Understanding the Factors that affect Motivation of Local Students to
Interact with International Students in Online Social Communities

by

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Abstract

International students face social and educational challenges in host countries. Local students' interaction with international students can help overcome those challenges. However, existing research finds that this level of interaction is generally low. While factors affecting motivation to participate in online communities has been heavily studied, understanding the factors that motivate local students to interact with international students in online communities remain a gap in the literature. This thesis investigates such factors. Understanding those factors can enable the design of human computer interaction artifacts that enhance their interaction. This thesis is an exploratory study that develops a survey instrument and evaluates its quality. The data attests to the high quality of the survey questionnaire; shows that local students have low levels of interaction with international students in online communities; and shows that seven motivation factors can motivate local students to different degrees to interact with international students in online communities.

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Chapter 1. Introduction

International students face several challenges upon arrival to destination countries. According to Trice (2003), the most commonly observed challenges that international students face include achieving unique academic goals, adjusting culturally, and integrating with their peers. These challenges negatively affect the social capital and learning process of international students (Trice, 2003), which can lead to poor university performance and increased drop-out rates (Carleton University Vice president Office, 2010). Such can be a great loss due to the value that international students could bring to their peers, classroom, and the community at the levels of the university, city, province, and the country (Ward, 2001).

Several studies have emerged in attempt to address these challenges. One prominent stream of research advocates the use of social networks to advance the internationalisation of learning and teaching (Hénard, Diamond, & Roseveare, 2012; Wang & Tearle, 2005). The underlying argument of this research is that social networks could bring international students and local students in one shared context where their interaction can lead to gains in international students' social adjustment and learning performance (Trice, 2004). International students' interaction with their domestic peers is generally associated with psychological, social and academic benefits for international students (Wehrly, 1986; Abe, Talbot, & Geelhoed, 1998). These benefits also extend to the university since there exists a positive relationship between international students' engagement in social interactions and achievement of their academic goals on one hand and their level of satisfaction with the university on the other (Zhao, Kuh, & Carini, 2005).

Despite these benefits to international students and by extension to the university, the literature finds that the interaction between international students and local students is generally

low (Ward, 2001). This can be surprising given how seamlessly embedded social networks, such as Facebook and Twitter, have become in students' lives to the point where such social networks have become invisible as 'technology' (Franssen, 2000). Social networks provide the infrastructure necessary for users to expand their social reach and interaction (Ellison, Steinfield, & Lampe, 2007; Quan-Haase & Wellman, 2004; Steinfield, Ellison, & Lampe, 2008; Wellman, Quan-Haase, Witte, & Hampton, 2001). However, social networks are not by themselves sufficient to bridge and bond two (or more) communities that are traditionally socially distant (Norris, 2004), which is arguably the case for international students and local students' populations. It is also necessary to understand the factors, which are potentially social in nature, that could possibly unlock the bridging and bonding of socially distant communities such as the international and local student populations.

Understanding these social factors is an important first step to understand the design principles and business models that are appropriate for building a human computer interaction artifact that can effectively join the international and local student populations in engaging and interacting experiences. The existing literature (Kieinginna & Kleinginna, 1981 ; Zhang, 2008) extensively study the factors that motivate a general population to participate in online communities. Online communities are defined as technology-mediated virtual spaces supporting ongoing social interaction among people who share an interest in a certain subject or practice (Kosonen, 2008). Example online communities include Facebook, Twitter, and YouTube (Preece & Shneiderman, 2009). However, whether these motivation factors can explain the participation of local students in international student's online communities is not clear and has not been studied. Therefore, this is a current gap in the literature that this thesis aims to fill.

1.1 Research Question

Accordingly, this thesis addresses this gap by asking this question: what motivates local students to interact with international students in online communities? To elaborate, this thesis aims to understand the different motivation factors that would drive local students' interaction with international students in online social communities to higher levels. This contributes to the literature, which largely and extensively focuses on studying factors related to international students to understand interactions with local students. So while this thesis recognizes the importance of international students-related factors for interaction with local students (this is heavily studied in the literature), it is mainly interested in understanding local students-related factors for interaction with international students, an approach which has received little attention in the literature so far.

1.2 Factors that Motivate Participation

If we understand what motivates local students to interact with international students, then we could design human computer interaction artifacts that could capitalize on those motivation factors. This could effectively increase social interaction between local and international students, which would enhance international students' social capital and learning process (Ramsay, Barker, & Jones, 1999). For example, if we know that local students are mainly motivated by fun experiences when participating with international students, then designing an online community that shows off international students' exotic experiences and places they come from would likely motivate local students' participation. However, the design objectives can differ if the factors that motivate local students' participation were different. For example, if local students' interaction with international students was mainly motivated by reward, then designing an online community

that offers opportunities for local students to earn money or another reward for their interaction would likely attract local students to interact.

Several research studies have sought this path to understand user behavior in the design of human computer interaction systems. For example, Ames & Mor (2007) and Nov & Ye (2008) identify design features that promote contributions to online social communities. Because contributors to online communities are partly motivated by recognition, tagging and commenting, which enhance contributors' reputation (Farzan et al., 2008), have been increasingly used in online social communities (Nov, 2007). This is reinforced by Zhang's (2008) design principle that information and communication technology (ICT) should support people's motivational needs. Additionally, Wu (2009) develops a model of motivation factors to explain students' adoption of a university emergency response system.

Individuals' needs, characteristics, and social requirements shape the interface design of technology. These considerations are important in the design of successful human computer interaction artifacts because they facilitate later adoption and delivery of intended outcomes. This is in line with the assertions that innovation is more likely to be accepted if the value of the material is clear to potential users (Preece & Shneiderman, 2009). Good user interface design produces accessible and universally usable applications that enable solitary reading or social interactions that meet the needs of diverse user populations.

1.3 Importance

The results of this investigation would be important because they can help uncover the role that the international students and the university could play as main stakeholders of this process to create incentives that motivate local students to engage and interact with international students.

Furthermore, the results of this investigation could inform the design principles of human computer interaction artifacts that provide the social infrastructure necessary for effective interaction between the two populations; local and international students.

1.4 Contributions

This thesis surveys the literature to develop a research model that aims at answering the research question under study. The thesis also develops a survey instrument to collect data on the constructs included in this research model. There are two objectives for collecting data. The first objective is to evaluate the quality of the survey instrument in terms of the clarity, comprehensiveness, and acceptability of the questionnaire. The second objective is to explore the constructs and assess the variables' measurement suitability for future data analysis. It is important to note that testing the research model that this thesis develops is outside the scope of this thesis. So, in summary, the contributions this thesis makes include a) developing a research model that attempts to answer the research question under study, b) developing a survey instrument and using it to collect data on this model, and c) exploring the variable measures' characteristics given the data collected.

1.5 Study Findings

This thesis has the following findings. The data collected from the study sample suggests that the survey instrument developed in this thesis is of high quality, which makes it useful in using it in large-scale data collection. Exploring the data, local students show low levels of interaction with international students in online communities. At the same time, the data shows that the seven motivation factors under consideration can motivate local students to different degrees to interact with international students in online communities.

1.6 Thesis Organization

The rest of this thesis is organized in five chapters. Chapter 2 presents an in-depth analysis of the existing literature with relation to the research question of interest. Chapter 3 explains a synthesis of the theoretical frameworks of motivation factors that explain participation in online social communities, which is the framework used to guide this research. Then, Chapter 4 provides the details of the research design to investigate the research question. Chapter 5 presents the evaluation of the survey instrument designed to investigate the research question and also the results on the individual variables in the research model under study. Finally, Chapter 6 presents a discussion of the results and conclusions.

Chapter 2. Literature Review

This chapter starts by describing the importance of social interaction with local students for international students' social capital and learning process (section 2.1). Then section 2.2 presents an assessment of empirical research on the intensity of interaction between local and international students in online social communities, which motivates the research in this thesis. Section 2.3 emphasizes online social networks as a growing and important medium for international students' learning and interaction. Subsequently, section 2.4 reviews existing theories of motivation for participating in online social communities with the aim of formulating a theoretical framework to use in empirically investigating the research question in this thesis. Accordingly, section 2.5 explains the gap in the literature and how the research question in this thesis can help address it.

2.1 International Students' Social Interaction

According to Statistics Canada, international students include students in Canada on a visa or refugees, neither of which have a permanent residency status in Canada. This concept of "international students" differs from that of "foreign students" which includes permanent resident students. Social capital is defined as the potentially accumulated resources and benefits embedded in the relationships with other people (Coleman, 1988), such as emotional support, and a source of useful information. The importance of social capital for international students, especially with local students, motivates the research question in this thesis, which asks "what motivates local students to interact with international students in online communities?" Social capital, the result of social interactions with local students taking different forms such as friendship, social support, and inter-cultural interactions, leads to gains in the social and learning process of international

students (Trice, 2004).

According to Norris (2004), social interaction in online communities can help build social capital including its two types; 'bridging' and 'bonding'. Bridging in social capital consists of loose relationships which serve as bridges connecting a person to a different network, allowing the person access to new perspectives and diffuse information (Lin, 1999). On the other hand, bonding in social capital provides emotional support through strong relationships, such as family or close friends, which exert greater influence on people's interests and actions. Interactions on social networks, such as Facebook, enables international students to maintain previous connections and build new relationships during their transitions to their new environment (Ellison, Heino, & Gibbs, 2006; Stefanone, Lackaff, & Rosen, 2008). Usage of such social networks can contribute to international students' ability to participate socially and culturally in their new surroundings, and those students who interact with their friends on those social networks are better socially adjusted (Lin, Peng, Kim, Kim, & LaRose, 2011).

Social interaction can help enhance international students' learning process. Learning process is defined as the ways in which individuals acquire knowledge and skills, essentially enlarging their personal resources to cope and adjust with the academic context (Ramsay et al., 1999). Using qualitative interviews with a sample of international students, Rajapaksa & Dundes (2002) find that having difficulties in their learning process causes international students to have feelings of loneliness and homesickness despite having other international students as close friends sharing the same class. Social activities with local students are important since international students expect and desire greater contact, and that interaction with local peers is generally associated with psychological, social, and academic benefits (Ward, 2001). Saw, Abbott, Donaghey, & McDonald (2012) find that in addition to social activities, international students

connect to social media for a wide range of educational purposes including group work and sharing and gathering information. Furthermore, Kim, Yun, & Yoon (2009) find that those international students who use the internet during their study likely use it to build new relationships with students of the same ethnicity in their host country with the primary goal to meet their academic requirements.

