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**The Relationship Between the Usage of Instagram
and Self-Esteem**

Dissertation to Universidade Católica Portuguesa to obtain
a Master's Degree in Communication Studies specialization
in Communication, Marketing and Advertising

By

Katirina Maria Fernandez

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Under the supervision of Professor João Lemos Diogo, PhD

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Abstract

Social Networks such as Instagram have become an indispensable form of communications in recent times. The widespread reach of Social Networks globally has allowed individuals to be hyperconnected. Instagram is one of the most prominent Social Network platforms that is known worldwide. The photo and video sharing service allows users to upload posts that can either be viewed by their restricted followers or public (depending on the settings that they choose). By doing so, many choose to upload the best versions of themselves which may or may not depict their realities. This can cause one's self-esteem to be impacted when trying to portray an idealised version of himself/herself or when checking and comparing with other Instagram users' profiles, number of likes, shares and comments. This can ensue to an individual either having a positive or negative self-esteem. This can be supported by previous researchers who have posited that the use of Social Networks can affect one's self-esteem. Though there are many theories that have postulated the impact of Social Networks on the users' self-esteem, the Self-esteem updating model (Krause et al., 2021) has been an useful foundation of understanding the impact of Instagram usage on the users through the three main dimensions of "Social Comparison", "Self-reflection" and "Social feedback". Our study aimed to find the impact of these three dimensions on the Instagram users' self-esteem through the use of quantitative research. An online survey was validated with 95 participants living in either Portugal or Singapore. We found that the users' self-esteem was impacted to some extent through the various dimensions. There was especially a positive and strong impact between "Social feedback" and "Self-esteem". This study served as a foundation for future studies to confirm that there is an impact of Instagram usage and one's self-esteem.

Keywords: Social networks, Instagram usage, Self-esteem, Social Comparison, Self-reflection, Social feedback

Resumo

As Redes Sociais como o Instagram têm-se vindo a tornar formas de comunicação indispensáveis nos dias de hoje. O alcance global das Redes Sociais tem permitido que os indivíduos se mantenham Hiper conectados. O Instagram é uma das Redes Sociais mais proeminentes a nível mundial. O serviço de partilha de fotos e vídeos permite que os seus utilizadores partilhem publicações que podem ser vistas por um grupo restrito de seguidores ou pelo público em geral (dependendo das definições escolhidas). Ao fazê-lo, muitos utilizadores optam por mostrar a melhor versão de si mesmos, que pode, ou não, corresponder à realidade. Isto pode impactar a autoestima de um indivíduo ao tentar mostrar uma versão idealista de si mesmo ou ao comparar o número de seguidores, gostos, comentários e partilhas com outros perfis de utilizadores do Instagram. Isto pode impactar, positiva ou negativamente a auto estima do indivíduo. Este ponto é corroborado por investigadores anteriores que argumentaram que o uso de Redes Sociais pode afetar a autoestima. Apesar de existirem várias teorias que estudaram o impacto das Redes Sociais na auto estima dos seus utilizadores, o modelo de atualização da auto estima (Krause et al., 2021) tem sido uma fundação útil para entender o impacto do uso do Instagram nos seus utilizadores através das três dimensões principais de “Comparação Social”, “Auto-reflexão”, e “Feedback social”. O objetivo do nosso estudo é perceber o impacto destas três dimensões na auto estima dos utilizadores do Instagram através de investigação quantitativa. Um questionário online foi validado junto de 95 respondentes, habitantes de Portugal e Singapura. Descobrimos que a auto estima dos utilizadores é impactada até certo ponto, através das várias dimensões. Houve um impacto especialmente forte e positivo entre “Feedback Social” e “autoestima”. O presente estudo serve assim de fundação para futuros estudos entenderem os efeitos que existem entre a utilização do Instagram e a autoestima.

Palavras-chave: Redes Sociais, Uso do Instagram, autoestima, Comparação Social, Autorreflexão, Feedback social

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Introduction

Why is it important to study the impact of the usage of social networks on self-esteem?

Social media has become an almost ubiquitous avenue for many around the world. It was reported in January 2020, that around 3.8 billion people globally used social media platforms which reached a global penetration level of approximately 49% (Sreejesh et al., 2020). If this was possible more than 3 years ago, one can only imagine the reach of social networks today. Technology continues to improve by leaps and bounds. More people are joining social networks to either as a means of communication, stay connected with one another, stay abreast with trends and current affairs or fear that they are missing out. Besides these functional uses of social networks, social networks have an impact on the users' wellbeing and especially their self-esteem. This research paper will investigate further into this and study the impact of whether one of the most prominent social networks, Instagram, will impact its users' self-esteem.

A growing digital and social networking World

The internet has significantly progressed over the years that communications between individuals have become a lot easier in a hyperconnected world. One notable advancement includes that individuals can provide real-time updates to their peers and followers by sharing messages or even their pictures. The internet has not only allowed easier communication but also allowed effortless access to “*entertainment, self-approval or socialisation, which may lead to different forms of gratification*” according to Alkaya, Bilgen, Ege, Gül, and Şimşek (2018, p.1). These gratifications have the tendency to boost the self-esteem of individuals.

Social media have become popular in recent years and have become an important tool in people's lives and business activities (Ting, Ming, de Run & Choo, 2015). There is data from 2018 which portray that more than 60% of the population in developed countries and approximately 50% in developing countries are active social media users (Pew Research Center, 2018). Due to the rapid rise of the use of smartphone users, many are able to be online and stay connected with others through social networking sites. Social networking sites, such as Facebook, Twitter and Instagram, are popular all over the globe and used by many for

different reasons. This paper will focus on the use of Instagram instead of other social networking sites.

