence
4. Copy and Paste to another location on the same document
5. Select another sentence
6. Cut and Paste to another location on the same document
7. Select another sentence
8. Drag and drop to another location

**Scenario 6: Formatting the text**

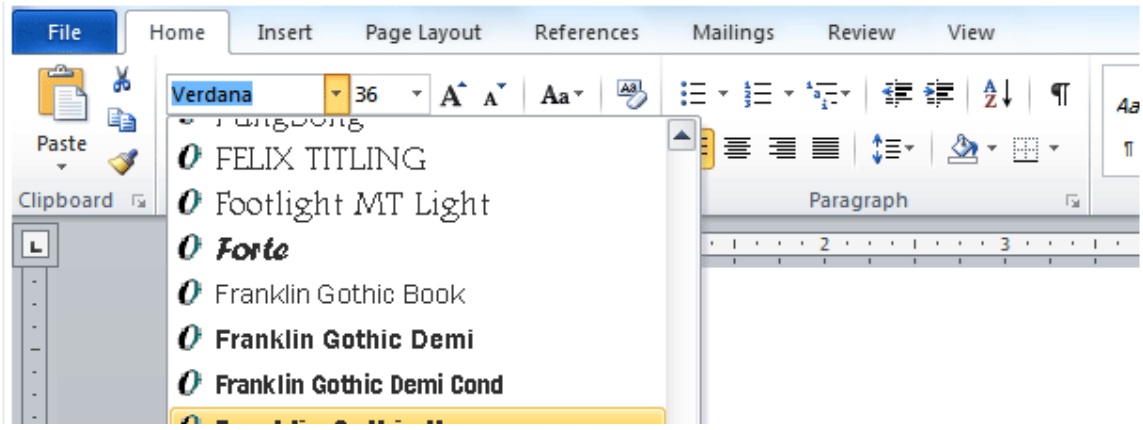
**6A: Changing Font Size**




**Task Steps:**

- Select the text you want to modify.
- Click the drop-down arrow next to the **Font** Size box on the **Home** tab. A drop-down menu appears.
- Select the desired font size from the menu. Alternatively, you can type the value you want and then press **Enter** on your keyboard.

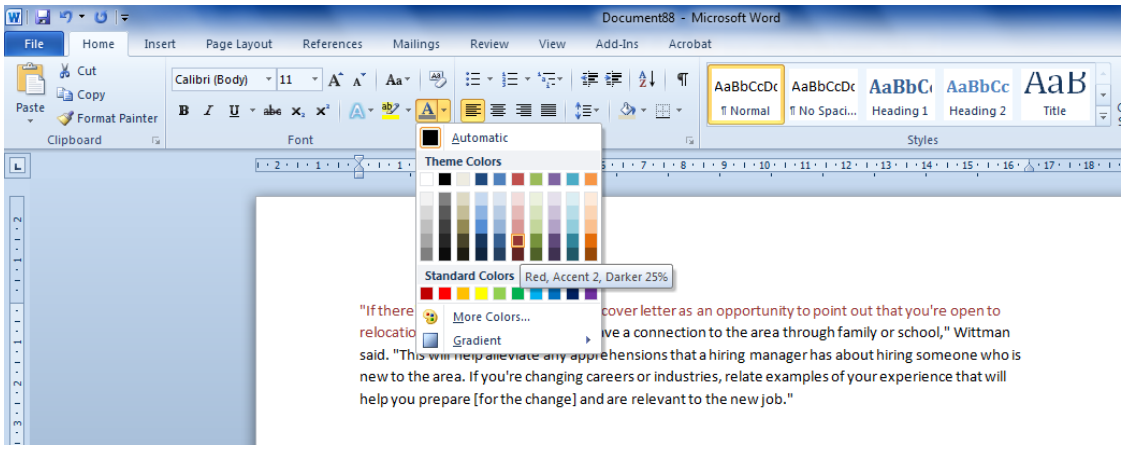
**6B: Changing the Font**



**Task Steps:**

- Select the text you want to modify.
- Click the drop-down arrow next to the **Font** box on the **Home** tab. The Font drop-down menu appears.
- Move the mouse pointer over the various fonts. A live preview of the font will appear in the document.
- Select the font you want to use. The font will change in the document

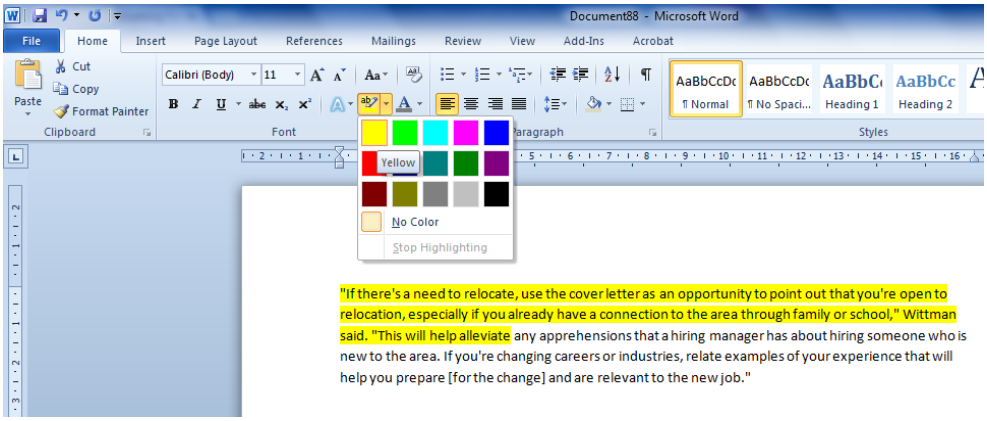
## 6C: Changing Font Color




**Task Steps:**

- Select the text you want to modify.
- Click the Font Color drop-down arrow on the Home tab. The Font Color menu appears.
- Move the mouse pointer over the various font colors. A live preview of the color will appear in the document.
- Select the font color you want to use. The font color will change in the document

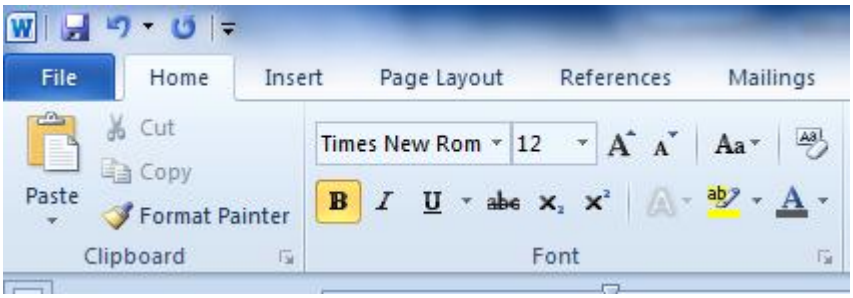
## 6D: Highlighting the Text




### Task steps:

- Select the text you want to highlight
- From the **Home** tab, click the **Text Highlight** Color drop-down arrow. The Highlight Color menu appears.
- Select the desired highlight color.
- Select the text you want to modify. It will then be highlighted.

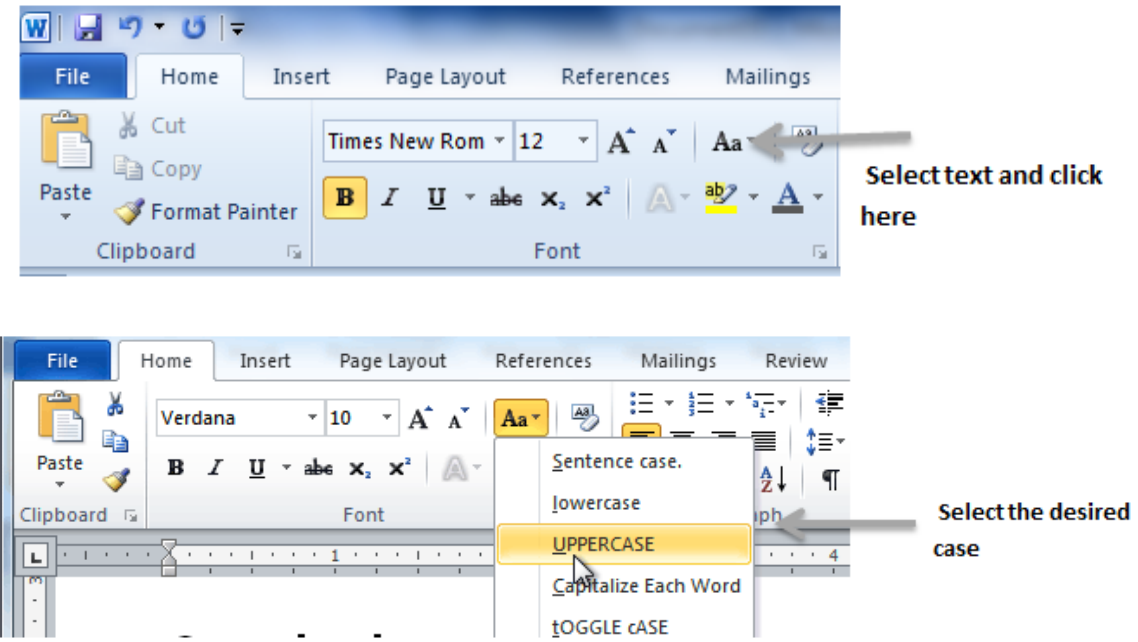
## 6E: To use bold, italic, and underline commands



**Task Steps:**

- Select the text you want to modify.
- Click the **Bold**, *Italic*, or Underline command in the **Font group** on the **Home** tab.

