Millennials’ Online Social Interaction Engagement and its Impact on Emotions

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1 Acknowledgement

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2 Abstract

The subject of our study is how online interaction affects the emotions of Chinese millennials. Social interactions have changed over the years, especially with the introduction of Web 2.0, social interactions have shifted from offline to online. Online social interactions influence us in many ways, such as shaping our decisions and affecting our emotions. Emotions are an essential part of our lives, even though they cannot be easily described, or even understood, since we experience a variety of emotions in different situations. As a generation that grew up with Web 2.0, more millennials take their social interactions online and sacrifices face-to-face interaction (Bargh & McKenna, 2004). Studies have examined both positive and negative outcomes for such sacrifice without a definite conclusion. Our emphasis is on Chinese millennials, because of the lack of current studies and the potential influence of Chinese millennials (Wang, 2017).

We conducted an exploratory comparison study and concluded with a description of a model for understanding the emotional journey during online social interactions. We sampled four groups of three Chinese millennials for an in-depth qualitative study through interviews, and observations of both face-to-face and online interactions. The entry and exit interviews are conducted in relations to the two 1-hour observations. We found six themes and eight sub themes: (1) Lack of physical presence (Physical proximity, context cues), (2) disrupted conversation flow (Conversation pacing, expectation of the communication methods), (3) increased chance of conflict (Response speed), (4) increased self-disclosure, (5) little information shared (Distraction and lack of purpose, efficiency, enduring physical pain), and (6) high level of support. We have found that context cues and achieving conversation purpose are focal points of the emotional experience, as well as how online self-disclosed information is and most likely remain different from offline self-disclosed information due to the concept of presence. This study’s goal is not to prove whether online social interactions affect millennials’ emotions, or to what extent this phenomenon exists. Rather, the aim is to explore how individuals are emotionally affected and what factors may be the cause.
Chapter 3: Introduction

The internet and being constantly connected has shifted our interactions to online. It enabled social interactions and brought people together for different purposes and from different places. Even though one can easily disengage in such interactions, studies (McKenna, et al., 2002) have suggested that online social interactions influence us in many ways, such as shaping our decisions. In earlier Internet studies, the consensus was that emotions are difficult to express online (Derks, et al., 2008). More recently, however, more focus has been put on studying the relationship between emotions and the internet as technology advances. This is enabled by the amount of publicly available data, known as Big Data, and new techniques and software that can obtain and analyze Big Data, such as text mining and neural networks. Several studies (Laflen & Fiorenza, 2012) argue that the emotions expressed offline can be expressed online as well as without losing value. Some even suggested that more emotions can be expressed online because of the lack of self and social constraints (Marriott & Buchanan, 2014), as well as the improvement of online communication channels, such as the possibility for video capabilities (Misoch, 2015). According to a study (Frost & Rickwood, 2017), it suggests that online social interactions not only influence our health, but it also destroys one’s ability to interact in face-to-face interactions and could lead to a dysfunctional social person (Beneito-Montagut, 2015).

Collins’ research (Collins, 2004) suggests that face-to-face interaction enables the establishment of interaction rituals. Collins (Collins, 2004) proposes that successful rituals create group symbols, tools that individuals use to communicate group identity to others, and injects group members with emotional energy, whilst failed rituals drain emotional energy. Emotional energy influences human behavior through two ways. First, individuals want to be involved in situations where their emotional energy is likely to be increased. Second, high levels of emotional energy are associated with confidence, attractiveness, influence, and shared identity and morals. Interactions are successful when the emotional energy is increased for the individuals involved. Collins (Collins, 2004) argues online interactions lack two bases of interaction rituals: situational co-presence and mutual focus of attention. Situational co-presence is when “processes that take place as human bodies come close enough to each other so that their nervous systems become mutually attuned in rhythms and anticipations of each other, and the physiological substratum that produces emotions in one individual’s body becomes stimulated in feedback loops that run through the other person’s body.” In other words, online interactions lack the physical aspect and online communication methods tend to rely on just a single information channel, lacking the multi-sensory information provided by intimacy. Online interactions lack mutual focus of attention due to the “lack of the flow of interaction in real time; even if electronic communications happen within minutes, this is not the rhythm of immediate vocal participation...There is little or no buildup of focus of attention in reading an email, or
paralinguistic background signals of mutual engrossment…the more that human social activities are carried out by distance media, at low levels of interaction rituals intensity, the less solidarity people will feel…” However, recent developments suggest that interaction rituals are possible online too, since situational co-presence and mutual focus of attention are not the only aspects of interaction rituals (Campos-Castillo & Hitlin, 2013). They argue that each online communication channel, such as e-mail, social media, video conferencing, and online discussion forums have its own group symbols and norms. Innovations, such as hashtags and emoticons increase the amount of information, especially emotional information. Interaction and anticipation exists online, such as the receiver of the message perceives and tries to understand the meaning of the message, meanwhile they also prepare for a response and their stance towards the message. The sender of the message does not expect the receiver to just passively receive the message, thus the sender expects a reply, as well as emotional response.

From the moment we are born, emotions are an essential part of our lives. Even though they cannot be easily described, or even understood. However, we experience a variety of emotions in different situations. Our earliest emotional response is quite basic and is triggered mostly by nonverbal communication, such as a smile or a frown (Adolphs & Janowski, 2011). As time passes, we develop the capability of handling complex emotional situations, such as falling on love, and so we better understand the complexity of emotions. Given the complexity of our emotional states, it is no surprise that emotions could affect our mental and physical health (Beneito-Montagut, 2015). Therefore, as people spend more time interacting online on a daily basis, there is an interest in understanding how this would impact our emotions. Emotions can play an important role in how an individual think and behave (Bargh & McKenna, 2004), because certain emotions, such as guilt and fear, would guide us to make decisions that would result in the opposite emotions, and other times we make a decision based on the anticipated resulting emotions (Bargh & McKenna, 2004). Humans have a wide range of emotions, displayed through facial expressions, body language and the tone of our voice (Carroll & Russell, 1996). Sometimes these emotional cues are expressed intentionally, to communicate a point, and other times they are expressed unconsciously. Either way, they provide information about an individual's emotional state and the receiver would react accordingly (Visschedijk, et al., 2013). Emotions can be short termed, such as a temporary anger towards another person, or long termed, such as the sadness we experience over the loss of a relationship. Our emotions can also influence our motivation (Løvoll, et al., 2017). We tend to take actions that have a high probability of experiencing positive emotions, such as joining social activities that would give a sense of happiness and enjoyment, rather than to take actions that would cause negative emotions (Løvoll, et al., 2017). For example, to avoid the feeling of stress over taking an underprepared exam; we are likely to study harder for the next exam.

In many films and other media, keeping a positive attitude and not letting negative emotions hinder you can solve many problems, such as overcoming an issue or performing a medical miracle. Nevertheless, it has been proven that there is a causal link between health and emotions, such as long-term emotions could affect our physical health (Howell, et al., 2007). A study done by Cohen, et al. (Cohen, et al., 2006) indicated that individuals who experience more positive emotions have fewer colds than those with negative emotions. Studies (Thayer, et al., 2009) have
linked positive emotions with less health issues as well, and in turn less health issues promote positive emotions. According to another study (Fredrickson, et al., 2008), individuals who undergo positive emotions have greater compassion and social engagement, thus causing their interaction to be more pleasant. Comparing this with individuals who feel lack of social connections due to negative emotions, individuals with a positive outlook have better well-being. In other words, emotions can be linked to other concepts which can affect our physical health. Human interaction is crucial for the social life and it is an important factor for our health that we socialize and spend time with others (Fredrickson, et al., 2008). As time passes, the ways we socialize in everyday life have changed significantly. New and different forms of interaction are introduced, such as social media, thus, opening more opportunities for social engagement (Beneito-Montagut, 2015). It plays a significant part in the social relationships of many individuals. As technology advances, such as smartphones and more individuals are gaining unlimited access to the internet, people now have many different ways to communicate with others and being social. It is difficult to imagine establishing and maintaining social relationships without access to the internet. In those online and offline social relationships, emotions are key to the outcome and course of the social relationship (Beneito-Montagut, 2015). In some cultures, such as in the Chinese culture, it is believed that individuals must balance out the positive with the negative in order to achieve better well-being (Leung, 1998). The concept of Yin and Yang suggests that everything in the universe must exist in pairs of contrasting states (Leung, 1998). One would have no meaning without the other, such as we can appreciate happiness because we know sadness.

3.1 Relevance

It is known that there is a difference between online and offline communication. The main difference being in online communication we lose verbal cues and body language expression. Our emotions are affected by observing others in a certain emotional state. Our emotions will automatically reflect what they are feeling (Dimberg, et al., 2000). For example, if we see another person sad, we will also experience sadness. This pattern is believed to support our ability to understand social interactions. By sharing others’ emotions, we can understand and predict their intentions and actions, because emotions make us feel and view issues in the same way as them (Hatfield, et al., 1994). On the other hand, online interactions lack the emotional connection. Of course, one would get a reaction to an emotionally charged message; however, the only input is the text content. There is no other input which one may use to read the situation. Thus, the perceived sociality is lower in online interactions than in offline interactions. This can influence the levels of emotion expressed and experienced (Derks, et al., 2008). According to a study (Berry & Hansen, 1996) on the effects in social interactions, it suggested that positive emotions were more evident in social situations where you can interact and read the other person. On the other hand, online social interactions were more associated with negative emotions because of the lack of the ability to read the other person and the social situation (Bargh & McKenna, 2004).
Online interactions not only could have a positive influence on our emotions, but also negative consequences. Individuals who prefer spending a lot of time with online social interactions may develop symptoms of Problematic Internet Use (Caplan, 2005). Problematic Internet use (PIU), which has become a debated social issue, was first introduced by psychologist K. Young (Young, 1996) who began her study with a 43 years old home wife, who was not technological capable and had a stable family life and no mental illness history. However, within three months of discovering online chat rooms, the home wife was spending around 60 hours per week on online interactions. She claimed she felt excited chatting with strangers, but at the same time, depressed, anxious, and irritable when she left the chat rooms. This caused issues with her family and her social relationships slowly worsened over time. Therefore, Problematic Internet Use can be generally understood as someone who is unable to control their use of the Internet, leading to negative outcomes in their life. Preference for online social interaction could be explained with that individuals believing one is safer online and therefore, they have more confidence, and are more comfortable with online social relationships than with face-to-face social relationships (Caplan, 2003). This is partially due to higher self-disclosure in online environment because people's need for belonging and need for self-presentation, which might be associated with neuroticism, narcissism, self-esteem, and self-worth (Caplan, 2003). However, whether the online social interactions have a positive or negative effect may depend on the quality of people's online relationships and the sacrifices made to spend time online (Kraut, et al., 2002). Such as, social tensions may rise between individuals, when having opposite opinions on different topics. Since self-disclosure is higher online and have less social restraints, people would not necessarily be aware of other's emotions. Therefore, it can lead to some individuals suffering psychologically from online interactions (Kraut, et al., 2002). One study has proven that online disagreements is more powerful and stays with the individual longer than face-to-face interactions, as well as the potential for the negative online experiences to continue to offline settings (Park, et al., 2014). Other studies found that mere exposure to online prejudice could cause others to become prejudiced as well and post prejudiced comments themselves, negatively influencing others in the process (Hsueh, et al., 2015).

Despite a growing interest on emotions and online activity, little research studied in-depth about how emotion is experienced in millennials while interacting online with others, even though the internet and online social interactions have become a part of our lives (Serazio, 2015). Every generation experience situations differently, and therefore, there is a need to understand how millennials, who grew up with the internet, are emotionally impacted by online interactions. Millennials can embrace new communication methods and technology faster and more comprehensively than the older generations (Green, 2012). Most of their daily lives are experienced online unlike any generation before them, especially through social networks. As a result, it is reasonable to assume their attitudes towards online social interactions, and how they are affected is different. Many marketing companies and education institutes today are trying to adapt to the millennials and changing their strategy in order to target and adapt to them (Smith, 2017). Understanding how online social interactions affect them would benefit organizations and institutions to improve its communication with millennials. Nevertheless, this has raised concerns for millennials replacing face-to-face interactions with online interactions and their capability to detect and handle different social situations (Agrawal, 2017).
3.2 Problem discussion

As we enter the age of Web 2.0, the ways individuals could communicate multiplied. Distance has become a relic of the past, since Web 2.0 allows individuals to connect with others regardless of the geographical limitation. However, many previous studies (Valkenburg & Peter, 2011) focused on the relationship of social normality and online communications, and no other situational factors based on the interaction. Nevertheless, there is a need to understand online social interactions as it becomes the dominant and preferred method of communication in the digital age (Caplan, 2003). The study of emotions has always been focused in psychology, and it continues till today because of the complexity of human emotions and how it could affect our behavior (Andrade & Ho, 2009). One of the most influential factors affecting our daily emotions is interactions, especially social interactions (Kensinger, et al., 2016). Since our emotions are affected by our activities and the environment, and vice versa, it leads to the need to understand how different communication methods and interactions could affect our emotions. Nevertheless, the aim of our study is to explore the possibility of situational factors in an online environment affecting the emotional outcome after an interaction. We decided to study Chinese millennials due to the lack of focus on them in related literatures, and since the Chinese demographic represent a large proportion in the world’s population (Wang, 2017). Most of the related literatures are conducted based on the western countries, which leads to their studies focusing more on Europe or America. Studies based on Asian and African countries are quite limited, and the number of studies of similar topics, emotions and online social interactions, based on China are even less. Furthermore, the geographical region that the researches are conducted in has direct influence on the final results, as individuals who have different culture background will have different opinions toward the same topics. As a result, they might experience different or even opposite emotions towards the same topics. Thus, due to the lack of focus from previous studies on Chinese millennials, we chose to conduct our study based on them. Moreover, we targeted millennials in our study since majority of previous studies are based on age groups or the general population, little attention has been on certain generations. There are no doubt technology advancements, such as smartphones, social media or instant messaging applications deeply influence every aspect of their daily lives (Robinson & Stubberud, 2012). On average, millennials spend five hours per day on social interactions (McCarthy, 2014). By combining the three aspects, we formed our study and the direction; we want to introduce the readers to how Chinese millennials are emotionally affected by online social interactions.

3.2.1 Purpose

The purpose of our study is how online interaction affects the emotions of Chinese millennials. Our study does not set out to prove whether the phenomenon of online social interactions affects millennials’ emotions, or to what extent this phenomenon exists. Rather, we are set to explore how they are emotionally affected, and what factors may be the cause. Our goal is to explore and
understand the factors affecting the emotional experience through comparing the face-to-face and online environment, in which millennials engage in social interactions. Our research question is therefore: “Millennials’ Online Social Interaction Engagement and its Impact on Emotions”
4 Frame of reference

The purpose of this chapter is to give the researchers a basic understanding of the subject and to equip them with the ability to recognize vital data sources during the data collection. For our understanding, we included the development of emotions studies, social interactions and online communication, and the connection between the two concepts. There are many aspects to emotions studies, including the study of stages of emotions development and emotional experiences, however, we will focus our attention on emotions recognition in both online and offline context, as well as emotion expressions, such as facial expression and body language. We will be looking into Web 2.0 and how online communication, such as social media, changed the way the world communicated. As well as recognizing the importance of online communication, along with understanding reasons why individuals engage in online communication. In addition, the potential behavioral addiction caused by online interactions will also be included, and the prevalence of Instant Messaging services (IM) and its effects on millennials’ social relationships. Finally, we will investigate the connection between Internet use, especially for online interactions, and the psychological well-being with the focus on a behavioral symptom called Fear of Missing Out (FoMO) (Elhai, et al., 2016; Alt, 2015; Worthham, 2011; Przybylski, et al., 2013).