The increasing relevance of Instagram

Instagram is an user-friendly photo-sharing social networking site that allows users to post their own content by taking pictures instantaneously (Lopez & Islam, 2021). Instagram boasted over 1.21 billion active monthly users in 2021 (Dixon, 2023). This shows the immense popularity and dominance of Instagram all around the world and inevitably impacts the lives of all its' users. It was also reported that due to Covid-19, in 2020, 69% of people in the UK and North America stated that they have increased the intensity of their Instagram usage (Gothivarekar, 2020). In a study conducted by Huang and Sheng-Fang (2018), a substantial number of young people use their phones for a long period of time and they found in their study that 42% of the participants, who were university students from Taiwan, used their smartphones for more than 1 hour to spend on Instagram every day. These data convey that Instagram has become a key element in the lives of many young people.

Instagram has many interesting options for the users to apply. Users can apply filters to the pictures to alter them according to their preferences and then share them with friends and followers on their account(s) and other social networking sites such as Facebook. Instagram provides the opportunity to any individual to attract a potential group of followers through a presented (preferred) image of one's self (Erdoğan, Arslan, Hepdoğan, and Özbay, 2018). These authors (Erdoğan, et al., 2018, p.11) stated that through such platforms "*Social media users have enhanced control over the self presentation behaviours that they engage in compared to face-to-face interactions*". Erdoğan et al., (2018, p.11) further emphasised that "*Online self-presentation can be meticulously constructed; highlighting desirable and positive aspects of oneself and concealing perceived flaws*". Instagram users make use of the platform to put forward an appealing representation of him or her because they want to forge and maintain online relationships. Instagram can impact one to always put his/her best image out there for others and not his/her genuine self.

Social Media and Self-esteem

Many scholars have theorised that the use of social media can affect one's self-esteem. Blascovich and Tomaka (1991, p.115) defined in everyday language that "*self-esteem is the extent to which one prizes, values, approves, or likes oneself*". According to Alkaya et al.,

(2018, p.1) “*Self-esteem may be influenced by people’s qualities such as physical appearance, hobbies or abilities*”. According to many researchers, people share these external qualities online affecting their self-esteem. He/she can post a filtered picture (according to their preference) on their Instagram account and build a perfect persona of themselves which would lead to them boosting their self-esteem (Gonzales & Hancock, 2011).

In addition, one’s self-esteem is also affected by checking and comparing other people’s Instagram profiles, the number of likes, shares and even comments (Appel, Crusiuc & Alexander, 2015). This can result in unhealthy comparisons and negative self-esteem. A 2014 study conducted in the United States found that when one uses social media for a longer period of time, he or she experiences lower levels of self-esteem, self-confidence and feel greater inadequacy and incompetence. The study conveyed that social media usage has the potential to influence one’s temporary state(s) of self-esteem (Gonzales & Hancock, 2011). Therefore, it can be emphasised that Instagram usage has an impact on how the user evaluates his or her value. However, it must be noted that the relationship between social media and self-esteem is complex and there exist multiple individual-level factors which control the relationship. There are three main processes that can be used as fundamentals to study how social media usage can impact users’ self-esteem. They are social comparison, social feedback, and self-reflection.

How this study is organised

The main question for this study is to understand how Instagram usage impacts self-esteem? And to respond to this goal, we defined different hypotheses to analyse the degree of influence of Instagram usage on social comparison, social feedback, and self-reflection, as these 3 dimensions are accepted as being important components in the formulation of self-esteem.

The present dissertation is organised in 4 chapters. The first chapter will present the literature review focusing on the purpose of Instagram usage and self-esteem. The second section will define the research methodology used in this study. A survey targeting millennials and Generation Z who are living in Singapore and Portugal will be conducted to test whether Instagram usage can lead to a positive or negative self-esteem. The third Chapter will discuss the findings from the survey related to whether Instagram usage affects self-esteem. This will be followed by a short discussion on the results based on the existing literature. Finally, the last chapter will include the conclusion, limitations, and future directions.

Chapter I - Literature Review

Understanding the relationship
between the use of social networks and self-esteem

1. Self-esteem: an introduction

1.1. What is Self-esteem?

Self-esteem is how a person makes a subjective judgement of himself/herself (Rosenberg, 1965), Self-esteem influences various life consequences such as one's health, one view towards his/her relationship and even career. Considered to be dynamic naturally, self-esteem is seen as a measure of one's achievements and defeats (Baldwin & Sinclair, 1996).

To understand how Instagram usage affects self-esteem, it is vital to understand what self-esteem entails. Self-esteem is regarded as a trait that has both affective and cognitive components (Cai, et al., 2007). Self-esteem is known as an affective, top-down, internal experience. Individuals either feel good or bad about themselves (affect), which then guides assessment of themselves (cognition) and drives them to take action (behaviour) (Yang, Xu, Chen, Shi & Han, 2016). On the contrary, there is also a notion that self-esteem can be influenced by interpersonal factors. This means that how a person feels that he or she is perceived by others is important in forming his/her self-esteem.

1.2. The variations of Self-esteem

Self-esteem is defined as perceiving oneself as being competent and self-satisfied (Aronson et al., 2012). Self-esteem is crucial for one's well-being. The way that a person evaluates himself or herself can affect his or her self-esteem. Those who have high self-esteem tend to view themselves positively while those with poor self-esteem tend to view themselves negatively Trifiro (2018).