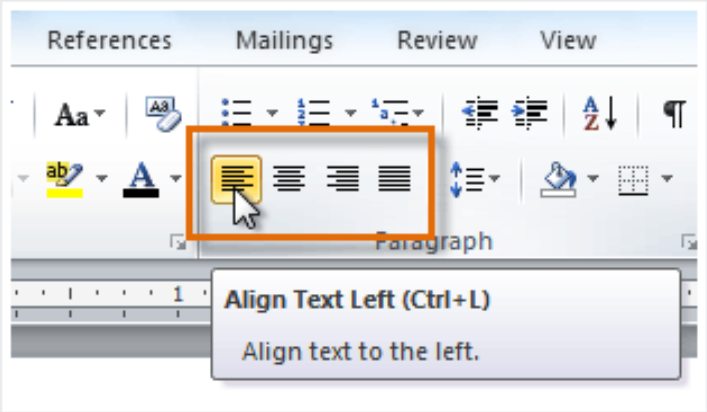
**6F: To Change Text Case**




**Task Steps:**

- Select the text you want to modify.
- Click the Change Case command in the Font group on the Home tab.
- Select the desired case option from the list

**6G: To Change Text Alignment**




**Task Steps:**

- Select the text you want to modify.
- Select one of the four alignment options from the **Paragraph** group on the **Home** tab.

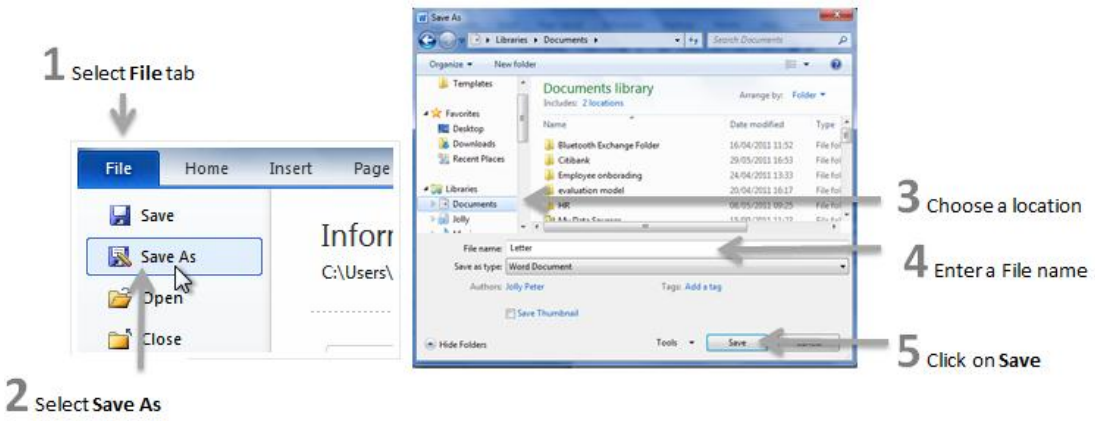
a) **Align Text Left**: Aligns all selected text to the left margin

b) **Center**: Aligns text an equal distance from the left and right margins

c) **Align Text Right**: Aligns all selected text to the right margin

**Justify**: Aligns text equally on both sides and lines up equally to the right and left margins; used by many newspapers and magazines

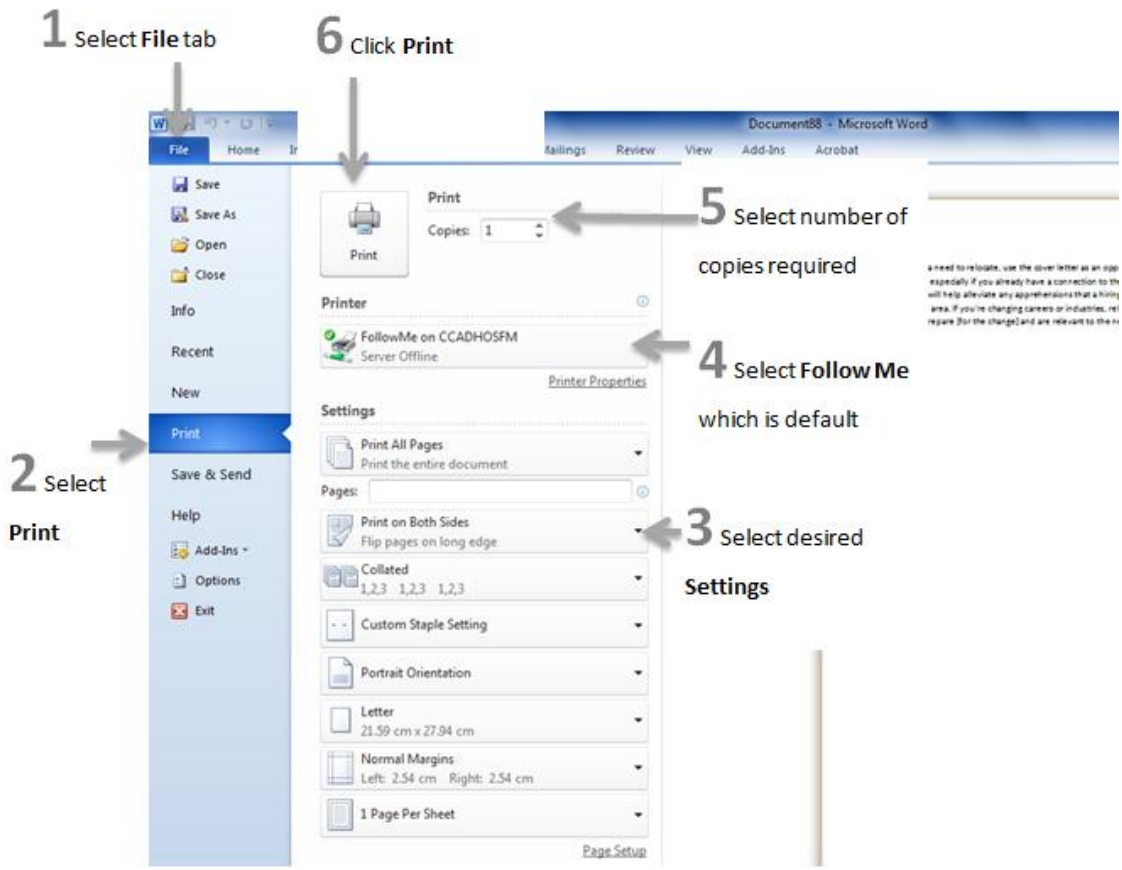
**Scenario 7: To Save Word Document**




**Task Steps:**

- Click the **File** tab.
- Select **Save As**.
- The **Save As** dialog box will appear. Select the location where you want to save the document.
- Enter a name for the document.
- Then click **Save**

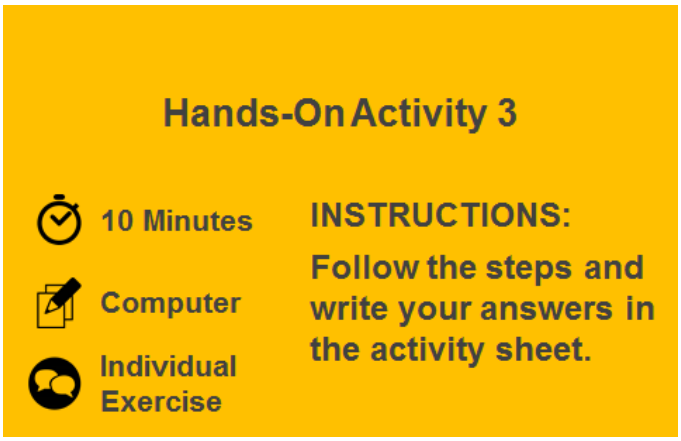
**Scenario 8: To Print a Document**




**Task Steps:**

- Click the **File** tab
- Select **Print**. The Print pane appears, with the print settings on the left and the Preview on the right.
- Go to the **Settings**.
- If you only want to print certain pages, you can type a range of pages. Otherwise, select Print All Pages.
- Select the **number of copies**.
- Select a **printer** from the drop-down list.
- Click the **Print** button.

**Slide 7**




**Hands On Activity 3: Word** **80 Marks**

1. Open a new document from Start menu
2. Type the following text:

"There's no doubt that your résumé is one of the most important and powerful tools for communicating your qualifications and experience to a hiring manager. Just a quick glance at this one- or two-page document can tell someone whether you have the necessary background and related skillset to do the job well."

3. Select a sentence and change font size to 14
4. Next change the font style to Century Gothic
5. Change font color to green
6. Lastly align the whole text to center
7. Print the document
8. Save the document on desktop and name the document "Trial"

**Microsoft Excel (45 min)**

Excel is a spreadsheet program that allows you to store, organize, and analyze information.