A number of studies have considered how international students' interactions with local students affect their experience abroad. One experiment (Westwood & Barker, 1990) finds that pairing international students with local students in an eight-month peer-support program in Australia resulted in higher grades and higher retention rates of international students than those who were not involved in the program. Also, Perrucci & Hu (1995) finds a positive relationship between international students' contact with local students in the United States and satisfaction with their academic program and performance. Additionally, establishing relationships with local students is also positively associated with international students' overall satisfaction with their non-academic experiences abroad (Klineberg & Hull, 1979; Lulat & Altbach, 1985; Sewell & Davidsen, 1956). At the same time, limited social contact with host nationals is tied to feelings of loneliness, depression, stress, anxiety, and alienation (Chen, 1999; Hull, 1978; Mestenhauser, 1998; Schram & Lauver, 1988; Trice, 2004). It is also negatively related to students' perceptions of their cultural and academic adjustment and learning process (Heikinheimo & Shute, 1986; Zimmerman, 1995).

Finally, social interaction with local students can give international students access to resources and opportunities available within an institutional setting, especially when they are unequally distributed among (Stanton-Salazar, 1997). Access to those opportunities requires social capital resulting from relationships with individuals who are able and willing to provide or

negotiate the provision of institutional resources and opportunities. These relationships are quite valuable because they can provide valuable access to information about cultural norms, insight into how organizational units operate (e.g., chains of command, explicit and implicit rules), and knowledge of the labor market as well as valuable emotional and moral support. In a U.S. setting for example, members of the white middle-class typically have the social capital necessary to access these resources. As children, they acquired knowledge about functioning within the dominant culture, and it is members of this culture that typically control institutional resources and opportunities. Those from minority groups, on the other hand, often lack adequate social capital, and consequently lack the power to function well at a college or university.

2.2 Interaction between International and Local Students

Despite the significant value associated with international students' social interaction with local students (Ward, 2001), a review of the research literature indicates that the level of interactions between international and local students in the host country is generally low and the content of interaction is shallow and superficial. Many international students are actually isolated from host national peers (Mestenhauser, 1998). For example, Trice (2004) finds that 50 percent of the graduate international students at an American research university socialized with host nationals only once a month or less. These studies have considered the quality and quantity of the international student contact, friendship patterns, social support networks, and the practical roles of intercultural interactions.

Evidently, international students are interested in developing social relationships with local students (Ward, 2001). However, it appears that local students do not share the same level of interest. Spencer-Rodgers (2001) finds that stereotypical attributes such as maladjusted,

unsociable, and naive/confused are likely to be activated when an individual is categorized as a foreign student and these traits are likely to be used as a basis for judgments, attitudes, and behaviors toward members of that group. In this study, while culturally-shared beliefs and overall attitudes toward foreign students are found to be predominantly positive, the negative stereotypical views of international students as maladjusted, unsociable, and naive/confused may contribute to unfavorable intercultural contacts between international and local students. The association of foreign students with language and cultural barriers may also discourage host nationals from developing social relationships with international students. Even the positive perception of foreign students as a homogenous group of highly talented individuals may have adverse consequences for international students as unrealistic expectations about their academic performance may exacerbate feelings of stress and anxiety among individuals who have high need for achievement (Brislin, 1990).

Cross-cultural studies demonstrate that most international students have primary bonds with co-nationals. The most cited classic work in this field (Klineberg & Hull, 1979), which studies over 2500 international university students in 11 countries, finds that the dominant contacts of international students in Japan, France, and Canada are with co-nationals. The majority of international students in this study (57%) indicate that their best friend is either a co-national or another international student. The total number of real-time contacts with host nationals is found to be small. Though the students in this sample indicate that more contact with host nationals would have been more welcomed. More recent research reflects this finding as well. For example, Elliot (1993) estimates that Japanese students in the United States spend 88% of study time and 82% of social time with other Japanese students. Bochner, McLeod, & Lin (1977), an often cited work, also report similar results on the friendship patterns of international students at the

University of Hawaii. Thirty six students from Japan, Korea, Taiwan, Thailand, and the Philippines report a preference for same-culture friends: 43% of their friends are co-nationals, 29% host nationals and 27% members of other cultural groups. Seventeen percent of the sample have no local friends. In addition, students in this sample report they spend their most time with co-nationals: 46% of the time is spent interacting with co-nationals compared to 33% in contact with locals. Additionally, Sodowsky & Plake (1992) report that although 41% of the international students in an American university say that Americans treat them well, 15% indicate that the treatment they received is superficial, and another 17% describe the treatment as negative. At the same time, 41% of international students report that they treat local students in a friendly fashion, 10% are reserved and cautious, 9% describe the interactions as superficial, and 6% indicate that they did not try to make friends with American students. A usually-mentioned barrier to intercultural interactions is the belief that Americans are not interested in other cultures (Yang, Teraoka, Eichenfield, & Audas, 1994).

2.3 Internet as a Medium for Social Interaction

This thesis focuses on online communities as a medium for local students' interaction with international students. The focus on online communities in this thesis is because the internet in general and online social communities in particular are established forms to create both bridging and bonding relationships (Norris, 2004). They provide people with an alternative way to connect with others who share their interests or relational goals (Ellison et al., 2006). Using an Internet survey, Boase, Horrigan & Wellman (2007) demonstrate that online users are more likely to have a larger network of close ties than non-Internet users, and those Internet users are more likely than non-users to receive help from core network members. Furthermore, online users commonly report

that they socialize, maintain relationships, play games, and receive emotional support (Feldman, 1987; Finholt & Sproull, 1990; Haythornthwaite & Mantei, 1994; McCormick & McCormick, 1992; Rice & Love, 1987). Rheingold (1993) finds that online personal relationships can be found in a variety of sources, including popular cyberspace travelogues.

Online socialization can be associated with offline interaction. Kraut et al. (2002) finds that the more the time an individual in the study sample spent on the Internet, the more the time he or she also spent face-to-face with family and friends. Internet facilitates an individual's adjustment and involvement with family, friends, and the community, which can be associated with positive psychological and social outcomes (Kraut et al., 2002). Online socialization can also be similar to those developed in person, in terms of their breadth, depth, and quality; Parks & Floyd (1995) find in survey-based study on interactions on Internet newsgroups (electronic bulletin boards devoted to special interest topics). In another study, McKenna, Green, & Gleason (2002) surveyed nearly 600 members from randomly selected popular newsgroups devoted to various topics such as politics, fashion, health, astronomy, history, and computer languages. A substantial proportion of respondents reported having formed a close relationship with someone they had met originally on the Internet. In addition, more than 50% of the participants had moved an Internet relationship to the "real-life" or the face-to-face realm.

Online communities can be a space rich with opportunities to form new relationships, especially those based on shared values and interests (Hatfield & Sprecher, 1986). When these Internet-formed relationships get close enough (i.e., when sufficient trust has been established), people tend to bring them into their "real world"---that is, the traditional face-to-face and telephone interaction.

When applied to the context of this thesis, the above mentioned research findings suggest

that international students' social life can greatly benefit from interactions in online communities and in particular with local students. Such interaction can result in enhancing international students' social capital and learning process.

2.4 Motivation Theories in Online Communities

Motivation can be described as the strength that brings about, regulates, and sustains the continued involvement of members in communities (Paulini, Maher, & Murty, 2014). There is plenty of Motivation theories that explain human behavior and provide a framework with which to explore why people participate in online communities. A thorough review of the literature on motivation in online communities is provided in Kosonen (2008).

Many studies of online communities divide motivation factors into internal and social (Lamp et al., 2010), intrinsic and extrinsic or internal and external factors that drive and induce action (Hars & Ou, 2001; Ke & Zhang, 2010; Bitzer, Schrettl, & Schröderb, 2007; Ye & Kishida, 2003). Intrinsic motivation, which is essentially internal, is described by Nov (2007) as inherent satisfaction from an activity. Rewards linked with intrinsic motivation include: (i) the fun associated with participating; (ii) personal challenge; (iii) competition and other means of social comparison and reputation building (Hertel, Niedner, & Herrmann, 2003). Studies that draw on intrinsic motivation (Deci, 1975; Hars & Ou, 2001; Stafford, 2008) emphasize future rewards as a pertinent motivation, describing contributions to online communities as a form of investment with rewards including: (i) the possibility of future revenues arising from support services; (ii) building 'human capital' through education, training and learning which can lead to a better portfolio of work and improved job opportunities; and (iii) peer recognition through feedback which leads to increased efforts to contribute. On the other hand, extrinsic motivation, which refers to doing

something because it leads to a separable outcome, is associated with external forces, which are shown for example to affect participation in open source software design (Roberts, Hann, & Slaughter, 2006). Nonetheless, internal and external motivation factors might interact in driving participation. For example, an extrinsic motivation such as paying for contributions increases the level of contribution and thus raises a member's status in the community, which supports an intrinsic incentive (Miller, Deci, & Ryan, 1985). This process can boost, regulate, and maintain a member's interest in doing a task, thus assisting with the self-regulation of motivation.

Another framework explains mechanisms (i.e., motivation factors) that induce participation including *money*, *love*, and *glory* (Malone, Laubacher, & Dellarocas, 2009). The promise of financial gain, either with an immediate reward or a delayed reward, such as when participation leads to the enhancement of career goals, can be a strongly motivating force. The love category describes enjoyment of the activity, the ability to socialize and ideological reasons for contributing. Glory is related to the recognition received by peers and community. Recent collective intelligence systems (Malone et al., 2009) rely on love- and glory-based motivation factor far more than on traditional organizations, which have placed greater emphasis on these types of motivation factors. However, financial gain is not the only reward online communities can offer: points and tokens are also used widely.

In their recent summary, Paulini, Maher, & Murty (2014) organize the motivation factors for participation in online communities into seven major categories as show in Table 1. Table 1 also summarizes the underlying items of each one of these motivation factors. This thesis uses this framework in Table 1 to explain what motivates local students to interact with international students in online communities.

Table 1 Summary of Motivation Factors and Underlying Items

Motivation Factors	Underlying Items
Ideology	1. Belief 2. Principles 3. Welfare
Challenge	1. Knowledge 2. Skills
Career	1. Business/Career 2. Profession
Social	1. Shared experience with others 2. New friends and connections
Fun	1. Entertainment 2. Relieving breaks
Reward	1. Financial incentives 2. Academic credit
Recognition	1. Private or public acknowledgement 2. Status

2.5 Gap in the Literature

So far, the literature review results in the conclusion that while the interaction between local students and international students in the host countries has significant advantages for international students, such interaction is known to be very low (Ward, 2001). Such low levels of interaction results in negative consequences on international students' social capital and learning process (Burns, 1991).

The current literature extensively study the motivation factors of a general population to participate in online communities (Kieinginna & Kleinginna, 1981 ; Zhang, 2008) and establishes

theoretical frameworks that explain the likely motivation factors that generally drive participation in online social communities (Preece & Shneiderman, 2009). However, there is no existing work on testing how these frameworks could explain the interaction between two distinctive communities: local and international students. These two groups can have unique characteristics that could challenge the established understanding of the motivation factors for interaction between these two groups. Thus, there is a gap in the current literature in understanding the factors that motivate local students to interact with international students in online social communities.

