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Role of Demographic Diversity in Online Knowledge Sharing

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Abstract

Knowledge sharing is not only the requirement of professional lives but it has proved its importance in daily lives as well. This study particularly addresses the behavior of knowledge sharing in online world. Therefore, this study explores the influence of demographic factors on the online knowledge sharing behavior in the sample of 319. In order to check the possible differences in the means of different demographic factor groups, this study applied independent sample t-test and one way analysis of variance (ANOVA). These findings are significant since they provide a better insight to the indifferent role of demographic diversity of students when it comes to online knowledge sharing as a result of online social interaction. This study can find many utilities regarding the course contents and online study plans in educational institutes and personnel screening of human resource in organizations.

Keywords: online knowledge sharing, demographic diversity, online social orientation.

1. Introduction

Higher education not only provides individuals knowledge for themselves but it gives them an insight how to align the random images of economic and social issues. The responsibility of endowing the students with skills and empowering them with advanced knowledge regarding their aptitudes lies with higher education. Pakistan now has more higher education institutes recognized by the Higher Education Commission of Pakistan that provide higher education related to different disciplines. In this hi-tech era only qualified graduates find a way to significantly use technology combining it with the knowledge gained during the education tenure, to use for policy making, decision making and ultimately for economic and social development (Iqbal, 2004). The student

enrollment in higher education in Pakistan has boosted from the previous years and the enrollment in professional degrees is also intensive. According to HEC (2010), there are total of 132 higher education institutes that have 948,268 students enrolled and the graduates produced were 493,993. Sociability is natural to human beings (Dalkir, 2005), therefore, the interaction of students is also certain and when students interact with each other anyway, they share knowledge as well. Today's progressed societies have triggered the world to contract to a global village, a concern of the modern era, has brought diverse groups closer than ever (Cundiff, Nadler & Swan, 2009) that demands and favors the flow of knowledge. In addition, social bonding and the cohesiveness of individuals in Pakistani with diverse demography encourages knowledge sharing among them that highlights the new prospect of discoveries when they interact in their institutes.

Communication among the diverse groups with diverse demography and unlike experiences gives rise to constructive conflicts along with distinct development and evolutions as well (Verde et al. 2011). Moreover, where interaction of different personalities uncovers the horizons for the collaborative synergy, there one's sharing of knowledge also determines the new perspectives of already existing scenes. Higher education has many objectives; however, this study is about the influence of online social interaction, personality traits and demographic diversity on the knowledge sharing among the graduate students of higher education institutes situated in Islamabad, Pakistan.

The concept of knowledge sharing evolved in the last decade and has been researched from different perspectives (Matzler, Renzl, Mooradian, Krogh & Mueller, 2011; Burke, 2011; Ogunseye, Adetiloye, Idowu, Folorunso & Akinwale, 2011; Koch, 2011; Chen, Huang & Hsiao, 2010; Ford & Staples, 2010; Sugarman, 2010). However, little attention has been given to knowledge sharing from the perspective of the online social orientation (Wang & Noe, 2010; Hara & Hew, 2007) and demographic diversity (Aslani et al. 2012; Wang & Noe, 2010). No matter what is the motivation of knowledge sharing online social orientation and the demographic diversity cannot be ignored while studying knowledge sharing among the students. This study, therefore, aims at identifying role of social orientation, demographic diversity and personality in online sharing knowledge. The main objective of this study is to measure if the demographic diversity affects the online knowledge sharing behavior during online social interaction.

The objectives of this study are to understand the role of demographic factors on knowledge sharing behavior. Demographic diversity is comprised of the contextual factors since Teh, Yong, Chong & Yew (2011) mentioned that there are two types of factors that affect the knowledge sharing i.e., internal and external/contextual. Therefore, it will be interesting to study the role of demographic factors in online knowledge sharing. Higher education has many objectives; however, this study is about the influence of online social interaction, furthermore the influence of demographic diversity on the knowledge sharing among the students of higher education institutes situated in Islamabad, Pakistan.

2. Literature Review and Conceptual Framework

Knowledge is considered as the most valuable asset among all (Lauring & Selmer, 2011; Tohidinia & Mosakhani, 2010; Kamasak & Bulutlar, 2010; Chatzoglou & Vraimaki, 2009; Vazquez, Fourneir & Flores, 2009; Matzler, Renzl, Mu¨ller, Herting & Mooradian 2008; Pai, 2006; Cabrera, Collins & Salgado, 2006; Liao et al. 2004; Bonifacio &

Molani, 2003), either this knowledge is tangible or intangible (Cockrell & Stone, 2010; Hara & Hew, 2007) or traditional (Li & Luo, 2010; Wu & Yeh, 2007). Knowledge has proved its importance as a significant factor for the human recognition and the survival of organizations too (Makani & Marche, 2012; Burns, Acar & Datta, 2011). Moreover, it is usually considered as an individual characteristic (Arling & Chun, 2011; Suppiah & Sandhu, 2011; Kumar & Ganesh, 2011; Xue, Bradley & Liang, 2011; Jafari, Rezaeenour, Akhavan & Fesharaki, 2010; Kijl, 2010; Ling, Sandhu & Jain, 2009; Pai, 2006; Baalen, Ruwaard & Heck, 2005; Paavola, Lipponen & Hakkarainen, 2004) but few studies claim it to be a team activity (Cockrell & Stone, 2010). Therefore, once this is used and utilized, it benefits the individuals, groups, organizations and the institutions to which they belong (Tohidinia & Mosakhani, 2010; Ling, et al., 2009; Vazquez et al., 2009; Liao et al., 2004). Therefore, the importance and value of knowledge cannot be denied for anyone let it be individuals or the organizations; also the knowledge is a fundamental unit of all structural and functional activities.