Self-esteem is important in ensuring one's self-worth and is known to be one of the most important predictors of life satisfaction (Diener & Diener, 1995; Kernis, 2002). Gaining acceptance and receiving affirmation by others affects one's self-esteem (Jaret et al., 2005). According to Leary (2005), self-esteem functions as a sociometer that keeps an eye on one's acceptability to the group. Self-esteem is mainly based on how the individuals view themselves and the identity that they want to portray to be accepted by others. Self-esteem is generally a fixed characteristic for most people (Trzesniewski, Donnellan, & Robins, 2003) but may vary for others (Baldwin & Sinclair, 1996; Greenier, et al., 1995). It can be differentiated as either high self-esteem or low self-esteem. A person who has high self-esteem is considered happy,

confident and has a positive and optimistic attitude towards life. On the other hand, a person who has low self-esteem is considered as being a pessimist, lacks confidence and often belittles himself/herself (Baumeister, Campbell, Krueger, & Vohs, 2003). Low self-esteem can also cause social anxiety for several reasons according to Jiang and Ngien (2020). Jiang and Ngien (2020) also highlighted three characteristics of individuals with low self-esteem. The three characteristics include that those with low self-esteem: 1) have fewer social interactions, 2) depend on extrinsic social approval to feel better about themselves and 3) tend to put the blame on external factors and others instead of owning up to their failures. Therefore, it can be noted that self-esteem can affect one's personal relationship with himself/herself and with others.

1.3. The influence of personal and social experience

Self-esteem is fundamentally tied to interpersonal experience more than intrapersonal. Although the definition of self-esteem reflects how people think (Coopersmith, 1967) and feel (Brown, 1993) about themselves, self-esteem is not entirely an internal process but connected to one's experience and relationships with others.

Self-esteem can also be categorised into trait self-esteem and state self-esteem. Trait self-esteem is linked with how people feel that they are assessed by others while state self-esteem is when individuals' self-esteem is influenced by other people's evaluation in the immediate social context (Leary, Gallagher, Buttermore, Baldwin, Kennedy & Mills, 2003).

Many researchers and scholars have also put forward that self-esteem can be influenced or impacted by significant relationships with others. This is also supported by Eisenberger, Inagaki, Muscatell, Haltom and Leary (2011) who have put forward that a person's self-esteem is associated with how others view him/her. This is also known as the sociometer theory, which defines that the main goal of one's self-esteem is to operate as an approach for tracking other people's reaction to oneself (Leary, 2012; Leary & Baumeister, 2000). This conveys that self-esteem is influenced by the approval from others. The appraisals theory also highlights that one views himself/herself from the perceived appraisals from others (e.g. Cooley, 1902; Harter, 1999; Mead, 1934; Shrauger & Schoeneman, 1979). This further highlights the point that one defines himself/herself from the perceptions of others.

2. When Self-esteem meets social media

2.1. An ambivalent relationship?

The increasing usage of social media has led to much research on how social media affects individuals' well-being. The research is often focused on risk elements such as anxiety and depression and resilient elements such as self-esteem. Well-being is an overarching representation of what is important for a good quality and value of life. One of the aspects of well-being is self-esteem. This research will focus on the self-esteem element of well-being. Self-esteem which is an individual's subjective assessment of themselves. A person's self-esteem grows from adolescence to young adulthood significantly, and it can be affected by environmental stimuli.

A person's level of self-esteem is dependent on his/her achievements or failures in everyday life. He /she can also experience success or failure in the online sphere which includes social media. Theorists have contended that social media is a vital area to study an individual's self-esteem. This is because social media provides an avenue for the users to compare their lives and themselves to other users. Most of the content that the users put is usually carefully and positively crafted to put up a positive image on social media.

Self-esteem is also formed through social feedback from others (Leary et al., 1995). The social feedback received is most crucial in developing one's self-esteem. It is influenced either by support or exclusion, from close and distant relationships. In this sense, comparing oneself with others will increase or decrease one's self-esteem (Kernis, 2002; Vogel et al., 2014).

There are several researchers who have shown that there are some correlations that social media usage can impact one's self-esteem either positively or negatively. For example, when individuals use Instagram, their self-esteem is affected through social comparison with others (Clasen, 2015; Vogel et al., 2014).

Nardis and Panek (2019) also found that those who have lower social confidence find social media an easier platform to maintain relationships. As they have a greater control over what they share online than in the real-world scenario, this helps them to exercise more control over self-presentation than in face-to-face contexts. Social media also helps individuals with low self-esteem to overcome fears about socialising with those outside of their immediate circle.

They view Instagram and other social media platforms as a safe space for expressing themselves and that they can easily gain attention and better support.

According to Mehdizadeh (2010), they are more fervent social media users and post more about themselves. They also tend to not care much about controlling privacy online (Ahn, Kwolek, and Bowman, 2015). In addition, self-esteem seems to moderate the relationship between the amount of likes one receives and Instagram addiction, with the impact of likes on Instagram addiction being lower for those reporting higher levels of self-esteem (Martinez-Pecino and Garcia-Gavilán, 2019). This suggests that self-esteem may act as a buffer against the addictive effects of Instagram use.

This conveys that those who have low self-esteem tend to be more comfortable in sharing their personal lives online than those who have a higher self-esteem who tend to be more mindful about what they post online. Instagram usage can influence the users either positively or negatively depending on whether a person has a high or low self-esteem. Instagram usage may also affect one's self-esteem for the better or the worse.

2.2. The importance of Comparison, Feedback and Self-reflection

Many studies have shown either mixed or small links between measures of social media usage and self-esteem. For example, studies have found that social media usage is linked to lower self-esteem amongst young adults. But the question beckons on how self-esteem is affected by social media usage.