This thesis aims to understand the factors that motivate local students to interact with international students in online communities. Accordingly, this thesis addresses this gap by asking this question: what motivates local students to interact with international students in online communities? Understanding the specific characteristics of local students' motivation to interact with international students in online social communities at different levels can enable HCI designers to incorporate elements in their platforms that facilitate these interactions.

Chapter 3. Participation in Online Social Communities

In addressing the research question, this thesis employs two established theoretical perspectives on motivation that synthesize existing frameworks discussed in the literature review. The first provides categories of the different motivation factors for participation in online social communities in general. The second explains the varying extents and natures of participation in online social communities.

3.1 Types of Motivation to Participate

Several existing frameworks explain motivation factors to participate in online communities in general and in specific types of online communities in particular. No such framework exist in the literature to explain the motivation factors that would trigger local students' interaction with international students in online communities, which is the aim of this thesis. Therefore, this thesis builds on existing frameworks, despite the difference in context, in achieving its aim.

In particular, this thesis adopts the work of Paulini et al. (2014), which identifies seven groups of motivating factors for participation in online innovation communities. The context in this study (general public's participation in innovation online communities) is different than the context of this thesis (local students' participation in international students' online communities). However, there are strong similarities that make following in the footsteps of this work a reasonable decision. First, this work focuses on motivation factors to participate in online communities, which is also the focus of this thesis. Second, the nature of activities taking place in the online communities of interest to Paulini et al. (2014) and to this thesis can be considered similar. One of students' (local or international) objectives for socializing and networking in online communities is to acquire the skills and knowledge needed to solve problems related to the course

of their studies (Ramsay et al., 1999). Considering innovation to be a process of learning and problem solving, these activities then resemble those that the population in innovation communities can be interested in.

Paulini et al. (2014) synthesizes a mixture of the motivation literature in online social communities and open software development (Zhang & Zhu, 2006), which results in seven basic categories that characterize what drives participation in online social communities. These categories include (1) Ideology (Nov, 2007; Wenger, 1998), (2) Challenge (Polanyi, 1967), (3) Career (Lerner, Josh, 2002), (4) Social (Lerner, Josh, Parag Pathak, 2006), (5) Fun (Ryan & Deci, 2000), (6) Reward (Deci, 1975), (7) Recognition (Nov, Naaman, & Ye, 2010), and (8) Requirement (Paulini et al., 2014). The following presents a brief description of each one of these seven categories in consistence with recent work (Paulini et al., 2014).

(1) Ideology: is to promote a cause or act according to a personal or ethical principle. Ethical principle is defined as motivation with the ultimate goal of upholding some moral principle such as justice (Batson, 1994). This includes participation for altruistic and other reasons such as personal beliefs and awareness of personal efficacy. Altruism is an innate desire to enhance the welfare of others at some cost to oneself and is widely thought to be a reason for participation in online communities (Rafaeli & Ariel, 2008). Research has shown that altruism does not rate as highly as expected (Hars & Ou, 2001) and is seldom the sole reason for participation. Antoniadis & Grand (2009) suggest that seemingly altruistic behaviors do not necessarily arise from altruistic intentions. Kollock (1999) proposes that “literal altruism” is a rare phenomenon with three alternate motivation factors for contribution to online communities including: i) sense of efficacy, performing altruistic acts for the express motivation of fulfilling a sense of self; ii) attachment or commitment, contributing to a community when personal and collective outcomes are merged or

balanced (Rafaeli & Ariel, 2008), and iii) anticipated reciprocity, the expectation that at some future point help or information is provided in return for past contribution. Rheingold (1993) describes a 'gifting economy' as interaction without any expectation of direct or immediate return. Rafaeli & Ariel (2008) found that members of a given community assist those who have contributed in the past and avoid those who never give.

In the context of this thesis, local students can be motivated by their 'Ideological' beliefs to interact with their international students in online communities. For example, local students may view international students as a community that needs welcome and support away from their homes abroad. Local students can also be motivated to participate with international students if they knew that their participation would contribute to the welfare of international students.

(2) Challenge: is to obtain a sense of personal attainment through additional knowledge or skill. Clary et al. (1998) and Nov (2007) describe understanding as the opportunity to learn new things and exercise knowledge, skills and abilities that might otherwise go unpracticed. On the other hand, Nov et al. (2010) use self-development to mean participation for the opportunity to learn new things. Rafaeli, Ariel, & Hayat (2005) show that strong motivators include: 'learning new things' and 'intellectual challenge'. Challenge ranked second highest (to human capital) in Hars & Ou's (2001) study on programmers. Franke & Shah (2003) found that challenge, mental inspiration, control, and interest are dominant elements in innovation-related activities. Lakhani & Wolf (2005) also found that intellectual stimulation was a strong motivator for project participation among open source software developers. Nov's (2007) study on Wikipedia contributors found Challenge (understanding) to be a motivation of average proliferation in their sample.

In the context of this thesis, local students can be motivated by their quest for 'Challenge' to interact with their international students in online communities. For example, local students may

be motivated to interact with international students in online communities by the challenges associated with acquiring new languages, experiencing and working with diverse norms and cultures. Such challenges can stimulate new perspectives and problems to solve.

(3) Career: is the participation that may lead to an improvement in one's career. This is defined in a general manner to allow personal interpretation. (Clary et al., 1998) also defines Career loosely: *"career-related benefits This definition includes the statements (that volunteering): help(s) me get my foot in the door at a place I would like to work; make(s) new contacts that might help my business or career; allows me to explore different career options; will help me succeed in my chosen profession; experience will look good on my resume; and maintaining career- relevant skills"*. Nov (2007) defines Career as: *"an opportunity to achieve job- related benefits such as preparing for a new career or maintaining career-relevant skills"*. A survey statement reflects this: *"I can make new contacts that might help my business or career"*. Although Nov expected Career to be a significant motivator due to the community signaling career-relevant skills, it was not found to score highly. Results in studies of open source software have been inconsistent as to whether Career is an incentive. Hertel et al. (2003) find Career is a strong motivation for open source developers to join a community, but diminishes as they learn with time these expectations are not always easily met.

In the context of this thesis, local students can be motivated by their 'Career' goals to interact with their international students in online communities. For example, local students may get firsthand experience with individuals from diverse backgrounds, a skill that is highly desirable in multi-national corporations. They may also gain from volunteering opportunities, which could enhance their career prospective.

(4) Social: is the desire to have a joint experience with others. Clary et al. (1998) proposes

that individuals participate because friends participate or people close to them want them to participate. Nov (2007) suggests that participation in Wikipedia is to allow people “*the chance to be with their friends*”. An example survey question reads: “people I’m close to want me to write/edit in Wikipedia”. Many authors writing prior to the widespread emergence of the “social” web around the year 2006, take the view that real-world peers influence online participation. These social pressures are behind sites like Facebook, which rely on real-world relationships to build a network; however, there are social reasons other than peer pressure for which people may join an online community: such as the social support to develop a niche hobby, described in Ridings & Gefen (2006). A definition based on friendship may be why Nov (2007) found Social to be a weak motivator of contributors to Wikipedia. Lampe, Wash, Velasquez & Ozkaya (2010) define Social as maintaining interpersonal connectivity, social enhancement and social belonging and found the action of creating an account and becoming a member of an online community was preceded by social enhancement motivation factors and a feeling of importance to the community. According to social theory, the need for belonging to a specific community is strongly linked to enhancing personal identity and is a major reason why people seek out niche communities.

In the context of this thesis, local students can be motivated by their social gains to interact with their international students in online communities. For example, local students may desire to have shared experiences with others and to make new friends and connections that would enrich their social life.

(5) Fun: is the participation for entertainment, enjoyment, excitement, relief from other experiences, or simply furnishing or structuring the passage of time. Fun has almost consistently been found to be one of the strongest motivators in for online photo sharing (Nov et al., 2010); for product development (Franke & Shah, 2003); for Wikipedia (Rafaeli et al., 2005); and for

online innovation communities (Antikainen & Vääätäjä, 2008). Hars & Ou (2001) grouped ‘fun’ and ‘enjoyment’ with other intrinsic motivation factors but found that external factors had a greater weight in their study of open source software developers. Frey, Haag, & Schneider (2011) found that enjoyment had a positive and significant correlation with the number of contributions made.

In the context of this thesis, local students can be motivated by having fun to interact with their international students in online communities. For example, local students may find it an entertaining and relieving break to spend time interacting with international students in online communities.

(6) Reward: is to receive noticeable returns like money, credits in a game, a gift or voucher. Rafaeli & Raban (2005) found that higher-paid and better-tipped responders on Google Answers were more likely to participate and contribute. However, later, Rafaeli & Ariel (2008) found this effect was mitigated by social factors. Lakhani & Wolf (2005) also show that paid contributors in open source software development dedicated more time to projects than volunteers and that being paid and feeling creative had a positive impact on effort. This goes against findings by Deci (1975), Thompson, Meriac, & Cope (2002), and Rafaeli & Ariel (2008) showing that extrinsic rewards have a negative impact on intrinsic motivation factors and therefore users who were never offered extrinsic rewards were more self-motivated. Furthermore, Shaw, Hall, Horton, & Chen (2011) found that workers on a paid website were not motivated by financial rewards.

In the context of this thesis, local students can be motivated by various rewards to interact with their international students in online communities. For example, local students may seek interaction with international students in online communities if there were financial or academic reward to be earned.

(7) Recognition: either private or public, Recognition can be for example enhancing one’s

reputation within a community, as reflected in a survey statement by Nov et al. (2010): “*I post [photos]... to improve my reputation in the Flickr community*”; and Roberts et al. (2006): to enhance my reputation in the [open source software] community. The latter hypothesized that conflict existed between intrinsic motivation factors to participate and the motivation to enhance reputation through performing work to increase status. Findings showed that status motivation enhanced intrinsic motivation factors rather than diminished them. It seems likely that as an individual forms closer social ties to their community, recognition by peers becomes a stronger motivator.

In the context of this thesis, local students can be motivated by their need for recognition to interact with their international students in online communities. For example, local students may be seeking recognition and status when interacting with international students in online communities.

(8) Requirement: “*participation in response to a wish or command expressed personally. Requirement elicits a response reflecting external pressures, such as a professor or boss requesting participation. Requirement contrasts incentives of online communities with individual employed to participate in design teams*” (Paulini et al., 2014).

In the context of this thesis, local students can be instructed to interact with their international students in online communities. For example, local students may be requested by a professor or by the school to interact with international students in online communities. However, this can be considered as a forceful approach to interaction, which might not be sustainable and might not result in positive outcomes for international students’ social capital or learning process.

In contrast, voluntary an organic interaction by local students in international students’ online communities is likely to be more sustainable and to result in positive outcomes for

international students compared to imposed or supervised interaction. Accordingly, this thesis adopts the first seven motivation factors and excludes the eighth (Requirement motivation).