4.1 The development of emotions studies

Human beings are born with emotions, and it has major effects on our daily lives. Emotions can be regarded as a complex mix of different feelings that affects our physical and psychological well-being and could influence our thoughts and behavior. There are three main perspectives for understanding emotions: physiological, neurological, and cognitive. Physiological theories suggest that body responses are responsible for emotions. Neurological theories suggest that our brain activity creates emotions. Lastly, cognitive theories suggest that thoughts and brain activities create emotions. Most scholars believe that the first attempt to understand emotions is from Charles Darwin in 1872 (Adolphs & Janowski, 2011; Fugate, et al., 2013).

Evolutionary Theory of Emotion

Charles Darwin (Darwin, 2001) proposed that emotions evolved, just like any other aspect of human beings, to adapt to the environment and ensure our survival. Such as, affection or love lead individuals to seek potential partners and reproduce, as well as fear is evolved from experiences of danger and serves as a warning to us. According to this theory, our emotions exist as a motivating force to get us to respond quickly to a situation, which increases the chances of our survival. Thus, it is important to understand emotions and recognize it in every living creature. For example, if a dog barks then you know something is not right and thus, you could avoid danger early.
The James-Lange Theory of Emotion

The James-Lange theory (Cannon, 1927) suggests that emotions occur because of our physiological responses to different situations. In other words, your emotions depend on your bodily responses. For example, if your heart begins to pound faster, sweat, and out of breath after running, then you can conclude you are tired from the information from your body. However, according to this theory, you are not out of breath because you are tired. Instead, you are tired because you are out of breath.

The Cannon-Bard Theory of Emotion

The Cannon-Bard Theory of Emotion (Weisfeld & Goetz, 2013) was developed based on the James-Lange theory of emotion, however it improves on different aspects. First, physiological reactions can be linked to many other emotions, and not just one. For example, your heart could be racing and sweating because you saw something frightening on your run. Secondly, emotional responses occur too suddenly to be results of physical circumstances. Such as, when you are in danger, you will feel afraid before your body starts reacting. Lastly, emotions and physiological reactions occur at the same time rather one causing the other.

The Schachter-Singer Theory of Emotion

This theory (Schachter & Singer, 1962) is a combination of James-Lange theory and the Cannon-Bard theory of emotion. It suggests that the individual experiences physiological indication first, and they try to identify the reason for this. When they successfully identified the reasons, they will then label an emotion to it. Similar to the James-Lange theory, the Schachter-Singer theory suggests that individuals experience emotions based on their physiological responses. However, the difference is the cognitive interpretation labeling that emotion. Agreeing with Cannon-Bard theory, the Schachter-Singer theory also suggests that similar physiological responses can result in different emotions. For example, if you are shaking during an interview, you will probably identify the emotion as fear. However, if you shake on a date, then it is likely to be affection.

Lazarus Theory of Emotion

According to this theory (Lazarus, 1991), thinking must occur before experiencing the emotion. An individual would encounter a situation, which then causes the individual to think. The thought would then lead to the experience of a physiological response and creation of an emotion. For example, if you encounter a speeding car whilst crossing the street, then you start to think that you might be in danger, which leads to the emotional experience of fear and the bodily reactions connected with fear.

Facial-Feedback Theory of Emotion

The facial-feedback theory of emotions suggests that there is a relationship between facial expressions and emotional experiences. Charles Darwin (Darwin, 2001) and William James (Cannon, 1927) noted that physiological responses have a direct impact on emotion, rather than a product of the emotion. Emotions are directly related to changes in facial muscles (McIntosh,
1996). For example, people who are forced to smile at a party will have a better time than others who frowned.

In the end, all of the theories concluded that the understanding of emotional experience requires a rich and context-sensitive description of what is experienced, as well as a causal explanation of how the experience is constituted by our brain (Barrett, et al., 2007). However, by using medical methods of measuring facial muscle activity, vocal acoustics, autonomic physiology, and brain activation, it could be possible to know what emotional state a mind is in (Barrett, et al., 2007).

4.1.1 Emotion recognition

As Charles Darwin (Darwin, 2001) proposed and later supported by Ralph Adolph (Adolphs & Janowski, 2011), the recognition of emotions is also vital, however, not only for survival but also for maintaining social relationships, thus later studies focused on emotion recognition. To recognize emotions can be sometimes difficult, as people could mislead or hide their emotions. Adolphs and Janowski (Adolphs & Janowski, 2011) defined emotion recognition as “the collection of processes by which people attempt to reconstruct the internal emotional state of another person from whatever cues we have available—their facial expression, their tone of voice, their actions, and additional contextual and historical information. Most importantly, there is a final aspect of emotion recognition that needs to be emphasized at the outset: it is active.” They also listed several signals such as facial expression and other visual signals including body posture and movement, which could help individuals to recognize the emotion of others during face-to-face interactions.

Several scholars designed different studies in 1996 (eg. (Mayer & Geher, 1996)) in order to evaluate the participants’ emotional recognition abilities, including agreement with the group consensus and agreement with the target. They concluded that people who were good at connecting thoughts to feelings, meaning connecting emotional implications with their thoughts, were better at understanding the feelings of others from what they say. They suggested that facial expression is vital for recognizing the emotion during face-to-face interactions and they also considered other aspects such as emotional intelligence, which indicated the ability to successfully reason with and identify emotions. Their study further revealed that the ability to know other people’s emotions is related to different parts of emotional intelligence, such as empathy, openness, and general emotional intelligence (Mayer & Geher, 1996).

Recent studies (Zhang & Parmley, 2015) put the emphasis of emotion recognition and experience based on the different relationships the participants had with others, although they concluded that facial expression is the best indicator of emotions in face-to-face interactions. There are two different relationships, communal and exchange relationships and the study suggested that individuals' emotional experiences are likely to differ in these two different kinds of relationship. In mutual communal relationships, such as close friends, romantic relationships, and family members (Zhang & Parmley, 2015), individuals tend to be more concerned about the happiness and welfare of others, thus, pay more attention to the other person’s needs and respond
to these needs by providing help. (Zhang & Parmley, 2015). Under these circumstances, people will not expect anything in return. Individuals will donate and sacrifice their time to emotionally be with others. On the other hand, individuals in mutual exchange relationships, such as classmates, coworkers, and other casual acquaintances, think that it is unnecessary and not obliged to care about others’ happiness and welfare. Nevertheless, if they help the other person, they will expect something in return. Individuals in mutual exchange relationships are not particularly reactive to other’s needs because they are not influenced by the emotional needs of the other person as much as individuals in mutual communal relationships are. These two relationships represent the most of millennials’ relationships as they typically have a large number of acquaintances and few close relationships (Zhang & Parmley, 2015).

4.2 Web 1.0 to Web 2.0

With the introduction of the internet, the first terminology associated with it was Web 1.0. Web 1.0 can be referred to one-way communication, and the online information was read only, which means that internet users can only receive the information but no way of interacting (Gregor & Kubiak, 2013). Only specialized computers could send information. The idea of Web 2.0 was brought to the public by O’Reilly in a conference in 2004 (Matthew, 2013). Netscape could be seen as the standard bearer of Web 1.0 and Google as the bearer for Web 2.0. In O’Reilly’s study (Matthew, 2013), he reported that compared to Web 1.0, Web 2.0 is characterized by services based on data rather than creating software and any device that can be connected to the Web could access the web platform rather than just personal computers. In other words, Netscape products was the web browser, desktop applications, and their strategy was to use their dominance in the browser market to establish a monopoly over server products, which was the only way to send information. They had control over standards for displaying content and applications in the browser (Matthew, 2013). Google, on the other hand, was a web application, meaning its services are accessible via the Web browser. It was never sold, rather delivered as a service with the customers paying, directly or indirectly, for the use of that service. They did not trap the users like Netscape did, and there were no scheduled software releases, just continuous improvement. This also meant that any device that can access the Web can use Google.

It is not just the contents of the web that changed during Web 2.0, but also the development of new technologies such as portable devices like smartphones and laptops. The main core value or features of Web 2.0 concluded by O’Reilly was interaction, participation and sharing. Social medias have emerged since then, as Web 2.0 put emphasis on online interactions and platforms (Gregor & Kubiak, 2013). On a Web 2.0 platform, social interactions occur when individuals or groups share stories, understanding, experience, and skills through observation, practice, and participation in different online and offline social communities. In conclusion, the essence of Web 2.0 is a platform depending on user generated data where users can create and share, and not only to consume information.
4.2.1 Online communications and why people keep using social media

Meanwhile, a lot of scholars (eg. (Gregor & Kubiak, 2013)) have paid attention to digital technologies in Web 2.0, such as social media. Social media is defined as digital applications that facilitates the sharing of ideas and information, as well as the building of virtual networks and communities (Obar & Wildman, 2015). For example, Facebook continues to develop and change to better users’ experience of sharing. At the beginning, social media is just regarded as serving the role of communicating and interacting online (Matthew, 2013). However, more functions of social media have been discovered by further studies, for example, social media has been becoming the new venue for businesses to compete in and it also stimulates the creation and innovation of users. This resulted in new forms of cooperation between companies and consumers, called open innovation (Asio & Khorasani, 2015). Bugshan (Bugshan, 2015) reported in his study of innovation in the context of Web 2.0 that online communication channels have developed and facilitated the opportunity for open innovation as an attractive means of customer involvement in value creation. For example, his study has revealed that under the context of Web 2.0, platforms and social media can also serve as a platform where knowledge can flow. Wikipedia and Facebook are examples where knowledge flows in both directions and can be triggered by individuals from any location at any time (Shang, et al., 2011).

However, as social media have become increasingly important to individuals, as well as to every industry, what makes people continually coming back to social media and why users stay loyal and stick with social media have caused heated debate. Nadkarni and Hofmann (Nadkarni & Hofmann, 2012) conducted a study and they concluded that social media use is motivated by two primary needs which are the need to belong and the need for self-presentation, and both of them are related to our emotional experience. To be more specific, they listed factors in the two categories, such as demographic and cultural factors affect the need to belong, in the meanwhile, neuroticism, narcissism, shyness, self-esteem and self-worth contribute to the need for self-presentation. The results of their study indicated that the reason of 62% of Facebook users using Facebook continually can be explained by attitude and satisfaction. Between them, attitude is the most important factor and they found out that the entertainment and status seeking have been found to have indirect significant effects on continuance intention using, while information seeking, and self-expression have been found to have insignificant effects (Nadkarni & Hofmann, 2012). This conclusion is present in many other studies (eg. (Basak & Calisir, 2015)), and is generally accepted as the reason for social media use.

4.2.2 Social media addiction and why people start avoiding using social media

In an overview social media addiction study by Andreassen (Andreassen, 2015), he defined social media addiction as being overly concerned about social medias, to be driven by a strong motivation to log on to or use social medias, and to devote so much time and effort to social medias that it negatively affects other social activities, responsibilities, interpersonal relationships, and well-being, similar to the effects of Problematic Internet use. He devised a
theoretical and empirical model which could help later scholars to measure the level of social media addiction, called Bergen Facebook Addiction Scale (BFAS) (Andreassen, 2015). The BFAS is a six-item questionnaire based on general addiction theory. BFAS measures social media addiction according to the criteria: salience, mood modification, conflict, withdrawal, tolerance, and relapse. In his study (Andreassen, 2015), they applied BFAS along with some other questionnaires to find the relationship between behavioral addictions, such as social media addiction, video game addiction, Internet addiction, exercise addiction, mobile phone addiction, compulsive buying, and study addiction and Big Five personality traits using the Five Factor Model which includes neuroticism, extroversion, openness to experience, agreeableness and conscientiousness. The findings showed that neuroticism and extroversion was positively associated with Internet addiction, Facebook addiction, mobile phone addiction. On the other hand, openness, agreeableness and conscientiousness to experience was negatively associated with social media addiction, mobile phone addiction, and video game addiction. They set out to prove how personalities are related to different online addictions, and as a result, they correlated different personality traits to different addictions (Andreassen, 2015).

However, several recent studies (eg. (Bright, et al., 2015; Stieger, et al., 2013; Muise, et al., 2009)) have shown that there are social media users are trying to reduce or avoid using social medias to some extent. A common concern for people staying with or avoiding social media is privacy (Stefan Stieger, 2013). A study by Stieger, et al. (Stieger, et al., 2013) investigated those social media users who commit “virtual suicide”, quitting and deleting their social media accounts in relations to privacy concerns, Internet addiction scores, and personality in order to determine which individuals are likely to quit social media. They found social media quitters pay more attention to their privacy, and they also showed high tendency of having Internet addiction, than loyal social media users. Accordingly, they concluded that the main reason for committing “virtual suicide” was due to privacy concerns and that people realized the increase of social media use may cause relationship crisis. Another study (Muise, et al., 2009) found that social media may be responsible for creating jealousy and suspicion in romantic relationships. Muise, et al. (Muise, et al., 2009) uses the term “green-eyed monster” to describe this kind of online jealousy that social media may induce. The conclusion was that increased social media use indeed contributes to triggering jealousy online. They further argued that the reason for that may be the result of a feedback loop caused by information asymmetry. For example, people might receive or send unintentional ambiguous information from or to their partner which their partner may not understand, and may cause the misunderstanding, and engage in further communication trying to solve the issue.

4.2.3 The prevalence of online communications and its effects on offline relationship

Scholars have already predicted there is an inevitable trend that the online communication will gradually substitute the traditional offline communications including face-to-face communication (Amichai-Hamburger & Furnham, 2007). Online communication has gradually become the main channel for people communicating and interacting since the introduction of Web 2.0 and social
media (Amichai-Hamburger & Furnham, 2007). In fact, the earliest online communication method introduced to people after Web 1.0 was e-mail and non-IM applications, such as chat rooms (Ribera, et al., 2009). The difference between non-IM applications and IM is that users in IM are known to each other (Ribera, et al., 2009). IM applications allowed people to have real-time, private text-based conversations on the Internet regardless of their locations. These were the main ways for people to contact each other digitally. E-mail and non-IM applications were predominantly used for the maintenance of existing social relationships, both among teenagers, who primarily use non-IM and among adults, who primarily use e-mails (Amichai-Hamburger & Furnham, 2007). Although synchronous networked communication has a long history, IM use expanded with the introduction of the ICQ (“I Seek You”) service in November 1996 by a company called Mirabilis, which made ICQ freely available to anyone with Internet access) and was later sold to AOL (Amichai-Hamburger & Furnham, 2007). ICQ was the first stand-alone instant messenger and the first popular online IM service. The idea of a centralized service focusing on the individual user accounts and one-on-one conversations set the foundation for later instant messaging services like AIM, and modern social media applications. This was famously depicted in 1998’s film “You’ve got mail”. Since Web 2.0 depends heavily on platforms to achieve its core value of interaction, participation and sharing, number of IM services and social media increased, such as MSN messenger, Twitter, Facebook and Instagram (Gregor & Kubiak, 2013). With the development digital technologies, the platforms moved from personal computers to mainly portal devices such as smartphones, meanwhile IM applications became increasing popular among people, especially amongst young generations (Boneva, et al., 2012).