According to Krause, Baum, Baumann and Krasnova (2021) The self-esteem updating model helps to explain why and how social media can impact self-esteem through three main mechanisms. They are: 1) Social comparison; 2) Social feedback and 3) Self-reflection.

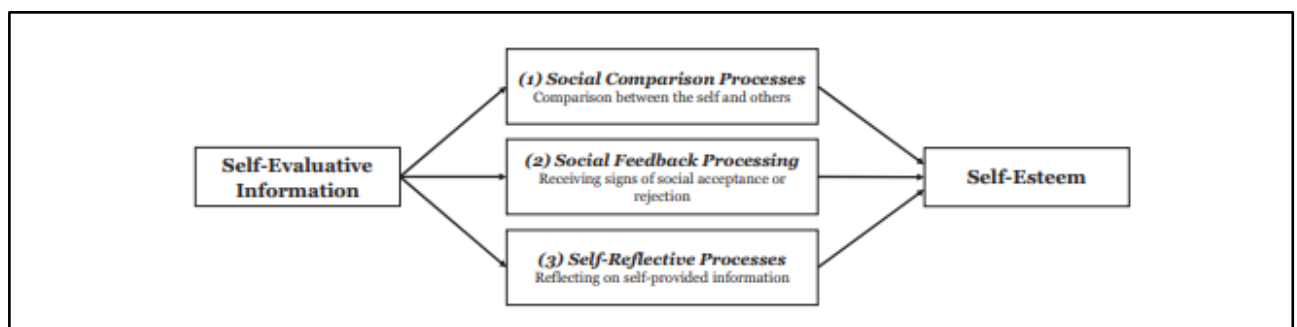


Fig.1 - Self-esteem updating model (Krause et al., 2021)

These three mechanisms impact an individual's self-esteem both online and offline. However, according to Cingel, Carter and Krause (2022, p.2.) “(...) *the specifics of computer-mediated communication and the specific activities that users engage in on social media can accentuate the effects of these mechanisms*”.

Therefore, studying how Instagram usage can impact self-esteem through social comparison, social feedback and self-reflection will be useful in understanding the risks and benefits of Instagram usage to users' self-esteem and when and which Instagram users are impacted greatly.

- **Social comparison:** Can negatively impact user's self-esteem because they are usually making detrimental upward social comparisons with other users. Instagram users tend to present an ideal image which may reflect a biased and harmful comparison.
- **Social feedback:** Can lead to an increase in self-esteem. This is especially so when the responses gained on an individual's post/story are positive (such as a large number of likes or favourable comments).
- **Self-reflective mechanism:** Can positively impact Instagram users. Instagram provides its users to save and curate their profile and information that they want to portray to their followers. Hence when they browse through their main page or reflect on past interactions with other users, positive self-aspects can be highlighted which can provide self-affirming qualities which can positively influence self-esteem.

To delve further, this dissertation will analyse the three mechanisms and conduct a study on how these mechanisms are related to how Instagram users see and evaluate themselves.

2.3. Social comparison

Social comparison is when one's way of thinking and capabilities are compared with others, and functions as an important factor for validating one's self-identity (Festinger, 1954). Based on this theory, researchers have characterised two different aspects- they are downward social comparison and upward social comparison social comparison (Buunk and Gibbons, 2006).

Downward social comparison refers to experiencing more positive self-evaluation of oneself when comparing to others who are considered as inferior (Wills, 1981). On the other hand, upward social comparison refers to experiencing more negative self-evaluation of one's self when comparing to others who are considered as superior (Vogel et al., 2014).

2.3.1. An introduction to Social Comparison Theory

The social comparison theory was first theorised by Festinger (1954) that people have a need to evaluate themselves by checking if their opinions are accurate and to be sure of what they can do. To satisfy this need, they compare themselves to others.

Festinger felt that individuals would prefer to evaluate themselves based on a specific characteristic; when they are not able to attain the information that they want, they will tend to turn to others for the information instead (Buunk & Gibbons, 2007).

Authors like Suls (2000) further expanded on Festinger's work through three kinds of opinion comparison which can be simplified to three questions (Buunk & Gibbon, 2007, p.4): “(1) *preference assessment (do I like X?)*; (2) *belief assessment (is X true?)*; and (3) *preference prediction (will I like X?)* ”.

Morse and Gergen (1970) also conveyed that individuals usually prefer to draw conclusions about themselves by comparing with those they think are better than them.

To clearly portray the impact of the Social Comparison theory, researchers differentiate between downward and upward social comparison (Buunk and Gibbons, 2006).

- **Downward social comparison:** refers to one feeling superior to others (who are considered inferior). This helps to develop a more positive self-evaluation (Wills, 1981). This causes people to view and evaluate themselves positively.
- **Upward social comparison:** refers to one feeling inferior compared to others, who are considered superior (Vogel et al., 2014). This causes one to feel more negatively as he/she sees others as being better off than him/her. (Buunk and Gibbons, 2006).

Thus, we can know that Social Comparison theory forms the basis that individuals will tend to evaluate their personal worth by measuring their skills, opinions, attractiveness and even their

value as human beings regarding others in their immediate environment or even in the mass media (Morse and Gergen, 1970).

This can tend to impact individuals' outlook of themselves and even their self-esteem. Comparing themselves can lead to negative opinions or dissonance which can be threatening to the self (Morse and Gergen, 1970).

2.3.2 Social comparison and social media

As emphasised earlier, social comparison is the process of when one sees himself/herself regarding others (Wood, 1996). And Buunk and Gibbons (2007, p.3.) highlighted that social comparison is “*an adaptive mechanism for sizing up ones' competitors*”. When one compares to others, he/she has a set of important criteria that they base their comparisons on (Buunk and Gibbons, 2007).