3.2 Levels of Participation

The literature on online social communities agrees that there are different levels of participation to these communities. One highly-regarded framework that explains the different levels of participation to online communities is the Reader-to-Leader framework (Preece & Shneiderman, 2009). This framework guides numerous studies seeking to understand types of participation in online social communities (Paulini et al., 2014; Violi, Shneiderman, Hanson, & Rey, 2011). Paulini et al. (2014) also uses this framework as a guide to the levels of participation in online communities. In consistance with the use of Paulini et al. (2014) as a guiding framework for this thesis, this thesis also adopts the Reader-to-Leader framework.

This framework establishes that the typical path for social media participation has four stages: (1) *reading*, followed by (2) modest *contributions* and then more frequent contributions. Eventually, some contributors become (3) *collaborators* who participate in discussions of future directions and take on longer-term efforts. A small number of participants become (4) *leaders* who set policy, deal with problems, mentor newcomers, and inspire all forms of participation.

At face value, these four stages or levels of participation can apply to the context of this thesis (i.e. local students' participation with international students in online communities). Some local students may be just readers of content contributed by international students in online communities. Other local students may contribute to that content by responding or commenting. Yet, other local students may act on opportunities to collaborate with international students as a result of their interaction in online communities. Some other local students may assume a leadership role in setting policies and trends or mentoring novices, which can inspire others to

participate.

As shown in Figure 1, the “Reader-to-Leader” framework, characterizes the evolution of social participation in online communities from reader, to contributor, to collaborator, and finally, to leader. This is “*a simplified but helpful process model of reality*” (Preece & Shneiderman, 2009, p. 24). The arrows in this framework represent sequence not causation. These are not complete descriptions, and users don't always progress from one to another, but this simple framework is a useful basis to describe what many users do.

Figure 1 Reader to Leader Framework for Levels of Participation

Based on analyses of several online platforms such as Wikipedia and Flickr (Nov, 2007), the reader-to-leader framework describes how to motivate social participation in online communities by identifying the successive involvement patterns, starting with venturing in, browsing, and reading (reader), then rating, posting, and uploading (contributor), then developing relationships and working together (collaborator), and finally promoting participation and mentoring novices (leader). The reader casually glances over information while the contributor and collaborators comment and engage with others via social media. Users shift quickly from

contribution to collaboration, which requires discussion with other people, instead of simple commentary. Online leaders typically contribute to the largest number of comments and are the most active. Typically, leaders, although representing a small minority of the platform's population, are the ones who contribute to most of the platform's content (Ortega et al., 2008). Thus, emphasizing, acknowledging, recognizing, and rewarding contributions can enable the contributors to be prominent. Besides this process framework, users can also jump stages, move backwards, or terminate participation (Preece & Shneiderman, 2009).

The most understandable motivation for people to read user-generated content is that they personally benefit from doing so. A critical mass of new content and user interaction that engages but does not overwhelm helps to entice people to return regularly. A contribution is an individual act that adds to a larger communal effort. Individual contributions can bring substantial benefits to all participants, even though there is no direct communication between individuals. Collaboration involves two or more contributors working together to create something or share information. An essential element in this process is the development of a common ground—that is, mutual understanding, shared beliefs, and assumptions. Trust and empathy play a large role in encouraging people to work and play together online just as they do offline. People who trust each other often do so because they see similarities between themselves and the other people, so they encourage each other to participate (Preece & Shneiderman, 2009). Designers of the patient support community PatientsLikeMe have explicitly used this knowledge in the design of their site. They make it easy for patients to find others like them in terms of gender, age, and medical problems for example. Everyone can find a picture on the homepage that helps them to find similar others, which can lead to collaborations on stories and exchanges of helpful tips for dealing with a health problem (Goldberg et al., 2011). While individual contributions and group collaborations are the

most visible aspects of social media participation, every social system must have some way of establishing community norms and explicit policies, which is one of the roles leaders play. Leaders tend to synthesize discussions and arguments that they then articulate for others. Leadership is a higher calling to which only a small fraction of readers, contributors, and collaborators aspire.

3.3 Online Participation in International Students' Context

The research question in this thesis explores the factors that motivate local students to interact with international students to different levels of participation in online social communities. Applying the two theoretical frameworks explained in sections 3.1 and 3.2 to the context of the research question, one should expect that motivating local students using ideology-, challenge-, career-, social-, fun-, recognition-, and reward-type motivation factors can enhance their interaction with international students in online social communities from the role of reader, to contributor, to collaborate, and to the role of leader. However, there has been no empirical test of these motivating factors to explain local students' interaction with international students to these different levels of participation.

This thesis contributes to the literature by developing and validating a survey instrument that collects data on local students' views about their likely motivating factors that would drive their participation with international students in online communities. This data collection endeavor is a first step toward future research work that would perform quantitative analysis of this data to test if the above-mentioned seven motivating factors, established in the literature to explain participation in online communities in general, do explain different levels of interaction of local students with international students in online communities. This test is important because if at least some motivating factors for participation in online communities do not hold in the context of local

students' interaction with international students in online communities, then this context of interest would be a limitation to the generalizability of the established theories on participation in online communities and would therefore call for further research that focuses on the context of local-international students' interaction in online communities.

Based on the two frameworks outlined in sections 3.1 and 3.2, this thesis collects data following the research model shown in Figure 2. In this research model, the main outcome variable of interest is the level of local students' interaction with international students in online communities (Preece & Shneiderman, 2009). This is an ordinal variable with five levels of participation with international students in online communities including none, reader, contributor, collaborator, and leader. On the other hand, the main explanatory variables of interest are the above-mentioned seven motivating factors that explain participation in online communities in general including ideology-, challenge-, career-, social-, fun-, recognition-, and reward-type motivation factors (Paulini et al., 2014). Additionally, there are a number of control variables, which could provide alternative explanation for the outcome variable. The control variables include the university year, type of participation in online social communities in general, proportion of international students in the local student's friends on campus, proportion of international students in the local student's friends off campus, and finally the degree to which local students collaborate with international students in university work.

Figure 2 Thesis Research Model

Chapter 4. Research Design

The survey research method is widely agreed to follow a number of process stages as follows (Hunt, Sparkman, & Wilcox, 1982; Rea & Parker, 2014)

Stage 1: Identifying the focus of the study and method of research

Stage 2: Determining the research schedule and budget

Stage 3: Establishing an information base

Stage 4: Determining the sampling frame

Stage 5: Determining the sample size and sample selection procedures

Stage 6: Designing the survey instrument

Stage 7: Pretesting the survey instrument

Stage 8: Selecting and training interviewers

Stage 9: Implementing the survey

Stage 10: Coding the completed questionnaires and computerizing the data

Stage 11: Analyzing the data and preparing the final report

Chapters one to three of this thesis address stages one to five of this methodology and lead to the research question, which asks “what motivates local students to interact with international students in online communities?” as explained in Chapters one and two. Chapter three outlines the theoretical framework used to investigate the research question under study. In Chapter 4, the focus turns to methods used to the development and pretesting of the survey instrument that could provide answers to the research question of interest, which correspond to stages six and seven of the above methodology.

This thesis uses the survey method to source local students’ opinions on their likely motivation factors to participate in online social communities with international students and the

possible roles they would likely play including being readers, contributors, collaborators, and/or leaders. As such, local students represent the unit of analysis in this research. Following a cross-sectional design, the target sample is local undergraduate students at Carleton University. The survey instrument is quantitative in nature and is administered to the target sample through the web.

4.1 Survey Instrument (Questionnaire) Design

In stage six (designing the survey instrument), the aim is to devise a series of unbiased, well-structured questions that will systematically obtain the information identified in stage 1. There are several design criteria that need to be taken into consideration in developing questionnaire instruments. For example, the length of the questionnaire and individual questions needs to be maintained within reason in order to increase response rate. Furthermore, the content of the questionnaire needs to be easily understood and consistent and needs to lead to appropriate data analysis.

This thesis develops a survey instrument to collect data on the constructs included in the research model, shown in Figure 2. The first aim of collecting data is to evaluate the quality of this survey instrument in terms of the clarity, comprehensiveness, and acceptability of the questionnaire. The second aim of collecting data is to explore the constructs and assess the variables' measurement suitability for data analysis. It is important to note that analyzing the relationships in the research model in Figure 2 to evaluate which motivation factors influence the level of participation of local students with international students in online communities is outside the scope of this thesis. As indicated in Chapter 1, the aim of this thesis is only to develop a survey instrument, collect data on it, and explore the variable measures' characteristics.

The instrument starts with a preamble that aims at preparing the respondent to effectively interact with the survey questionnaire. The preamble informs potential respondents about the study and its objectives and goals in order to convey its importance to the respondents themselves and the public good and alleviate any concerns that potential respondents are likely to have. The preamble also explains the importance and usefulness of a respondent's responses to the research. The preamble also contains information about the expected time needed to complete the survey, level of inconvenience, confidentiality, and safety in order for a potential respondent to assess the required commitment. Furthermore, the preamble points out the sampling criteria for the research in order for the respondent to understand the real motivation behind the questionnaire. In order to prevent respondents' bias, the preamble stresses that respondents' participation is voluntary and valued and their answers are neither correct nor incorrect. Also, the preamble assures that participation is strictly protected in terms of confidentiality.

Following established questionnaire design guidelines (Rea & Parker, 2014), the questionnaire in Appendix I is divided into different sections that correspond to a sequence of categories. Related questions are grouped together in a given section to facilitate the respondent's ability to focus and concentrate on specific issues without distraction. Where necessary, respondents are prompted for further explanation and examples to elaborate on their answers (Allen, Poteet, & Burroughs, 1997).

The first group of questions are introductory in nature, comprising questions 1 to 6. These introductory questions, which ask questions on the control variables of interest, engage the respondents with the subject matter stated in the preamble and are designed to be relatively straightforward and easy to answer with the objective of stimulating respondents' interest in continuing with the questionnaire. This is done by eliciting factual information or straightforward

and uncomplicated opinions about non-sensitive information. The second group of questions comprising questions 7 to 10 focus on the respondent's different levels of participation in online social communities involving international students. The third group of questions, comprising questions 11 to 26, concentrate on the different types of motivation factors that potentially trigger the respondent's participation in online social communities involving international students in a 5 point Likert scale.

In case the questionnaire left out any questions that would generate key information that could benefit the research question, the questionnaire included venting questions at the end of some sections. Venting questions are open-ended questions that aim at giving the respondent the opportunity to add any information, comments, or opinions that pertain to the subject matter of the questionnaire but have not been addressed in it. In particular, questions number 10 and 26 are included as open-ended venting questions.

4.2 Survey Study

According to stage seven of the followed survey methodology, the effectiveness of the survey instrument (questionnaire) is tested using a relatively small sample of the target population. The study aims to evaluate the questionnaire along three main criteria established in the survey design literature (Rea & Parker, 2014), including questionnaire clarity, comprehensiveness, and acceptability. The survey instrument contains 31 questions related to the to the research model in Figure 2, including five questions intended to assess the quality of the survey instrument in terms of clarity, comprehensiveness, time-to-complete, and respect for privacy. At the end of the survey, the respondents are asked specific questions to explicitly assess the effectiveness of the

questionnaire as shown in questions 1-5 under the Questionnaire Evaluation section in Appendix I.