**Objectives:**

***By end of this lesson, participants will be able to:***

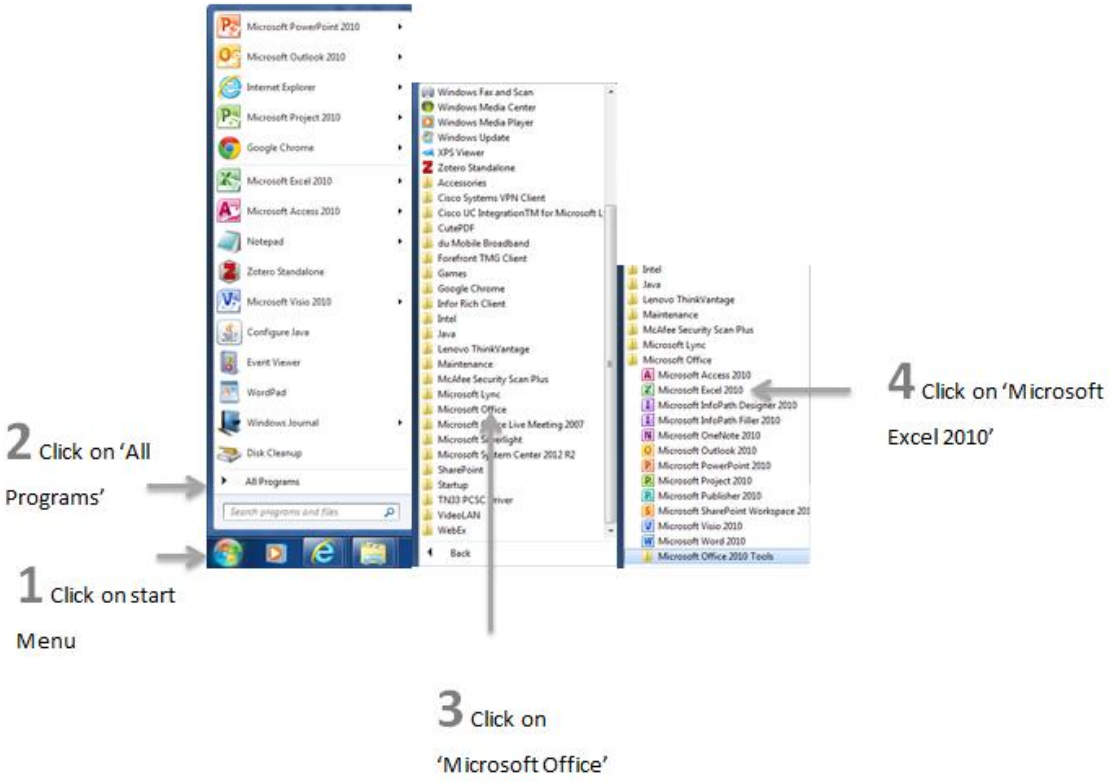
- Open a workbook on Excel
- Enter data in cells
- Format cells
- Save an Excel workbook/worksheet
- Print an Excel worksheet

**Note:** You will learn more skills in Track 1 and Track 2

**Slide 8**

**Slide 9**

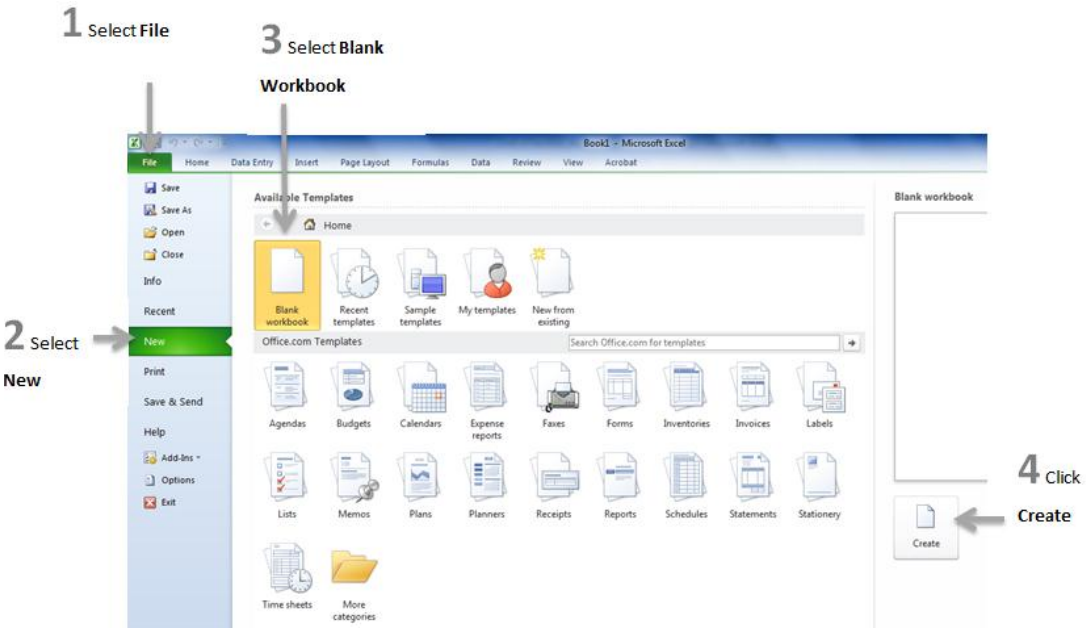

**Scenario 1: Open Microsoft Excel Application**



**Task Steps:**

- Click on the "**Start Menu**"
- Next click on "**All Programs**"
- Next click on "**Microsoft office**"
- Lastly click on "**Microsoft Excel**"

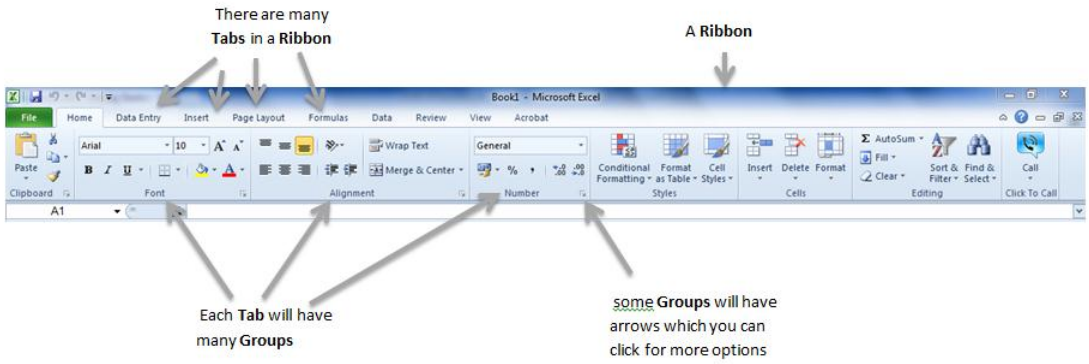
**Scenario 2: Open a new workbook in Excel**




**Task Steps:**

- Select **File** tab
- Next select **New**
- Select **Blank workbook**, which is highlighted by default
- Lastly click **Create**

## Scenario 3: The Ribbon



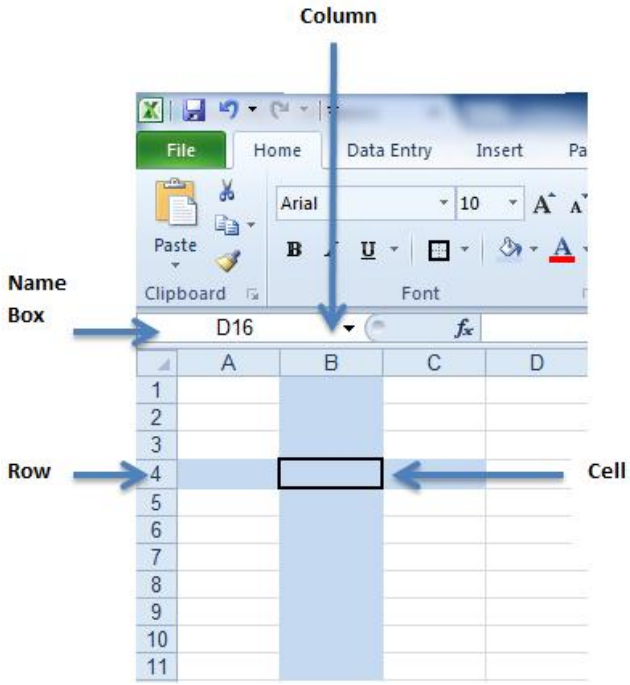

**Task Steps**:

Open the Tab Insert and list down all the 8 groups which are present

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

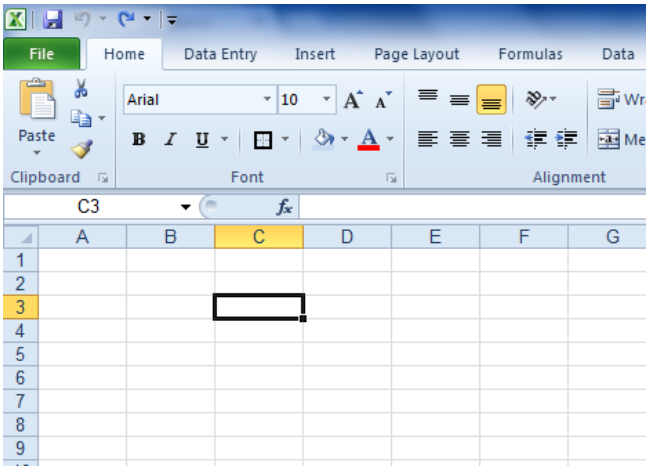
**Scenario 4: Enter data in a cell**

**4A: The Cell**



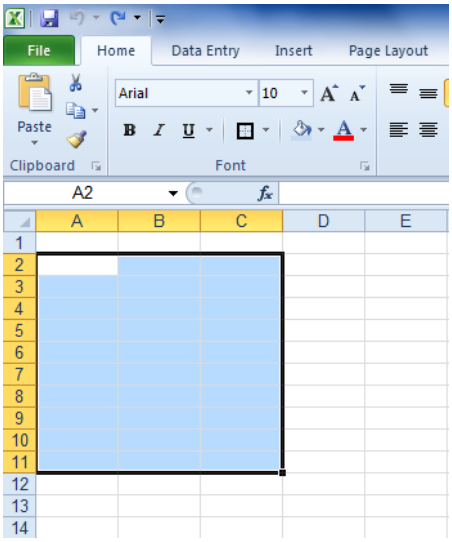

- Each rectangle in a worksheet is called a cell. A cell is the intersection of a row and a column.
- Each cell has a name, or a cell address based on which column and row it intersects. The cell address of a selected cell appears in the name box. Here, you can see that D 16 is selected.