Knowledge has been defined in different ways by different researchers (Robert, 2009). Adaileh and Atawi (2011) stated that knowledge is the combination of experiences, values and expertise that helps for the future experience. However, values are inherent and may not be utilized or applied when working in a diverse group. Pai (2006) defined it as the blend of information and data along with the expertise, opinions and skills. Nonetheless, this definition does not address the individual skills and opinions that may add value to the information and data collected through any source. Alavi, Kayworth and Leidner (2006) found that knowledge is the mixture of information and experience owned by the individuals. Ling et al., (2009) defined knowledge as the individual approach towards beliefs, standard operations and the past experience related to job. Knowledge cannot be limited to the job or organization. Knowledge is an individual possession that is carried wherever the individual moves. Consequently, knowledge can be used in every field of life not necessarily be the professional only. To summarize, knowledge can be defined as the understanding based on the experience, expertise and skills adhered and provide an insight to appraise future events.

Literature has witnessed many kinds of knowledge (Stenmark, 2001) but mainly it has been divided into two main categories i.e., (i) explicit knowledge; and, tacit knowledge (Cyr & Choo, 2010; Liu, 2008; Chang, 2006; Paavola et al., 2004; Nonaka & Takeuchi, 1995). Explicit knowledge is the knowledge that is codified, articulated, documented and saved for the future use and proves to be easy to share (e.g. Suppiah & Sandhu, 2011; Matzler et al., 2011; Arling & Chun, 2011; Adaileh & Atawi, 2011; Jafari et al., 2010; Cyr & Choo, 2010; Kamasak & Bulutlar, 2010; Kijl, 2010; etc.). In contrary, tacit knowledge is argued to be the one that is born from the experience of individuals, difficult to imitate or express in words or codify that remains in the minds of individuals and since it resides in the minds of individuals so this is not easy to search electronically (for example, Matzler et al., 2011; Suppiah & Sandhu, 2011; Whelan & Carcary, 2011; Arling & Chun, 2011; Adaileh & Atawi, 2011; Gold, Malhotra & Segar, 2001; Stenmark, 2001 etc.). Whelan and Carcary (2011) and Marouf (2007) declared tacit knowledge as more contributing towards the idea generation and innovation. Although knowledge has been categorized in two mainstreams but the human knowledge is composed of both of these types.

As the time is progressing, sharing knowledge has become an important concern (Huang & Li, 2009; Liu, 2008). Either individuals know or not but when they interact they share knowledge as well. Knowledge sharing has altered the conventional approach and proved itself to be a basis of novel ideas (Wang, Su & Yang, 2011; Kijl, 2010; Kamasak & Bulutlar, 2010; Henneberg, Swart, Naude, Jiang & Mouzas 2009; Kimmerle, Wodzicki & Cress, 2008; Lin & Lee, 2006; Schulz, 2003). Literature has discussed following different requisites of knowledge sharing that can be grouped as; (i) understanding of context; and, (ii) willingness to share.

2.1Understanding of the context

To understand the knowledge shared, one has to know the context as well in which it was developed (Arling & Chun, 2011; Adaileh & Atawi, 2011). Nevertheless, it is found that the tacit knowledge is context specific and impossible to be shared without the consent of the knower or source (for example, Suppiah & Sandhu, 2011; Burns, Acar & Datta, 2011; Adaileh & Atawi, 2011; Rai, 2011; Cyr & Choo, 2010; Petruzzelli, Albino & Carbonara, 2009; etc.). Tacit and explicit both types of knowledge are necessary to carry out the activities either personal or professional. Human nature is obliged to socialize and personal knowledge either tacit or explicit cannot suffice the human needs of knowledge in this era of fast progress. Additionally, when the same piece of information is shared with diversified individuals, they tend to interpret that according to the previous experiences, context of knowledge, instincts, intuitions etc. which in turn gives rise to different perspectives of the same information (Chen et al., 2010; Barachini, 2009; Zhang & Watts, 2008; Hustad, 2007; Hall, 2006). Consequently, this information perceived, forms the basis of the knowledge that is embedded in the values, practices and the system of an organization (Robert, 2009; Barachini, 2009; Lin & Lee, 2006; Chiu, Hsu & Wang, 2006). The knowledge gained by each individual is specific with respect to the context, that's why when knowledge is shared with others it is influenced by the personal opinions and biasness as well. Knowledge can be shared directly i.e., face-to-face or indirect i.e., via another medium like internet or repositories (Lauring & Selmer, 2012; Rai, 2011; Marouf, 2007). Since the understanding of the background and context gives a better know how of the knowledge being shared apart from the analytic skills of the receiver.

2.2 Willingness to Share Knowledge

When knowledge is desired to be shared, a person's willingness to share plays a very important role (e.g. Hsieh, Hsieh & Wang, 2011; Mishra & Bhaskar, 2011; Xue et al., 2011; Chen & Hung, 2010; Lin & Lee, 2006; Braun & Hollick, 2006; Chiu et al., 2006) because knowledge sharing is not a one way process (Baalen et al., 2005) and receiving of knowledge can happen without codification (Hall, 2006). However, Petruzzelli et al. (2009) found that knowledge sharing can be intentional and unintentional as well. Hence, knowledge sharing is successful when the parties show propensity to share their knowledge, inherent from their unique experiences and results. Moreover, it was also claimed that sharing of knowledge, either within group or outside groups, enhances its value and so the propensity to share, encourages the receiver to learn more (Kinnie & Swart, 2012; Mishra & Bhaskar, 2011, Ahmad & Daghfous, 2010; Adaileh & Atawi, 2011; Wu & Yeh, 2007; Inkpen & Tsang, 2005; Cummings, 2004). Therefore, if the knowledge is shared with the willingness of the parties it encourages the worth and significance of the knowledge shared for the parties, both the receiver and the sender.