One of the avenues that individuals compare themselves is through social networking sites such as Instagram and Facebook. Baker and Algorta (2016) has alluded that social comparisons on social media can cause negative outcomes, such as negative influence.

One of the goals of Instagram users is to be able to gain many likes for their posts compared to others. A major goal of Instagram is to achieve a large number of Likes for posts, relative to others (Dumas, Maxwell-Smith, Davis & Giulietti, 2017; Sheldon & Bryant, 2016). Therefore, those who are seeking social support, would want a lot of likes as that would mean a boost of their popularity and to feel valued too (Sheldon and Bryant, 2016; Dumas et al., 2017).

As mentioned earlier, Instagram provides the avenue for its users to portray themselves in an ideal manner and emphasise on what they want to show on their profile. Stapleton, Luiz and Chatwin (2017, p.143) put forward that young Instagram users consider other users “*to have happier, more successful lives than themselves, which may, in turn, create opportunity for upward social comparison and adverse effects on their self-esteem*”. This conveys that there is a possibility of Instagram users being negatively influenced by comparing themselves with their narrow-minded view of others on Instagram. This can in turn impact their wellbeing adversely.

Stapleton, et al. (2017, p. 147) found from their study that “*self-worth contingent on approval from others and social comparison on Instagram make a significant unique contribution to the*

explained variance in self-esteem scores among emerging adults". This means that those whose self-worth is dependent on acceptance from others to apply their self-validation goals, and later realise their self-worth.

While they validate themselves through social comparison, it was found that the users are *"likely to fall into the trap of correspondence bias, which, in turn, adversely affects their self-esteem"* (Stapleton, 2017, p.147). This also indicates that the users will tend to assume that the pictures of others represent their personality and not their actual social context. Stapleton exemplified this by stating that (Stapleton, 2017, p.147) :

"(...) when a young person views images or videos of other Instagram users that depict the user as happy, the young person may conclude that the individual is happy without considering the situations that made the user happy".

This conveys that Instagram does not provide a realistic picture for the users to make a realistic comparison but an idealistic one instead.

Do you like me?

Wallace and Buil conducted a recent study where they found that *"(...) more Likes leads to greater negative affect, especially when those Likes are seen"* (Wallace & Buil, 2021, p.4). This can be seen as a distressing situation when one puts his or her worth on the number of likes by others.

Wallace and Buil (2021) stated that users want to achieve more likes on their posts compared to others. Even when they attain a lot of likes, one will still be able to face negative impact because they are comparing with others, whose likes are also visible. However, those who had lesser likes were not too bothered by the visibility of likes that others had.

The authors also suggested that this could be because these users perceive they have already 'lost' to others who have more Likes, therefore the visibility of lower Likes does not matter to them (Wallace & Buil, 2021).

Factors such as users' feedback such as likes, comments and even followers can affect one's self-esteem. In a study conducted by Burrow and Rainone (2017), they found that the number of likes that one received on his/her Facebook profile(s) corresponded with his/her self-esteem. However, this was found to be weaker for those who have an increased and positive sense of purpose in life. Kalinina (2019) also found that those with purpose tend to have a higher self-esteem and are not affected by feedback from others on Instagram (Kalinina, 2019, p. 38).

However, research has found that achievements on social media such as getting likes for a new post only serve as a short-term boost (Diefenbach and Anders,2021). When a friend gets more likes in the next instant, one's self-esteem can decline. This conveys that a person's increase in self-esteem is only temporary and is affected by the actions and feedback of others. People with low self-esteem tend to have a high need for positive feedback from others (Jones, 1973). They also tend to be the ones with lesser stable relationships and feel more affirmed when they receive feedback from others on their social media (Carr et al., 2016; Ellison et al., 2014).

From ideal to idealised

Social media users are faced with a lot of personal information from their close and distant ties which may not be evident in their offline daily lives (Appel et al., 2016, Vogel et al., 2014, Wang et al., 2017). Instagram provides an easy and crucial platform where the users can evaluate themselves in comparison to others.

Social media does provide the avenue for people to present their authentic selves, but it is more common for many to present only their positive selves. This is known as positivity bias on social media (Reinecke and Trepte, 2014). Therefore, Instagram allows people to present idealised and positive information to ensure positive impressions from others (Wang et al., 2017). Here we can see that upward social comparison is more obvious on Instagram and other social media platforms than being offline (Appel et al., 2016).

According to Vogel et al. (2014), social media users tend to compare their actual offlines selves to their ideal online versions which tend to affect them negatively because of the difference between their online and (real) offline personas.

Social comparison on Instagram can lead to negative impact on one's well-being. Hwang (2019) conducted a study in South Korea where it was found that when college students

increased their usage of Instagram, it also led to an increase of all types of social comparison. Hwang (2019) stated that the more the students log on to their Instagram accounts, they start comparing themselves with others. Checking out other users' status updates, comments on their pictures and video were strongly related with upward social comparison. Their findings also conveyed that social comparison on Instagram can affect feelings of depression. When users constantly view pictures of others and perceive that they have much better lives than them, this upward social comparison can lead to an increased depression.

On the other hand, they found that when Instagram users compare themselves with those whom they perceive as less of than them, they become less depressed. Hwang (2019) concluded that persistent Instagram usage and/or spending a lot of time on the platform can cause its users the avenue to partake in social comparison. This can lead to greater depressive feelings amongst the users. In addition, social comparison on Instagram can be harmful to young people's views of themselves and can lead to negative impact on their well-being.

