The distributed where students will use a

Theintegration of technology into lesson plans should augment and complement thelessons and support students learning in a way that may not be possible in theabsence of the chosen technology tools. Learning is becoming more distributed where students will use a mobiledevice to access information and learning materials from anywhere and at anytime. It is crucial to understand students' attitudes and perceptions whenconsidering bringing in a technology device into the picture. Therefore, thisqualitative study aims at investigating the attitudes and perceptions ofgraduate students toward using mobile learning for learning, in the EducationalTechnology, Research and Assessment (ETRA) department at Northern IllinoisUniversity (NIU), USA. The interviews of four voluntary participants wereconducted in order to provide more understanding on student perceptions ofmobile learning. Preliminary results, derived from individual (one-on-one)interviews, indicated that students had positive attitudes toward using mobiledevices for learning and want to use mobile devices in an educational settingin the future. They found that utilizing mobile devices was convenient andenabled learning to be more flexible and portable because of the convenience, usefulness and ease of use associated with mobile devices applications andtools.

However, students identifiedusability issues like small screen size and keyboards, and additionalcost of mobile devices and services as constraints for using mobile devices for learning. Key words: Mobile learning, cellphone, mobile phone, attitudes, TechnologyAcceptance Model (TAM), Higher education Introduction Mobile technologies are any advanced devicesthat are portable and supported by Internet connection. These

devices includePDAs, smartphones, IPad, digital cameras, flash-disks, iPods, laptop(El-Hussein & Cronje, 2010), and they are usually small, autonomous, andunnoticeable enough to be carried anytime (Trifonova, Knapp, Ronchetti, , 2004). in addition, these technologies are built-in wireless, and, via thisunique feature, individuals can access network information anytime, anywhere(Hahn, 2008).

Mobile devices can be used dramatically to improve learning andbring digital content to students who love these technologies and employ themin their learning as they use them in their personal lives (West, 2013). Usingthese devices in education can provide opportunities for " collaborativelearning, students' appreciation of their own learning process, consolidationof learning, and ways of helping learners to see a subject differently than whywould have done without the use of mobile devices" (Kukulska-Hulme, 2007, p. 4).

With recent developments in these devices, mobile learning has attractedconsiderable attention in education (Kukulska- Hulme, 2009). Park, Nam and Cha(2012) define mobile learning as " any educational provision where the sole ordominant technologies are handheld or palmtop devices." (p. 592). Mobilelearning could be defined as the learning that is delivered to students anytimeand anywhere through the use of wireless Internet and mobile devices (Wang, Wu,& Wang, 2009). Based onthe idea of anywhere and anytime learning, mobile device technologies provide" a myriad of opportunities to support learning and performance both inside andoutside the classroom" (Martin & Ertzberger, 2013, p. 26).

The portabilityand the affordability are the benefits that are offered by these devices(Chinnery, 2006). Miangah and Nezarat (2012) stated, “ mobile learning ischaracterized by its potential for learning to be spontaneous, informal, personalized and ubiquitous” (p. 309). Mobile learning devices have beenrelated to the concept of ubiquitous learning (u-learning) where “ computing, communication, and sensor devices are embedded and integrated into learner’s’daily life to make learning immersive” (Hwang, Tsai, & Yang, 2008, p. 81). According to Alshahrani (2016), the future of mobile learning “ looks promisingdue to current and continuing innovations such as flexible and touchscreendisplays, multi-screen capabilities, powerful batteries with more charge cyclesand longer-lasting battery life, and wireless charging.” (p.

90). The Educational Technology, Research andAssessment (ETRA) department at Northern Illinois University (NIU), UnitedStates, delivers numerous programs and applies different strategies in anattempt to positively affect the student learning skills and one of thesestrategies is the use and integration of mobile devices as a vital part of theteaching and learning support. However, it has been noticed that some graduatestudents use their mobile devices mostly for entertainment, socialization, keeping in touch with family and friends, or for checking e-mail: not as muchfor educational purposes. Providing mobile academic resources is not enough toconfirm students to use them for learning. Mobile learning at institutions of highereducation remains in its infancy stage (Al-Shahrani, 2016; Park, 2011; Cheon et al., 2012; Wang et al., 2009). As it is still in its infancy, limited

understanding is available regarding thewillingness and acceptance of using mobile devices for learning purposes.

The concepts and educationalissues surrounding mobile learning are growing and need further study(Kukulska-Hulme, 2007; Traxler, 2009; Wang et al., 2009). One of these issuesis students' attitudes towards using mobile learning for learning. the successful implementation ofthe use mobile device technology in higher education is based on student'acceptance of this technology and whether students are willing to adopt mobilelearning for academic learning (Kukulska-hulme, 2007; Alshahrani, 2016); therefore, the main purpose of this study is to investigate students' attitudesand perceptions of their own and the university's role on the use of mobiledevice technologies in the graduate programs in the ETRA department at NIU.