2.3Knowledge Sharing

Knowledge sharing is a significant action (Burke, 2011; Sondergaard, Kerr & Clegg, 2007) and is defined by different authors differently. Henneberg et al. (2009) described knowledge sharing as a mutual process. However, it does not speak about the involvement of practices, the willingness and the situation. Vazquez et al. (2009) and Pai (2006) claimed knowledge sharing as the process of transferring knowledge from one grouping to another. Lin and Lee (2006) argued knowledge sharing as the processes of community members to help the exchange of knowledge to attain the goals while Kumar and Ganesh (2009) proposed knowledge sharing as the exchange of any kind of knowledge between two parties. In these definitions, involvement of the parties has been addressed however; the willingness of parties and the intentions are not given an appropriate attention. Ford and Staples (2010) considered knowledge sharing as the process of departing one's knowledge to the recipient. Ling et al. (2009) defined knowledge sharing as the spreading of knowledge and information. Cummings (2004) argued knowledge sharing to be the information, understanding or and task related know how about any product or procedure. These authors have specified the nature of knowledge nonetheless; the sharing of knowledge can be personal and professional as well. Although willingness to share has been mentioned extensively in the literature however, has not been included in the definition. Therefore based on above discussion it can be summarized that knowledge sharing is the intentional or unintentional process of mutual willingness of parties, one or more, in which one or many share knowledge regarding anything and the others seek it.

Different researchers for example, Martins and Meyer (2012), Kumar & Ganesh (2009), Bakker et al. (2006) and Dalkir (2005) explained two types of knowledge used in knowledge sharing i.e., exploration and exploitation. Exploitation is related to the expression, transfer and application of existing knowledge while exploration indicates discovering new dimensions, synthesizing and creating new knowledge. It is also extensively argued that the existing knowledge plays an important role in the creation of new one (Sandhawalia & Dalcher, 2011; Chen et al., 2010; Zboralski, 2009; Schulz, 2003; Bonifacio & Molani, 2003). Therefore, either knowledge is explore or exploited, the role of the already existing knowledge or the knowledge gained already, cannot be denied. Individuals incorporate not only the existing knowledge but they also seek the new knowledge as well that is not integrated previously (Kinnie & Swart, 2012; Sondergaard et al., 2007; Marouf, 2007). Various terms have been used alternatively in literature for knowledge transmitted from one party to another that include; knowledge transfer, knowledge mobilization, knowledge exchange, knowledge translation etc., (Adaileh & Atawi, 2011). Therefore, in order to gain new knowledge, individuals not only tend to use the knowledge they already possess in order to know new perspectives. On the other hand, they look to acquire new knowledge as well that could be utilized in future practices for new ideas.

Knowledge sharing has been studied from different perspectives like competitive advantage (Cabrera et al., 2006), culture (Barachini, 2009, Lai & Lee, 2007; Alavi et al., 2006; Lin & Lee, 2006), social capital (Kostakos & Kostakos 2010; Cyr & Choo, 2010; Marouf, 2007), economy (Burke, 2011) information technology (Ogunseye et al., 2011; Sondergaard, et al., 2007; Pai, 2006), innovation (Hsieh et al., 2011), personality (Matzler et al., 2011; Matzler et al., 2008; Wu & Yeh, 2007) etc., and literature has witnessed

many benefits of knowledge sharing as increased efficiency, decreased costs, reduced risks, problem solving, innovation, competitive advantage (for example, Suppiah & Sandhu, 2011; Ogunseye et al., 2011; Matzler et al., 2011; Amayah, 2011; Quintane, Casselman, Reiche & Nylund, 2011; Mishra & Bhaskar, 2011; Wang et al., 2011; Lai & Lee, 2007; Patrick & Dotsika, 2007; Lee, Cheung, Lim & Sia, 2006; Braun & Hollick, 2006; Inkpen & Tsang, 2005; Liao et al., 2004; etc.). Lauring and Selmer (2012 & 2011) found that if the cognitive resources are not shared, they remain under-utilized. Consequently, no matter who knows what, this is the social interaction of the individuals that makes visible the knowledge owned by others. Besides, Chatzoglou and Vraimaki (2009) found that the social networking and cultural diversity also influence knowledge sharing behaviors. Rabbiosi and Makela (2009) found that the opportunities for socializing with each other are necessary to discover the potential knowledge (Lauring & Selmer, 2012; Ogunseye et al., 2011; Kostakos & Kostakos, 2010; Cyr & Choo, 2010; Chen et al., 2010). The factors that affect the knowledge sharing among individuals are many. For instance, these can be internal factors like personality traits however; the external factors like demographic diversity and online social orientation also seem to have an influence on knowledge sharing.

2.4Online Knowledge Sharing

The interaction of the individuals though individually or in groups, plays an important role in networking and knowledge sharing (Kinnie & Swart, 2012; Xue et al., 2011; Corso et al., 2009; Chiu et al., 2006). Literature has highlighted the importance of online social networking. Nonetheless, this study groups the benefits of online social networking into following two categories i.e., (i) online social networking as a source of networking; and, (ii) online social networking as a source of opportunity to share knowledge.

2.4.1Source of Networking

It has been argued by many researchers that the interactive relationships provide the opportunities for learning, sharing expertise and cooperation among the members that foster the flow of new ideas and experiences among the communities (Kinnie & Swart, 2012; Donate & Guadamillas, 2011; Gertner, Roberts & Charles, 2011; Iaquinto, Ison & Faggian, 2011; Burke, 2011; Rai, 2011; Chen et al., 2010; Vazquez et al., 2009; Huang & Li, 2009; Cabrera et al., 2006; Smith, 2003). It is found as well that social orientation is important for individuals and the networking is a natural process that occurs at workplace and community (for example, Kinnie & Swart, 2012; Suppiah & Sandhu, 2011; Burke, 2011; Koch, 2011; Kijl, 2010; Cyr & Choo, 2010; Sugarman, 2010; Li & Luo, 2010; Zboralski, 2009; Lauring, 2009; Pablos, 2005). In addition, when the individual interact and socialize with each other, they come to know about the different experiences of the other members. This also encourages the sharing of knowledge among the members. Therefore, social orientation has a very vital role to play in knowledge sharing among individuals since social networks exist in every kind of organization. As a result, either individuals socialize intentionally or not they automatically form a unit of a network or community either physical or online based upon their mutual interests and profession.