**4B: Selecting a cell or multiple cells**




**Task Steps:**

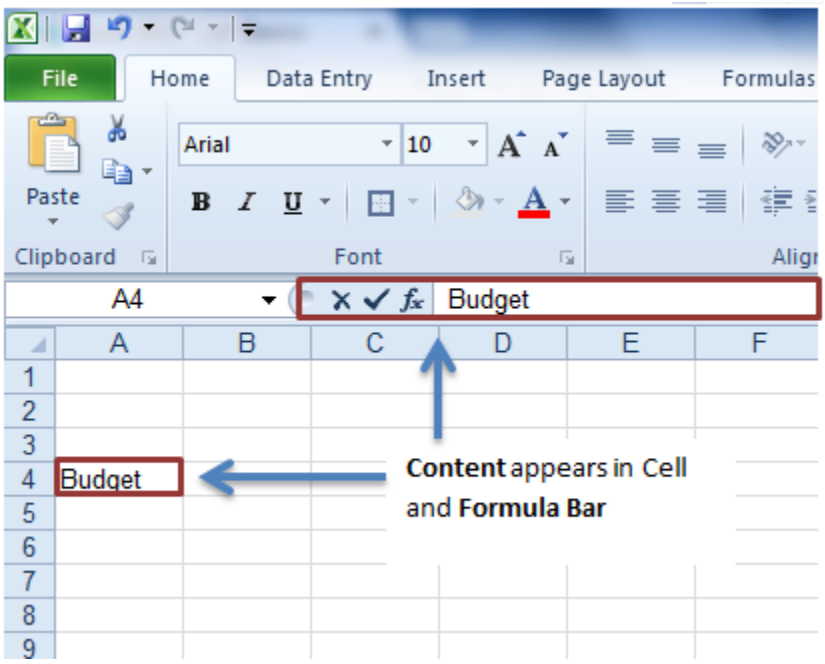
- Click a **cell** to select it. When a **cell** is selected, you will notice that the borders of the cell appear bold and the column heading and row heading of the cell are highlighted.
- Release your mouse. The cell will stay selected until you click another cell in the worksheet.



**Task steps:**

- **Click and drag** your mouse until all of the adjoining cells you want are highlighted
- Release your mouse. The cells will stay selected until you click another cell in the worksheet.

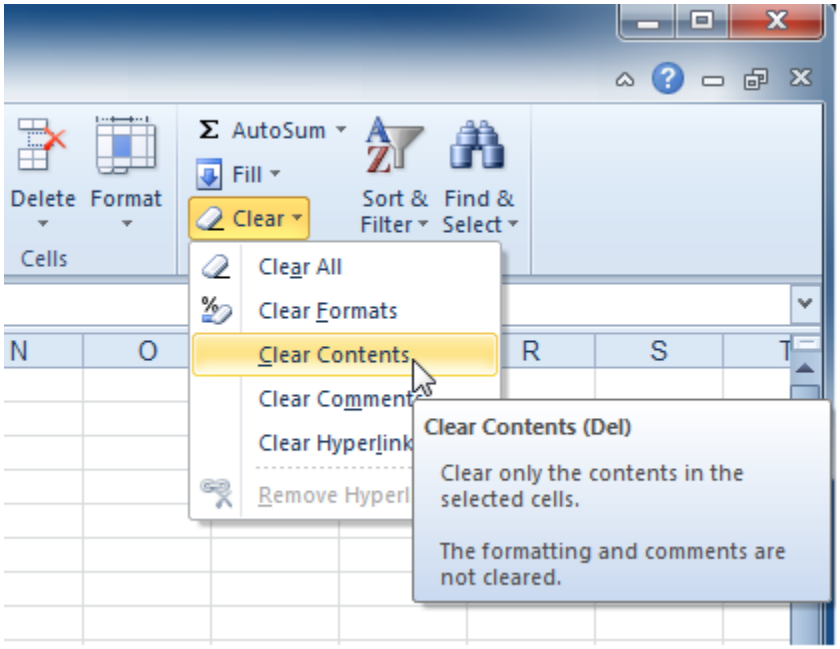
**4C: Entering Content in Cell**




**Task Steps:**

- Click a **cell** to select it.
- Enter content into the selected **cell** using your keyboard. The content appears in the **cell** and in the **formula bar**. You can also enter or edit cell content from the **formula bar**.

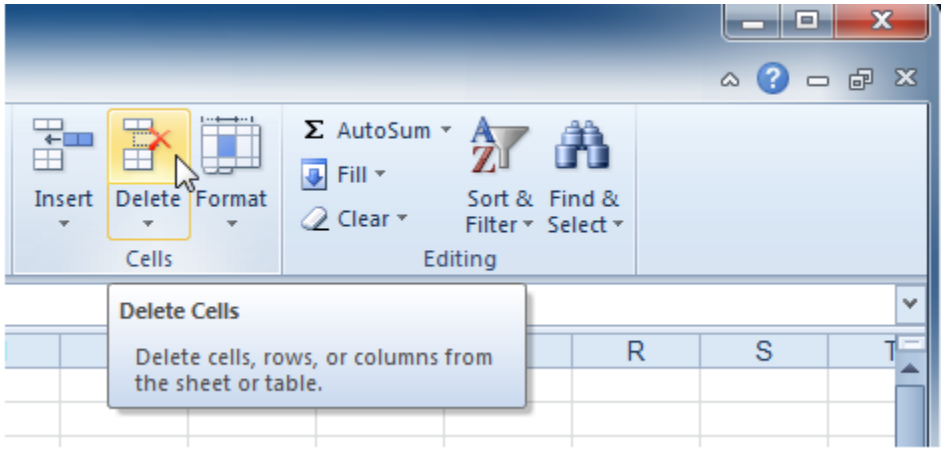
**4D: To delete content from cell**




**Task Steps:**

- Select the **cells** containing content you want to delete.
- Click the **Clear** command on the **Ribbon**. A **dialog box** will appear.
- Select **Clear Contents**.
- **Note**: You can also use your keyboard's **Backspace key** to delete content from a single cell or the **Delete key** to delete content from multiple cells.

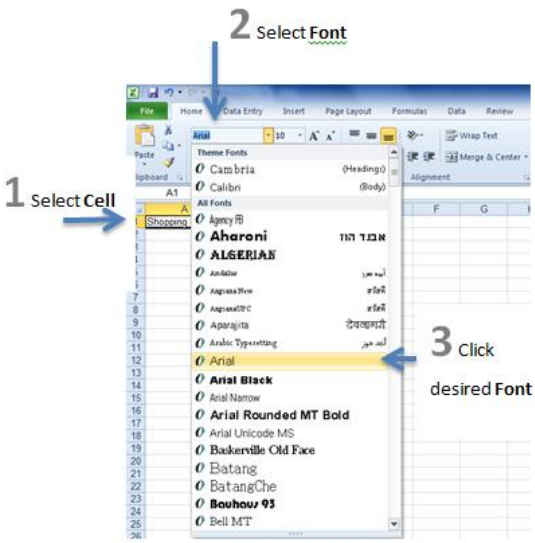
**4 E: Deleting Cells**




**Task Steps:**

- Select the **cells** you want to delete.
- Choose the **Delete** command from the **Ribbon**.
- **Scenario 5: Formatting the Cells**
- You will learn how to change the color and style of text and cells, align text, and apply special formatting to numbers and dates.

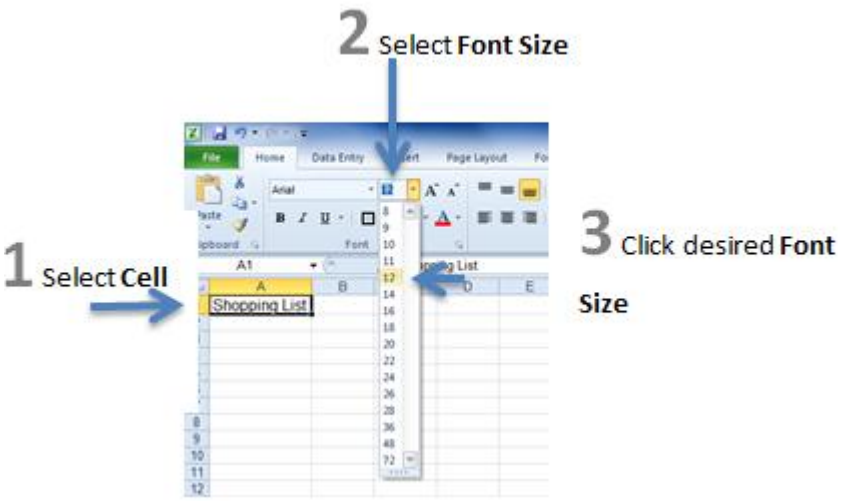
**5A: Changing Font**




**Task Steps:**

- Select the cells you want to modify.
- Click the drop-down arrow next to the **Font** command on the **Home** tab. The font drop-down menu appears.
- Select the font you want to use.

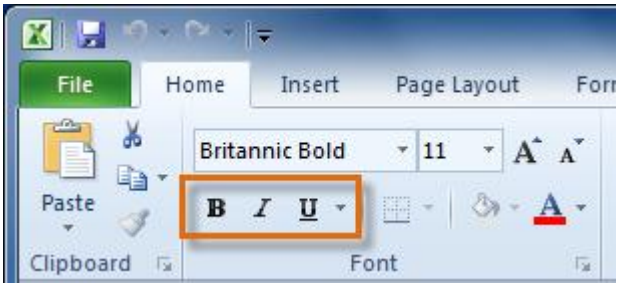
**5B: Changing Font Size**




**Task Steps:**

- Select the cells you want to modify.
- Click the drop-down arrow next to the **font size** command on the **Home** tab. The font size drop-down menu appears.
- Select the **font size** you want to use.