Social comparison is also crucial in causing one to have low self-esteem. As individuals are more exposed to ideal information by others, they will tend to compare and believe that they do not have a successful or contented life as them which in turn impacts their self-esteem (Stapleton et al., 2017).

In addition, one may view external factors and socially accepted standards as more important than his/her own character traits. When this happens, he or she will feel that being his/her authentic self is valued and this leads to a decrease in self-esteem (White et al., 2006).

The Reality unreal

Researchers have found Instagram use to be more susceptible for social comparison to take place (Vries et al., 2018). This is because users can make use of filters to edit their pictures until they find them to be ideal. This can in turn affect the users' self-esteem.

As Instagram users seek to put up likeable presentations of themselves to promote their self-esteem, they tend to also put in more time and effort to create their Instagram profiles (Kramer and Winter, 2008).

Trifiro (2018) emphasised that one feels in control in the online sphere as he/she can choose what to post and usually inflate their strengths. This tends to temporarily bolster their self-esteem. However, this also means that one can leave out their weaknesses and flaws by putting up an exaggerated fake image.

According to Trifiro (2018), those who tend to put up exaggerated images are the ones with low self-esteem. Those who have low self-esteem tend to portray online profiles that have greater social engagement than their true selves because according to Trifiro (2018) people want to escape from their realities and unhappiness with their true selves and lives. This may lead to positive social feedback from those online, but they lack real-world and personal connections.

Jiang and Ngien (2020,p.3) emphasised an unfortunate reality in their paper:

“Since idealistic information presented through social media has increased social comparison norms, the more time people spent on social media, the more likely they would believe that others have better lives and are happier and more successful, reducing their self-esteem”.

This notion that is repeated that others have better lives can negatively impact users and/or may compel them to put up more glorified images or versions of themselves.

The intensity of usage

There were several studies conducted to study the impact of Instagram usage. The following studies below were selected to explore and analyse the relationship between Instagram usage and self-esteem.

Fagundes, Marot and Natividade conducted a research study in 2020 by conducting an online questionnaire targeting 625 Brazilians with the average age of 26.7 years (63.7% were women) to test the predictive power of Instagram’s use intensity, social comparison and the five major personality factors of self-esteem (Fagundes, Marot & Natividade, 2021).

Although they found that *“the use of Instagram, by itself, has no direct impact on self-esteem and vice versa”* (Fagundes, Marot & Natividade, 2021, p.718, p.7), they also found that for women, the greater the intensity of Instagram use, the higher the levels of social comparison

and the lower the levels of self-esteem. The researchers found that the data offered by Instagram users in their profiles was a source of comparison and self-assessment for other users. It was stipulated that those who tended to favour certain features or characteristics of themselves tended to portray these more openly online compared with others. These comparisons can be linked to lower self-esteem and be characterised by not feeling confident and capable (Fagundes, Marot & Natividade, 2021, p.718).

The researchers also concluded that the relationship between self-esteem and the intensity of Instagram use became significant when social comparison was included, highlighting its suppressive role. Thus, when social comparison takes precedence, the more significant the intensity of Instagram usage, the lower the self-esteem. From this study, we can understand that Instagram usage alone does not affect one's levels of self-esteem. However, when social comparison is involved, then there is a higher possibility that self-esteem becomes affected.

Another study that we explored and analysed was the study conducted in Germany by Schmuck, Karsay, Matthes and Stevic in 2018 where they used a two-wave panel survey targeting 461 participants from the ages between 16 and 65 and collected longitudinal data. The study aimed to explore longitudinal effects of mobile social network use on adults' well-being.

The researchers found a negative correlation between Instagram usage and levels of self-esteem. They found that Instagram usage directly impacted well-being negatively over time. Instagram users found support for reciprocal relationships between upward social comparison on SNSs and self-esteem as well as well-being in a longitudinal context (Schmuck et. al, 2019, p.7).

The study also revealed that *“upward social comparison was negatively related to individuals' self-esteem, which predicted lower subjective well-being”* (Schmuck et. al, 2019, p.7).

The research also found that upward social comparison has a direct negative impact on one's well-being. However, it did not necessarily mean that this finding suggests that self-esteem is only one factor accounting for lower well-being and that upward social comparison can also directly affect well-being in a negative way. Therefore, it means that when upward social comparison produces any form of stressors such as jealousy or frustration, a person's well-being can be affected but not his/her self-esteem.

A similar research study was also conducted in Singapore by Jiang and Ngien in 2018 to find out the effect of Instagram use on individuals' social anxiety. An online survey was disseminated through social media sites and recruited 388 participants. The study found that *“more frequent Instagram use was associated with a higher level of social comparison”* (Jiang & Ngien, 2018,p.5). Instagram provides the avenue for users to compare themselves with others by learning information about their lives. In addition, there is comparison with people that they may not know (which includes celebrities and the Instafamous). Moreover, the use of hashtags also steers social comparison because the hashtags are easily searchable and more accessible to many people. Also, the use of filters to idealise images can negatively impact the users. The data conveyed that due to an upward level of social comparison, it also caused an increase in one's social anxiety. The upward comparisons set off strong and negative psychological responses especially when other users share more positive information about themselves (Yang & Robinson, 2018).

The study found an important point that *“the mediation effect of self-esteem is significant to note* (Jiang & Ngien, 2018, p.5). Just like the other studies, they also found that social comparison can have a consequential impact on self-esteem. Once again, it was found that those with upward social comparison revealed *“poorer self-perception, lower self-esteem, and more negative feelings”* (Jiang & Ngien, 2018, p.6).