2.4.2Opportunity to Share Knowledge

Hall (2006) also claimed that the process of knowing happens in social networking. Sustained and vibrant environment gives individuals opportunity to meet and interact with new people and share knowledge (Lee, Kim & Kim, 2012; Lauring & Selmer, 2011;

Xue et al., 2011; Kostakos & Kostakos, 2010; Chen et al., 2010; Sondergaard et al., 2007; Hustad, 2007; Chiu et al., 2006; Earl, 2001). Different researchers claimed that the social interaction among the individuals can be electronically or face to face (Rai, 2011; Marouf, 2007; Hustad, 2007; Baalen et al., 2005). Thus, information of any such physical or online community enhances the chances of mutual interaction and so the sharing of knowledge among the affiliates of a group. On the other hand, Chiu et al. (2006) found that the knowledge resources also help in sustaining the networks and communities. Every individual member of a social network is a potential source of knowledge (Ogunseye et al., 2011; Lauring & Selmer, 2011; Kijl, 2010; Corso et al., 2009). Thus, once the individuals become the part of a network they automatically share knowledge either the member intends to share knowledge or not. Such social interaction and networking, according to Mariotti (2011), acts as the pipelines for the flow of new information and knowledge among the actors (individuals and firms). Therefore, once the individuals come in contact with the other members associated with online social orientation, they interact and socialize with each other they form a network. The members of such network contribute towards sharing knowledge among themselves either intentionally or unintentionally.

Many researchers stated that in today's era of information technology, human social interaction has become much dependent on online social networking sites are a major source of knowledge sharing (Wolf, Spath & Haefliger, 2011; Gertner et al., 2011; Chen et al., 2010; Fernandez & Gardey, 2010; Watanabe, Yoshida & Watanbe, 2010; Tohidinia & Mosakhani, 2010; Kamasak & Bulutlar, 2010; Henneberg et al., 2009; Lauring, 2009; Zboralski, 2009; Corso et al., 2009; Rolland & Labbe, 2008; Sondergaard et al., 2007; Patrick & Dotsika, 2007; Lai & Lee, 2007; Braun & Hollick, 2006; Bonifacio & Molani, 2003). Such emerging networks are more informal in nature, follow a flexible pattern of interaction and the connections are professional or social or both (Iaquinto et al., 2011; Corso et al., 2009; Borzillo, 2009; Marouf. 2007; Hustad, 2007; Hara & Hew, 2007; Braun & Hollick, 2006; Baalen et al., 2005). Online social orientation has been studied under the influence of social networking sites from the teenage perspective (Teh et al., 2011; Bennett, Owers, Pitt & Tucker, 2010; Hara & Hew, 2007; Chiu et al., 2006) has not been given an attention from demographic diversity perspective.

2.5Demographic Diversity and Knowledge Sharing

Globalization is also the result of interaction of diverse groups, that has now become the need of the hour (Cundiff et al., 2009). Many researchers (Lauring & Selmer, 2012; Wang et al., 2011; Verde et al., 2011; Makela, Andersson & Seppala, 2012; Lauring, 2009; Velden, 2004; Bonifacio & Molani, 2003) argued that this is the virtue of online networking that has brought heterogeneous groups closer thus highlighting diversity; and the fact that heterogeneous groups are more productive than the homogeneous groups, cannot be denied because they come across that unique piece of knowledge that might not have been shared before. Literature divided this heterogeneity into two types; demographic diversity i.e. age, gender, nationality, ethnicity, etc. and human capital diversity i.e. experience, values, knowledge skills, educational background etc. (Lauring & Selmer, 2012; Jonsen, Maznevski & Schneider, 2011; Fernandez & Gardey, 2010). Therefore, diversity cannot be limited to the apparent factors like age, gender but it lies in the ideas, skills, expertise, education gained as well along with the atmosphere in which one socializes. Fernandez and Gardey (2010) also argued that demographic diversity

easily determines the human capital diversity. Since the differences and deviation of the demographical factors of the individuals indicate the skills and expertise that might be possessed by the individual. Therefore, the literature mentions one of the important advantages of diversity as the source of learning. Following is the explanation of how the diversity plays a role in enhancing the learning of individuals forming a group from different backgrounds.

2.5.1Diversity and Learning

Organizations usually are composed of individuals with diverse nationality, linguistics, social and cultural backgrounds. Social structures like history, culture, language, geographic locations and the educational background contribute towards knowledge (Lauring & Selmer, 2012 & 2011; Valle, Valncia, Jimenez & Caballero, 2011; Amayah, 2011; Lauring, 2009; Vazquez et al., 2009; Hustad, 2007; Velden, 2004) therefore diversity as well seems to influence the knowledge sharing. However, the role of demographic diversity has not been studied in the knowledge sharing perspective. Certain propositions have been given about knowledge sharing and diversity, nonetheless, the influence of demographic diversity has not been studied. The interaction of variety of mindsets unveils the different perspectives developed according to the differences in knowledge background, morals, beliefs, customs, communications, habits etc., (Lauring & Selmer, 2012; Jonsen et al., 2011; Pitts & Wise, 2010; Chen et al., 2010; Lauring, 2009; Hustad, 2007; Watad & Alvarez, 2007; Harris, 2004; Bonifacio & Molani 2003). Interaction among the diverse backgrounds may lead to the exposure of new practices, ideologies, beliefs, myths, languages & creativity etc. (Matzler et al., 2008; Hustad, 2007; Herring, 2007; Alavi et al., 2006). Above all, diversity ties the communities together and these diverse communities are a source of innovation (Gururajan & Fink, 2010; Zhang & Watts, 2008; Marouf, 2007). Different individuals from different social and cultural backgrounds, with different beliefs and skills when interact with each other; they share different ideas based on their experiences and backgrounds. When such varieties of ideas are shared with others they tend to be the source of new knowledge for other individuals.