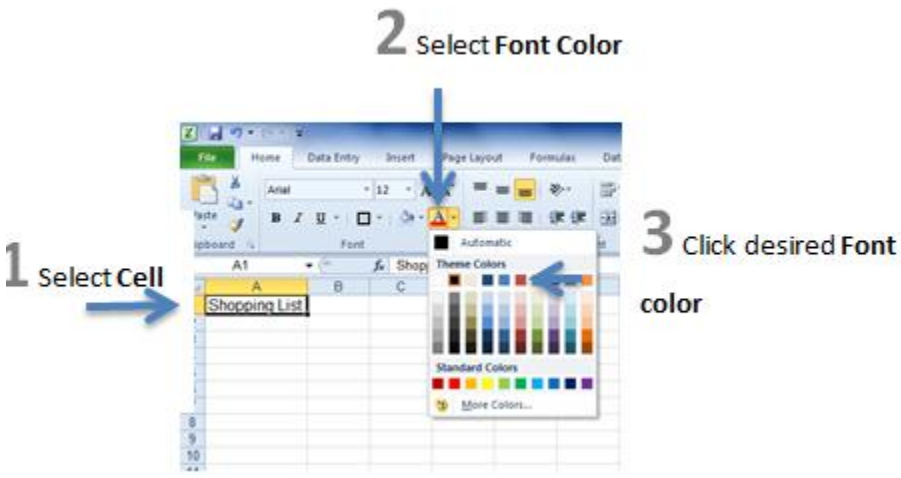
**5C: Using Bold, Italic and Underline Commands**




**Task Steps**:

- Select the cells you want to modify.
- Click the **Bold**, *Italic*, or Underline command on the Home tab.

**5D: Change Font Colour**

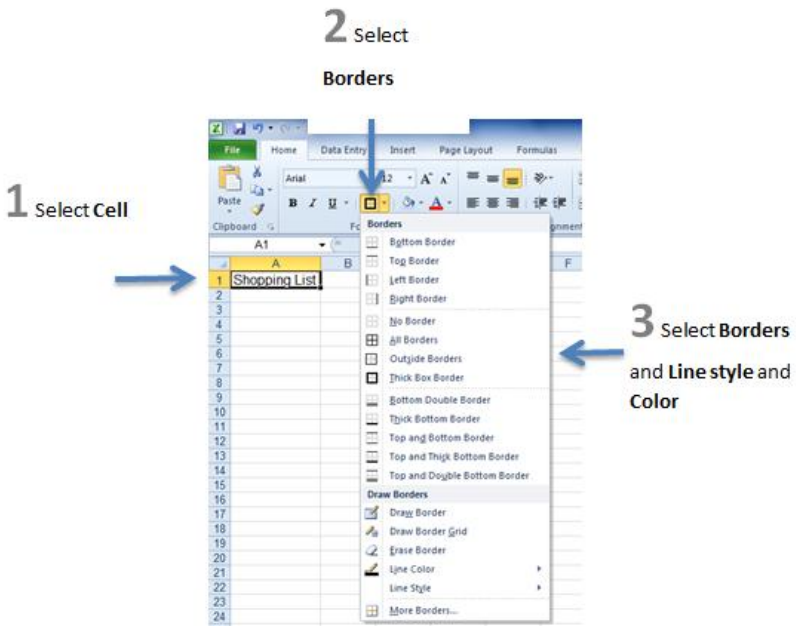



**Task Steps:**

- Select the cells you want to modify.
- Click the **drop-down** arrow next to the **font colour** command on the **Home** tab.

  The colour menu appears.
- Select the colour you want

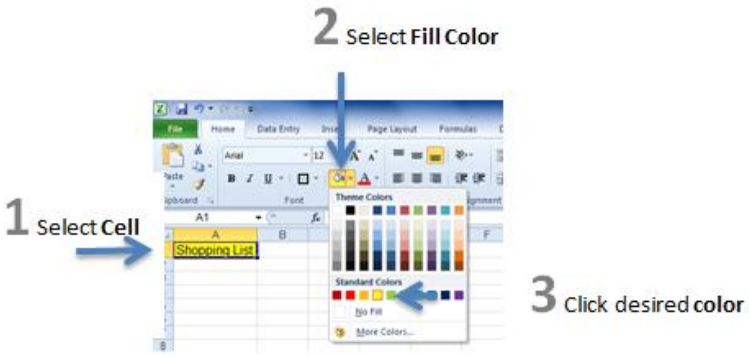
## 5E: Add Border to a Cell




**Task Steps:**

- Select the cells you want to modify.
- Click the **drop-down** arrow next to the **Borders** command on the **Home** tab. The border drop-down menu appears.
- Select **Border Style** you want

**5F: Fill Color in a Cell**

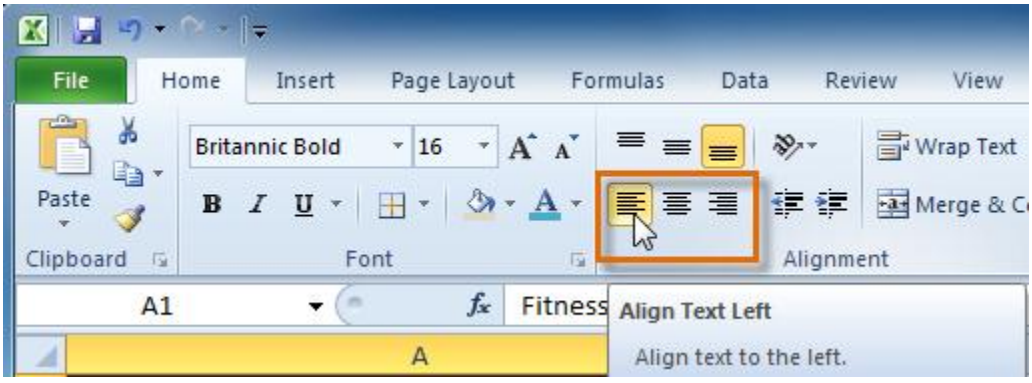



**Task Steps:**

- Select the cells you want to modify.
- Click the **drop-down** arrow next to the **fill color** command on the **Home** tab. The color menu appears.
- Select the fill color you want to use.

**5G: Changing Text Alignment**

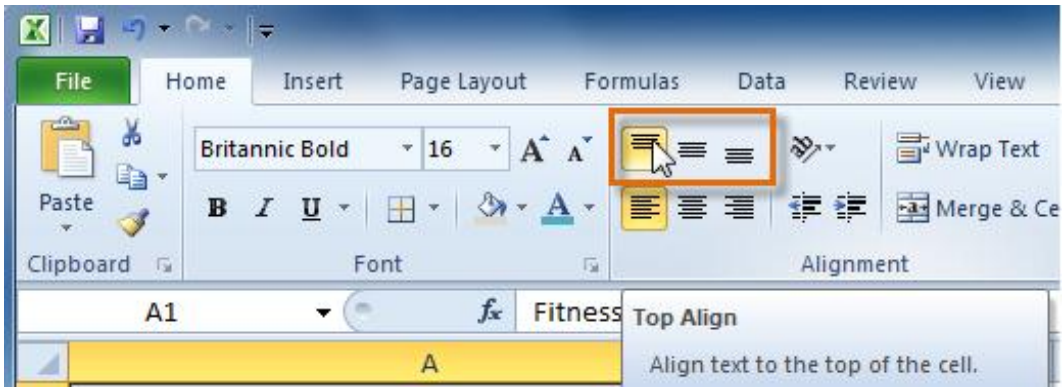
**To change horizontal text alignment**



**Task Steps:**

- Select the cells you want to modify.
- Select one of the three **horizontal Alignment** commands on the **Home** tab.
- **Align Text Left**: Aligns text to the left of the cell
- **Center**: Aligns text to the center of the cell
- **Align Text Right**: Aligns text to the right of the cell

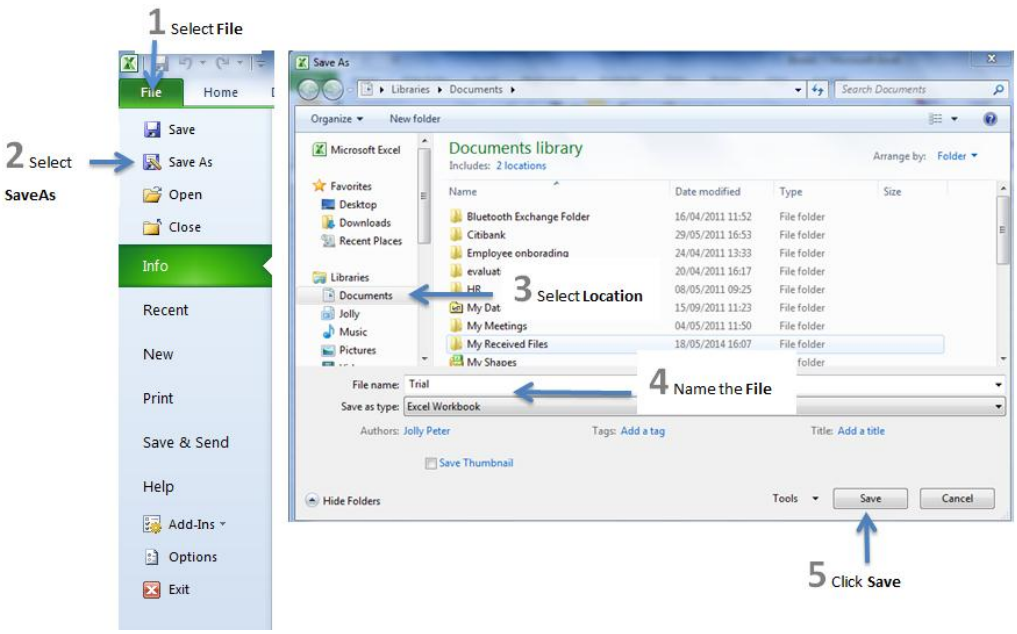
**To change vertical text alignment**




**Task Steps:**

- Select the cells you want to modify.
- Select one of the three **vertical Alignment** commands on the **Home** tab.
- **Top Align**: Aligns text to the top of the cell
- **Middle Align**: Aligns text to the middle of the cell
- **Bottom Align**: Aligns text to the bottom of the cell