Therefore, it can be noted from the case-studies that the intensity of Instagram usage is able to influence social comparison, which in turn, also influences self-esteem. The studies showed that the higher the levels of social comparison, the lower the levels of self-esteem. Instagram offers plenty of opportunities to individuals to evaluate themselves online. Individuals reveal their lives to others and are also exposed to the lives of others. This causes him/her to compare with others and self-assess based on what he/she views online and that can lead to an increased/decreased self-esteem.

2.4. Social Feedback

There has been research that portrays that interpersonal evaluations from others impact how individuals view, assess, and feel about themselves (Felson, 1993; Harter, 1986, 1990; Leary & Baumeister, 2000; Rosenberg, 1979). The social feedback from others conveys to individuals their social standing and whether the way that they perceive themselves is aligned with the way that others view them (Swann, 1982; Cross & Markus, 1999; Over, 2016).

Social feedback can be defined as when individuals satisfy their need for social belonging by measuring the extent of which they are accepted and liked by others through thriving on responses from their social environment (Baumeister & Leary, 1995).

Social feedback can be divided into both positive and negative. Social exclusion and rejection are considered negative feedback. While acceptance, inclusion and compliments are known as positive feedback (Rappaport & Barch, 2020). It is important for individuals to be able to process and respond accordingly to social feedback to adapt to the social environments that they are in (Swann & Brooks, 2012).

2.4.1. An introduction to Sociometer Theory

The Sociometer theory is important to understand the effect of social feedback on how it affects self-esteem better. The Sociometer theory emphasises that self-esteem is measured according to how one perceives his/her relational value. Positive feedback is meant to increase one's self-esteem because it indicates being recognised by others. However, an individuals' sense of purpose is vital as an underlying factor in determining if positive feedback will affect one's self-esteem (Burrow & Rainone, 2017).

Sociometer theory proposes that self-esteem is part of a psychological system that monitors people's relational value. The theory puts forward that self-esteem is a gauge of how an individual is either socially accepted or rejected by others. When a person receives any form of negative feedback or sign of social rejection from others, his/her self-esteem is also negatively impacted (Baumeister & Leary, 1995; Leary, 1990). However, when an individual receives a positive form of feedback or any sign of social acceptance, his/her self-esteem becomes boosted positively (Leary, 1999).

The sociometer theory posits that personal and private self-evaluation alone is not the only factor to affect people's self-esteem. Rather, interpersonal influences also impact. People's self-esteem can also be explained by how they are viewed by others (Leary, Tambor, Terdal & Downs, 1995).

According to Leary (2005, p.106), this theory serves as a foundation to comprehend the relationship “*between self-esteem and psychological phenomena such as social emotions, intragroup and intergroup behaviour, self-serving biases, reactions to rejection, and an array of maladaptive behaviour*”.

Self-esteem serves as a marker for a person’s relational value to others (Leary & Baumeister, 2000). Relational value is the measure to which one assesses if his or her relationship with another is either beneficial or essential (Leary, 2001). When others view an individual with a higher relational value, they tend to be more likely to include, accept, support, and protect the individual. Therefore, the sociometer theory conveys that to increase their possibility of being accepted by others, individuals tend to safeguard and increase their relational value. By doing so, it seems that the individuals are also trying to maintain or increase their self-esteem. The degree of an individual’s self-esteem is linked to his or her sensitivity to social feedback. It has been noted that those with low self-esteem tend to experience more and longer lasting sadness after being rejected compared to those with high self-esteem (Ford & Collins, 2013).

2.4.2. Social feedback and social media

Social media provides individuals a platform on how they feel about themselves through gauging from their relational value online. Through social media, a person’s self-esteem can be boosted when he or she feels included, accepted or considered popular by other social media users.

For example, having friends on social media platforms such as Facebook, friends who are more responsive can satisfy psychological needs above and beyond the number of Facebook friends one has (Greitemeyer, Mügge, & Bollermann, 2014). By receiving positive feedback, it can allow the individual to feel accepted within the online social environment. In addition, his or her self-esteem would also be boosted from the number of likes that one receives on his or her personal picture. Hence, we will be able to see that when one curates their profile that is favourable for their audience, they will tend to gain positive feedback, which can lead to a boost in their self-esteem.

In line with the sociometer theory, self-esteem is based on the social feedback received here and how he/she views others in terms of exclusion or inclusion (Leary et al., 1995). Research has shown that Facebook users gain positive feedback when they receive more likes and feel included. This translates into their self-esteem being boosted and they will feel happiness too (Baumeister et al., 2003).

2.5. Self-Reflection

It is crucial to differentiate between the social feedback process and self-reflection process. Processing of social feedback mostly focuses on a single episode of social interaction (for example, being complimented online by a fellow follower). However, instances of interpersonal interaction can be reflected multiple times within the process of self-reflection (Krause et al., 2021). Self-reflection can be defined as the practice of assessing and examining one's own thoughts, feelings and behaviour (Robert & Stark, 2008). While interaction with the social environment is an important factor in determining an individual's level of self-esteem, it can also be determined from internal characteristics. Self-reflection can also be explicated when a person purposefully thinks to work towards a goal (Dewey, 1933). It entails inquiry and critical thinking. Inquiry happens when individuals think and learn from their own actions.

Schön (1983) detailed that there are two types of reflection. They are reflection-in-action and reflection-on-action. The former takes place when one applies past knowledge or experiences to cope with current situations as immediate feedback. On the other hand, reflection-on-action takes places after experiencing the situation, thus requiring careful thinking about previous history. Here, the individual will be able to review the pros and cons of either carrying out or not carrying out an action. Summarize into learning to be applied for future situations.