Diversity has been defined differently in literature. Jonsen et al. (2011) defined diversity as the difference in the members of a group with respect to common standard. Furthermore, Hite and McDonald (2010) identified diversity as the difference and similarities in a group of individuals. Herring (2010) declared diversity as the policies that include people who differ from others in traditional way. Lauring and Selmer (2012) described diversity as the variation in the apparent demographic variables (skills, values, age, gender, race etc.). Demographic diversity, however, can be defined for this study as the easily distinguishable characteristics or attributes as age, gender and educational background. Diversity, therefore, provides firm basis as to what extent can it contributes to the sharing of knowledge irrespective to what band of age, gender, and education they belong.

Diversity has already been studied for many dimensions as age, gender, religion, race, ethnicity, language, educational qualification, personality types, geographic location (Jonsen et al., 2011; Gellner, Schneider & Veen, 2011; Matzler, 2011; Fernandez & Gardey, 2010; Mkono, 2010; Bierema, 2010; Herring, 2009). This study, however, limits the dimensions of demographic diversity to age, gender and educational background because these have been studied with social capital and they are related to the research question. However, religion is not included because the study will be conducted in a

Muslim country Pakistan and the other religions are in minority. Gender diversity is normally defined as the apparent group heterogeneity, taken as the strong biological traits that are easily observable and age diversity is normally defined as the visible group differences, taken as strong biological trait (Lauring & Selmer, 2012). Educational background explains the diversity in the learning and opinions developed over time. Language is not a consideration because Urdu as a national language and English as the medium of study wipe all the concerns about it as a barrier to knowledge sharing. Now a day, academics play an important role in shaping the knowledge sharing culture and affects its appearance through the attitudes displayed (Gururajan & Fink, 2010). They focus on distributing the knowledge equally among all the members rather keeping it limited to few groups of experts (Gururajan & Fink, 2010). Since, Ford and Staples (2010) described that knowledge sharing can be attributed to both the individual internal factors and the external factors.

Demographic diversity has been studied widely in the past with its effect on employees and organizational performance and their contribution towards knowledge (Lauring & Selmer, 2012; Jonsen et al., 2011; Abili, Thani, Mokhtarian & Rashid, 2011; Pitts & Wise, 2010; Chen et al., 2010; Lauring, 2009; Hustad, 2007; Watad & Alvarez, 2007; Harris, 2004; Bonifacio & Molani 2003). However, the particular role that the demographic diversity can play in online knowledge sharing behavior has not been studied before. For that reason, this study tends to measure the effect of demographic diversity on online knowledge sharing behavior.

In a nut shell, apart from the extensive study in literature it is found that the demographic factors have not been studied with knowledge sharing particularly from the dimension that this study is considering. Therefore, on the basis of the gaps determined by the literature reviewed above; this study attempts to formulate model (see following figure) for online knowledge sharing behavior that consolidates all these demographic variables into one comprehensive model to measure their effect on online knowledge sharing behavior.

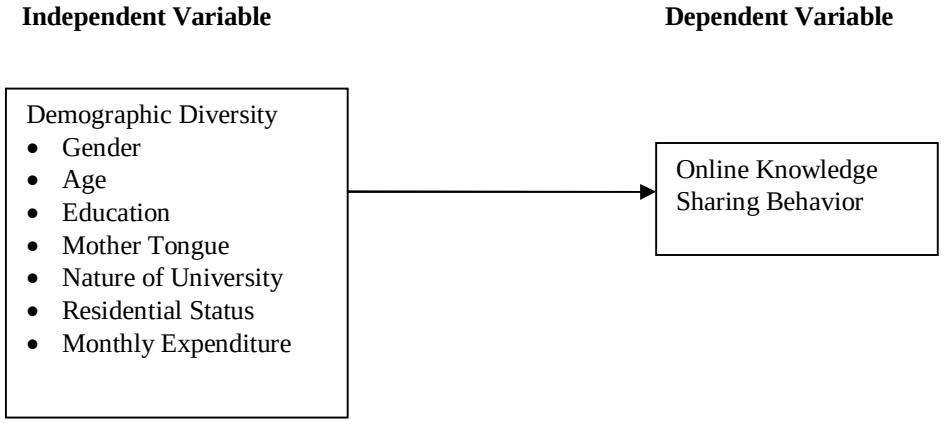

Figure 1: Conceptual Framework

Based on the above literature discussed and the conceptual framework designed in the study, following hypotheses were developed:

H_1	Gender mean is statistically different from the mean of online knowledge sharing
H_2	Mean age is statistically different from the mean of online knowledge sharing
H_3	Mean education is statistically different from the mean of online knowledge sharing
H_4	Mother tongue mean is statistically different from the mean of online knowledge sharing
H_5	Mean of nature of university is statistically different from the mean of online knowledge sharing
H_6	Mean of residential status is statistically different from the mean of online knowledge sharing
H_7	Mean of monthly expenditure is statistically different from the mean of online knowledge sharing

3. Methodology and Findings

The sample undertaken by this research is the currently enrolled students in management sciences departments of federally chartered universities, both public and private sector. Since all the federally chartered universities are situated in Islamabad, therefore, this study covers the federally chartered universities in Islamabad; because the students focus more on the self-development and the knowledge sharing is voluntary among them. The concept of knowledge sharing evolved in the last decade and has been researched from different perspectives (Matzler et al., 2011; Burke, 2011; Ogunseye et al., 2011; Koch, 2011; Chen, Huang & Hsiao, 2010; Ford & Staples, 2010; Sugarman, 2010). However, little attention has been given to knowledge sharing from the perspective of demographic diversity (Wang & Noe, 2010). No matter what is the motivation of knowledge sharing but the personality traits, online social orientation and the demographic diversity cannot be ignored while studying knowledge sharing among the students. This study, therefore, aims at identifying role of social orientation, demographic diversity and personality in online sharing knowledge.

3.1Methodology and Results

The purpose of conducting this study was to measure the effect of demographic diversity, on the behavior of online knowledge sharing. For this purpose, the data was collected from the students enrolled in the federally chartered universities, both public and private sector, of Pakistan. Since all the federally chartered universities were situated in Islamabad and Rawalpindi, therefore, all the universities were approached.