4.2.4 Online relationship and Offline relationship

Ko and Kuo (Ko & Kuo, 2009), designed a study based on self-disclosure and the social capital theory, defined as resources in social relations which enables a group action. Social capital resources include trust, norms, and social networks which gathers for a common purpose (Brehm & Rahn, 1997). Ko and Kuo (Ko & Kuo, 2009) investigated bloggers from Taiwan aimed to find out if the level of self-disclosure can enhance their social capital and if these capitals in turn enhance their subjective perception of well-being. They added on to the definition of self-disclosure by the addition of several dimensions, including intention, amount, positive/negative matter, depth, and honesty and accuracy (Ko & Kuo, 2009). They summarized that social capital includes of two dependent categories: bonding and bridging. Bonding exists in groups of individuals who share intimate and reciprocal relationships where bonded members can be engaged in frequent interactions and their relationships are voluntary, supportive, as well as long lasting. Bridge social capital exists in groups of individuals coming from different social networks, through which members can share diversified messages, reach consensus, but with less trust among members (Oh, et al., 2014). Their findings showed that self-disclosure directly contributes to participants’ perception of social integration, bonding social capital and bridge social capital, which in turn improve their subjective well-being (Ko & Kuo, 2009).
Valkenburg and Peter (Valkenburg & Peter, 2011) did a research on the effects of the Internet on friendship formation revolved around two hypotheses. First, the rich-get-richer hypothesis proposes that it is easier for young adults who already have rather strong social skills to able to start new friendships online. Second, the social compensation hypothesis states the opposite opinion which is that young adults who are lonely and have less social skills can benefit more from the internet. Due to the controllability of online communication, these young adults are more likely to disclose themselves online than offline, which can enable them to form the new friendships. The rich-get-richer hypothesis receive more support from scholars than the social compensation hypothesis (Kraut, et al., 2002; Valkenburg & Peter, 2011; Meredith E.M. Poley, 2012). From the studies (Kraut, et al., 2002; Valkenburg & Peter, 2011; Meredith E.M. Poley, 2012), young adults who are lonely and socially anxious less often conduct online communication than those who are not lonely and have stronger social skills. However, as predicted by the social compensation hypothesis, lonely and socially anxious young adults do seem to prefer online communication to face-to-face communication. In addition, they are more likely to consider the controllability as the most important feature of online communication than those who are not socially anxious and lonely. This suggests that although socially anxious and lonely young adults prefer online communication than face-to-face communication, however, the preference have less possibilities to form new relationships (Marriott & Buchanan, 2014).

4.3 Internet use outcomes

The Internet can be considered as one of the most influential inventions. It introduced a new form of interaction and communication, enabling individuals to connect regardless the physical distance between them. As it gradually invaded our daily lives and started shaping our lifestyles, we are beginning to feel its impact (Bargh & McKenna, 2004). Studies have discovered a connection between online social media use and individual’s physical and mental well-being (Magsamen-Conrad, et al., 2014). Just like a coin, the impact is two-fold, as it could have positive outcomes, such as increase in confidence, but also negative outcomes, such as causing anxiety (Magsamen-Conrad, et al., 2014; Oberst, et al., 2017).

4.3.1 The positive effects of internet use on individual’s well-being

On the one hand, due to the features of social media, such as convenience, immediacy, entertainment and so on, it can contribute to the management and enhancement of social capital, connectedness, increased self-esteem, and the satisfaction of their need to belong in a technologically dominated society (Oberst, et al., 2017). Since the discovery of the internet, scholars have been discussing whether its advantages overweigh the disadvantages or vice versa, could the internet bring more harm than good. Over the decades, this has always been debated extensively amongst scholars (Caplan, 2005), whilst most of scholars hold the opinion that the
internet results in more negative consequences than positive ones, more recent studies have shown otherwise (McKenna, et al., 2002).

It is suggested that understanding the positive aspects of the internet will promote its potential to improve the psychological well-being of individuals. Amichai-Hamburger and Furnham (Amichai-Hamburger & Furnham, 2007) mentioned in their study that the internet can be an effective channel for social support. Social support, which includes emotional, financial, and psychological support, from others can make a positive impact on individual’s health and happiness. Thus, the Internet is rather important and convenient serving as an important social support channel, especially for those people who are unable to participate in face-to-face communication, and it has been proposed that less assertive people with less social skills, are more likely to choose online communication. Online communication can help in the practice and improvement of social skills, due to the anonymity, control over the interaction, and the ease of finding others who are similar. In other words, internet users feel safe under such controllable environment, which is easier for them to disclose and improve their social skills. In addition, the quality and quantity of communication with others appear to be vital for long and short-term happiness and well-being (Amichai-Hamburger & Furnham, 2007). Magsamen-Conrad, et al. (Magsamen-Conrad, et al., 2014) examined the effect of online social capital and Internet use, focusing on the positive effects of technologies, especially for individuals prone to self-concealment. Self-concealment is a personality trait that describes individuals who are more likely to withhold perceived negative or distressing personal information, and it is first defined by Larson and Christian (Larson & Christian, 1990). In their study, they concluded that the self-concealment has strong connection with anxiety, depression and another psychological symptoms. In addition, Komiya, et al. (Komiya, et al., 2000) found that self-concealment may related to typical Asian culture because they tend to keep personal emotions and problems inside the family. Social media addiction is typically associated with negative outcomes, however Magsamen-Conrad, et al. (Magsamen-Conrad, et al., 2014) suggested that the addiction could positively affect the well-being of self-concealing individuals, especially when the online interaction is positive and build relationships. This means that increased online interactions may reverse the otherwise negative effects of self-concealment on well-being. This study demonstrated that healthy communication in relationships, including disclosure, is important to well-being, and recognizes that not every individual is comfortable communicating in face-to-face settings (Magsamen-Conrad, et al., 2014).

4.3.2 The negative effects of internet use on individual’s well-being

On the other hand, as mentioned before, most of scholars put their emphasis on how internet and online interactions affect people negatively and connect these negative consequences with individual’s mental health or physical well-being. Weiser (Weiser, 2001) designed two studies in his research in order to figure out the relationship between internet use and psychological well-being. In his first study, he developed an effective means of conceptualizing and measuring the functions of Internet use, unlike former researches which rarely considered the individual’s
attitude difference as a variable. He then developed a framework for examining the role of these functions in the effects of internet use and psychological well-being in his second study. To assess the functions of Internet use, The Internet Attitudes Survey (Weiser, 2001) was used, and the result was the discovery of two principal functions of Internet use, socio-affective regulation (SAR), and Goods and Information Acquisition (GIA). Whereas GIA function seems to reflect a kind of delayed gratification function of internet use, the SAR function seems to reflect a kind of immediate social gratification function. In other words, the primary motives underlying the internet use may generally be classified as informational or to social (Weiser, 2001). According to their results, the functions of internet use influenced both social integration and psychological well-being directly. The functions of online communication could have an impact on social integration, and social integration could have an impact on psychological well-being. As time passes, studies (Elhai, et al., 2017; Sagioglou & Greitemeyer, 2014; Caplan, 2005) have been including not only internet and computers, but also smartphones and social media, as individuals have been reshaped in terms of their surfing habits.

A new term being introduced regarding the negative outcomes of social media use is the Fear of Missing Out (FoMO) (Worthham, 2011). FoMO can be defined as the feeling of anxiety and inadequacy that can occur whilst on social media sites, such as Facebook, Twitter and Instagram (Stead & Bibby, 2017). According to SDT (Self-determination theory), the FoMO phenomenon can be understood as “self-regulatory limbo arising from situational or chronic deficits in psychological need satisfactions, and the low basic need satisfaction can be the intrinsic trigger for FoMO” (Przybylski, et al., 2013). Based on these definitions, a more developed definition has been brought out later by Przybylski, et al. (Przybylski, et al., 2013), redefining FoMO as “a pervasive apprehension that others might be having rewarding experiences from which one is absent, FoMO is characterized by the desire to stay continually connected with what others are doing”. Przybylski, et al. (Przybylski, et al., 2013) concluded that people with high FoMO had both more positive emotional experiences and more negative emotional experiences when checking Facebook than people with low FoMO. In other words, FoMO is linked to more intense emotions and causes individuals to constantly check social media during other activities.

4.4 Conclusion

The chapter gave the researchers a basis for research design and data collection. This chapter included three parts; emotion studies, online communication and social interaction, as well as the connection between emotional experiences and online communication. Several studies are explored, however, to overcome any bias, we looked at both side of the theories. We explored the emotion recognition, which is considered to be the one of the most basic and vital abilities for humans regarding our survival. In the offline context, people can recognize the emotions of others from physical signals, such as through eye contacts, body touch, facial expression and tones in their voice. Nevertheless, facial expression plays a key role in face-to-face communication. The ability for people to recognize facial expression depends on the different social relationships, such as mutual communal and mutual exchange relationships. Secondly, we
got a deeper understanding of Web 2.0, social media and online communication. The importance of social media is discussed along with the reasons why people stay with or quit social media. The prevalence of online communication and its effects on the relationships amongst the younger generations has been looked at. In addition, the potential negative consequences, including behavioral addiction, caused by social media, as well as the positive consequences of online communication were also examined. Lastly, the connection between Internet use outcomes and psychological well-being is discussed with the focus on a mental symptom called FoMO.
5 Methodology

We will be basing our approach on the idea of social constructionism (Berger & Luckmann, 1966), which focuses on the ways that individuals make sense of the world through sharing their experiences with others using verbal or non-verbal language. Social constructionists believe knowledge and reality are constructed through discourse or conversation. It means that reality is not objective, rather than subjective. Subjective reality consists of concepts that can be shared with others, such as shared meaning and understanding. These shared meaning and understanding are used in everyday conversation, and thus, assume a reality to be taken for granted. Knowledge and many aspects of the world are not real, but they exist because we give them existence through social agreement. Such as, money is just paper until we assign them a value. People join together to create realities. The focus is on what the individuals, in a group setting, are thinking, experiencing and feeling. Therefore, what is considered to be real in one group setting may not be so real in another (Berger & Luckmann, 1991). Individuals with different cultural background and generations may not have the same realities as realities can be constructed differently and reconstructed. What is considered real to a businessman in Europe may not be seen as real to a farmer in Asia (Gemignani & Peña, 2007). Berger and Luckmann (Berger & Luckmann, 1991) maintain that conversation is the most important element to maintaining subjective reality. They argued that ideas, thoughts, and emotions cannot be shared with others. They need to be externalized first before becoming a reality, and Berger and Luckmann (Berger & Luckmann, 1991) suggested this could be accomplished through language. Ideas, thoughts, and emotions are formless and therefore, cannot be expressed (Berger & Luckmann, 1991). They must have a form in order to come into existence, and able to be shared with others. Once they are encoded into a language, they become externalized and exist as objects. Language and culture therefore become the frameworks for individuals' experience, communication, and understanding of reality. We will be analyzing and attempting to uncover the deeper meaning and understanding of shared subjective realities and how they affect one's behavior and the interpretation of different experiences, such as opposite beliefs, behaviors and emotions.

5.1 Methods

The approach adopted for such study tends to be inductive (Gemignani & Peña, 2007). It means that, generally, the researchers will develop a theory or patterns of meaning based on the data that they have collected. It moves from the specific to the general and is sometimes called a bottom-up approach. Unlike deductive studies, researchers do not base their research on pre-determined hypotheses. However, in both cases a problem or a knowledge gap is clearly identified and may be guided by current theories or researches. Data collection in an inductive research can be carried out in many stages rather than once and for all, which is similar to
deductive researches (Andrews, 2012). Inductive researches are more flexible, researchers are constantly adapting the process to address new additional issues or dropping a certain part of the process, which may no longer be appropriate based on the lessons learned during the process (Andrews, 2012). In some cases, the process of data collection and analysis do not end when all the interviews or observations have been made, rather it may continue until no new issues or themes are identified. Participants are given a certain degree of freedom rather than forcing them into a set of rules or processes, such as selecting from a list of pre-determined responses. It is therefore important for the researchers to create an atmosphere where it enables and encourage participants to express themselves. This may mean adopting a less formal and less rigid approach (Ward, et al., 2015). As mentioned above, it is believed that people are constantly trying to give meaning to their experiences and make sense of it. Therefore, the researchers have to keep an open mind and not limit to their view and understanding of the problem, whilst still expect to learn something new. Thus, the methods used should more open-ended and more exploratory. Grounded theory is a general research method and is not owned by any one philosophy (Ward, et al., 2015). It will guide us through data collection and details of procedures for data analysis.

Grounded theory is unlike most other research methods, as grounded theory does not provide the researchers with a restricted list of steps, which must be followed, from the formulation of the research question through data collection to analysis, as well as the structure of the research (Engward, 2013). Grounded theory is compatible with a wide range of data collection techniques, such as semi-structured interviews, participant observation, filed notes, and even diaries or calendars can generate data for grounded theory (Harris, 2015). Any data, such as quantitative data and qualitative data, and data type can be used, such as text, observations, videos, images, recordings etc. In grounded theory, the researchers set out to conceptualize the social patterns and the research question through constant comparison. Coding is the most basic process in, as well as the basis of, grounded theory (Harris, 2015). In grounded theory, the search for the theories starts with coding the first line of the first data type. It involves separating the content in the data into manageable file sizes to be coded. Coding involves marking key phrases that could lead to useful concepts. The concepts are then named. Another chunk of data content is then taken, and the coding steps are repeated. We will use an inductive approach to generate codes from our data, and through rounds of further coding to narrow down to meaningful concepts, we will lastly develop our theory. In an ideal setting, the process of data collection and data analysis in grounded theory continues until all theoretical themes have been discovered (Engward, 2013). In other words, the researchers must continue to sample and code data until no new categories can be identified.