What are the graduate students' understandings of this integration and how muchthey believe that it may support them to improve their academic settings? Thisstudy also investigates the students experience and satisfaction with themobile academic resources presented by the ETRA department at NIU. It is hopedthat the findings of this study will provide the scholars and educatorsinsightful information about the issue and trends of mobile learning in highereducation and fill in some of the gaps that currently exist in the research andhelp to build a foundation for future research in the field of mobile learning. In addition, it is hoped that the findings of the study will define the valueof in utilizing mobile device technology and how this technology integrationinteracts with learning and provide suggestions for future developments. Thispaper is not only will provide information about how students are currentlyinformally using their own personal mobile

devices for educational purposesinside and outside of the classroom, but also how they would view a more formaluse of these devices for educational purposes. Why Mobile learning is Appropriate forEducational Contexts? Compared with desktops, mobile devices can bemore easily integrated across the curriculum (Moseley & Higgins, 1999). These devices “ have the power to make learning even more widely available andaccessible than we are used to in existing e-learning environments” (Brown, 2003, p.

1). This is possible since many of students today already have mobiledevices do not need extensive infrastructure as desktop computers. One ofthe key benefits of mobile learning is its potential for allowing students toaccess academic material without the restrictions of time and place (Huang, Lin& Chuang, 2007), and “ without permanent physical connection to cablenetworks” (Georgiev, Georgieva & Smrikarov, 2004, p. 28). Connectivityenables students to connect and communicate with the learning websites usingthe wireless device network to access the learning materials (Miangah &Nezarat, 2012). Due to more affordable technology and improving digitalnetworks, many people turn to mobile devices as their first choice forconnectivity (Johnson, Smith, Willis, Levine & Haywood, 2011). In addition, Dew (2010) attests “ the principal features of mobile learning are theflexibility for students to engage in the educational process and materialanywhere, any time” (p.

47). Mobile devices provide more mobility, flexibility and convenience compared to computer desktops. The issue ofmobility is an vital element in mobile learning, because students must at anypoint be able to participate in educational activities regardless of thephysical location they find

themselves, bearing in mind that the interest touse the mobile device to learn outside a classroom or in any other place ispartly motivated by portability, lightweight, small size and convenience tocarry it around with relative ease for both communication and educational purposes, utilizing its spontaneous featuresto get access to unlimited information. Mobilelearning allows students to expand discussion and investigation beyond thewalls of the classroom and it allows students to access to resources oflearning as well as to complete all the tasks they would need on computerdesktops but with the convenience of mobility and flexibility (Al-Fahad, 2009; Rossing, Miller, Cecil & Stamper, 2012). Students, therefore, recognize thepotential for future mobile learning opportunities as new technologies areintegrated into the educational context (Bottentuit Junior, 2008; Uzunboylu etal, 2009; Wyatt et al, 2010; Wang et al, 2009; Maag, 2007) and want to usemobile devices in an educational setting in the future (Maag, 2007). Al-Fahad(2009), in his study, found that students perceived mobile technologies as aneffective means of enhancing communication and learning. Guenter et al (2008), Hsu et al (2008), and Comac (2008) in their studies indicated students reportedboth competence and ease in using the devices and performing the learningtasks. Mobile devices have a great advantage in termsof their portability and flexibility.

The results of previous studies (Clarkeet. al, 2008; Cavus & Ibrahim, 2009; Bottentuit Junior, 2008; Al-Fahad, 2009) indicated that many participants found that using mobile devices wasconvenient and enabled learning to be flexible regarding time and location andportable due to the portability of modern small and lightweight devices andperceived convenience associated

with mobile applications and tools, althoughstudents felt if additional personal expense was needed to perform the tasks(i. e. if they had to purchase a cell phone data plan or their equipment was notup to date) that these factors would act as a restrictive (Venkatesh, 2006).

Mobile learning also helps overcome the digital divide for learners who do nothave access to computers but typically own a mobile phone (Aderinoye, et al., 2007; Attewell, 2005). Mobile devices enable a flexible, convenientpersonalized, secure, and easy to access content interface (Fozdar & Kumar, 2007). Another benefit of mobile learning is allowingstudents to " more easily carry reference and communication tools with them intoreal-world environments.

This flexibility permits frequent dialogue withexperts and peers, just-in-time retrieval of information, documentation ofpersonal experiences, and integration of course-based knowledge into aspects ofthe learners' daily lives-all permitting learners to receive feedback andassess their progress" (Koole, McQuilkin & Ally, 2010, p. 3). The Potential Barriers of Mobile Learning While mobile wireless technologies givestudents increased flexibility and new opportunities in education sector (Traxler, 2007), students may be constrained by small screen sizes, limited input andoutput capabilities, weak processing power, and limited memory (Koole, McQuilkin & Ally, 2010). Likewise, Motiwalla (2007) did mention somechallenges exist from the students' perceptions, such as small screen sizes, limited processing powers and graphical limitations of most mobile devicesmeans learners might be spending more than necessary time searching for andaccessing information. Wang, Wiesemes, and Gibbons (2012) reported

that issueswith the size of mobile devices and failures of wireless Internet Wi-Ficonnectivity cause frustration and disappointment in students. Limitedavailability of wireless may also prohibit access to course materials (Croop, 2009).