A web-survey is used where respondents can fill and submit online. Web-based surveys have the advantage of low cost and quick distribution. Additionally, web-based surveys provide the ability to transfer survey responses directly into a database, eliminating transcription errors. Web-based surveys are increasingly common in human computer interaction research (Andrews, Nonnecke, & Preece, 2003; Lazar & Preece, 1999) and do not affect research results compared to postal surveys with the advantages of speedy distribution and response cycles (Slaughter, Norman, & Shneiderman, 1995; Yun & Trumbo, 2000). SurveyMonkey is used to formulate and administer the survey instrument. SurveyMonkey offers a variety of features that enable the administration of the survey as needed.

4.3 Study Sample Size

Administering the survey instrument involves sending it to a sample of the target population and collecting data to evaluate the appropriateness of the survey for future data collection. In order to collect data for the study, an application to Carleton University Ethics Board was submitted. The Ethics Board approved this application as shown in Appendix II. The approved survey questionnaire and preamble is presented in Appendix I. Also, the approved consent letter sent to the target sample is presented in Appendix III.

The target population is local students in Canadian Universities. The sampling criteria include: being a Carleton University student, identifying as local rather than international student, and identifying as a user of online social media. The study sample is recruited via soliciting participation using several means, including social media, targeting student groups by email, and

posting ads on campus billboards as well as Carleton University Student Association (CUSA) website and publications.

An internet link to the survey instrument is sent to Carleton University's undergraduate students by direct or indirect email. Indirect emails are those sent on behalf of the researcher to the target population through a third party (e.g. Carleton University instructor for example). In total, 130 students attempted to take the survey. Of those, 101 responses are complete. These 101 responses are used for to conduct study. The other 29 questionnaire responses either exited the survey before completion or did not complete the survey because they found out from the survey preamble that the sampling criteria does not apply to them (note: the email invitation also includes information about the sampling criteria). These 101 responses represent the study sample. This sample size is generally acceptable for testing survey instruments (Rea & Parker, 2014) and is consistent with previous research (Hunt et al., 1982). Chapter 5 presents the data collected for the survey study.

Chapter 5. Data Presentation

This chapter presents the data collected using the survey instrument. Section 5.1 presents data collected on the evaluation questions to evaluate the survey instrument. Section 5.2 presents data collected on the variables in the research model in this thesis as explained in Section 3.3 and as shown in Figure 2.

As noted in Chapter 1, in the survey study, 130 responses were attempted by respondents. However, only 101 responses were complete and accordingly were used in the study. Also, as noted in Chapter 1, the survey questionnaire and preamble is included in Appendix I, and the consent letter is included in Appendix III.

5.1 Questionnaire Evaluation Data

This section presents a summary of the responses collected from the study and respondents' feedback to the evaluation questions of the survey instrument. There are five evaluation questions, as shown in Appendix I, that ask respondents about their opinion on the clarity, comprehensiveness, and acceptability of the survey questions. Each one of the five questions presents the opinions of the sample (101 responses) using a pie chart and a word cloud. The pie chart illustrates the distribution of the Yes and No answers to the evaluation questions. The word cloud illustrates the key words that respondents used to express issues that they experienced while filling out the survey.

As shown in Figure 3, the first evaluation question asks whether respondents found the questionnaire to be clearly understood. As shown in the pie chart in Figure 3, 78% of the respondents found the questionnaire to be sufficiently understood and the rest (about 22%) found

different issues related to clarity. As shown in the word cloud in Figure 3, major issues raised by the No group include the questionnaire being vague, not-understood, long, and better conducted in face to face settings other than online survey (e.g. lab experiment, interviewing, etc).

Figure 3 Data Summary on Survey Evaluation Question 1

As shown in Figure 4, the second evaluation question asks whether respondents found the response choices to be sufficiently clear to elicit the desired information. As shown in the pie chart in Figure 4, about 85% of the respondents found the response choices to be sufficiently clear, while the other 15% of the sample raised different issues. These issues mainly include the questionnaire being too comprehensive, too long, and containing too many questions that require more choice answers, as shown in the word cloud in Figure 4.

Figure 4 Data Summary on Survey Evaluation Question 2

As shown in Figure 5, the third evaluation question asks whether respondents found the questionnaire to be sufficiently comprehensive. As shown in the pie chart in Figure 5, 96% of the respondents found the questions to be sufficiently comprehensive. The remaining 4% of the sample identified different issues they had including the questions being too comprehensive and too long, as shown in the word cloud in Figure 5.

Figure 5 Data Summary on Survey Evaluation Question 3

As shown in Figure 6, the fourth evaluation question asks whether respondents were able to complete the questionnaire in a reasonable amount of time. As shown in the pie chart in Figure 6, 91% of the respondents reported that they could complete the questionnaire in a reasonable amount of time, while the other 9% described the questionnaire to be too long and not understood, at least in part, as shown in the word cloud in Figure 6.

Figure 6 Data Summary on Survey Evaluation Question 4

Finally, as shown in Figure 7, the fifth evaluation question asks whether respondents perceive any questions to invade their privacy, ethical, or moral standards. As shown in the pie chart in Figure 7, 100% of the sample found the questionnaire not invading their privacy or ethical standard.

Figure 7 Data Summary on Survey Evaluation Question 5

Evaluation Question	Answer (Yes/No)	No (Qualitative)
Q5. Do you perceive any questions to invade your privacy, ethical, or moral standards?	<p>A pie chart representing the data for Question 5. The chart is entirely green, indicating that 100% of the respondents answered 'No'. A legend to the right of the chart shows a blue square for 'Yes' and a green square for 'No'. The text '100.00%' is displayed inside the green portion of the chart.</p>	None

While the greatest majority of the sample was satisfied with the questionnaire, the issues raised by the minority open room for improving the instrument in future studies.

5.2 Research Model Data

This section presents the data collected on the constructs of interest in the research model shown in Figure 2, including Level of Participation, Ideology Motivation, Challenge Motivation, Career Motivation, Social Motivation, Fun Motivation, Reward Motivation, and Recognition Motivation. It also presents the data collected on five control variables including University Year, Level of Online Interaction in General, On-Campus Int'l Student Friends, Off-Campus Int'l Student Friends, and Collaboration with Int'l Students on Univ. Work.

As shown in survey questionnaire in Appendix I, each one of the motivation constructs consists of a number of items. So, the construct measure is the average score of its individual items. Table 2 shows Cronbach alpha reliability of the seven multi-item constructs of motivation factors.

All motivation constructs exhibit very high reliability, which exceeds the conventional 0.7 threshold found in social research (Lance, Butts, & Michels, 2006).

Table 2 Multi-Item Construct Reliability

Motivation Factors	Items	Cronbach Alpha Reliability
Ideology Motivation	1. Belief 2. Principles 3. Welfare	0.97
Challenge Motivation	1. Knowledge 2. Skills	0.98
Career Motivation	1. Business/Career 2. Profession	0.99
Social Motivation	1. Shared experience with others 2. New friends and connections	0.97
Fun Motivation	1. Entertainment 2. Relieving breaks	0.97
Reward Motivation	1. Financial incentives 2. Academic credit	0.97
Recognition Motivation	1. Private or public acknowledgement 2. Status	0.96

Table 3 presents the variables' descriptive statistics including mean, standard deviation, and skewness and kurtosis. This data is for a sample of 101 responses on a 5-score Likert scale. As shown in Table 3, all variables in the model suffer both skewness and kurtosis. So, this requires checking if the variables have normal distribution.

Table 4 shows the Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution with 101 degrees of freedom (df). Since the two tests are statistically significant for all variables,

all variables are not normally distributed. Therefore, in future research aiming to analyze the relationships between these variables using regression analysis, these variables can be transformed in order to achieve the normality of the regression residual.

Table 3 Descriptive Statistics

Study Variables	Mean	Std. Dev.	Skewness	Kurtosis
Level of Participation	2.23	1.12	0.752	-0.212
University Year	2.70	1.13	0.013	-0.580
Level of Online Interaction in General	3.63	1.18	-0.587	-0.755
On-Campus Int'l Student Friends	2.54	1.24	0.478	-0.714
Off-Campus Int'l Student Friends	1.73	1.07	1.515	1.734
Collaboration with Int'l Students on Univ. Work	2.81	0.98	-0.005	0.059
Ideology Motivation	3.29	1.22	-0.559	-0.719
Challenge Motivation	3.16	1.22	-0.343	-1.027
Career Motivation	2.98	1.23	-0.149	-1.170
Social Motivation	3.16	1.21	0.432	-0.979
Fun Motivation	2.93	1.15	-0.118	-0.863
Reward Motivation	3.50	1.35	-0.539	-0.925
Recognition Motivation	2.58	1.14	0.573	-0.262

Table 4 Tests of Normality

Study Variables	Kolmogorov-Smirnov	Shapiro-Wilk
	Statistic	Statistic
Level of Participation	0.254***	0.859***
University Year	0.198***	0.896***
Level of Online Interaction in General	0.275***	0.855***
On-Campus Int'l Student Friends	0.215***	0.890***
Off-Campus Int'l Student Friends	0.338***	0.712***
Collaboration with Int'l Students on Univ. Work	0.260***	0.886***
Ideology Motivation	0.234***	0.886***
Challenge Motivation	0.249***	0.891***
Career Motivation	0.220***	0.896***
Social Motivation	0.261***	0.878***
Fun Motivation	0.152***	0.922***
Reward Motivation	0.218***	0.868***
Recognition Motivation	0.221***	0.891***

Note: df = 101 and *** p < 0.001

The remainder of this subsection will explore each one of the variables of interest in the research model under study. This includes inspecting the distribution of the data through the histogram, testing the skewness and kurtosis through the boxplot, and visually inspecting the normality of the variables through the Q-Q plot.

Level of Participation: The histogram in Figure 8 shows a good level of variance around the mean (std. dev. is 50% of the mean). This indicates a good level of variety in participants' responses. However, the variable's data is skewed toward lower levels, as confirmed by the boxplot in Figure 9, where most responses fall in the low scores. Also, as shown in Figure 8, about 70% of respondents report no to low levels (one and two) of participation with international students in online communities. This agrees with the literature that reports low levels of local students' interaction with international students in general. This also confirms the importance of the research question in this thesis, which aims at understanding the motivation factors that would likely increase local students' interaction with international students in online communities. This variable is not normally distributed according to Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution shown in Table 4. However, as shown in the normal Q-Q plot in Figure 10, the variable's distribution is close to normality except at higher scores of the variable (four and five).