5.1.1 Semi-structured Interviews and Observations

Since generally interviews involve fewer participants than quantitative methods, such as surveys, interviews make up in depth what they lack in breadth. Interviews enable the interviewers to gain detailed insight into opinions, and social contexts. There are three types of interviews (Easterby-Smith, 2015). At one extreme is structured interviews, where the questions asked are closed-
ended, and the questions are asked in a set standardized manner. The interviewer will not deviate from the predetermined interview questions, and will not probe beyond the received responses, thus, making the interview less flexible. At the other extreme are unstructured interviews. Compared to structured interviews, there are no standardized questions; rather the questions are probed from the interviewees. It is more of a guided conversation, and therefore, the questions are developed based on the interviewees' responses during the course of the interview. It is open ended and free flowing. The last type, which falls between the two extremes, is semi-structured interviews. Semi-structured interviews are relatively open ended, which allow for focused, conversational, two-way communication. The interviewers not only receive information, but also give it to the interviewees. Unlike either extreme, where detailed questions are prepared ahead of time or developed during the interview, in semi-structured interviews not all questions are set beforehand. The interviewers prepare some more general questions to be the basis for more specific questions. However, most of questions are created during the interview, allowing both the interviewer and the interviewee the flexibility to probe for details or have a discussion. Semi-structured interviews allow the interviewees the freedom to express their views in their own terms. Only some form of interview framework guides semi-structured interviews, most of the information comes from the interaction between the interviewer and the interviewee. As well as, spoken language is an efficient method to gain in depth information about social issues (Berger & Luckmann, 1991). Therefore, emotions can be detected in the interaction during interviews, through our choice and use of words (Galasiński, 2004). Moreover, facial expressions and body language can indicate emotions (Lupton, 1998). We carried out an initial interview in order to learn more about the participant. The interview consisted of total 11 questions, of which 3 questions were designed to probe and gain insight to their emotional responses from face-to-face and online interactions. 3 questions were more general questions designed for getting more information about their online social experience, and lastly 5 questions were for personal information gathering. At the end of study, participants were interviewed again with different questions. The 9 new questions are for exploring how they are affected emotionally during the interaction and why. This served as an insight of the effects online and offline social interactions had on emotions.

We will also be using observations as a part of our study. Observational research, or field research, is a type of non-experimental research, in which the researchers observe ongoing behavior and interaction (Easterby-Smith, 2015). Observations can provide the researchers a detailed recording of the communication and non-verbal information, such as, the tones used, facial expressions, eye contact, their body language, as well as how they interact with the environment. The participants are not limited to any extent how they interact with other participants. They have the freedom to express themselves. Observation can also provide the basis for theory and hypothesis development (Easterby-Smith, 2015). There are different types of observational research, defined by the extent to which the researchers influence or controls the observation. We will be assuming a non-participant observation role (Easterby-Smith, 2015), where we would have limited interaction with the participants. We will be observing how the participants communicate, how they talk and behave together. However, we will not intrude unless it is necessary, such as for clarification. In order to measure the effects of online social interactions on emotions, we needed to compare it with face-to-face group communication. The
underlying goal of comparative study is to find similarity and difference. Researchers searching for similarity often search for underlying general processes and patterns that apply across different contexts (Elo & Kyngäs, 2008). Therefore, comparative study is more used to separate patterns that are more general and isolate unique patterns from the context (Easterby-Smith, 2015). The search for difference focuses on emphasizing on the context to understand specificities. Comparisons not only uncover differences between social situations, but also reveal unique aspects that would be impossible to detect otherwise.

In the majority of observations, if not all, researchers tend to take field notes to enhance data collection and provide rich context for analysis (Mulhall, 2003). Observation has the advantage of capturing data in more natural setting, where the participants could behave genuinely (Elo & Kyngäs, 2008). Field notes (Mulhall, 2003) tend to contain short, keyword-based words or sentences based on the observation, and not interrupt the researchers’ ongoing observation of the participants. These short notes can be later used for remembering important aspects, in order to create a more detailed field note after the observation period. Ideally, a comprehensive field note is created shortly after the observation ends, as the researchers’ memory is still fresh. Field notes can be in different formats, such as written, dictated, and even visual sketches (Mulhall, 2003). Although the researchers conducting an observation have some freedom regarding the direction of the observation, however, mostly it is the participants that govern where the observation leads, similar to semi-structured interviews.

5.2 Selection of Participants

The study includes a total sample of 12 participants, of which six are male and six female, between the ages of 20 and 27. The participants were separated into four groups of three. The participants were first chosen based on their date of birth, as the research question focuses on millennials, by following the Merriam-Webster and Cambridge Dictionary’s definition of a millennial, individuals born in the 1980s or 1990s. The participants were then chosen based on similar backgrounds and with similar cultural upbringing. The reason is to eliminate variation between the participants, and to ensure similar subjective realities. All participants were Chinese students studying at the university in the area of business administration, and thus, to decrease any misunderstandings, the study was conducted in Chinese. All participants were asked about their fluency in Chinese before the study, as in-depth analysis requires high language fluency. All materials used were translated from English by us and verified by a linguistic major student, however, we kept the original English text, so participants could refer to the original text if necessary.

5.3 Online Social Systems Selection
In our empirical study, we focused on one type of online system to be used during our observations, instant messaging. In this case we chose Wechat, as it is a system all the participants were familiar with. We will be using smartphones as our study device, since Wechat is experienced best on smartphones, as well as online communications, such as IM, have shifted to portable devices (Temperton, 2015). It has the most influence in our daily lives than any other device (Temperton, 2015). We have discounted systems or functionalities that enable voice and/or video capability. These systems closely resemble face-to-face interactions (Zamir, et al., 2018), and thus, would undermine the aspect of online human to human interactivity. Since these functions are designed to mimic face-to-face interactions (Zamir, et al., 2018), they take away the uniqueness of online communication. Such as, online communications have lower sense of presence, even though the individuals are interacting. We want to explore this lowered sense of presence and how it affects our emotions. During our process of selecting an online system to use in our observation, we considered the level of human to human interactivity provided by the systems to be the most important determining factor. The level of human to human interactivity provided by the systems meant it could influence both the processes and the outcomes of the communication (Johnson, et al., 2006). This study focuses on users instead of focusing on specific online social systems, such as, social web services, or social media. This is aligned with Raban’s (Raban, 2007) study of using a user-centered approach. The data for this study were collected by means of observing group interaction through face-to-face and online social engagement, as well as observation notes and semi-structured interviews. Participation in this study is voluntary, and participants were compensated with a meal at the beginning and the end of the study.

There are two aspects related to interactivity, reactive and interactive. Reactive means a message or response is towards only to the immediate previous message, and interactive means a message or response is towards all previous messages and the relationship between them. In face-to-face communication these two aspects exist, however, due to the limited memory capacity of the human brain, most responses are reactive (Burgoon, et al., 2002). It has become a characteristic of the online systems in which social interactions take place. Another two important properties of interactivity are the degree of contingent communication and mutuality (Burgoon, et al., 2002). Contingent communication is also called Give-and-Take communication, as it involves receiving the message and all the information surrounding the message, such as what is not included as well as verbal and non-verbal ques, making sense of the message and its information, and lastly responding in an effective and timely manner. Mutuality refers to the response part of the exchange, where the response is dependent on, and directly relevant to, the message. Online systems with low levels of contingent communications tend to also have lower levels of mutuality. In other words, online systems that allows synchronous communications, has greater degree of interactivity. Systems only allowing asynchronous communication has a lower degree of interactivity (Johnson, et al., 2006). There were six online systems that fitted the criteria, and after considering the pros and cons, we decided on instant messaging systems.

The first type we considered was online forums. It is mostly user-based sites where participants can engage in discussions in the form of posted messages. Usually there is a host to start the conversation regarding a particular topic or a variety of topics. A forum can contain many sub-
forums, and each of them may have several topics. A single topic conversation is called a "thread". Most popular online forums include Reddit and Quora. Normally on a forum, participants are required to register before they can post, read, and respond to messages within the forum. Unlike chat rooms, the posted messages tend to be longer and more in depth and threads can be archived. Also, users on some forums have different access levels, and posting a message might need to be approved by a moderator before it becomes visible to the public. The second type, which is e-mails, are messages exchanged between participants over the internet and generally is about particular topics of interest. Unlike instant messaging systems, emails do not require users to be online at the same time, as well as e-mails are generally independent of the application used to create it. This means that one person can use outlook to send an e-mail, and the receiver can use Gmail read it. The third type we considered to use in the study are comment section interactions. Many sites include a comment section where the users can use it to express their opinions on the topic or the posting. However, in the comment section, users can interact with each other by replying to comments made by other participants. We are discounting comments that do not include interactions or responses. The forth type of system is online chat rooms, such as Omegle, Emerald Chat and Chatroulette, whereby interactions between participants occur in real time on the web site itself. Different from instant messaging, usually the participants in the chat rooms are unfamiliar with other participants, and the goal is to establish new relationships. The fifth type of system we considered were in-game chats, where players can communicate with one another by using the games' embedded functionally. Generally, in-game chats support both text and voice exchange. It is designed for communication between players during gameplay, however, players normally engage in conversations regarding the game and gameplay, as well as other topics, after and/or before playing the game. Lastly, we decided to use real-time online chat systems for our observation, such as Whatsapp, Wechat and Facebook messenger that allow participants to interact with each other in real time. This is achieved through sending different media contents, such as text messages, images and other multimedia, back and forth.

5.4 Process

The study was divided into three phases. The three phases can be simply understood as before, during, and after a social interaction. The first phase refers to the getting to know the individual and their emotional state through an entry interview. It is also for comparison to determine how they are or not emotionally affected by social interactions. The second phase emphasizes on when an individual is interacting with others online and offline, through two observations. The observations are structured around the development of emotions when engaged in social situations online and offline during a set period. The final phase focuses on the understanding the consequences of the online and offline interactions from the perspective of the participants through an exit interview. In other words, we conducted two observations and three interviews per group. The first and only entry interview is to get to know the participants before the study. Each exit interview occurred after each observation, meaning after both online and offline interaction observation, they are for getting to know the participants’ perspective. Before the
study, we researched several topics that could be at least discussed for ten minutes as conversation starters. This was achieved by searching for recent or most discussed headlines online via different news media such as BBC and Renming news. We focused on searching for topics that are known and relevant to our participants. The resulting topics were given to an independent group of three people, one male and two females, who then discussed each topic. Topics that lasted for at least ten minutes were chosen to be in the final study. The topics included both sensitive matters and everyday topics.

To simulate a natural environment for the participants, our study room had sofas, tables and chairs, where the participants could freely choose where to sit that is the most comfortable for them. All of the groups were provided a meal beforehand, where the participants got to know each other and to relax, as well as become less nervous or stressed. Just before starting the study, we introduced ourselves; the participants were told about the study’s purpose, the schedule for the study and were informed about recording the study. Afterwards, we conducted an entry semi-structured interview with each participant with the aim to get to know their social interaction experience, their personality, and to learn about the participants’ performance online and the applications they use. The interview covered topics, such as online channels of communication, the schedule and frequency of the interactions, and the kinds of relationships they engage and maintain online. Each interview lasted for ten minutes and after that, all the participants were called back into the room to start the group observation. We began with face-to-face interaction and provided the group with one sensitive and one everyday topic. A random participant was appointed to start the conversation, and we (the researchers) took on an observant role and only intervened when we needed to clarify topics and concepts. The face-to-face group interaction lasted for one hour, although they were not told about the exact time limit in order to avoid pressure. The time was more than enough to generate meaningful data. Afterwards, the first exit interview was conducted with each participant to gain insights to the interaction. The participants were interviewed about the perceived flow, success of the conversation, frustrations during the interaction and how much effort they put in during the group interaction, as well as the emotions they experienced during and afterwards, and why they experienced the way they did. The first exit interviews were more open and with the data collected from the observation during the group interaction, we customized some questions to each participant. Each interview lasted for 20 minutes and after the interviews, we took a short 30 minutes break with snacks and drinks. The break was designed to reset the affective states of the participants and so they do not become tired. After the break, the participants were brought together to start the next observation. This time, the interaction took place online only, and the participants were asked to sit in different parts of the room to create distance between each other. This is to simulate the physical isolation when interacting online. We created a Wechat group conversation for the participants to chat in. It is a mobile application that all the participants were most familiar with and have installed on their phones already. However, since Wechat offers voice and video chat, we have prohibited participants from using these functions. We will not take those data types into our analysis if accidents occur. All other forms, such as GIFs (Graphics Interchange Format, a file format for moving/ animated images), images, emoticons and text, are allowed to keep the conversation as natural as possible. Once again, we provided one sensitive and one everyday topic to the group.
and one random participant was appointed to begin the conversation. We monitored the chat and observed how the participants used Wechat, as well as their physical reactions and body language. The group’s online interaction lasted for one hour and each participant was interviewed once again afterwards. Each second exit interview lasted for 25 minutes, which was longer than the other interviews, since we added more questions regarding their overall experience. The participants were gathered for debriefing before leaving, and the group expressed their final thoughts. The study was conducted over the course of four days, and the study was done with one group per day. Meaning both researchers were present for the interviews and observations. We recorded all interactions each participant had, registering both text and voice data, and all the interviews. We used screen shots taken with our phones to keep a record of all online interaction data. The data collection process concluded when the last group finished their second exit interviews.

5.5 Ethical considerations

Ethical approval was obtained from every participant before the study. The participants were informed of the study proceedings, as well as the purpose of the recordings. Participants received verbal information about withdrawing from the study, and the audio recordings. Written consent was obtained via participants’ signatures. Participants’ data were made anonymous by assigning a code name to each participant and only the two researchers had access to source codes and the recordings. Any personal data will not be related to the participant, rather to the code name. Furthermore, only quotes without personal information are used.

To validate our data, we will be using two different approaches to collect our data. The intention is to use methodology triangulation to obtain different information that provides data sets that complements each other. We will be combining the observation and semi-structured interview data sets with one another to provide validation for our results.

The researchers transcribed important and relevant parts from the audio recordings. During open coding, the researchers read through the field notes, interview notes and transcribed texts, and codes were given to different parts of the texts. The texts were independently open coded by both researchers. After the independent open coding, both researchers came together to code once more. Comparisons were made between the codes and these codes were discussed until consensus and their interpretation was reached, then the codes were grouped into categories. Finally, the researchers developed themes from the categories that comprised all codes, which gave a general description of the research topic.
6 Findings

A grounded theory analysis was performed consisting open coding, creating subcategories and categories, and synthesis (Easterby-Smith, 2015).