The demographics of the respondents was observed from following different perspectives i.e. gender, age, degree in progress, mother tongue, nature of university, residential status and the monthly expenditure. Percentages and the frequencies of each demographic factor are given in the table 1. It shows that the female (58.3%) participation in research is more

than the male (41.7%) participation that is because females meet the criteria of universities for admission more as compared to the males. Based upon the questionnaires that were filled from the classes showed over half of the population of the universities consists of females (186 out of 319). On the other hand, the age bracket of 17-22 years (59.6%) was observed more than any other age bracket because it constitutes most of the bachelors and masters and even the students enrolled in the MS/M.Phil degrees. As far as degree in progress is concerned, most of the respondents belonged to the bachelors and the master degree earners since MS/M.Phil and Ph.D. candidates were not physically present due to their more dedicated involvement in the research they were conducting and also one of the reason was they pursue their careers along their degree completion.

Table 1: Demographic Profile of the Respondents

Demographic Factor	**Frequency**	**Percentage**
Gender		
Male	133	41.7
Female	186	58.3
Total	319	100
Age (years)		
17-22	190	59.6
23-28	121	37.9
29-Above	8	2.5
Total	319	100
Education (Degree in Progress)		
Bachelors	123	38.6
Masters	168	52.7
MS/M.Phil	24	7.5
Ph.D.	04	1.3
Total	319	100
Mother Tongue		
Urdu	110	34.5
Punjabi	112	35.1
Sindhi	19	6
Baloch	1	0.3
Pashto	42	13.2
Others	35	11
Total	319	100
Nature of University		

Public Sector	225	70.5
Private Sector	57	17.9
Others	37	11.6
Total	319	100
Residential Status		
Hostel residents	132	41.3
Non-Hostel residents	169	52.8
Others	18	5.6
Total	319	100
Monthly Expenditure (PKR)		
Less than 3,000	64	20.1
3,100-7,000	115	36.1
7,100-10,000	49	15.4
10,100-13,000	33	10.3
More than 13,000	58	18.2
Total	319	100

The above table shows that the federally chartered universities give a meritorious chance to the eligible students from all the ethnic diversities of Pakistan that, in turn, enhances the interaction of people from different ethnic backgrounds and provides the chances of learning from each other. It further elaborates the nature of the university demographic factor showing 70.5% of the respondents belonging to the public sector owing to the reason that most of the federally chartered universities are owned by the government or the following government institutions as armed forces. Out of total, 57 respondents belonged to the private sector and 37 to the 'others' category because these area the joint venture of public and private sector also considered as semi-government universities. Considering the residential status of the respondents, more than half (52.8%) of the respondents were the native residents of the host cities however 187 (hostel residents and others) were highlighting the fact that they belonged to the different cities of Pakistan and were either staying in the hostels or with their relatives because of their studies and did not belong to the cities of Rawalpindi and Islamabad. Major segment of the respondents enrolled in the federally chartered universities belonged to the mediocre families as 36.1% of the respondents had monthly expenditure between 3,000 and 7,000 rupees.

The demographic factors were tested with t-test, one way analysis of variance (ANOVA) and the Welch test for their effect on knowledge sharing. An independent t-test was used for the demographic factor of gender as it contains only two independent groups of males and females. Moreover, where the conditions exceeded more than two, a one way ANOVA was used as long as the assumption of homoscekesdicity was met. The demographic factors of age, mother tongue, nature of university, residential status and the monthly expenditure used one way ANOVA as these factors fulfilled the assumption of homogeneity of variances. However, the demographic factor of degree in progress did not

meet one of the assumptions for ANOVA test, Welch test was used to adjust the F-statistic because it was more powerful and conservative as compared to other competitor tests (Tomarken & Serlin, 1986).

The demographic factor of gender was t-tested for its effect on the knowledge sharing and following table was tabulated by SPSS (see table 2). The p-value for the t-test conducted is greater than the 0.05 that shows that there is not a significant variability in the means of the two categories of gender.

Table 2: Comparison of the Males and Females on Knowledge Sharing

Variable	Gender	N	Mean	t	P significance (2-tailed)
Knowledge Sharing	Male	133	3.56	1.137	0.257
	Female	185	3.46		
	Female	185	3.68		

Nonetheless, for the dependent variable of the study; knowledge sharing, the t-statistic obtained from the SPSS output (see Table 2), t (318) = 1.137, $p > 0.05$ shows that the difference in the means of the male and female categories is not substantial, therefore it can be concluded that the propensity to share knowledge between both the categories of gender is approximately same. On the basis of the above statistics, the hypothesis 'H_1: Gender mean is statistically different from the mean of online knowledge sharing' has been rejected.

To check the effect of rest of the demographic factors (age, degree in progress, mother tongue, nature of university, residential status and money expenditure) were checked for their homogeneity of variances using Levene test as shown in table 3. All the demographic factors, except degree in progress, showed that their variances were homogeneous therefore; they all were analyzed with one way analysis of variance test and degree in progress with Welch test.

Table 3: Levene Test of Homogeneity of Variances for Knowledge Sharing

Demographic Factor	Levene Statistic	df1	df2	Significance
Age	0.680	2	315	0.507
Education (Degree in Progress)	3.955	3	314	0.009
Mother Tongue	1.278	4	312	0.278
Nature of University	1.631	2	315	0.197
Residential Status	0.146	2	315	0.864
Money Expenditure	0.728	4	313	0.573

The demographic factors with significant values for Levene test for homogeneity of variances were tested with one way ANOVA to understand their effects on the dependent variable i.e. knowledge sharing as shown in table 4.