Figure 8 Histogram: Levels of Participation

Figure 9 Boxplot: Levels of Participation

Figure 10 Normal Q-Q Plot: Levels of Participation

University Year: The histogram in Figure 11 shows a good level of variance around the

mean (std. dev. is 42% of the mean). This indicates that the sample has a good variety of representation from students in different years of the undergraduate program at the university. However, the variable's data is slightly skewed toward lower levels, as shown in the boxplot in Figure 12, where most responses fall in the low scores. Also, as shown in the histogram in Figure 11, only one respondent was in the fifth year and one respondent in the sixth year. This variable is not normally distributed according to Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution shown in Table 4. However, as shown in the normal Q-Q plot in Figure 13, the variable's distribution is close to normality except at a score of six.

**Figure 11 Histogram:
University Year**

**Figure 12 Boxplot:
University Year**

**Figure 13 Normal Q-Q Plot:
University Year**

Level of Online Interaction in General: The histogram in Figure 14 shows a good level of variance around the mean (std. dev. is 33% of the mean). This indicates a good level of variety in participants' responses but at the same time is relatively smaller than the variance in the previous two variables. This is not surprising because most students today actively participate in online communities in general as the literature reports. That is why the variable's data is skewed toward higher levels, as confirmed by the boxplot in Figure 15. Also, as shown in the histogram in Figure 8, the data is skewed with about 80% of respondents reporting higher levels (three and more) of participation in online communities in general. When considering the Levels of Participation variable, the contrast is clear between the high levels of students' participation in online

communities in general and low levels of their participation with international students in particular. This clearly shows an opportunity to increase local students' participation with international students in the online world. The research question in this thesis aims at seeking this opportunity by investigating the likely motivation factors that would increase such interaction. Finally, this variable is not normally distributed according to Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution shown in Table 4. However, as shown in the normal Q-Q plot in Figure 16, the variable's distribution is close to normality.

Figure 14 Histogram: Level of Online Interaction in General

Figure 15 Boxplot: Level of Online Interaction in General

Figure 16 Normal Q-Q Plot: Level of Online Interaction in General

On-Campus Int'l Student Friends: The histogram in Figure 17 shows a good level of variance around the mean (std. dev. is 49% of the mean). This indicates a good level of variety in participants' responses. However, as shown in the histogram in Figure 17 and in the boxplot in Figure 18, most of the respondents (92%) reported four and lower scores of having international student friends on campus and nine outlier cases reported a score of five. It is interesting that 78% of respondents in the sample report scores of three and higher for having international student friends on campus and only 33% of respondents in the sample report scores of three and higher for participating with international students in online communities. This raises questions about the barriers to online interaction despite the high proportion of local students who have international student friends on campus. Finally, this variable is not normally distributed according to

Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution shown in Table 4. However, as shown in the normal Q-Q plot in Figure 19, the variable's distribution is close to normality.

Figure 17 Histogram: On-Campus Int'l Student Friends

Figure 18 Boxplot: On-Campus Int'l Student Friends

Figure 19 Normal Q-Q Plot: On-Campus Int'l Student Friends

Off-Campus Int'l Student Friends: The histogram in Figure 20 shows a relatively high level of variance around the mean (std. dev. is 62% of the mean). This indicates high variety in participants' responses. At the same time, as shown in the histogram in Figure 20 and in the boxplot in Figure 21, the data is highly skewed toward lower scores with 80% of respondents reporting scores of two or lower. There are also seven outlier cases reporting scores of four or more. These results are not surprising as it reflects local students' low levels of having international student friends outside of campus life. Finally, this variable is not normally distributed according to Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution shown in Table 4. The normal Q-Q plot in Figure 22 shows the higher scores of the variable being distant from normality.

Figure 20 Histogram: Off-Campus Int'l Student Friends

Figure 21 Boxplot: Off-Campus Int'l Student Friends

Figure 22 Normal Q-Q Plot: Off-Campus Int'l Student Friends

Collaboration with Int'l Students on Univ. Work: The histogram in Figure 23 shows a good level of variance around the mean (std. dev. is 35% of the mean). With the exception of five outlier cases reporting high levels of collaboration, the variable is close to being normally distributed as shown in the boxplot in Figure 24 and in the normal Q-Q plot in Figure 25. This almost normal distribution probably reflects the fact that collaboration between local and international students is part of the day-to-day course work at the university which often requires collaboration among all students. Finally, this variable is not normally distributed according to Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution shown in Table 4. However, as shown in the normal Q-Q plot in Figure 25, the variable's distribution is close to normality except at a score of five.

Figure 23 Histogram: Collaboration with Int'l Students on Univ. Work

Figure 24 Boxplot: Collaboration with Int'l Students on Univ. Work

Figure 25 Normal Q-Q Plot: Collaboration with Int'l Students on Univ. Work

Ideology Motivation: The histogram in Figure 26 shows a good level of variance around the mean (std. dev. is 37% of the mean). This indicates a good level of variety in participants' responses. The variable's data has low level of skewness as shown in the boxplot in Figure 27. However, the median is at a high level (score of four). The variable is not close to normal distribution as shown in the normal Q-Q plot in Figure 28, which is confirmed by Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution shown in Table 4. As an arbitrary measure of the intensity of this motivation factor, the percentage of Likert scores of three or more are observed and compared across different motivation factors. It is worth noting that a high proportion

of respondents (73%) report scores of three or more that they can be motivated by ideology-related factors in participating with international students in online communities. This indicates that Ideology Motivation can be an important trigger.

Figure 26 Histogram: Ideology Motivation

Figure 27 Boxplot: Ideology Motivation

Figure 28 Normal Q-Q Plot: Ideology Motivation

Challenge Motivation: The histogram in Figure 29 shows a good level of variance around the mean (std. dev. is 39% of the mean). This indicates a good level of variety in participants' responses. The variable's data has low level of skewness and the median is at a moderate level close to a score of three, as shown in the boxplot in Figure 30. However, the variable is not close to normal distribution as shown in the normal Q-Q plot in Figure 31, which is confirmed by Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution shown in Table 4. It is worth noting that a high proportion of respondents (76%) report scores of three or more that they can be motivated by challenge-related factors in participating with international students in online communities. This indicates that Challenge Motivation can be an important trigger.

Figure 29 Histogram: Challenge Motivation

Figure 30 Boxplot: Challenge Motivation

Figure 31 Normal Q-Q Plot: Challenge Motivation

Career Motivation: The histogram in Figure 32 shows a good level of variance around the mean (std. dev. is 41% of the mean). This indicates a good level of variety in participants' responses. The variable's data has low level of skewness and the median is at a moderate level at a score of three, as shown in the boxplot in Figure 33. However, the variable is not close to normal distribution as shown in the normal Q-Q plot in Figure 34, which is confirmed by Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution shown in Table 4. It is worth noting that a relatively lower proportion of respondents (58%) report scores of three or more that they can be motivated by challenge-related factors in participating with international students in online communities. This indicates that career-related factors are likely to be less effective motivators compared to ideology-related and challenge-related factors in triggering local students' interaction with international students in online communities.

Figure 32 Histogram: Career Motivation

Figure 33 Boxplot: Career Motivation

Figure 34 Normal Q-Q Plot: Career Motivation

Social Motivation: The histogram in Figure 35 shows a good level of variance around the mean (std. dev. is 38% of the mean). This indicates a good level of variety in participants' responses. The variable's data has low level of skewness and the median is at a high level at a score of four, as shown in the boxplot in Figure 36. However, the variable is not close to normal distribution as shown in the normal Q-Q plot in Figure 37, which is confirmed by Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution shown in Table 4. It is worth noting that a relatively higher proportion of respondents (68%) report scores of three or more that they can be

motivated by social-related factors in participating with international students in online communities. This indicates that social-related factors are likely to be more effective motivators compared to career-related and slightly less effective than ideology-related and challenge-related factors in triggering local students' interaction with international students in online communities.

Figure 35 Histogram: Social Motivation

Figure 36 Boxplot: Social Motivation

Figure 37 Normal Q-Q Plot: Social Motivation

Fun Motivation: The histogram in Figure 38 shows a good level of variance around the mean (std. dev. is 38% of the mean), which indicates a good level of variety in participants' responses. The variable's data has low level of skewness and the median is at a moderate score of three, as shown in the boxplot in Figure 39. The variable is close to normal distribution as shown in the normal Q-Q plot in Figure 40, but it is not normally distributed as confirmed by Kolmogorov-Smirnov and Shapiro-Wilk tests shown in Table 4. A proportion of 63% of respondents in the sample report scores of three or more that they can be motivated by social-related factors in participating with international students in online communities. This indicates that fun-related factors are likely to be more effective motivators compared to career-related and slightly less effective than social-related, ideology-related, and challenge-related factors in triggering local students' interaction with international students in online communities.

Figure 38 Histogram: Fun Motivation

Figure 39 Boxplot: Fun Motivation

Figure 40 Normal Q-Q Plot: Fun Motivation

Reward Motivation: The histogram in Figure 41 shows a good level of variance around the mean (std. dev. is 39% of the mean). This indicates a good level of variety in participants' responses. The variable's data has high level of skewness toward higher scores and the median is at a high level at a score of four, as shown in the boxplot in Figure 42. The variable is not close to normal distribution as shown in the normal Q-Q plot in Figure 43, and is confirmed to be not normally distributed by Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution shown in Table 4. It is worth noting that a relatively higher proportion of respondents (75%) report scores of three or more that they can be motivated by reward-related factors in participating with international students in online communities. This indicates that fun-related factors are likely to be more effective motivators compared to ideology-, career-, social-, and fun-related and slightly less effective than challenge-related factors in triggering local students' interaction with international students in online communities.

Figure 41 Histogram: Reward Motivation

Figure 42 Boxplot: Reward Motivation

Figure 43 Normal Q-Q Plot: Reward Motivation

Recognition Motivation: The histogram in Figure 44 shows a good level of variance around the mean (std. dev. is 44% of the mean). This indicates a good level of variety in participants' responses. Excluding 9 outlier cases that reported a score of five, the variable's data has low level of skewness and the median is at a low level at a score of two, as shown in the boxplot in Figure 45. The variable is close to normal distribution as shown in the normal Q-Q plot in Figure 43, but is not normally distributed as confirmed by Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution shown in Table 4. It is worth noting that a relatively lower proportion of respondents (48%) report scores of three or more that they can be motivated by social-related factors in participating with international students in online communities. This indicates that recognition-related factors are likely to be the least among other types of motivation factors in triggering local students' interaction with international students in online communities.

Figure 44 Histogram: Recognition Motivation

Figure 45 Boxplot: Recognition Motivation

Figure 46 Normal Q-Q Plot: Recognition Motivation

5.3 Summary of Results

This section summarizes the findings from the data collected in the study on the respondents' evaluation of the quality of the survey instrument. It also summarizes the findings on the key constructs in the research model under study in this thesis, which is shown in Figure 2.

Regarding the evaluation of the quality of the survey instrument, the greatest majority of respondents in the study were in favor of the quality of the survey questionnaire. For the five

criteria measuring the quality of the questionnaire, 78% of respondents found the survey to be clearly understood, 85% found the survey to be sufficiently clear to elicit the desired information, 96% found the survey to be sufficiently comprehensive, 91% found the survey to be reasonable in the time it takes to complete, and finally 100% found the survey not invading their privacy, ethical, or moral standards.