6.1 Results

A total of 433 codes were generated, from field notes and interviews. No information was discounted, however, only the important and relevant parts were translated, as well as included in the analysis. From the generated codes, 50 unique codes were discovered, and formed 13 categories. Lastly, based on the categories we identified six themes and eight sub themes, see Table 1.
<table>
<thead>
<tr>
<th>Quotes/data</th>
<th>Categories</th>
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<td>“I am just staring at a screen and reading some texts. There’s no substance in it.”</td>
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<td>“Online conversations can never reach the same level of enjoyment as face-to-face conversations.”</td>
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<td>“…. Did we discuss the given topics at all? ….. I don’t remember if we even bothered to try discussing the given topics....”</td>
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<td>“…… I know there is a possibility that people didn’t see it, but that just means my message doesn’t stand out enough and that my message is so pointless it didn’t even catch any attention.”</td>
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<td>“I hate it when people reply with ‘ok’ and not ‘k’ or adding any emojis after the ‘ok’. To me that means something is wrong....”</td>
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<td>“…. You can’t just not reply to a conversation! I mean you better have a good reason, otherwise I will assume you are a terrible person....”</td>
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<tr>
<td>“I don’t care when the other person replies. I assume they have things to do.... why wouldn’t you reply otherwise?”</td>
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<td>“I remembered when I first declared my feelings to my girlfriend, I did it through QQ (instant messaging service) because I was too shy....”</td>
<td>Openness</td>
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<td>“If I had some strong opinions about someone, say my coworkers, I definitely wouldn’t have the gut to tell it in person to that person. Because there is no escape! ....”</td>
<td>Honesty</td>
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<td>“.... there’s less eyes on me, both figuratively and literally, in online interactions I feel....”</td>
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<td>“I don’t remember a time when I can’t find someone from the past.... Nowadays, you can always find them.”</td>
<td>Availability</td>
<td>High level of support: Always connected</td>
<td></td>
</tr>
<tr>
<td>“.... It was a difficult time for me. But fortunately, I had my phone and I could talk to my dad and friends at home....”</td>
<td>Emotional outlet</td>
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</tbody>
</table>

**Table 1 Codes to themes**

The final thematic table, Table 1, was established through an iterative process of reading, examining, and interpreting the main themes and sub themes in relation to each other and to establish broad conclusions in relations to the research question. In Table 1, the quotes are aggregated from similar codes and formed different categories. The quotes chosen are the most representative of the aggregated codes. The categories are then grouped according to their similar underlying concepts. For example, openness and honesty are grouped together because of their underlying concept of self-expression. Finally, themes are developed based on the groups, as well as sub themes to support the main themes. Six themes emerged from the data, and eight sub themes: Lack of physical presence (Physical proximity, context cues), disrupted conversation flow (Conversation pacing, expectation of the communication methods), increased chance of conflict (Response speed), increased self-disclosure, little information shared (Distraction and lack of purpose, efficiency, enduring physical pain), and high level of support. These themes are subsequently discussed and illustrated with extracts from the interviews, and field observations, they will be annotated with the participant’s code name.
7 Analysis
7.1 Lack of physical presence

We observed the lack of physical presence in online interactions had a noticeable effect on the participants’ emotions. During our observation, the participants noticeably mimicked the mood of the other participants, such as becoming more serious when talking about sensitive topics, which then contributed to the creation of the conversation’s atmosphere. There are two aspects to physical presence: physical proximity, and the availability of context cues.

7.1.1 Physical proximity

“I can’t help but to smile when the other person is smiling. I can feel their joy or sadness. It is difficult to explain this feeling, but for example, you wouldn’t start laughing when you feel the other person is depressed.” -2B

“I am just staring at a screen and reading some texts. There’s no substance in it. I may giggle occasionally but never laughing till my stomach hurts like when interacting face-to-face and others are laughing with me” -3C

Physical proximity refers to the emotional fluctuation because of the physical distance between the parties. Close physical proximity allows the parties to establish a connection between each other’s bodies during the course of the interaction, where the parties are close enough to unconsciously notice any physical changes of the other party. Such as, unconsciously mimicking the other’s behavior or adjusting one’s rhythm to fit the other’s. This means that the individuals influence each other’s emotions as well, through the feeling of other party’s emotional state. However, in an online context the parties are not physically present, thus they could not feel each other’s physical body.
7.1.2 Context cues

“If someone sends me a message (on social media), I am never 100% sure that I understood it. Essentially, I need to understand what they wanted (to express) just through the text they sent me. I have no idea how they said it, is it sarcastic or is it serious?" -3A

“Online conversations can never reach the same level of enjoyment as face-to-face conversations. It is just not the same hearing other’s laughter vs. reading ‘lol’. For all I know, they are not actually laughing……… A smile could mean so much more than a smiley. It could be a fake smile, I know it because I can tell the difference from seeing a real smile. But I wouldn’t know if it a fake smiley since it is the same.” -1C

The other aspect to physical presence is the lack of context cues. Context cues are verbal and nonverbal information given by the sender other than what is directly conveyed. Context cues include body language, facial expressions, the tone in the voice and such. The availability of context cues allows the receiver to decipher the entire meaning of the sender’s message. For example, if the sender sends a sarcastic message, “Oh, really?”, just from the text it is difficult to determine whether or not the message is supposed to be sarcastic. However, with the tone and facial expression, the receiver could easily tell if the message is of sarcastic nature. Context cues are less present in online communication, however, there are context cues that are unique to online communication, such as emoticons and GIFs. Its imagery could be used to correspond to what the sender is feeling and want to express. It is also related to social constraints, where most social constraints come from context cues. For example, how to react when a person is sad or happy. Nevertheless, the ability for individuals to recognize emotion is sharply reduced because of the lack of physically seeing others, but images and other visual contents could help in the recognition of emotion in the online context.

During the face-to-face interaction, we observed all participants made more eye contact in the first 20 minutes of the interaction. When more eye contact was made, the pace of the conversation was slower. However, once the participants settled down and got to know more about each other, the atmosphere became less tense and participants displayed their enjoyment through laughter. Nevertheless, in one face-to-face interaction observation, two participants displayed irritation. During the exit interviews, the two participants reported they felt the other participant had ego issues.
The course of the conversation depends on the context cues, such as seeing if others had similar morals and opinions in first minutes of the interaction. The parties will be thinking carefully how they should respond and proceed with the conversation. If the context cues were positive according to the individual, then the interaction would be continuing to be positive. When the context cues are not well received by others, the atmosphere can be heavier and can causes negative emotions, such as irritation. In the case of online interactions, context cues are less apparent, thus, the outcome and the mood of the conservation mainly based on the topics discussed, whether the parties perceived them as interesting.

“……you can’t establish a relationship online. You haven’t met the person. You have no idea if their online persona is the same in real life, and if you would get along. However, it is easy to maintain a relationship online. You just need the initial contact.” -IA

Context cues are used for establishing a bond between the parties. Context cues builds confidence and trust in the other person, since the sender and receiver are exposed in the way that anything they do or say could be used as information for the other to interpret. This creates a connection between them unless either party sends negative context cues, such as showing disgust by moving further away. With an established connection, parties are able to be more open and less filtered, as well as the atmosphere becomes less tense. In turn, the atmosphere, and the connection causes more positive emotions. However, the building of a connection online seemed to be more difficult, as it then only comes from parties agreeing with each other’s opinions. Therefore, the lack of context cues and not knowing the whole context of the message can cause anxiety and frustration.

7.2 Little information shared

In the exit interviews, the participants felt the conversation was pointless and even though they enjoyed it, they believed the conversation was a waste of time as they did not chat about any meaningful topics. The participants believe that the quality of the conversation depended on if they gained any new information or knowledge from it. Participants in the online interactions were observed to have exchanged significantly less information than face-to-face interactions.

“….. It is like hearing a joke. If we heard the joke before, we would laugh in the moment.
From our study, we have identified three factors that contribute to the quality of the conversation. They are, availability of distractions, enduring physical pain and the efficiency of the communication method. We believe that text based online communications limit the amount of context cues available during the interaction, as well as hinder parties from discussing deeper topics. This means that not only text based online communications reduce the total amount of topics discussed/information shared, it also affects the individual’s ability to convey emotions through detailed discussions.

7.2.1 Distraction and lack of purpose

Focus is important for a conversation to proceed to reach a conclusion or fulfill a particular purpose. It is rare for a conversation to not have a purpose and our emotional outcome rely on pushing the conversation to achieve its purpose. Else the conversation would feel meaningless, and it would be a waste of time.

Our online observations compared to face-to-face observations, participants were more easily distracted and deviates from the assigned topics quicker. From our observations, participants switched topics during the online observations in an average time of 6 minutes compared to 24 minutes during face-to-face observations. In the face-to-face observations, the participants eventually returned to the assigned topics, whereas participants in the online observations never did.

“……Did we discuss the given topics at all? I don’t think so. We started to talk about our interests and daily lives. I don’t remember if we even bothered to try discussing the given topics........ I thought it was funny how all of us agreed and came up with a solution that probably could work (referring to face-to-face interaction).” -3A

Individuals does not want to spend much time crafting a message which could end up failing to be recognized, as well as typing for an extensive period is tiring. Whilst having access to the internet, the parties had access to a variety of distractions. For example, parties could divert to reading news articles, or sending personal pictures to others, and therefore straying away from the main topic. Individuals have less focus on the conversation in online interactions, unlike face-to-face interactions where the parties were more likely to stay on topic longer without the
distractions. Even though in face-to-face interactions individuals would still have difficulty staying on topic, however they are more likely to return to the topic than in online interactions. This is because in face-to-face interactions, there is more structure and have better pacing, thus parties could remember to return to the topic. Whereas in online interactions, the chaotic structure and bits of information (split messages) causes the parties discussing new topics constantly. Parties felt strongly about whether or not the purpose of the conversation was achieved, because they do not want to waste time and resulting in negative emotions. A purpose of a conversation could be predetermined, such as solving an issue, however there are other sub purposes that are not predetermined. These sub purposes can be regarded as purposes that are in the subconscious. Such as, solving another unrelated issue, or achieving some sort of emotional release. Therefore, conversation may not achieve its predetermined purpose, however it could achieve sub purposes which still counts as a meaningful interaction. This does not mean a meaningless conversation cannot be enjoyable or cause displeasure, however it then depends if the individual expects the interaction to be positive or negative. If they expected a certain outcome, then the emotional outcomes from it is short lived.

7.2.2 Decrease in communication efficiency

In the interviews, the participants mentioned the difference in effectiveness between face-to-face and online interactions. The participants believe that GIFs and emoticons are effective communication tools and it increases the efficiency if the conversation does not require deep thinking.

“If I want to get something done, then we have to meet face-to-face or I will call. I mean I could get my point across in 10 seconds using my mouth, but it probably will take 5 minutes via text. So why would I then use online communication channels? I recall this one time when I had to finish a project with my coworkers. We could work from home, so we didn’t meet up much. That was a disaster. But it took us one meeting to catch up.” -2B

To convey an opinion using online communication methods take more time and effort since it needs more articulation. Much of context cues cannot be used, thus it becomes more important to search for appropriate words, phrasing, emoticons, and GIFs instead, however it doesn’t guarantee the same level of expression as with context cues. Due to this the parties had to focus their expression to the core idea instead. Whereas, during the face-to-face interaction the parties not only expressed the core idea but also included other remarks. Such as, if the core idea is “I don’t like it”, then other remarks would be “… But I like that instead.” As well as the individuals
could not justify spending more time formulating a text message when talking would take much less effort. Nevertheless, deeper conversations must include pacing, physical presence, and context cues, especially when it is related to emotional issues. The emotional outcome of deep online conversations is not the same as face-to-face interaction. In face-to-face interactions, it eliminates the isolation since the individual is not just receiving and sending information through a device. By having another person in close physical proximity and context cues available, the individual could better convey their thoughts and opinions, as well as receiving immediate response.

7.2.3 Enduring physical pain

The participants felt typing for an extended period of time is tiring, of which some of the participants displayed noticeable physical pain from the position they were in and pain in their fingers by readjusting themselves and stretching. As well as on average, a message contains five Chinese characters.

“I don’t like typing too much. It’s like I spend 10 minutes typing and trying to get my point across, but it can be easily done with 1 minute of talking. That’s why for group assignments, I always encourage to have face-to-face meetings. It is tiring, but at least we get things done and my back doesn’t hurt as much because I am sitting and not lying on my bed with my phone.” - 1A

Physical pain causes parties to try ending the conversation or delay the reply, which disrupts the conversation flow and many breaks between messages. As well as parties spend too much time in a certain fixed position when conversing online. Every movement adjustment could cause the parties to miss new messages and therefore parties tend not to move or have large movements. To save themselves from the pain the parties would reply less in the online conversation, especially in a group setting, and type shorter sentences in general, leading to the decrease in communication efficiency. In comparison, during face-to-face interactions body movements matters more, since the parties are using body language. As well as, parties feel the amount of information they could convey by typing does not justify the effort put in and thus, they tend to type shorter sentences and chat about nonsense, since more meaningful topics require more expression which means more typing. A conversation without meaning or shallow discussions could cause negative emotions.
7.3 Disrupted conversation flow

“There is no structure in online interactions. At best it has a chaotic structure, where different messages flies pass, and topics are switched every second. You will never achieve what you wanted through online communication.” -2C

In face-to-face interactions, no matter if it is a group or one on one interaction, normally one person speaks, and the others listen until it is time for them to reply. Parties know when to listen and to speak because of context cues, parties can sense when someone is about to finish speaking their mind and thus, others would prepare a response. Nevertheless, it is possible for subgroup conversations to emerge, especially in larger group settings. Meaning, different conversations occur in a larger conversation, which disturbs the main conversation. However, in online interactions this could also occur, and there is less structure as the parties do not know whether the speaker is done, together with the lack of social constraints, parties to become less patient and expresses their opinions with little regards to how others would react or the direction of the conversation.

7.3.1 Conversation Pacing

Taking turns to speak is not present in online interactions because there is nothing, lack of context cues and social constraints, stopping the parties from typing what they wanted to express immediately and ignoring others. However, this does not imply there no responses or interaction.

During our online observations, many of the participants split their messages into parts. Below is an excerpt from a topic about parenting.

2A: “For example”
2B: ”C2 go find your boyfriend”
2A: ”The communication issues with parents,”
2C: “B2 I think we can’t engage in the conversation because we type too slow”
2A: “The way we interact”
Parties express themselves without hesitation with short messages to keep the attention of others, since the conversation might have moved on when they are preparing a long-detailed message. Typing longer messages can also cause others not to read it fully because of the distraction of new messages. Generally, parties would split the message into parts, and sending each part separately. This results in others replying to an incomplete message, as they are replying to only parts of the message and causes disturbance to the flow of the conversation. Other times, the conversation would continue if the sender is slow at typing and others feel pointless to wait any longer. Nevertheless, the conversation flow is disrupted when other parties had to return to the previous topics.

The participants felt much of the time is spent returning to previous topics and the overall conversation isn’t progressing, therefore causing some frustration and boredom.

Returning to previous topics affects the pacing of the conversation as well. Unlike conversation flow, pacing refers more to the speed, whereas the flow refers more to the structure. The conversation pacing has a major effect on the emotional outcome. The pacing of the conversation includes parties’ understanding of the topic, pauses, intonation, pattern recognition and indirectness. With good pacing, it is clear what and how the speaker wants to convey, such as the build up to the expression of an opinion. The speaker also tends to the listeners for them to follow along the conversation in face-to-face interactions. The listeners, on the other hand, paid attention to the speaker as well because they want to able to respond and contribute to the following discussions. Due to this pattern of speakers and listeners tending to each other, natural pauses occur more often during face-to-face interactions, as to understandably give time for responses. However, in online interactions the speakers do not pay attention to the listeners and vice versa, as the components of pacing are lost, the speakers spoke (send messages) whenever they pleased, and pacing becomes less important. Combined with the limitation of text-based communication, it was difficult for the listeners to keep up the conversation and establish a pace. Such as, new messages come in faster than the speed the individual can finish reading the previous messages. Everybody wants to express themselves, or at least get their point across
before the conversation takes a new direction, thus giving the individuals who typed fast an advantage.

7.3.2 Expectation of the communication method

The individual’s expectation towards the communication method also affected how they approach the conversation.

The participants had some prejudice against online interactions, they predicted that the likelihood of the conversation to be deep or meaningful is small. As well as the participants had concerns about their messages getting ignored or lack feedbacks.