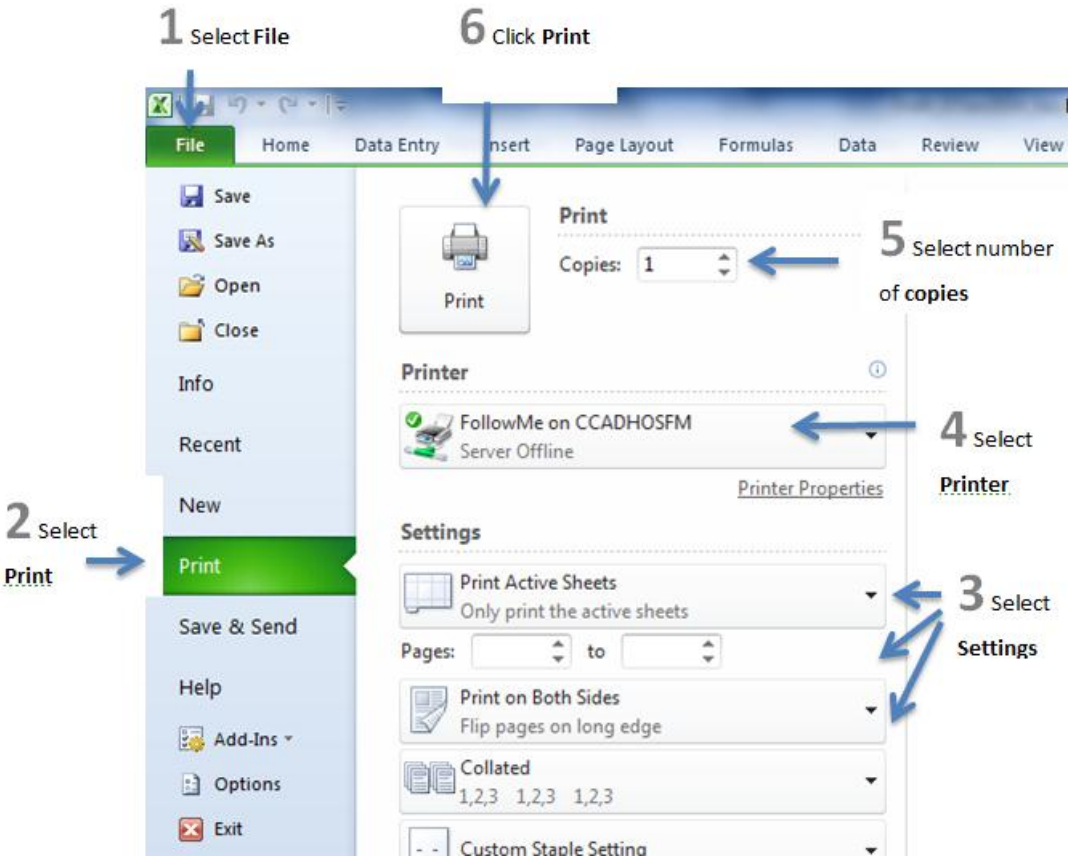
## Scenario 6: Saving a Workbook




## Task Steps:

- Click the **File** tab.
- Select **Save As**.
- The Save As **dialog box** will appear. Select the **location** where you want to save the workbook.
- Enter a **name** for the workbook
- Click **Save**.

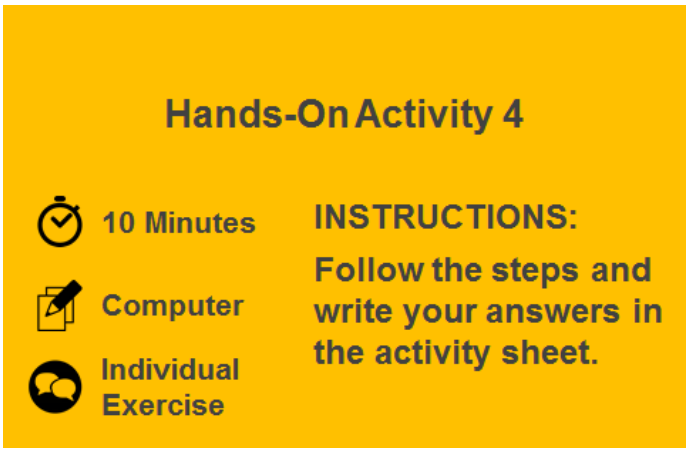
**Scenario 7: Printing the Workbook**




**Task Steps:**

- Click the **File** tab.
- Select **Print**. The Print pane appears, with the print settings on the left and Print Preview on the right.
- Select **Settings**
- Select whether you want to print active sheet or the whole workbook
- Select **Printer**
- Select number of **copies** you want to print
- Click **Print**

**Slide 10**




**Hands on Activity 4: Excel** **70 Marks**

1. Open a new Excel workbook
2. Enter the following data

a.

B11

| | A | B | C |
|---|---|---|---|
| 1 | | English Class | Maths Class |
| 2 | Reham Ali | Attended | Not attended |
| 3 | Sarah Potter | Attended | Attended |
| 4 | Akansha Sharma | Attended | Not attended |
| 5 | Susan Thomas | Attended | Attended |
| 6 | | | |

3. Choose Cell A 5 and make it Bold
4. Choose Cell B1 and C1 and fill color blue
5. Draw borders for all Cells
6. Save the workbook in Desktop as Trial
7. Print the workbook

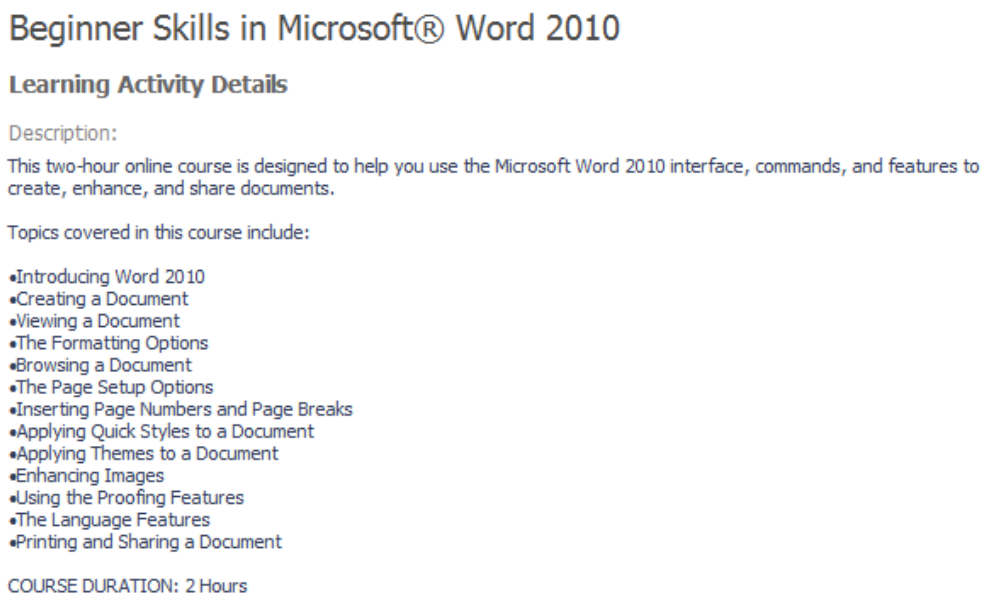
**Week 4 – 6:**

**Note to Trainers:** Assign the following courses on LMS as per the participants' level of IT skills.

**Course Completion Requirements**: Participants have to score more than 80% in each module to consider it as completed. Participants can attempt the tests multiple times.

**Beginners:** Will complete track 1 in LMS, which includes the following:

- Beginner Skills in Microsoft Word



Beginner Skills in Microsoft® Word 2010

**Learning Activity Details**

Description:

This two-hour online course is designed to help you use the Microsoft Word 2010 interface, commands, and features to create, enhance, and share documents.

Topics covered in this course include:

- Introducing Word 2010
- Creating a Document
- Viewing a Document
- The Formatting Options
- Browsing a Document
- The Page Setup Options
- Inserting Page Numbers and Page Breaks
- Applying Quick Styles to a Document
- Applying Themes to a Document
- Enhancing Images
- Using the Proofing Features
- The Language Features
- Printing and Sharing a Document

COURSE DURATION: 2 Hours

- Beginner Skills in Microsoft Excel

## Beginner Skills in Microsoft® Excel® 2010

### Learning Activity Details

Description:

This online course is designed to help you use the Microsoft Excel 2010 interface, commands, and features to present, analyze, and manipulate various types of data.

Topics covered in this course include:

- Setting Excel Options
- Creating a New Workbook
- Adding and Moving Data in a Worksheet
- Formatting Cells and Using Borders and Margins
- Sorting and Filtering Data Lists
- Reviewing a Workbook and Using the Proofing Tools
- Creating and Editing Charts
- Inserting Shapes, Pictures, Clip Art, SmartArt Graphics, WordArt, Screen Shots, and Signature Lines

COURSE DURATION: 2 Hours

- Intermediate Skills in Microsoft Word

## Intermediate Skills in Microsoft® Word 2010

### Learning Activity Details

Description:

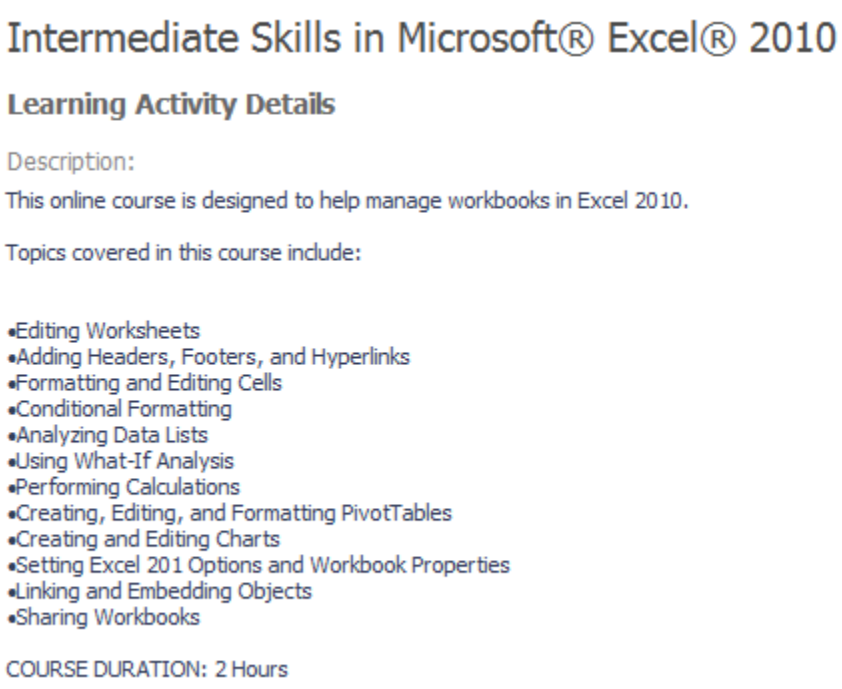
This one-and-half hour course provides you with the skills and knowledge required to enhance, share, and customize Word 2010 documents.