Regarding the constructs in the research model, the dependent variable in this model is the Level of Participation, which is an ordinal variable representing the local students' levels of participation with international students in online communities. The ordinal scale used to collect data on this variable include no participation, participating as a Reader, participating as a Contributor, participating as a Collaborator, and participating as a Leader. The data shows that about 30% of the respondents will likely not participate, 40% will likely participate as readers, 16% will likely participate as contributors, 12% will likely participate as collaborators, and about 4% will likely participate as leaders. The independent variables in this model include seven motivation factors including ideology-related, challenge-related, career-related, social-related, fun-related, reward-related, and recognition-related motivation factors. The data shows that respondents can be motivated to different degrees by these seven motivation factors. Using respondents' Likert scores of three or more on each motivation factor, the data shows that the motivation factors rank as follows in their likely effectiveness in driving local students' participation with international students in online communities: challenge- (76%), reward- (75%), ideology- (73%), social- (68%), fun- (63%), career- (58%), and recognition-related motivation (48%). This means that for example, 76% of the respondents reported a Likert score of three or more when asked how likely it is that challenge-related motivation factors will drive their participation with international students in online communities.

Chapter 6. Discussion and Conclusions

International students bring significant value to their peers, classroom, and the community at the levels of the university, city, province, and economy. However, they face social and academic challenges in their destination countries, which can lead to poor university performance and increased drop-out rates. Existing research emphasizes that international students' interaction with their domestic peers (local students) is associated with positive psychological, social, and academic outcomes that can be associated with academic performance and social capital gains that could stabilize them in destination countries. Despite these benefits to international students and by extension to the university, several accounts in the literature assert that there is generally little interaction between international and local students.

While the literature focuses on studying factors related to international students to understand interactions with local students, there is a gap in the current literature in understanding the likely motivation factors that could trigger local students' participation with international students in online social communities. Accordingly, this thesis addresses this gap by asking this research question: what motivates local students to interact with international students in online communities? The internet is increasingly growing to become a default medium where students build their social networks and get tasks done. Therefore, the research question investigated in this thesis is important because, if we can understand what motivates local students to interact with international students, then universities and HCI designers could design interactive online medium that could enhance such interactions. This would generate value not only to international students but also to universities.

In order to answer this question, this thesis develops a theoretical research model based on

the literature, which identifies seven basic motivation factors that generally drive people's participation in online social communities, including ideology, challenge, career, social, fun, reward, and recognition motivation factors. The thesis use an established framework in the literature which categorizes levels of participation in in online social communities into four major levels including, the role of reader (e.g., browsing and reading others' content, etc.), contributor (e.g., rating, posting, and uploading, etc.), collaborator (e.g. developing relationships and working with others, etc.), and leader (e.g. setting directions, being sought for advice, promoting participation, mentoring novices, etc.).

This research model is studied in this thesis by developing and validating a survey instrument that collects data on local students' views about their likely motivating factors that would drive their participation with international students in online communities. This is an exploratory study that aims to ensure that the survey questionnaire meets the clarity, comprehensiveness, and acceptability requirements to be used in future large-scale data collection. This investigation is important because some motivating factors for participation in online communities might not hold in the context of local students' interaction with international students in online communities. This would be a limitation to established theories on participation in online communities and would therefore require further research that focuses on the context of local-international students' interaction in online communities.

This exploratory study uses the online survey method on a sample of Carleton University undergraduate students. Carleton University is highly interested in attracting and serving international students and this study can be useful in supporting this effort. Participation in the study was solicited through student clubs and through instructors on campus. In two weeks, 101 valid responses were received and used in the data analysis.

The greatest majority of respondents in the sample found the survey questionnaire to be clear, understood, comprehensive, takes a reasonable amount of time to complete, and does not invade their privacy, ethical, or moral standards. Also, a few qualitative comments were received from a minority of the sample suggesting areas for improving the instrument especially on the clarity and length of the survey questions. While the greatest majority of the respondents in the sample were satisfied with the quality of the questionnaire, the issues raised by the minority of the respondents open room for improving the instrument in future studies. On the other hand, all variables including those in the research model and also the control variables show a good level of variation, which indicates that the data likely does not suffer monotonous responses from the sample. These findings suggest that the survey instrument in this thesis developed can be used in future data collection efforts and in data analysis aiming at extracting insights on the factors that motivate local students to interact with international students in online communities.

The study sample shows different levels of local students' participation with international students. As shown in Figure 47, 30% of the sample report unlikely participation, 40% report likely participation as readers, 16% as contributors, 12% as collaborators, and 4% as leaders.

Figure 47 Distribution of Level of Participation

Thus, about 70% of the entire study sample report generally low levels of participation with international students in online communities, which agrees with the existing literature. Additionally, a total of 30% report relatively higher levels of participation in the roles of contributor, collaborator and leader. This decreasing distribution from the role of reader to the role of leader also agrees with the existing literature.

In order to assess the importance of the different types of motivation factors, creating a rank based on their effectiveness can be useful in different applications. All motivation variables are measured using five-score Likert scale. Assessing the percentage of respondents who reported a Likert score of three or higher (an arbitrary measure of intensity of motivation), a rank of these motivation factors appeared. The seven motivation factors rank as follows in their likely effectiveness in driving local students' participation with international students in online communities: challenge- (76%), reward- (75%), ideology- (73%), social- (68%), fun- (63%), career- (58%), and recognition-related motivation (48%). This rank is shown in Figure 48. This exploration of the individual motivation variables suggests that all seven motivation factors are important to investigate. But according to this rank, some of them seem to be more influential than others in driving local students' participation.

Figure 48 Motivation Factors Rank: Entire Sample (101 respondents)

The rank shown in Figure 48 represents the entire study sample. However, it is of interest to look at the rank of motivation factors only for the subsample that reports higher levels of participation in the roles of contributor, collaborator, and leader. Understanding what motivates this subsample of relatively higher participation may help better understand the relative importance of motivation factors. Accordingly, focusing only on that subsample, Figure 49 shows the rank of motivation factors based on their likely influence in driving local students' participation with international students in online communities. As shown in Figure 49, ideology motivation ranks as the highest factor followed by social, fun, and reward, which have equal influence on local students' likely participation.

Figure 49 Motivation Factors Rank: High Level of Participation (Likert Score $\geq 3/5$) (33 respondents)

This finding is important for human computer interaction designers. It suggests that some motivation factors are likely to be more important than others in driving local students' participation with international students in online communities. Accordingly, designing online communities aiming to engage both local and international students should be based on such rank in prioritizing the design criteria. For example, reward ranked as second highest motivation factor

in driving local students' interaction (in the overall sample and also the subsample showing high levels of participation), which creates a need for reward mechanisms that could be used in an HCI context. One such reward mechanism is gamification, which could enhance engagement and interaction. Gamification refers to the use of game elements in non-gaming systems to improve user experience (UX) and user engagement. The HCI literature establishes the role that gamification can play in enhancing engagement and interaction in online communities (Deterding, 2012). Some non-gaming systems, where gamification has been successfully used to drive engagement, include education (Khan Academy), tutorials (RibbonHero), health (HealthMonth), task management (EpicWin), sustainability (Recyclebank), crowdsourced (FoldIt), and user-generated content for programmers (StackOverflow), to name a few. Accordingly, gamification can enable HCI designers to use point reward systems to reward local students' participation with international students in online communities. Such points may or may not be exchanged for other tangible rewards such as academic or financial as explained earlier about the reward motivation factor.

The following presents suggestions for HCI designers that can be considered in designing online communities aiming at engaging both local and international students. For example, according to the data, in order to drive greater participation from local students, online communities should emphasize features that most importantly provide challenge-related motivation factors. The two items included in the challenge motivation factor are achieving new knowledge and achieving new skills. So, design suggestions include features that enable international students to showcase their knowledge and skills, especially those that are not common to local students and are probably specific to their own culture and place of origin. As a result, local students might be fascinated by the potential of acquiring new knowledge and skills

that only international students have access to. The data shows that these challenge motivation is the highest in rank in potentially driving local students' participation. The second highest ranked motivation factor is reward. So, in designing online communities, HCI designers should probably emphasize features that provide reward-based motivation. The two items included in the reward motivation factor are financial rewards and academic reward. So, in designing online communities, HCI designers should probably emphasize features and models where local students can earn money or academic-related rewards when participating with international students. One possibility is to enable participants in online communities to collect points against their participation. These points could then be traded with financial rewards such as money credit toward the products and services offered on campus or academic rewards such as course credit in a mandatory course on collaboration for example. The third highest ranked motivation factor is ideology-related including local students' principles and interest in the welfare of international students. The fourth and fifth highest ranked motivation factors are social-related including having shared experience and make new friends and connections with others and fun-related including entertainment and relieving break. Accordingly, HCI designers could emphasize features that enable participants to organize group activities such as cultural and skills exchange workshops or other fun and entertainment events around cultural arts and performances to mention some examples. The remaining motivation factors (career-related and recognition-related) seem to be the least effective in driving local students' participation with international students in online communities. This is interesting because taking interest in international students can in fact be a source of training for future career opportunities related to a diverse population which is likely highly needed given Canada's culturally and ethnically diverse population. This can be a source of future financial rewards (the second highest ranked motivation).

In any case, future research should investigate the research model in this thesis using statistical approaches such as regression analysis to determine those motivation factors that are statistically significant predictors of local students' participation with international students in online communities. Also, future HCI research could investigate the possible methods and features in online communities that could achieve the different motivation factors studied in this thesis.

With this in mind, this thesis is a step forward in trying to understand how the field of HCI could contribute to enriching international students' social and learning outcomes in destination countries by engaging local students in the virtual life of international students.

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Appendix I: Survey Questionnaire

Preamble

Dear Carleton University Student,

My name is Doaa Elrayes, a Master of Arts student in the Human Computer Interaction program at the Information Technology School at Carleton University. This thesis studies the possible factors that could motivate local students to interact with international students at Carleton University in online social communities. This is a pilot study aiming to evaluate the effectiveness of my survey questionnaire in terms of clarity, comprehensiveness, and acceptability.

The survey questionnaire is targeted to Carleton University undergraduate students who consider themselves to be local students (not international students). This is to invite you to please complete the pilot questionnaire if this criteria applies to you.

Your participation in this pilot survey would help my research uncover ways that could increase the interaction between local students and international students, which are known to enhance international students' social well-being and learning performance.

The data collected in this study will be strictly confidential. All data will be coded such that your identity is not associated with the responses you provide. No information about your identity will be available to the researchers or anyone else. The responses you provide in the online survey will be kept only as softcopies. Only the researchers will have access to the data. Your participation in this pilot survey is entirely voluntary. Please take the time to complete the enclosed survey. There are no correct or incorrect responses, only your much-needed opinions.