“….. I just call people when I need more than surface information, by that I mean answers more than three messages long.” -1C

“I feel so embarrassed when my messages are ignored. I would become very self-conscious, rethinking my life choices even……. I know there is a possibility that people didn’t see it, but that just means my message doesn’t stand out enough and that my message is so pointless it didn’t even catch any attention.” –4A

Meaningless conversation could provide parties with short-termed enjoyment. As mentioned above, a conversation needs to achieve some sort of purpose. However, when the purpose is not achieved, the conversation can then be regarded as meaningless. Such meaningless conversations do not give a reason for parties to remember its existence, including the emotions associated with it. An individual’s message can be easily ignored depending of the rate of messages sent per minute. This is not to say their messages are not ignored on purpose, rather the message could be buried under the number of new messages, causing the lack of feedback. It occurs when the responses to a message is few or seemingly unenthusiastic. For example, if the response contains just one word such as “ha”. The individual would regard such unenthusiastic responses, as either a pity reply or a sign from the sender that their message is not of high quality. This could then lead to discomfort and the individual may recall or retract their message. Meaning, before the next online interaction, the individual would prepare themselves emotionally based on the previous experience of being ignored or the lack of feedback.
7.4 Increased chance of conflict

“I hate it when people reply with ‘ok’ and not ‘k’ or adding any emoticons after the ‘ok’. To me that means something is wrong and I will obsess with finding out why because it might be something I said. Most of the times it’s nothing, but it kills me.” -1C

Majority of the participants regularly use emoticons in their messages in online conversations.

Online interactions have a higher chance to create conflict than face-to-face interactions. This is based on three factors; lack of context cues, autocorrection and misspellings, and lack of respect. As mentioned above, online interactions lack context cues which affect the receiver when deciphering the meaning of the sender’s message. This could be viewed as an imbalance of information between parties, as neither knows how the message will be seen and what is the intent behind it. Without context cues, the only information available is the text in the message and with only one source of information the likelihood of not able to interpret the meaning of the message increases, which causes conflict. For example, the tone of the sender is crucial for understanding the meaning, however texts do not contain such information. On the other hand, adding or the lack of emoticons could be used to substitute the tone. By adding the appropriate emoticons, it gives more context to the message, such as “Ok” with a smiling emoticon indicates that the sender is in a good mood and “Ok” with a sad face indicates the sender is not in a good mood. When they enter a serious conversation or displaying disappointment they would not add any emoticon to show the receiver their intentions. However, emoticons are less powerful context cues. More conflict could occur depending on the generation and cultural background of the parties. Such as, a regular smiley face in the Chinese culture means “I do not want to talk to you anymore”.

“I wasn’t sure if she got autocorrected. It (the message) seemed odd because it didn’t seem like something she would say. However, I don’t know her well enough to say for sure and I don’t want to offend her if the message wasn’t autocorrected. To be honest, I felt a bit unease before I understood what she meant, because I thought I totally misread her. Thankfully it was an autocorrection.” -3B
Autocorrections happen when the predictive text function detects a possible misspelt word and automatically corrects it. This function is useful, however, there are situations when the autocorrection wrongly predicts or corrects a rightly spelt word because its dictionary limitation. This causes misunderstandings during the interaction and depending on how obscene the correction or the misspelling is, the receiver or the sender would correct the correction and thus solving the conflict. On the other hand, if the correction or the misspelling is not obscene enough, the receiver would carry on the conversation, which eventually leads to more misunderstandings and conflict if the conversation carried on further enough. One misunderstanding would lead to another until it converts into conflict, by that point, both parties would forget and unable to pinpoint the origin of the misunderstanding in order to solve it.

The participants felt there is more respect in face-to-face interactions. During three of the online observations, the participants began to comment on the researchers and their dissatisfaction with the drinks provided.

Due to the physical presence of the parties, they are not able to see the other party’s reaction and feel their presence. The results in more honesty in online interactions, as parties would more likely to express their true feelings without the fear of how the other party would react, as the other party could disengage the conversation when they want to. In face-to-face interactions, if the matter is insignificant enough then out of respect for other’s feelings, the individual would not disclose their true thoughts to cause conflict. However, in the online environment parties have less sympathy and respect due to lack of physical presence and immediate response, therefore it would more likely to lead to conflict. Lack of social constraints also mean that less time is spent on deciphering context cues resulting in misunderstandings of the message.

7.4.1 Response Speed

The participants were aware of the speed of the responses and cared about the speed they replied.

“How fast I get a reply matters a lot. A lot more than what I am willing to admit. If they don’t reply or replied slower than normal, then something is up. I know it and I can feel it, but I don’t know what it is, and it causes me anxiety. I need to know at least why.” -1B
“…. You can’t just not reply to a conversation! I mean you better have a good reason, otherwise I will assume you are a terrible person and never talk to you again. It is extreme I know but I just can’t handle waiting forever every time we chat.” -3A

“I don’t care when the other person replies. I assume they have things to do and we can pick it (the conversation) up whenever. When I don’t reply, it normally happens when I have something else that requires my attention. I mean why wouldn’t you reply otherwise?” -4A

The speed of the responses could emotionally affect the parties as well. Depending on the delay, individuals would start to worry and become irritated. The delay of the response is analyzed as, immediate, acceptable, frustrating, and irrelevant. Immediate responses are when the delay equals the thinking time plus the typing time. It is natural to give the receiver time to think about a reply and typing it out, however, this depends on the relationship between the sender and receiver. If the sender and receiver know each other well, then the more likely both parties are aware of each other’s communication habits online. Such as, if the receiver processes thoughts slower and types slowly, the sender would give the receiver more time to reply. On the other hand, if both parties do not know each other, then the sender would give the receiver the amount of time they consider is enough to be immediate depending on the situation. Acceptable delays are when the reply is not immediate, but not slow enough to cause the sender any negative feelings. This also depends on the situation the receiver and the sender are in. If either party is in a situation, such as in a meeting, where they could not reply immediately, then the acceptable delay could be longer. Frustrating delay is when the delay is past the acceptable point, which causes the sender to believe there is something wrong. Such as, the receiver was offended, or the receiver is ignoring the message on purpose. The sender would experience negative emotions until the case is resolved. Lastly, the delay is irrelevant when the conversation is seen as endless by both parties.

7.5 Increased self-disclosure

Self-disclosure concerns thoughts, feelings, and behaviors that have a significant bearing on the individual. It is in practice most often used to refer to information that an individual would normally keep hidden, rather than information that simply had not been previously revealed. In other words, self-disclosure is the telling of the previously unknown so that it becomes shared knowledge.

“I remembered when I first declared my feelings to my girlfriend, I did it through QQ (instant messaging service) because I was too shy. I didn’t know what to say to her face! I was
terrified, but later I collected my thoughts and wrote this long message on QQ and sent it to her. I could express myself much better, At least I didn’t stumble on my words!” -1B

“If I had some strong opinions about someone, say my coworkers, I definitely wouldn’t have the gut to tell it in person to that person. Because there is no escape! I would have to stand there to see her reaction and deal with the situation. If it was online, I could just ignore her response and deal with it later.” -1A

Some of the participants have online friends and engages in conversations with strangers via chatrooms.

Individuals are willing to disclose intimate personal information online which they would not otherwise share during face-to-face interactions. They might even share more information online due to the lack of social constraints and no immediate direct consequences. Unlike during face-to-face interactions, the parties are exposed and any reaction they have could be observed by the other party. Any reaction and responses would have to be dealt with immediately, whereas in an online environment such consequences do not have to be dealt with at that moment, either party could return to the issue afterwards. Other than disclosing to family and friends, individuals who disclosure to strangers would only self-disclose to people who is unlikely to have any sort of impact on their daily lives. Nevertheless, individuals self-disclose to others as a means to get emotional support and to release emotional burdens. They believe that typing behind a screen gives them a certain level of protection, as it gives them the courage to talk about their hidden feelings since they cannot see the other person’s reaction and receive an immediate response. They can self-disclose at their own pace which gives them the time to think about, edit and even manipulate how their message is received. It is a level of impression management and maintenance that is less likely in face-to-face interactions.

“…… there’s less eyes on me, both figuratively and literally, in online interactions I feel. If I tell my best friend something embarrassing, I wouldn’t like to feel his eyes judging me. This would only make me to stop talking.” -2C

However, millennials growing up in a digital world which does not require them to interact face-to-face often, have less face-to-face experience. Thus, they feel less in control in face-to-face interactions, whereas they feel more confident online as it is an environment they are familiar with and have more experience. Such as, millennials display less confidence in reading complex
emotions, however, more certain in grasping complex combination of emoticons and GIFs. This can also be related to the case that they self-disclose more online, as they are more comfortable self-disclosing in an environment they dominate. With less face-to-face interactions, they would not have the opportunity to learn about social constraints, which in turn affects their offline behavior. Less social constraints also mean there is less rules to determine how an individual should act in different situations. Individuals would feel less judged online because fewer people care to judge, when they themselves also do not want to be judged. This causes more honesty between the communicators, as both wishes to reveal themselves without assessment.

7.6 High level of Support: Always connected

All of the participants have contacted their families on a regular basis, as well as their families are the first ones they contact when they are having emotional problems.

“I don’t remember a time when I can’t find someone from the past. I mean the internet have connected the society in an unbelievable way! But if you look at our parents, they didn’t have this privilege and friends from school just disappear because there wasn’t a way to stay in touch……. My mom wrote letters to her best friend after high school, but one day her friends moved or something and they lost contact. Nowadays, you can always find them.” -3B

One of the unique aspects of online communication methods is that it discounts the distance and time difference between the sender and receiver, which decreases the individual’s perceived loneliness. The advancement of technology has made the distance between the sender and receiver disappears and made it easier to maintain relationships. Before Web 2.0, communications in Web 1.0 was mainly one sided. Web surfers would surf over to a website and information would be sent to their browser on their computer. It was difficult to stay in touch before Web 2.0, since telephone numbers change over time. Thus, perceived loneliness increases when the physical proximity decreases. Being able to stay connected is more important for individuals away from home, it is emotional important for them to be able to connect with their families and friends at home. Their families and friends at home provide the individual with emotional support and assurance. As well as being able to stay connected with people whom they would not see much anymore, such as after graduation, can be viewed as emotional assurance since the relationship they formed can now be maintained with ease. Due to a connected environment, individuals would feel less lonely as their relationships are sustained and they can always reach others if they wished.
In our study, one participant recalled her experience of how online interactions saved her from depression when she broke her leg and had to wear a cast. It was hard for her to engage in face-to-face interactions, as she had trouble getting around to attend social events, apart from occasional visits from her friends. During the 95 days of recovery, majority of her interactions happened online. Another participant had a similar experience; however, the time period was shorter, and his neighbor came to visit him almost every day. Below is an excerpt from her experience.

“….. I talked to my dad a lot during that time since he is a dentist, but he knows a bit about trauma. I had just come to Jönköping and didn’t know anyone, apart from some acquaintances. It was a difficult time for me. But fortunately, I had my phone and I could talk to my dad and friends at home…… It became hard at night because then I am alone with my thoughts and I get sad. Good thing is that night here is morning in China and I just message my friends and chat till I fall asleep.” -2C

Being timeless is another unique aspect of online communication. Unlike face-to-face interactions where parties must set and agree on a time and location for the interaction, online interactions could occur at anytime and anywhere. It requires little effort from the parties and they are in control of their side of the interaction. Such as, engage in a conversation at their convenience, and a conversation could be indefinite or short depending on either party. Since we live in a connected environment, finding emotional support is easier and one is never truly alone. For example, finding someone to talk to late at night is easier via online, as parties do not have to leave their comfortable surroundings to initiate a conversation. Unlike face-to-face interactions, where remembering previous conversations depend on our memory, parties have access to the full history of past conversations which provides an opportunity for better emotional support, as the previous interaction patterns could serve as an early warning sign for emotional changes.
8 Conclusion

The results of our study show that the emotional outcomes of online interactions can be influenced by different aspects of the interaction environment, from the physical presence to the flow of the conversation. This could influence our emotional journey throughout the interaction. Given that the online interactions have become a part of our everyday life, especially for millennials, there is a need for a better understanding of how emotions are experienced during it. In this way, emotions and online social interactions have become a critical part of our well-being, since they could influence future interaction behavior, as well as affect our ability to handle different social situations and our judgement. However, there is a lack of studies focused on the analysis of millennials’ emotions, particularly Chinese millennials, in the online social interactions and the potential factors guiding the emotional outcomes. Our research is an attempt to fill this gap in the literature by analyzing the potential factors guiding our emotions during online interactions using a comparative study. This is particularly important given that without comparison it is difficult to discover hidden factors and to discount face-to-face interaction factors that also exist in online interactions.

![Figure 1 Emotional progress in online interactions](image)
The emotional journey of an individual during an online interaction could be summarized into three parts; the emotional engagement, emotional experience and emotional outcome, see figure 1. Emotional engagement could be understood as how much an individual is willing to invest emotionally. This relates to the expectations the individual set for online communications. This expectation guides their attitude and sets their mood towards the online interaction. They are biased towards online communication, and to expect, as well as do not to expect certain aspects to be fulfilled. Our study suggests that the physical presence of the meeting parties plays an important role in the emotional engagement. The lack of physical presence has lowered the possibility of deep conversations, and therefore the individual does not invest emotionally in shallow online conversations. Online communication also means individuals are always connected and emotional support is always there if needed. With the expectation of receiving emotional support on demand, the emotional investment is higher. The emotional experience refers to the emotional fluctuation caused by the factors affecting the direction of the conversation. The core component of physical presence and being always connected, is the availability of context cues.

Context cues are not only about providing more information about the sender and the message, but it also gives the receiver a certain level of easement. With more accessible information means more exposure and less assumption about the nature of the sender and the message. However, this does not take into account that the sender could disguise or even mislead the receiver, nevertheless it is simpler to do so in an online environment. Therefore, it can have a higher chance of causing conflict between the parties, whether it is intentional or unintentional. The receiver would not be able to tell the difference between intentional and unintentional conflict, which only fuels further conflict. Lack of context cues also means less social constraints, which increases the self-disclosure. Individuals are more comfortable to reveal personal information, which is usually not related to their offline persona. Lack of context cues limits the exposure of individuals, however does not result in more time spent on accurately deciphering the limited information, together with being physically drained in the meanwhile, less time is spent on progressing the conversation. It also means taking turns to speak no longer applies caused by the lack of respect and chaotic structure of online interactions, which disrupts the flow of the conversation.

Lastly, emotional outcomes refer to the emotions felt near the end of the interaction. In this case, it depends on whether the conversation achieved its set purpose or fulfilled any other purposes. The purpose of any interaction should be to achieve a certain goal, for example solving a problem. On the other hand, interactions could fail in achieving its main goal, however it could still achieve other sub goals, such as solving another issue but not the intended issue. Our study suggests that an interaction must result in achieving some sort of goal. The goal could be anything depending on the individual, it could be simply gaining new knowledge or receiving emotional support. However, online interactions have the tendency to not achieve any goals of the participants. Even though the meaningless online interactions could bring the participants amusement, unless their goal is to be amused, it is still pointless and therefore lead to negative emotions. A well as the limitation of text-based communication (Sherman, et al., 2013) and distractions during online interactions, it is difficult to achieve its main goal or any goals (Wang,
et al., 2012). Previous online interaction experiences will affect how the individual perceives the quality of online interactions and thus, would be having negative emotions before entering the conversation. Since the individual started with negative expectations, even if the interaction resulted in achieving the goals, the overall increase in positive emotions would still be lower than having neutral expectations.