Topics covered in this course include:

- Customizing Word Options
- Customizing the Quick Access Toolbar
- Customizing the Saving Options
- Setting up the Pages in a Document
- Reorganizing a Document
- Inserting Section Breaks in a Document
- Adding Tables and Captions
- Inserting Graphical Elements
- Reviewing a Document
- Co-authoring a Document
- Viewing Documents on the Web
- Working with Documents by Using Word Mobile 2010
- Protecting a Document
- Inserting Table of Contents and Footnotes
- Creating a Mail Merge

COURSE DURATION: 1.5 Hours

- Intermediate Skills in Microsoft Excel



Intermediate Skills in Microsoft® Excel® 2010

**Learning Activity Details**

Description:

This online course is designed to help manage workbooks in Excel 2010.

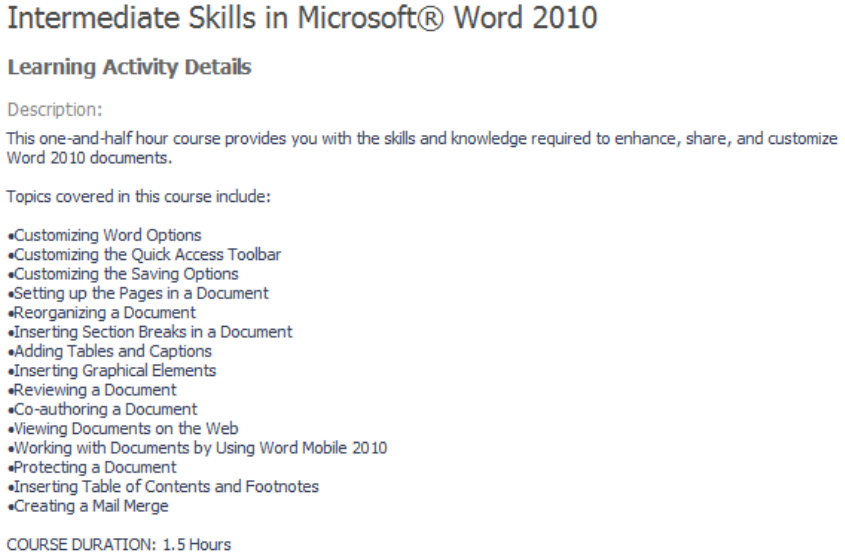
Topics covered in this course include:

- Editing Worksheets
- Adding Headers, Footers, and Hyperlinks
- Formatting and Editing Cells
- Conditional Formatting
- Analyzing Data Lists
- Using What-If Analysis
- Performing Calculations
- Creating, Editing, and Formatting PivotTables
- Creating and Editing Charts
- Setting Excel 201 Options and Workbook Properties
- Linking and Embedding Objects
- Sharing Workbooks

COURSE DURATION: 2 Hours

**Intermediates**: Will complete Track 2 in LMS, which includes:

- Intermediate Skills in Microsoft Word



Intermediate Skills in Microsoft® Word 2010

**Learning Activity Details**

Description:

This one-and-half hour course provides you with the skills and knowledge required to enhance, share, and customize Word 2010 documents.

Topics covered in this course include:

- Customizing Word Options
- Customizing the Quick Access Toolbar
- Customizing the Saving Options
- Setting up the Pages in a Document
- Reorganizing a Document
- Inserting Section Breaks in a Document
- Adding Tables and Captions
- Inserting Graphical Elements
- Reviewing a Document
- Co-authoring a Document
- Viewing Documents on the Web
- Working with Documents by Using Word Mobile 2010
- Protecting a Document
- Inserting Table of Contents and Footnotes
- Creating a Mail Merge

COURSE DURATION: 1.5 Hours

- Intermediate Skills in Microsoft Excel

## Intermediate Skills in Microsoft® Excel® 2010

### Learning Activity Details

Description:

This online course is designed to help manage workbooks in Excel 2010.

Topics covered in this course include:

- Editing Worksheets
- Adding Headers, Footers, and Hyperlinks
- Formatting and Editing Cells
- Conditional Formatting
- Analyzing Data Lists
- Using What-If Analysis
- Performing Calculations
- Creating, Editing, and Formatting PivotTables
- Creating and Editing Charts
- Setting Excel 201 Options and Workbook Properties
- Linking and Embedding Objects
- Sharing Workbooks

COURSE DURATION: 2 Hours

- Advanced Skills in Microsoft Word

## Advanced Skills in Microsoft® Word 2010

### Learning Activity Details

Description:

This one-and-half hour course provides you with the skills and knowledge required to create complex documents and publish them by using Word 2010.

Topics covered in this course include:

- Customizing the Ribbon
- Introduction to Text Building Blocks
- Embed Objects in a Document
- Add References and Citations
- Insert an Equation
- Compare and Combine a Document
- Combine Different Versions of a Document
- Checking for Issues in a Document
- Editing Documents on the Web and a Mobile Device
- Publishing a Document with Word Mobile 2010
- Create a Master Document
- Insert an Index
- Add Content Controls
- Use XML Tools

COURSE DURATION: 1.5 Hours

-

- Advanced Skills in Microsoft Excel

Advanced Skills in Microsoft® Excel® 2010

**Learning Activity Details**

Description:

This online course is designed to help you customize and manage the Excel 2010 interface as well as know how to manage, manipulate, and format data.

Topics covered in this course include:
- Setting Excel 2010 Options
- Manipulating Worksheet Data
- Creating and Editing Named Ranges
- Working with Solver and PowerPivot Add-Ins
- Working with External Data
- Creating and Editing Web Queries
- Creating Sparklines and Trendlines
- Analyzing PivotTable Data
- Creating and Editing Macros
- Running a Macro
- Workbook Protection Levels

COURSE DURATION: 2 Hours

**Week 6-8: Participants' will be attending the IT hospital applications training.**

**Objective:** The employees will get to apply the skills that they learned in week 4-6

**Note for Trainers**:

- Assess transfer of learning by observing how the participants perform in the IT applications class
- For interested participants in the beginner level, you can assign advanced courses on LMS

**Week 9**: **Feedback and Evaluation**

This includes feedback from IT trainers and the survey.

Survey: Course Evaluation

**Instructions**: Please rate the following statements

1. I felt the course content was appropriate for my level of understanding
    - strongly agree
    - Agree
    - Neutral
    - Disagree
    - Strongly disagree

| Comments: |
|---|

2. I was comfortable with the duration of the program
    - strongly agree
    - Agree
    - Neutral
    - Disagree
    - Strongly disagree

| Comments: |
|---|

3. The activities, exercises, and demonstrations helped my learning
    - strongly agree
    - Agree
    - Neutral
    - Disagree
    - Strongly disagree

| Comments: |
|---|

4. My learning was enhanced by the experiences shared by the facilitator(s)
    - strongly agree
    - Agree
    - Neutral
    - Disagree
    - Strongly disagree

| Comments: |
|---|

5. It was easy for me to get actively involved in the session
    - strongly agree
    - Agree
    - Neutral
    - Disagree
    - Strongly disagree

| Comments: |
|---|

6. I am clear about what skills are expected of me as a result of attending the program
    - strongly agree
    - Agree
    - Neutral
    - Disagree
    - Strongly disagree

| Comments: |
|---|

7. I anticipate that I will apply what I learned at my work
    - strongly agree
    - Agree
    - Neutral
    - Disagree
    - Strongly disagree

| Comments: |
|---|

8. I would recommend this program to other employees
    - strongly agree
    - Agree
    - Neutral
    - Disagree
    - Strongly disagree

| Comments: |
|---|

# Appendix B: Consent Form

## CONSENT FORM

You are invited to take part in a research study of "Assessing Computer Literacy". The researcher is inviting hospital employees, clinical and nonclinical to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Jolly Peter Isaac, who is a doctoral student at Walden University

**Background Information:**
The purpose of this study is to find the most accurate method of assessing computer literacy among hospital employees. The study will help to identify the training requirements of employees prior to Electronic Medical Record (EMR) implementation or any hospital IT application.

**Procedures:**
If you agree to be in this study, you will be asked to:

- Take a self-assessment survey and an actual computer skills test of 20 min duration at one time

**Voluntary Nature of the Study:**
This study is voluntary and if you chose to participate, your participation will be kept confidential and there will be no bias whether or not you choose to be in the study. If you decide to join the study now, you can still change your mind during or after the study. You may stop at any time.