At any point during the pilot survey, you have the right to withdraw. If you decide to withdraw before submitting your responses, your responses will be destroyed. After submitting

your responses, you will not be able to withdraw anymore as the researchers would have no way of linking your responses to your identity.

Survey Questions

Q1. In which year of your program at Carleton University are you at the moment?

- ☐ First year
- ☐ Second year
- ☐ Third year
- ☐ Fourth year
- ☐ Other -----

Q2. Are you a full-time or a part-time student?

- ☐ Full time
- ☐ Part time

Q3. Are you a Canadian citizen?

- ☐ Yes
- ☐ No

Q4. Is English your mother-tongue language?

- ☐ Yes
- ☐ No

Q5. At Carleton University, what is the proportion of your friends who would identify as international students?

- ☐ Relatively very small proportion
- ☐ Relatively small proportion
- ☐ Relatively large proportion

- ☐ Relatively very large proportion
 - ☐ None
- Q6. Outside of Carleton University, what is the proportion of your friends who would identify as international students?
- ☐ Relatively very small proportion
 - ☐ Relatively small proportion
 - ☐ Relatively large proportion
 - ☐ Relatively very large proportion
 - ☐ None

Reader-Leader Assessment

- Q7. Which of the following best describes your type of participation in social media in general?
- ☐ Reader (e.g. browsing and reading others' content, etc.)
 - ☐ Contributor (e.g. rating, posting, and uploading, etc.)
 - ☐ Collaborator (e.g. developing relationships and working with others, etc.)
 - ☐ Leader (e.g. setting directions, being sought for advice, promoting participation, mentoring novices, etc.)
 - ☐ None
- Q8. In your day-to-day academic experiences, how often do you collaborate on university work with students who identify themselves as or whom you believe are international students?
- ☐ Always
 - ☐ Most of the Time
 - ☐ Sometimes
 - ☐ Rarely

- Never

Q9. Out of the following list of activities, mark the ones that would best describe the type of your expected interaction with international students in online social communities.

- Browsing ○ Posting ○ Developing relationships ○ Synthesize discussions
- Reading ○ Sharing ○ Working with others ○ Influencing
- Following ○ Uploading ○ Discussing ○ Promoting participation
- Watching ○ Rating ○ Helping ○ Mentoring novices

Q10. In what role would you participate if you interacted with international students in online communities?

- None
- Reader (e.g. browsing and reading others' content, etc.)
- Contributor (e.g. rating, posting, and uploading, etc.)
- Collaborator (e.g. developing relationships and working with others, etc.)
- Leader (e.g. setting directions, being sought for advice, promoting participation, mentoring novices, etc.)

Motivation Factors to Participate in Online Community

Ideology Motivation

Q11. To what extent do you agree/disagree to this statement?

“I would interact with international students in online social communities as a way to help them adjust to a new environment (academically and socially) because I believe is the right thing to do.”

Strongly agree

Strongly disagree

1 2 3 4 5

Q12. To what extent do you agree/disagree to this statement?

“I would interact with international students in online social communities because helping them to adjust to a new environment (academically, and socially) is in line with my principles.”

Strongly agree

Strongly disagree

1 2 3 4 5

Q13. To what extent do you agree/disagree to this statement?

“I would interact with international students in online social communities because it can enhance the welfare of international students.”

Strongly agree

Strongly disagree

1 2 3 4 5

Challenge Motivation

Q14. To what extent do you agree/disagree to this statement?

“I would interact with international students in online social communities because I would achieve new knowledge.”

Strongly agree

Strongly disagree

1 2 3 4 5

Q15. To what extent do you agree/disagree to this statement?

“I would interact with international students in online social communities because I would achieve new skills.”

Strongly agree

Strongly disagree

1 2 3 4 5

Career Motivation

Q16. To what extent do you agree/disagree to this statement?

“I would interact with international students in online social communities to make new contacts that might help my business or career.”

Strongly agree

Strongly disagree

1

2

3

4

5

Q17. To what extent do you agree/disagree to this statement?

“I would interact with international students in online social communities because this experience would help me succeed in my chosen profession.”

Strongly agree

Strongly disagree

1

2

3

4

5

Social Motivation

Q18. To what extent do you agree/disagree to this statement?

“I would interact with international students in online social communities out of the desire to have a shared experience with others.”

Strongly agree

Strongly disagree

1

2

3

4

5

Q19. To what extent do you agree/disagree to this statement?

“I would interact with international students in online social communities to make new friends and connections.”

Strongly agree

Strongly disagree

1

2

3

4

5

Fun Motivation

Q20. To what extent do you agree/disagree to this statement?

“It will be entertaining to interact with international students in online social communities.”

Strongly agree

Strongly disagree

1

2

3

4

5

Q21. To what extent do you agree/disagree to this statement?

“It will be a relieving break to interact with international students in online social communities.”

Strongly agree

Strongly disagree

1

2

3

4

5

Reward Motivation

Q22. To what extent do you agree/disagree to this statement?

“I would interact with international students in online social communities if there was a financial incentive to reward my participation.”

Strongly agree

Strongly disagree

1

2

3

4

5

Q23. To what extent do you agree/disagree to this statement?

“I would interact with international students in online social communities if there was academic credit to reward my participation.”

Strongly agree

Strongly disagree

1

2

3

4

5

Recognition Motivation

Q24. To what extent do you agree/disagree to this statement?

“I would interact with international students in online social communities if my

participation received private or public acknowledgement.”

Strongly agree

Strongly disagree

1

2

3

4

5

Q25. To what extent do you agree/disagree to this statement?

“I would interact with international students in online social communities because participation would add to my status.”

Strongly agree

Strongly disagree

1

2

3

4

5

Q26. What other factors would motivate you to participate as a reader, contributor, collaborator, or a leader in international students’ online social community?

Questionnaire Evaluation

Having completed the above questionnaire, your views on the questionnaire’s clarity, comprehensiveness, and acceptability are valuable for the researcher. Your answers to the following five questions will help the researcher improve on the design of the questionnaire if needed.

Q1. Did you find the questionnaire to be clearly understood?

- Yes
- No (if No, then which question(s) do you find problematic? Please explain)

Q2. Are the response choices sufficiently clear to elicit the desired information?

- Yes
- No (if No, then which question(s) do you find problematic? Please explain)

Q3. Are the questions sufficiently comprehensive?

- Yes
- No (Please explain)

Q4. Were you able to complete this questionnaire in a reasonable amount of time?

- Yes
- No (Please explain)

Q5. Do you perceive any questions to invade your privacy, ethical, or moral standards?

- Yes
- No (Please explain)

Appendix II: Ethics Clearance

Carleton University
Research Ethics Office
Research Ethics Board
511 Tory Building, 1125 Colonel By Drive
Ottawa, ON K1S5B6 Canada
T: 613-520-2517, ethics@carleton.ca

Ethics Clearance Form – New Clearance

This is to certify that the Carleton University Research Ethics Board has examined the application for ethical clearance. The REB found the research project to meet appropriate ethical standards as outlined in the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Human*, 2nd edition, and the *Carleton University Policies and Procedures for the Ethical Conduct of Research*.

Date of Clearance: March 11, 2015

Researcher: Doaa Elrayes (Student Research: Master's Student)

Department: Faculty of Business (Sprott School of) Business

University: Carleton University

Research Supervisor (if applicable): Prof. Alejandro (Alex) Ramirez

Project Number: 102681

Alternate File Number (if applicable):

Project Title: Understanding the Factors that affect Motivation of Local Students to Interact with International Students in Online Social Communities

Funder (if applicable):

Clearance Expires: May 31, 2016

All researchers are governed by the following conditions:

Annual Status Report: You are required to submit an Annual Status Report to either renew clearance or close the file. Failure to submit the Annual Status Report will result in the immediate suspension of the project. Funded projects will have accounts suspended until the report is submitted and approved.

Changes to the project: Any changes to the project must be submitted to the Carleton University Research Ethics Board for approval. All changes must be approved prior to the continuance of the research.

Adverse events: Should a participant suffer adversely from their participation in the project you are required to report the matter to the Carleton University Research Ethics Board. You must submit a written record of the event and indicate what steps you have taken to resolve the situation.

Suspension or termination of clearance: Failure to conduct the research in accordance with the principles of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, 2nd edition and the Carleton University Policies and Procedures for the Ethical Conduct of Research may result in the suspension or termination of the research project.

Louise Heslop

Chair, Carleton University Research Ethics Board

Andy Adler

Vice-Chair, Carleton University Research Ethics Board

Appendix III: Letter of Consent

Questionnaire/Survey Online Consent Form

Title: Understanding the Factors that affect Motivation of Local Students to Interact with International Students in Online Social Communities

Date of ethics clearance: To be determined by the REB (as indicated on the clearance form)

Ethics Clearance for the Collection of Data Expires: To be determined by the REB (as indicated on the clearance form)

This is a study on Carleton Local students. This study aims to understand the different motivation factors that would drive local students' interaction with international students in online social communities in different roles, including the roles of readers, contributors, collaborators, and leaders.

This is a pilot study aiming to evaluate the effectiveness of my survey questionnaire in terms of clarity, comprehensiveness, and acceptability. The survey questionnaire is targeted to Carleton University undergraduate students who consider themselves to be local students (not international students). This is to invite you to please complete the pilot questionnaire if this criteria applies to you.

The researcher for this study is Doaa Elrayes in the Human computer interaction-Information Technology School at Carleton University. She is working under the supervision of Professor Alejandro Ramirez in the Sprott School of Business. This study involves the completion of a 20-minute online survey.

Your participation in this pilot survey would help this research uncover ways that could increase the interaction between local students and international students, which are known to enhance international students' social well-being and learning performance, which would be great for Carleton and other Canadian Universities.

Notes:-

Participating in this research study is voluntary. You have the right to refuse to answer any of the questions. If you felt stressed while responding to the questions, you are encouraged to speak to the researcher who will direct you to support services. You have the right to end your participation

in the survey at any time, for any reason, up until you hit the “submit” button. You can withdraw by exiting the survey at any time before completing it.

If you withdraw from the study, all information you provided will be immediately destroyed. (As the survey responses are anonymous, it is not possible to withdraw after the survey is submitted). All research data will be encrypted. The company running the online survey is SurveyMonkey, which is an American company with servers in the United States. According to SurveyMonkey, the company maintains strict privacy policy to protect survey responses. However, according to the company’s policy the data stored on Survey Monkey servers may be subject to the PATRIOT legislation.

Once the research study is completed, all survey responses will be permanently deleted. If you would like a copy of the research results, you are invited to contact the researcher to request an electronic copy.

The ethics protocol for this research was reviewed by the Carleton University Research Ethics Board REB, which provided clearance to carry out the research. (Clearance expires on: insert date here.) Should you have questions or concerns related to your involvement in this research, please contact

REB contact information:

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By clicking “Submit”, you consent to participate in the research study as described above.