Figure 1 displayed the progress of emotions in online interactions with context cues and the purpose achievement of the conversation as focal points. The context cues are also a force managing long term emotions, since the enjoyment experienced during online interactions solely come from the content of the conversation or the topics discussed. Similar to a comedian doing a standup routine, the audience laughs mostly because of how the comedians tell the story and not the story itself (Woodall & Folger, 1985). Without their body language, movement, facial expressions, and voice tones, it would be harder for the comedian to lead the audience into laughter. Most importantly, the audience prefers certain comedians because they could remember how much they enjoyed themselves after previous shows (Woodall & Folger, 1985). The comedian left an impression which converts into long term emotions. Therefore, face-to-face interactions are more memorable than online interactions, it leaves an impression due to context cues. This is shown during our study and thus, we formulate our hypothesis as:

“The emotional outcome from online social interactions is short termed due to the lack of context cues and whether the purpose of the conversation has been achieved.”

It became less about the difference between face-to-face and online interactions, rather the separation of the two different communication channels’ purpose. Due to the fast pace of technology advancement, the discussion is more on whether online interactions would replace face-to-face interactions since current technologies, such as video chat and VR, is trying to mimic face-to-face interactions. However, our study suggests that as long as there is some sort of protection, such as anonymity or hiding behind a screen, in online communications then it is possible to use different channels for different purposes. Our study showed that participants who have online friends displayed another self during online interactions. This self is no less real or honest than the self in face-to-face interactions; however, the two selves never collide. This could be due to the difference in social constraints, whereas what is acceptable online is not so in face-to-face interactions. For example, respect is less present online since there is no direct consequence because of anonymity and lack of physical response. Online interactions simply do not cater to deeper conversations; thus, individuals create a shallower self. The increased chance of conflict and chaotic structure in online interactions also contributes to the creation of another self, as they represent how the rules of the conversation are different. Conversation rules, such as taking turns to speak, in face-to-face interactions does not necessarily apply in online environment, especially in a group setting and participants are forced adapt another self to keep up the conversation. For example, due to the fast pace of online conversations, individuals must be more direct and quick when expressing themselves or else they will be ignored. Nevertheless, this depends on the individual and the specific scenario.
9 Discussion

In this chapter, we will be discussing some of our analysis results in relations to current literatures. From our study, the core factors affecting the participants’ emotions would be context cues and achieving the purpose of the conversation. The idea of close physical proximity allowing the participants to establish a connection with each other during the course of the conversation comes from Collins (Collins, 2004). Collins (Collins, 2004) attributed this phenomenon to situational co-presence where the participants are close enough that they are biologically coordinated with each other through the warmth from their bodies and such. The coordination means that they influence each other’s emotions as well. Collins (Collins, 2004) argued this is one of the main factors lacking in online interactions and it was evident in the observations. The participants were affected by others’ emotions, which creates the atmosphere of the conversation.

Reasons for individuals to use the internet could fall under two dimensions: Socio-Affective Regulation (SAR) and Goods and Information Acquisition (GIA) (Weiser, 2001). SAR could be understood as using the Internet for social purposes, whereas GIA could be understood as using the internet for practical purposes, such as searching for knowledge, information, services, and goods (Weiser, 2001). However, social uses of the internet, such as SAR, and practical uses, such as GIA, will have negative and positive effects on individuals’ psychological well-being in terms of decreasing and increasing the social connectivity. For example, using the internet for social purposes can be regarded to have negative effects on social integration because it may reduce the time spending with others, whereas using the internet for information gathering purposes have positive effects on social integration (Weiser, 2001). In addition, the study also revealed that there is a strong connection between loneliness, depression and general life dissatisfaction, and internet use, which can also be regarded as the negative influences of the internet use. However, in another research (Subrahmanyam & Greenfield, 2008), the authors demonstrated that online content itself can be both positive and negative. Although on the one hand, individuals can receive valuable support online, they may also experience bad treatments, such as racism and hate messages, which in turn causes negative emotional experience.

9.1 The power of context cues

In our study, GIFs and emoticons were frequently used to break silences and to emphasize participants’ perspectives. It was also used for emotion recognition, due to the information richness of images. However, in our study, we did not discover its effectiveness and how the receiver uses it. In terms of the emotion recognition through context cues in online interactions, Adolphs and Janowski (Adolphs & Janowski, 2011) introduced the idea of stimulus which enables people to recognize emotions behind the screens. They reported that emoticons and phrasing of words and sentences can be the stimulus in the online context. Since imagery and
language is not a foreign concept to most people, these stimuli are somewhat universal (Adolphs & Janowski, 2011). The underlying reason to the ability for recognizing the stimuli depend on the efficacy which the imagery can trigger related words, emotions and experiences (Adolphs & Janowski, 2011). Alternatively, phrasing of words and sentences can bypass the visual processing and go straight to the processing of the associated emotional meaning (Adolphs & Janowski, 2011). Sari et al. (Sari, et al., 2014) introduced more specific features such as hashtags, as well as discovered that emoticons can be an important approach enabling people to observe the emotion changes in online interaction, since they are used to represent characteristics of user's facial expressions and what they are feeling (Sari, et al, 2014). The study has shown that the result of using emoticon and GIFs is rather a good predictor to some emotions such as happiness, sadness and anger but less so with the other complex emotions, such as fear, surprise and disgust. It is because not all emoticons or GIFs have high relevance of those emotions (Sari, et al., 2014).

In our study, we determined that emotions are short lived and because of the lack context cues in online interactions, emotions are more affected by the content of the conversation. Garcia, et al. (Garcia, et al., 2016) put the emphasis on the possibility for emotional states to be triggered by reading and participating in online discussions, and how these emotions change over time. They quantified the changes to emotional states through subjective reports. In the context of online discussions, the dynamics of emotional states is composed of two forces: “an internal relaxation towards baseline values independent of the emotional charge of the discussion and a driving force of emotional states that depends on the content of the discussion.” In other words, participants’ emotional state changes when reading emotional content, no matter if they were in a positive and negative emotional state before (Garcia, et al., 2016). The tendency of participants to take part in the discussion increases with positive emotional connection (Garcia, et al., 2016). In relations to our study, participants were more engaged with subjects they were interested in and avoided topics, such as the sensitive topic we gave them, that could invoke negative reactions.

Another issue with the lack of context cues was the inability to form a connection of trust amongst the participants. Therefore, it is harder for online relationships to transition to offline relationships. To be able to gain trust, participants had to be exposed and not behind a screen. Our study suggests that trust could be established in face-to-face interactions through participants sending positive context cues. Therefore, there is the usage separation of online and offline channels, meaning individuals would only use a certain channel depending on their relationship with the receiver. Amichai-Hamburger and Furnham (Amichai-Hamburger & Furnham, 2007) examined the possibility for how to shift from online interactions to offline interactions. This can be applied for relationships that formed online but unable to engage in face-to-face interactions. They discovered, firstly, relationships are formed by communicating with text-only messages, as it is the most common form of communication on the internet. This will continue until the participants feel sufficiently secure and their anxiety levels decrease. Secondly, participants will continue to use the text-based communication, which they feel comfortable with, but will start exchanging personal images with the person whom they are interacting with. When social anxiety has been eliminated, participants will move to the next stage, communicating via video
or audio. At this stage, people will still interact from their comfortable online environment and still without physical proximity to their conversation partner. However, use of text messages by the participants will be reduced, instead they will begin communicating orally or visually. Again, when a certain level of comfort has been achieved, participants will proceed to face-to-face interaction. It is predicted that this process will successfully bridge the gap between text-only online interaction to a face-to-face encounter (Amichai-Hamburger & Furnham, 2007). This is done through the decrease of anxiety levels and increase of trust amongst participants. It is important to recognize that before this happens, it is likely that people will have undergone a great deal of self-disclosure and discovered multiple points of similarity with the other person (Amichai-Hamburger & Furnham, 2007). In relations to Social Capital Theory, the participants have now bonded, and thus the self-disclosure will increase further, however, in this case not only online but offline as well. Needless to say, the participants have to learn the rules and skills to manage offline relationships. This process can also be applied to the younger generations, who wants to disclose themselves in a virtual group and are willing to develop an offline relationship with the group members (Amichai-Hamburger & Furnham, 2007).

9.1.1 Online communication for maintaining relationships

With the introduction of Instant Messaging (IM) services on portable devices, people began to use online communications on daily basis based on our interviews. Several participants even expressed that relationships are easily maintained using online communication. However, since a connection cannot be established online, it is easier to move offline relationships online where a connection is already created. Increasingly, scholars have paid attention to how IM affected the existing social relationships, in other words, how online communication may have affected face-to-face communication (Boneva, et al., 2012). However, we did not explore how online interactions affected offline interactions. Boneva, et al. (Boneva, et al., 2012) designed a study where they examined how younger generations use online communication to deal with private concerns in their life. The authors reviewed a range of data to compare online communication with communication by phone calls and personal visits. They believed that since most communication among younger generation is with local friends and acquaintances, which means under most circumstances they should prefer face-to-face communication. On the other hand, IM can be better than other methods of communication, due to the lack of geographical constraints, which can provide more chances and alternatives for them to maintain relationships especially long-distance friendships (Boneva, et al., 2012). They observed the phenomenon that even though participants reported enjoying IM conversations, however, the enjoyment is less than phone calls or face-to-face interactions, consistent with our analysis. They made the conclusion that it seems that IM allows young people to build and maintain social ties with particular friends, as well as to create a sense of belonging with groups of peers, whom they do not necessarily feel close (Boneva, et al., 2012). In the end they drew two main conclusions, firstly, IM chat makes great and direct contributions to the maintenance of relationships. IM builds a bridge between young people and their peers and provide them with more opportunities to communicate. However, some of the participants still seems not enjoy online communication even with close
friends or family. In relations to our findings, this may mean they consider online communications as a tool than a fundamental method of communication. They rated IM communication sessions as substantially less enjoyable than phone calls or physical visits. Again, they enjoyed face-to-face communication most than any other kinds of communications.

Secondly, IM helped to define young generation’s social identities, which is a noncommunicative function of IM that has not been studied and understood in former studies (Boneva, et al., 2012). These developmental functions may partially explain why IM use is so popular among young people (Boneva, et al., 2012).

In another study conducted by Valkenburg and Peter (Valkenburg & Peter, 2009), they first hypothesized that the positive relationships between different types of online communications and the quality of existing friendships can be entirely accounted for by online enhanced intimate self-disclosure. Moreover, their hypothesis assumes that young adults’ IM use results in enhanced intimate self-disclosure, which in turn leads to higher quality of existing friendships. To complete two of the aims of the study, which are to investigate the longitudinal relationships between IM use and the quality of young adults’ existing friendships, and to investigate the validity of their online enhanced intimate self-disclosure. They designed four questionnaires from four different perspectives: IM usage, online communication with existing friends, intimate online self-disclosure, and quality of friendships. They integrated the questionnaires from participants, before and after six months, and after analyzing the data, they concluded that it is common and obvious that all young adults use IM to communicate with their existing friends. The IM usage increased the quality of existing friendships, whereas the quality of friendships did not influence the IM use, which is consistent with our finding of maintaining online relationships. These results suggest that the positive relationships found in earlier research cannot be explained with the argument that young adults with high-quality friendships more often turn to IM. Rather, their results suggest that young adults seem to use IM for the maintenance of existing friendships (Valkenburg & Peter, 2011). Both of the studies (Valkenburg & Peter, 2011; Boneva, et al., 2012) believe positively toward the effects of IM on the social relationship, and the scholars believed that the communication through IM brings benefits to existing offline relationships. However, other scholars hold opposite opinions which is that online communication will affect offline relationships negatively (Bargh & McKenna, 2004). Nevertheless, researches showed that young adults and younger generations are using online communication tools primarily to reinforce existing relationships, both with friends and romantic partners (Subrahmanyam & Greenfield, 2008). Increasingly, they are integrating these online tools into their offline environment. For example, using social networking sites to get more information about new people they meet face-to-face.

9.2 Being open online

It has been suggested in previous studies that people are willing to disclose intimate personal information online that they would not otherwise share during face-to-face interactions (Caplan, 2003; McKenna, et al., 2002). Subrahmanyam and Greenfield (Subrahmanyam & Greenfield,
2008) noted that young people's online interactions with strangers, while not as common now as during the early years of the Internet, may have benefits, such as relieving social anxiety. As well as cutting down on abnormal behaviors, such as sexual predation (Subrahmanyam & Greenfield, 2008).

However, Valkenburg and Peter (Valkenburg & Peter, 2009) and his colleagues suggested that online communication had both positive and negative influence on young people. Through analyzing the characteristics of online communication, their study reported that the three features (anonymity, asynchronicity, and accessibility) of online communication stimulate controllability of online self-presentation and self-disclosure amongst younger generations. For example, users could set their profile to private mode or they can only let their approved friends to view their profile or content. They hypothesized that online self-presentation and self-disclosure can contribute both positively and negatively towards offline relationships. They analyzed and compared two popular but opposite theories. The stimulation theory put emphasis on that more recent online based communication technologies are designed to encourage communication with existing friends. As a result, much of the time spent on online communication is used to maintain and deepen existing relationships (Valkenburg & Peter, 2011). On the contrary, the displacement theory states that online communication would reduce young people’s quality of existing relationships for it may takes up the time which could be spend on face-to-face interactions with friends. It suggests that most of the online interactions is less meaningful than offline interaction, because online communications are regarded as superficial and develops only shallow relationships without displaying true feelings due to the lack of honesty. Thus, the online communication is believed to reduce the quality of existing relationships amongst the younger generation (Baym, et al., 2004).

Instead agreeing with the findings of most studies, McKenna, et al. (McKenna, et al., 2002) argued that the Internet does not only provide more opportunities for people to connect and stay connected with others, but also the preferred place for self-expression and self-disclosure. The online environment is perceived as a safe place for individuals to express different parts of their identity, due to anonymity, and McKenna, et al. (McKenna, et al., 2002) believed this perceived secure and protective environment not only enables self-disclosure, but also encourages it. However, in their study, the concept of ‘real me’ to refer to a version of the individual’s self that the individual believe is their true self, however, they find it difficult to express it to others. Unlike our study, where the online self is no less “real” than the offline self. They argue, due to this effect of the internet, McKenna, et al. (McKenna, et al., 2002) then suggested that the interactions on the Internet creates a context that causes less social anxiety than face-to-face interactions. As well as, online interactions gradually build the confidence and social abilities of the individual, which could then be used in offline interactions (Kraut, et al., 2002). Others (Amichai-Hamburger & Furnham, 2007) argued that although the Internet provides a rich environment for self-disclosure, there are negative aspects as well. There are indeed people suffering from the negative consequences of using internet, however if it is used appropriately, the Internet may greatly improve the quality of life of the users. Their study (Amichai-Hamburger & Furnham, 2007) focused on the positive aspects of the internet, such as how it may be used to enhance and increase users’ well-being from a group and individual perspective. They
discussed how the online interactions can help socially inhibited people and those with a negative social stigma, through online social support websites, as well as how the internet can improve intergroup relationships, by solving the conflict between individuality and group belonging (Amichai-Hamburger & Furnham, 2007).