Some researchers also suggest the personal ownership of mobile devicessuch as smartphones and the cost of unlimited Internet access or texting asprohibitive for some students (DuVall, Powell, Hodge & Ellis, 2007; Aderinoye, et al., 2007; Croop, 2009). Others such as Lawrence, Bachfischer, Dyson, and Litchfield (2008) did mention the cost imposed by telecommunicationsfor access and mobile devices to be main cost barriers for students.

However, a few years ago, effective andefficient use of mobile devices for teaching and learning was not easilypossible because of some drawbacks, but today, most of these drawbacks, whichincluded screen size, battery life, keyboard etc. have been rectified. According to Tsvetozar Georgiev, Evgenia Georgieva, and Angel Smrikarov (2004)suggest that cost is not a barrier since mobile devices are less expensive thana desktop computer; smaller size and lighter weight than a desktop computer; ensures better students engage as mobile learning is based on up-to-datetechnologies, which students use in daily life; these devices equipped with aGlobal Positioning System (GPS) can offer location dependent education.

Moreover, Williams (2009) suggested that shrinking data storage solutions costand the low mobile device cost is the main benefits of using mobile technologywhen compared to desktop and laptops. According to Georgiev et

al. (2004), although mobile learning has several weaknesses at present, potentialtechnological solutions have the abilities to tackle these problemsStudents' Attitudes An attitude is a " relatively enduringorganization of beliefs, feelings, and behavioral tendencies towards sociallysignificant objects, groups, events or symbols"(Hogg & Vaughan, 2005, p.

1). A literature review based on Allport (1935) defined attitudecomprehensively as " a mental and neural state of readiness, organizedthrough experience, exerting a directive or dynamic influence upon theindividual's response to all objects and situations to which it isrelated" (p. 810). In an educational environment, students' attitudes playa fundamental role in the achievement of educational goals (Al-Shahrani & Walker, 2016). Eagly and Chaiken (1993) provided what may be the most conventionalcontemporary definition; particularly, an " attitude is a psychologicaltendency that is expressed by evaluating a particular entity with some degreeof favor or disfavor" (p. 1). Evaluation in turn is described as the" imputation of some degree of goodness or badness to an entity" (Eagly , 1993, p.

3). Entities or attitude objects can be " virtually anythingthat is discriminable" (p. 4) such as the concept of inclusive education oreven behaviors or classes of behaviors. Attitudes themselves are not directlyobservable but can be inferred from observable responses expressing a degree ofevaluation.

Therefore, understanding student attitudes toward mobile learningis needed and may provide insights into the feasibility of implementation ofmobile learning as well as the elimination of obstacles. According to Rogers(2003), users' attitudes toward a new technology are a critical component inits diffusion. The success of the innovation depends on the individuals who useit (Geisman, 2001). Individuals will accept an innovation if they believe thatit will enhance their productivity. Dorman (2005) also says that studyingattitudes is key in determining the level of individuals understanding, acceptance, and readiness for technology.

An attitude is " an idea charged with emotionwhich predisposes a class of actions to a particular class of socialsituations" (Triandis, 1971, p. 2). Triandis (1971) suggested that attitudesare complex, with a cognitive component includes a person's statement ofbeliefs, ideas and thoughts; an affective component of attitudes is theemotional or feelings; and a behavioral component (behavioral intentions, behavior or actions toward/away from the attitude referent. Triandis assertedthat attitudes help us adjust to our environment by providing a certain amountof predictability. Attitude is defined as an individual's positiveor negative feeling about performing the target behaviour (Fishbein &Ajzen, 1975). It is related to behavioural intention because people formintentions to perform behaviours toward which they have positive feeling.

Asproposed in Theory of Reasoned 277 Action (Fishbein & Ajzen, 1975), attitude was expected to influence behavioural intention in accepting a newinnovation. Most intention-based theories model attitude as a mediator betweenbeliefs and intentions. Individual's' salient beliefs about the

outcomes areexpected to influence their attitude towards the behaviour, which in turn isexpected to impact their intention to perform that behaviour. In a technology adoption context, the keybehaviour of interest is use of the system; therefore, attitude towardsbehaviour is a potential user’s affective evaluation of the costs and benefitsof using the new technology.

If users perceive the benefits of using the newtechnology are greater than the costs, their attitude will be positive and agreater likelihood of adoption will be resulted. For the purpose of this study, attitudes were defined as the students’ perceptions, opinions, and beliefsabout certain aspects of the profession that have direct impact on theirbehaviors. If students perceive mobile learning as a useful tool, compatiblewith their current activities, convenient, and easy to use, they willdemonstrate positive attitudes towards mobile learning and use it for academicpurposes.