Table 4: One Way Analysis of Variance of the Demographic Factors

Demographic Factors	Level	DF	SS	MS	F	P-Significance (2-tailed)
Age						
	Between Groups	2	3.169	1.584	2.380	0.094
	Within Groups	315	209.667	0.666		
	Total	317	212.836			
Mother Tongue						
	Between Groups	5	5.281	1.056	1.588	0.163
	Within Groups	312	207.555	0.665		
	Total	317	212.836			
Nature of University						
	Between Groups	2	6.992	3.496	5.350	0.005**
	Within Groups	315	205.844	0.653		
	Total	317	212.836			
Residential Status						
	Between Groups	2	0.633	0.316	0.470	0.626
	Within Groups	315	212.203	0.674		
	Total	317	212.836			
Money Expenditure						
	Between Groups	4	1.766	0.441	0.655	0.624
	Within Groups	313	211.070	00.674		
	Total	317	212.836			

**p<0.01, SS=Sum of mean squares, MS=Mean squares

Since the demographic factor of age met the assumption of homoscedasticity with significantly at 95% confidence interval of mean (p=0.507), therefore, one way ANOVA

test was conducted to know if there existed any difference in the means of the age groups defined for this study (i.e. 17-22 years, 23-28 years and 29-Above) regarding knowledge sharing. The results shown in table 4 explain the fact that the age factor did not show any significant effect on knowledge sharing at $p<0.05$ level for the said three categories [$F(2,315) = 2.38$, $p = 0.094$], thus rejecting the 'H_2: Mean age is statistically different from the mean of online knowledge sharing'.

The mother tongue variable was also checked for their effect on knowledge sharing. The test the assumption of homogeneity of variables was also run and it showed a significant value ($p=0.278$) as shown in table 3. Thus, one way ANOVA was conducted for measuring the effect of mother tongue on knowledge sharing in the conditions of Urdu, Punjabi, Sindhi, Balochi, Pashto and others (see Table 4). However, there was not found a significant effect of the independent factor mother tongue on knowledge sharing at the significant level of $p<0.05$ for the said six conditions [$F(5,312) = 1.58$, $p=0.163$) that rejects 'H_4: Mother tongue mean is statistically different from the mean of online knowledge sharing'.

When the test of homogeneity of variances was run on the variable of nature of university it showed significance ($p=0.197$) to proceed further with one way analysis of variance (table 3). Therefore, knowledge sharing was checked if it is affected by the nature of university in conditions of public sector, private sector or others. Table 4 reveals the results very obviously that the nature of university did find a significant effect on the dependent variable of knowledge sharing at $p<0.05$ significant level [$F(2,315) = 5.25$, $p=0.005$]; accepting 'H_5: Mean of nature of university is statistically different from the mean of online knowledge sharing'.

Since, the one way analysis of variance table shows a significant effect of nature of university on knowledge sharing, a Tukey (HSD) test was followed by the one way ANOVA test to find which group caused a deviation from the means of other groups as shown in table 5. The Tukey (HSD) Post Hoc test was run for comparison for the means of nature of universities. As table 5 indicates that the mean of the public sector universities ($M=3.60$, $SD=0.76$) differs from the private sector universities ($M=3.25$, $SD=0.89$), $F(2,315) =5.35$, $p=0.005$, nonetheless, the others category did not show significant difference to these two categories.

Table 5: Tukey (HSD) Post Hoc Comparison of Means Test

(I) d5	(J) d5	Mean Difference (I-J)	Std. Error	Sig.	Mean (M)	Standard Deviation (SD)
Public	Private	.34775*	.12072	.012	3.60	0.76
	Others	.28839	.14341	.111		
Private	Public	-.34775*	.12072	.012	3.25	0.89
	Others	-.05936	.17126	.936		
Others	Public	-.28839	.14341	.111	3.31	0.91
	Private	.05936	.17126	.936		

The factor of residential status was first checked for the homoscedasticity and it showed a significant result at $p<0.05$ ($p=0.864$) as shown in table 3 therefore, one way ANOVA was run on this demographic factor to check the effect of residential status on knowledge sharing in the conditions of hostel residents, non-hostel residents and others. The results showed that there does not exist any significant defect of residential status of being hostel residents or non hostel residents on knowledge sharing $F(2,315)=0.47$, $p=0.626$ as shown in table 2 therefore rejecting 'H_6: Mean of residential status is statistically different from the mean of online knowledge sharing'.

The degree in progress factor of demographics did not meet one of the three assumptions of one way ANOVA test i.e. homoscedasticity since the p-value did not show significant values ($p=0.009$). Therefore, the Welch test was used to cope with the robustness of the variance. Welch test is preferred on Brown-Forsythe test since the Welch test has been found to be more conservative and powerful as compared to Brown-Forsythe test (Tomarken & Serlin, 1986). Therefore, Welch test was run to know the differences in the means of the conditions of the degree in progress. However, it did not indicate a significant result at $p<0.05$ significance level [$F(3,13.4)=2.62$, $p=0.093$. Therefore, the degree in progress factor did not show an effect on knowledge sharing in the conditions of bachelors, masters, MS/M.Phil and Ph.D. (see Table 6) hence rejecting 'H_3: Mean education is statistically different from the mean of online knowledge sharing.

Table 6: Welch Test for the Equality of Means for Education (degree in Progress)

	Welch Statistic	DF1	DF2	Sig.
Degree in Progress	2.626	3	13.397	.093

First, the test of homogeneity of variances was run on the money expenditure factor indicating the socio-economic factor of demographics, the test showed a significant result with a p-value of 0.573 (see table 3). Therefore, one way analysis of variance was conducted on the money expenditure factor to reveal its significance. The results shown in table 26 did not support the hypothesis 'H_7: Mean of monthly expenditure is statistically different from the mean of online knowledge sharing' [$F(4,313)=0.65$, $p=0.624$]

Following table 7 shows the summary of the results obtained by the hypotheses testing for the study.