However, this pattern could be more evident in some cultures than others (Ku, et al., 2013). Self-disclosure online is not without its costs, such as in our study, the cost was not discussing any personal information that is related to their daily lives. A study by Ku, et al. (Ku, et al., 2013) focused more on the global context, aiming at the regional differences by comparing social media uses in the United States and Taiwan, which also got the similar conclusion in terms of the influence of satisfaction. Since our study focused on Chinese millennials, our participants are similar to Taiwanese users. They applied Uses and Gratifications Theory (UGT) to explore factors that affect members continued use intention toward social medias (Ku, et al., 2013). Their findings indicate that there are four determining factors, gratifications, perceived critical mass, subjective norms, and privacy concerns influence social media users’ continuance use intention. As well as there are regional differences in the effects of both gratifications and privacy concerns on continuance use intention (Ku, et al., 2013). The variation between different regions are based on the privacy concerns about the relationship between gratifications and continuance use intention. It is nonsignificant for Taiwanese social media users but significant for American users. Meaning gratification is an important factor that directly influences social media use among Taiwanese users, whereas for US users, privacy concerns has the direct effect of gratifications on continuance use intention (Ku, et al., 2013).

9.3 Achieving the objective of the conversation

One of the main factors affecting the emotional experience in online interactions was whether the purposes of the conversation have been achieved. However, the amount of time spent on online interactions may override all factors and cause severe negative emotional outcomes (Oberst, et al., 2017). Oberst, et al. (Oberst, et al., 2017) showed an association of time spent on social media and lower grade averages, less connection to peers, lower self-esteem, and higher depression. In a recent study (Sagioglou & Greitemeyer, 2014), authors conducted three studies based on Facebook users, and in all three studies they explored the possibility that Facebook activity negatively affects the individual’s emotional state. In the first study, participants required to complete a 3 minutes online survey to examine the correlation between time spent on Facebook and current mood. The results showed that the longer people are active on Facebook, the more negative their mood becomes afterwards. In the second study, they contrasted a Facebook condition with a browsing control and a no-activity control condition and predicted that Facebook use in both control conditions would negatively affect mood which indicates causal relationship. It was discovered that this effect is mediated by a feeling of not having done anything meaningful. With such negative outcomes for the users, the question arises as to why so many people continue to use Facebook on a daily basis, which was the focus of the third study. The third study included a survey with questions such as, “What would you say/how do you feel
after being active on Facebook for about 20 min?’’. The result was a mean score of 6.6, meaning participants hoped that they would feel better after using Facebook, even though this was not the case. The researcher concluded that people use social media on a daily basis, because people commit an affective forecasting error in that they expect to feel better after using Facebook, whereas, in fact, they feel worse. However, in comparison to our study, all the participants felt better after the online interaction. Though the participants were more tired, they did not display any noticeable negative emotional experience. On the other hand, this could be due to the participants’ background, experience, intention, and personal preference (Ko & Kuo, 2009). For example, individuals looking for emotional support would conclude with a positive experience despite the communication method.

9.3.1 Physical suffering

One of the sub themes in our study was how physical pain causes decrease in online communication efficiency. Elhai, et al. (Elhai, et al., 2016) explored further negative physical outcomes, in particular, increased smartphone use causes psychopathology, meaning the overuse causing sleep problems and increased stress. Their study (Elhai, et al., 2016) presented evidence that the negative consequences of internet use include damaged physical well-being. The study demonstrated an example of Facebook use, which concluded that Facebook seems to be more attractive for lonely individuals and, especially those suffering from psychopathological symptoms. This could be explained with Problematic smartphone use (Elhai, et al., 2017), which is the decrease in emotional self-control, or emotional dysregulation. Dysregulated emotion is often defined by two processes, decreased cognitive reappraisal and increased emotional suppression. Problematic smartphone users are likely to overuse their phones in part because of the inability to regulate their emotions (Elhai, et al., 2017). Elhai, et al. (Elhai, et al., 2016) have revealed that people who are addicted to smartphones and social media are likely to suffer from physical diseases including musculoskeletal health effects, poor physical fitness and academic deficits. This could cause anxiety and increases in heart rate and blood pressure. Furthermore, phantom phone vibrations are commonly reported, despite an absence of incoming phone notifications and the negative influences towards psychological health, as well as well-being are also associated with FoMO (Elhai, et al., 2016).

However, other researchers declared that there is no direct association between internet use and physical well-being (Kraut, et al., 1998). Kraut, et al. (Kraut, et al., 1998) conducted a depression and loneliness survey with the participants before their first time using the internet, and they did it again one year later to make comparison groups. The result showed that even though both perceived depression and loneliness increased within the time the participants spent online, however, the alleged negative effects of Internet use on physical well-being was not observed. Another study by Wästlund, et al. (Wästlund, et al., 2001) had the same conclusion. They also studied the time spent on Internet use and its association with depression and loneliness, however, there is no clear evidence supporting the connection between medically determined mental or physical health and time spent online (Kraut, et al., 2002).
9.4 Consequences of being always connected

Though our study suggested being always connected implied the availability of emotional support at any time, however, there are negative consequences for being always connected (Charlton, 2009). With the increasingly reliance on social media and growing usage of smartphones (Elhai, et al., 2017), some psychological outcome discovered by scholars are social media addiction and problematic internet/smartphone use (Andreassen, 2015). Several studies (eg. (Bright, et al., 2015)) have already found clear and strong evidence of this phenomenon, which have already become a serious problem in the society, for example, spending too much time on social media may lower one’s productivity or even influence their social relationships (Duke & Montag, 2017). Studies (Subrahmanyam & Greenfield, 2008; Muise, et al., 2009) have revealed that social media addition and problematic internet/smartphone use shares many similarities with other addictions. Such as, the stages of tolerance, withdrawal, conflict, relapse, and emotion gratification, although it has not been proven as a medical diagnosis (Andreassen, 2015). The perceived loneliness becomes another form, where the perceived loneliness then comes from FoMO and not isolation.

Elhai, et al. (Elhai, et al., 2016) expanded the field of what could potentially trigger FoMO. In their study, they believed that even though social media plays an important part, but the problematic use of smartphones should not be ignored. Elhai, et al. (Elhai, et al., 2016) have revealed that the problematic use of smartphones and FoMO have a causality relationship with each other, which means that problematic use of smartphones, such as overusing smartphone or social media addiction contributes to FoMO and vice versa. For example, Przybylski, et al. (Przybylski, et al., 2013) found that FoMO was a coping mechanism linking adults’ need for satisfaction with social media engagement. More specifically, individuals with more need for satisfaction experienced higher overall levels of FoMO, which, in turn, associated with actively seeking out social media engagement. Being aware and bothered by the response speed could also be a consequence of FoMO, as the fear of not knowing why the other person has not replied causes the individual to think of different scenarios and possibilities. People with high tendency to have FoMO will have a rather stronger desire to stay continuously connected to their social media, which can be potentially dangerous in certain situations, such as driving (Przybylski, et al., 2013).

Przybylski, et al. (Przybylski, et al., 2013) have made several important findings in this area. Individuals who displayed less satisfaction of their basic psychological needs for competence (efficacy), autonomy (meaningful choice), and relatedness (connectedness to others) also reported higher levels of FoMO, which means FoMO could be associated with negative experiences. Their study indicated that young people, young males in particular, tended to have higher levels of FoMO. In addition, FoMO relates to the overall feelings about Facebook use, and the use of social media in general. Beyens, et al. (Beyens, et al., 2016) found that there is an interplay between need to belong and need for popularity with younger generation’s Facebook use. They studied the relationship between FoMO and young adults’ perceived stress related to
their use of Facebook. The findings showed that young adults’ FoMO was indeed related with increased perceived stress due to the feeling of not belonging with others on Facebook and not being popular. Since younger generations are highly sensitive to feedback from others, especially from their peers, it seems that both receiving feedback, whether it is positive or negative, and not receiving feedback affect young generation’s well-being (Beyens, et al., 2016). Such as, the lack of feedback causes embarrassment for the sender and recalls their message. Individuals with psychopathological problems, especially anxiety and depression, could also develop high FoMO because of their perceived social deficits (Beyens, et al., 2016). In another study (Oberst, et al., 2017), it showed that for females, feeling depressed seems to trigger higher social media involvement and for males, anxiety triggers higher social media involvement. Wortham (Wortham, 2011) highlighted that FoMO may be linked to general unhappiness about one’s life, but it can also be a source of negative mood or depressed feelings, as it undermines the sense that one has made the best decisions in life when comparing themselves with others online.
10 Implications for further studies

We focused on the relationship between online social interactions and its effects on Chinese millennials’ emotions. We designed a qualitative research including interviews and observations, and after collecting and analyzing the data, the primary result is that there is no doubt that there are differences between online and offline interaction and these differences cause different emotional experiences. However, our study’s essence is about physical presence, as with physical presence many negative emotional causes could be eliminated. Even though our study assumes it is the physical presence that matters, however it could just be the “presence” regardless if it is physical or not. Suppose there are technologies that can emulate physical presence or just part of it. Even though some online communication channels can already emulate parts of physical presence, for example audio messages enable people to differentiate others’ emotion according to the changes in their voices and video calls allows the recognition of facial expression because people can directly see each other through the cameras. However, does this mean they can have the same effect on emotions compared to face-to-face interactions. Is virtual presence the same as physical presence? Can virtual reality (VR) be the equivalent or substitute face-to-face interaction?

VR can be regarded as a 3D virtual space that is simulated and generated by computers. It can provide users with simulations in terms of visual and acoustic senses, which enables the users to feel no different from a real physical space (Tussyadiah, et al., 2018). They can observe the environment in the 3D space without any limitation. From the technical point of view, VR enjoys three basic characteristics: immersion, interaction and imagination, which is the essence of “presence” (Kober & Neuper, 2012). It puts emphasis on the dominant position of human in the VR space because people could interact with the environment through all kinds of sensors, as well as be in control of what they see and hear. The aim of VR is to achieve full immersion and set the difference between physical and virtual space to minimal. It has been mentioned in many science fiction movies, however, we are still developing VR to this day. Compared to two-dimensional spaces (2D), three-dimensional spaces (3D) provides people with an extra dimension, which in general is the depth of the objects (Westman, 2003). This means that 2D can only create a plane space, but 3D can form a solid space (Westman, 2003). Videos are in 2D, meaning people cannot observe outside the camera’s field of vision. In a 3D space, the users are in control and all information is available to them. For example, the reason people enjoy 3D movies than 2D movies is that people can have more feelings through the depth that 3D brings them. With VR, users can cover more senses and interaction, such as touch and smell. Users can have more direct feeling about the changes of others’ physical changes along with their potential emotion changes. VR isn’t just a simulation, as emotions are also conveyed. For example, VR have been used in medical scenarios, such as for surgery preparation. It does not just give the surgeon a practice opportunity, but also prepare them emotionally for failure (Zhang, et al., 2017). Nevertheless, could this achieve interaction rituals (Collins, 2004), establishing a body connection without the bodies being in close physical proximity?
Considering all the characteristics and the achievements of VR so far, there is no doubt that VR can provide a sense of “real” in a “real” space. However, this “realness” may not able to capture the essence of face-to-face interaction. The essence of face-to-face interactions is more than physical presence. It considers other factors surrounding it. For example, our participants’ emotional experience started the moment a date was set for the study. The time it took participants to get ready and the road they took to the study location all affects their expectations and emotions. VR cannot capture this and there are still lacking some context cues. Such as, the virtual representation may be a perfect version of the participants, the true environment which the participants are in is unknown, and participants can log off to disengage the interaction also neglects the aspect of being “present”. In addition, due to the anonymity of the internet, people can hide their true characteristics and emotions to self-disclose freely, because they can have multiple identities online. This does not mean with the introduction of VR; the anonymity aspect disappears. Therefore, even though physical presence is an important part of face-to-face interactions, it seems unlikely to be replaced by any other online communication means. Nevertheless, future studies could focus on what is the essence of face-to-face interactions and will there always be a barrier between online and offline communications.
11 Limitations

Our study focuses on the emotion changes of millennials through online communication. However, there are limitations to our study. Firstly, our study sample is limited to a small number of millennials. We only had four interview groups, a total of 12 participants, as our research sample. The problem of having small sample is that our conclusions are not representative. In terms of the research method we chose, we only applied qualitative research method in the study. Future researches could include quantitative methods as well for a more comprehensive study. In addition, there are various other channels for online interaction which we did not include in our study, such as audio and video communication, which could result in different conclusions than only looking at text-based communication. For example, it has been suggested that different visual communication channels can determine the degree of emotion recognition by both parties (Zamir, et al., 2018). Moreover, using different online social platforms may have different effects on people’s emotions as well. In our study, we limited to only using one channel which is WeChat, since our participants are most familiar with it. However, using unfamiliar channels may cause other emotions such as frustration. Moreover, we used smartphones as the online communication device, as it has become a part of millennials’ daily lives. Nevertheless, there are other devices, such as computers and tablets, which may affect people’s emotion differently. For example, using computers may result in less physical pain and using a keyboard may improve participants’ efficiency. Our study does not take into account personalities, which could affect the emotional experience as well.
12 References


13 Appendix

13.1 Appendix 1 – Entry interview questions and its translation

1. What is your age? 年龄？
2. Gender? 性别？
3. Study field? 学习领域？
4. Study level? 学习程度？
5. How well did you know the other participants before this study (indicate for the person you know best)? 你在这项研究之前是否知道其他参与者（指出你最了解的人）？
6. What channels do you use? Eg. Facebook, forums etc. 你使用什么软件来进行网上互动？
7. Who do you normally interact with online? 你通常在网上与谁进行互动？
8. How much time do you spend on online interactions? 你一般在网上互动上花了多少时间？
9. Why do you interact online? 你为什么进行网上互动？
10. What’s your experience with Social Online Interactions, such as Social Medias? What is it like when you first interacted online? 你有什么网上互动经验，比如社交媒体？当你第一次在网上进行互动时是什么样的？
11. How has online interactions influence your daily life? 在线互动如何影响你的日常生活？

13.2 Appendix 2 – Exit interview questions and its translation

1. How was the flow of the conversation? 谈话的流程如何？
2. How well do you think you conveyed your thoughts? Why? 你觉得你表达了吗自己的想法？为什么？
3. How well did you understand others? Why? 你对别人说的有多少了解？为什么？
4. How would you describe and rate this communication method? 你如何描述和评价沟通方法？
5. What was the most frustrating part? 什么是最令人烦人的部分？
6. How do you feel now compared to the beginning? 你觉得现在比刚开始，感觉如何？

7. How has this, the communication method, impacted you (emotionally)? 这种沟通方式如何影响你（情绪上）?

8. What’s your overall experience (in relations to the interaction)? 你的总体经验是什么?

9. Why were there misunderstandings during the interaction? 为什么会有误解?

13.3 **Appendix 3** - Additional exit interview questions

1. What’s your overall experience with online interactions? 你的线上交流总体经验是什么？

2. What’s your overall experience with offline interactions? 你的线下交流总体经验是什么？

3. What is your thoughts about online communications? 你对在线交流有什么想法？

4. What does your daily online social interactions look like? 你的每常在线社交互动看起来如何？