**Benefits and Risks of Being in the Study:**
You have the opportunity to help assess computer literacy within a hospital setting. Taking a test may be something which you are not very comfortable about. Taking the test is voluntary and you can withdraw at any time. I will share the results of the test with you alone and will not share individual results with your supervisor, manager or others within the organization. Knowing the results of the test, in the event it is not a favorable one may be disappointing to you. Again, the individual results will be shared only with you and remain confidential. If the results are not as you expected, this could be an opportunity for you to further develop your skills through training or education.

**Payment/Compensation:**
Participation in this study is voluntary and there is no payment or compensation for participation.

**Privacy:**
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the

researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by password protected computer file. Data will be kept for a period of at least 5 years, as required by the university.

**Contacts and Questions:**
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via mobile on 056 1074268 or e-mail jolly_petr@yahoo.com . If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 001-612-312-1210. Walden University's approval number for this study is **05-24-13-0187779** and it expires on **May 23, 2014.**

The researcher will give you a copy of this form to keep.

**Statement of Consent:**

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, I understand that I am agreeing to the terms described above.

Printed Name of Participant _____

Date of consent _____

Participant's Signature _____

Researcher's Signature _____

# Appendix C: Walden University IRB Approval

**Subject :** **Notification of Approval to Conduct Research-Jolly Isaac**
**Date :** Wed, Feb 19, 2014 07:35 AM CST
**From :** IRB <IRB@waldenu.edu>
**To :** "Jolly Isaac (jolly.isaac@waldenu.edu)" <jolly.isaac@waldenu.edu>
**CC :** "'mary.ramirez2@waldenu.edu (mary.ramirez2@waldenu.edu)" <mary.ramirez2@waldenu.edu>, Doctoral Study <DoctoralStudy@waldenu.edu>
**Attachment :** Isaac_Revised_Consent_Form.pdf
RequestforChangeinProceduresForm_JollyIsaac.doc

Dear Mr. Isaac,

This e-mail serves to inform you that the attached request for a change in procedures has been approved. You may implement the requested changes effective immediately. The approval number for this study will remain the same.

This email also confirms receipt of the approval notification for the new community research partner and also serves as your notification that Walden University has approved BOTH your doctoral study proposal and your application to the Institutional Review Board. As such, you are approved by Walden University to conduct research.

Please contact the Office of Student Research Administration at doctoralstudy@waldenu.edu if you have any questions.

Also attached to this e-mail is the IRB approved consent form. Please note, if this is already in an on-line format, you will need to update that consent document to include the IRB approval number and expiration date.

Both students and faculty are invited to provide feedback on this IRB experience at the link below:

**http://www.surveymonkey.com/s.aspx?sm=qHBJzkJMUx43pZegKlmdiQ_3d_3d**

Sincerely,
Jenny Sherer, M.Ed., CIP
Associate Director
Office of Research Ethics and Compliance
Email: irb@waldenu.edu
Fax: 626-605-0472

Office address for Walden University:
100 Washington Avenue South
Suite 900
Minneapolis, MN 55401

Information about the Walden University Institutional Review Board, including instructions for application, may be found at this link: http://researchcenter.waldenu.edu/Office-of-Research-Ethics-and-Compliance-IRB.htm

# Appendix D: Letter of Cooperation from Organization

2 February 2014

Abu Dhabi, UAE
PO Box

Dear Jolly Peter Isaac,

Based on our review of your research proposal, we give permission for you to conduct the study entitled "Assessing Basic Computer Literacy: Comparison of Self-Assessment and Actual Skills Test in Hospital Employees" within . As part of this study, we authorize you to recruit research participants who are hospital employees from clinical and non-clinical areas using stratified sampling technique.

We understand data will be collected by administering a self-assessment survey and actual simulated computer skills test to research participants at the same time through an internet based Learning Management System. After the pilot the researcher will interact with the participants to ascertain content validity and ease of doing the tests. The results of the tests will be shared with individual participants if required by the participants as an avenue for self-development.

The overall results will be shared with the Chief Executive Officer and Chief Human Resource Officer while maintaining the confidentiality of the participants. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include: allowing Jolly Peter Isaac to use the Learning Management System to administer the tests and providing supervision. We reserve the right to withdraw from the study at any time if our circumstances change.

We confirm that we are authorized to approve research in this setting.

We understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the research team without permission from the Walden University IRB.

Yours sincerely,

Chief Executive Officer

Chief Human Resources Officer

PO Box
Abu Dhabi, UAE

# Appendix E: Self- Assessment of Basic Computer Skills

Instruction: Read each question carefully and answer how you would rate yourself.

| Overall computer skills | Beginner | Proficient | Expert |
|---|---|---|---|
| | | | |

| **Computer Skills**<br>How would you rate your ability in performing the following skills: | | | |
|---|---|---|---|
| **General windows – I can** | Always | Sometimes | Not at all |
| Turn the computer on | | | |
| Identify the 'End' key on the keyboard | | | |
| Identify the 'backspace' key on the keyboard | | | |
| Identify the ‘down arrow' key on the keyboard | | | |
| Click an object using the mouse | | | |
| Drag and drop objects using a mouse | | | |
| Log on to a computer using a password | | | |
| Shutdown' the computer using long method | | | |
| **Microsoft Word - I can:** | Always | Sometimes | Not at all |
| Open Microsoft word using the start menu | | | |
| Enter text in Microsoft word | | | |
| Save a document in a specified location | | | |
| Name a document before saving it | | | |
| Print a document | | | |
| Close Microsoft word application using long method | | | |
| **Internet/ e-mail - I can:** | Always | Sometimes | Not at all |
| Launch or open the Internet explorer | | | |
| Type a website address and access it | | | |
| Use Google and search the web for key words | | | |
| Read a topic which is hyperlinked | | | |
| Update the display of a current web page | | | |
| Go to web page that was previously displayed | | | |
| Open an unread e-mail on outlook | | | |
| Send a reply to an e-mail | | | |
| Copy a recipient on a e-mail | | | |
| Attach a document to an e-mail | | | |
| **Excel Spread Sheet - I can** | Always | Sometimes | Not at all |
| Enter data in a cell on a Excel spread sheet | | | |
| Change the font size of a text in a selected cell | | | |
| Fill color in a cell on the Excel spread sheet | | | |
| Add (sum) the data in two cells | | | |

# Appendix F: Questions for Simulated Computer Skills Test

| # | TASKS | TOPIC |
|---|---|---|
| 1 | Turn on the computer. | General Windows |
| 2 | Press the 'End' key. | |
| 3 | Press the 'Backspace' key. | |
| 4 | Press the 'Down Arrow' key. | |
| 5 | Follow the mouse! Click where the mouse is standing. | |
| 6 | Follow the mouse! Click where the mouse is standing. | |
| 7 | Follow the mouse! Click where the mouse is standing. | |
| 8 | Drag and drop the correct answer from column B to column A. | |
| 9 | Log on to this computer with the password "riyad123". | |
| 10 | For questions 10 -11: Shutdown the computer. (Do NOT use ALT-F4) | |
| 11 | For questions 10 -11: Shutdown the computer. (Do NOT use ALT-F4) | |
| 12 | For questions 12 - 13: Start Microsoft Word using the Start menu. (Do NOT use Windows Explorer.) | Word |
| 13 | For questions 12 - 13: Start Microsoft Word using the Start menu. (Do NOT use Windows Explorer.) | |
| 14 | For Questions 14 - 20: Enter the following text and press ENTER when done. | |
| 15 | For Questions 14 - 20: Enter the following text and press ENTER when done. | |
| 16 | For Questions 14 - 20: Enter the following text and press ENTER when done. | |
| 17 | For Questions 14 - 20: Enter the following text and press ENTER when done. | |
| 18 | For Questions 14 - 20: Enter the following text and press ENTER when done. | |
| 19 | For Questions 14 - 20: Enter the following text and press ENTER when done. | |
| 20 | For Questions 14 - 20: Enter the following text and press ENTER when done. | |
| 21 | For Questions 21 - 23: Save the document in C:\Desktop\MyProject' directory. | |
| 22 | For Questions 21 - 23: Save the document in C:\Desktop\MyProject' directory. | |
| 23 | For Questions 21 - 23: Type 'Profile' in the file name field. | |
| 24 | For Questions 24 - 26: Print this document. | |
| 25 | For Questions 24 - 26: Print this document. | |
| 26 | For Questions 24 - 26: Print this document. | |
| 27 | For Questions 27- 28: Close the 'Microsoft Word' application. (Use the long method for this task) | |
| 28 | For Questions 27- 28: Close the 'Microsoft Word' application. (Use the long method for this task) | |
| 29 | Launch the 'Internet Explorer'. | Internet/Email |
| 30 | Go to the web site 'http://www.google.ae/'. (Do NOT use ALT-D.) (Do NOT use ALT-ENTER.) | |
| 31 | Using google, search the Web with the keyword 'cardio exercise'. (Do NOT use ALT-D.) | |
| 32 | Select the 'Top Cardio Exercises - The Best Cardio Exercise for Weight Loss' link. | |
| 33 | Update the display of the current Web page. | |
| 34 | Go to the Web page that was previously displayed. (Do NOT use ALT-LEFT ARROW.) | |
| 35 | Open the unread email from 'Lindsey Richards'. | |
| 36 | Send a reply to 'Lindsey Richards'. | |
| 37 | Copy 'Simi Mohandas' in this email. | |
| 38 | Attach a document in this email. | |
| 39 | Go to C8 cell. | Excel |
| 40 | Type the number '10000' in the selected cell. Press ENTER when done. | |
| 41 | For Questions 41 - 42: Change the font size of the text in the selected cell to '11'. | |
| 42 | For Questions 41 - 42: Change the font size of the text in the selected cell to '11'. | |
| 43 | Change the cell color of 'C11' to Orange. Change the Fill Color of the selected cell to Standard Color Orange | |
| 44 | Select the color Orange from the Standard Colors section. | |
| 45 | Add 30,000 and 10,000. | |