Table 7: Summary of the Hypotheses Tests

	Hypotheses	Results
H_1	Gender mean is statistically different from the mean of online knowledge sharing	Not Accepted
H_2	Mean age is statistically different from the mean of online knowledge sharing	Not Accepted
H_3	Mean education is statistically different from the mean of online knowledge sharing	Not Accepted
H_4	Mother tongue mean is statistically different from the mean of online knowledge sharing	Not Accepted
H_5	Mean of nature of university is statistically different from the mean of online knowledge sharing	**Accepted**
H_6	Mean of residential status is statistically different from the mean of online knowledge sharing	Not Accepted
H_7	Mean of monthly expenditure is statistically different from the mean of online knowledge sharing	Not Accepted

4. Discussion and Conclusion

4.1Discussion

This study basically aimed at checking the demographic predictors of the online knowledge sharing behaviors. The predictor variables of this study (age, gender, educational background, mother tongue, nature of university, residential status) were checked for their effects on the online knowledge sharing behavior. The results of this study signify that one of the demographic factors, namely nature of university has proved an effect on the online knowledge sharing behavior. The other demographic factors could not find an effect in predicting the online knowledge sharing behavior. Few of the demographic diversity factors like age, gender, degree in progress, mother tongue, nature of university, residential status and monthly expenditure have been checked as well. Although few researchers also showed a concern that these demographic factors may also cause an effect on the knowledge sharing (Aslani et al., 2012; Tohidinia & Mosakhani, 2010). This study considered all aforementioned demographic factors and did not find an effect of these demographic factors on the online knowledge sharing behavior of the individuals; except for the nature of university. The results of this study indicate that there is no effect of gender on online knowledge sharing behavior, which aligns with the findings of Lauring and Selmer (2012), Makela et al. (2012) and Abili et al., 2011. However, these findings contradict with the results of Amayah (2011) where females were found more inclined towards sharing knowledge than men. Results regarding the demographic factor of mother tongue, contradict with the findings of Lauring and Selmer (2011), Sackman and Friesl (2007) and Ogbonna and Harris (2006) who found that the communication and the knowledge sharing of the individuals is more confined to the ethnic groups they belong to. However, this study did not find any effect of affiliation with mother tongue on the online knowledge sharing behavior. This is possibly due to the fact that online knowledge sharing is significantly different from face to face knowledge

sharing. In this study, the demographic factor of age could not find a relationship with the online knowledge sharing behavior that emphasizes the results of Lauring and Selmer (2012). As far as other three demographic factors are concerned i.e., (i) education (degree in progress); (ii) nature of university; and, (iii) residential status; these were proposed to be checked (Aslani et al., 2012; Tohidinia & Mosakhani, 2010) in future if they have an effect on knowledge sharing. Therefore, these were tested in this study and they did not find an effect on the online knowledge sharing behavior. Regarding degree in progress, it is mainly because all these degrees are offered in the universities and the environment is same for all the students enrolled in the university. In this study, so is the case with the residential status which did not find an effect on the online knowledge sharing behavior since the hostels are situated within the premises of the university where all the facilities are available. Nonetheless, the nature of the university i.e., public and private sector was found to have a significant difference in behavior regarding online knowledge sharing; that can possibly be due to the fact that private universities have more state of the art facilities as compared to the public sector universities.

4.2Managerial Implications of the Study

Demographic diversity factors of age, gender, education, mother tongue and residential status did not find an effect on the online knowledge sharing behavior; only one factor of nature of university found an effect on online knowledge sharing behavior. The first implication of the study is that in this era of technology and advancement the demographic factors do not play a vital role in the sharing of knowledge online. This can be attributed with the fact that this technological era has over shadowed the geographical boundaries and has turned the world into a global village where social interaction is not dependent on age, gender or any other demographic factor. It does not matter from which corner of the world an individual belongs, they can easily communicate their idea to rest of the world via online social networking. Hence, providing more opportunities to share their knowledge with others and seeking their experiences to get a new insight from them.

Findings of the study will help the Higher Education Commission of Pakistan in proposing and modifying the course contents and study policies. Additionally, the organizations by knowing the effect of demographic factors and social orientation on the knowledge sharing will help the Human Resource managers in evaluating the individual propensity towards online knowledge sharing. Moreover, an added advantage of this study, in a developing country like Pakistan that is currently struggling for the spread of education, will be for the distant learning education system. Since thousands of candidates are enrolled in the distant learning educational programs every year and they are provided with books having no direct interaction with the professors of their fields. However, not every Pakistani has an access to internet but those who have this can be useful in attending online seminars and conferences of the students regarding their field of study with their professors for better understanding of their subjects. Therefore, it can improve the results and understanding of at least a small proportion, if not all, of the distant learners. The option of attending online seminars and discussions, either professional or interest related, will help the students in learning new things and broadening their vision. This study entails few limitations; therefore, the findings should be interpreted accordingly. Firstly, though the findings are consistent with the theoretic reasons provided by the previous researchers only when the data was cross sectional.

Secondly, since the data was cross sectional therefore, this study could not manage collecting data form a larger sample. This study should also be considered with the fact that its respondents are only the students of management sciences department of federally chartered universities; when all the federally chartered universities are found in Islamabad and Rawalpindi cities of Pakistan. Lastly, this study is limited to the Pakistani culture therefore the results cannot be generalized globally

4.3Limitations of the Study and Future Recommendations

Despite few limitations of this study, it proposes more ideas for the future researches in the field of both management and psychology. Since this study considers only the difference of means of the variables however, the effect of other factors can also be checked and may be included in the study that have not been included in the research model that can mediate or/and moderate variables like trust, ethics etc.; thus, proposing a more comprehensive model addressing the online knowledge sharing attitudes and behaviors in coming years. Moreover, this study can also be conducted on the management personnel and other industries so the findings can be verified. In this regard, apart from the educational institutes it can be conducted in the organizations as well for knowing the current online knowledge sharing behavior of the management and future trends of organizations about the this online knowledge sharing. Apart from that, more generalized results can be obtained by conducting for the causal relationships with the longitudinal research design. In addition, this study also recommends that if the mixed methods are used for the data collection and data analysis, the findings will be more generalized and rigorous as this study has used only the quantitative methods of research.

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