Many theories have posited that reflection on oneself through various angles can impact an individual's self-esteem (Krause, et al., (2021). This can be exemplified through reflections on past behaviours (self-perception theory, Bem, 1967), personal standards set by one (control theory of self-regulation, Carver & Scheier, 1981), portraying an image of they would like to view themselves (self-discrepancy theory, Higgins, 1987), essential traits, or other positive aspects of the self (self-affirmation theory, Steele, 1988) can serve as a basis for self-evaluation and therefore affect individual self-esteem. Research in the field of self-affirmation (Steele, 1988) has revealed that when human beings think and perceive themselves positively through

activities such as writing self-affirming messages about themselves, they tend to experience a boost in self-esteem (Koole, Smeets, Van Knippenberg & Dijksterhuis, 1999).

Studies conducted by Brown and Brown (2011) revealed that participants who had low self-esteem felt worse about themselves after assessing their crucial traits and characteristics. On the other hand, those who had high self-esteem tend to feel positively when they also assessed themselves. It was found that self-reflection produced more intense impact during these who had low self-esteem compared to those who had high self-esteem.

This conveyed crucial information that those who had low self-esteem are more reactive to situational factors than those with high self-esteem (Brown, 2010; Brown & Marshall, 2006).

2.5.1. Self-reflection and social media

Social media influences the way one views his/her self-reflection. To control how one views himself/herself and to boost positive impressions from others (Schlenker, 2012), individuals also tend to adopt different behaviours and appearance around others (Goffman, 1959).

Facebook is a relevant example that demonstrates the impact of social media's impact on self-reflection. Facebook enables the users to create their self-images either on publicly or privately available profiles that can be viewed by a variety of other users such as family members, friends, acquaintances and even strangers (depending on one's privacy settings). Contrary to traditional social interactions that happen in person, Facebook allows users' carefully curated identities available to their social networks at any time (Hogan, 2010).

Social media profiles are meant to reflect users' authentic selves (Back et al., 2010). Instead, many users tend to only portray the positive side of their lives (Chou & Edge, 2012; Qiu, Lin, Leung, & Tov, 2012) and conveys themselves to be "*popular, well-rounded, and thoughtful*" (Zhao, Grasmuck, & Martin, 2008). This conveys a false sense of identity that is being put out.

While social media tends to compel reflections from their users, Social media tend to also affect users' social images and intrude upon users' privacy, forcing them to reflect on their online behaviour and on their expressed selves. Users tend to want to discern more before they take any action online because they want to control any consequences that may affect their online lives and, their real world- they want to avoid any possible regret.

Researchers have found that users regarded self-reflection in social media as a way to prevent possible damage to their self-image. Furthermore, such self-reflection seemed to raise hesitation and anxiety among users (Bae, Lim, Bang & Kim, 2014).

Bae, Lim, Bang and Kim conducted a study in 2014 and found that some participants “*had personal experiences of being hurt because of uncontrolled privacy disclosure or from losing social respect and relationships*”. On the other hand, other participants tend to learn moral lessons from others’ negative experiences with social media, especially from celebrity scandals that face a lot of backlash and unfavourable remarks and comments made on social media sites. Social media provides the inevitable platform for many potential and actual negative circumstances that can impact the users’ self-reflection and serves as a reminder of possible damage to their self-image. Such experiences may bring about reflective thinking for social media users however, their reflections tend to decrease the use of social media rather than encourage an ongoing effort to improve one’s use. Thus, such reflection cannot somewhat contribute to self-improvement (Bae, Lim, Bang & Kim, 2014).

2.5.2. Self-reflection and the self-evaluation maintenance model

One way to understand the self-reflection process is through the self-evaluation maintenance (SEM) model. The SEM model states that individuals will change their self-definition to defend or improve their self-evaluation. Moreover, an individual’s relationship with others can also have a great impact on one’s self-reflection. Hence, an individual self-definition lies in the performance and closeness of others (Tesser & Paulhus, 1983). These two variables can impact self-reflection greatly but also act in ways that are completely opposite one another.

For example, one’s closeness to another individual can impact another’s self-evaluation. Tesser and Paulhus (1983) provided an example that an individual can enjoy reflected glory of their close friends. When a close friend does well (for instance playing the piano well at a concert), it increases an individual’s own self-reflection. The better the other person’s accomplishment and the closer the psychological relationship, the one can attain self-evaluation through the reflection process.

3. Introduction to Instagram purpose and usage

Social media has become an integral part of many people's daily routine and communication. Many create and construct their profiles on a social media account to connect with others and to shape others' impression of them. Facebook, Twitter, Snapchat and Pinterest are social media platforms that serve their users with different goals and objectives. As part of this social networking platform, in recent years, Instagram has gained popularity and prominence in the digital space.

3.1. Origins of Instagram

Instagram was founded by Kevin Systrom and Mike Krieger in 2010 (Investopedia, 2022). The two founders were fixed on building an application whereby pictures are taken on mobile phones and create an engaging and easier photo-sharing experience. They wanted to create an application that could link the Hipstamatic app, which had attractive features that could be applied to pictures such as filters, and social networks like Facebook (Investopedia, 2022).

Instagram, a photo-sharing mobile application, was founded in October 2010. After just a day, Instagram had over 25,000 users and by the end of the week, it reached over 100,000 users (Investopedia, 2022). In 2012, Facebook (now currently known as Meta) acquired Instagram for a billion dollars in cash and stock (Investopedia, 2022). Instagram's popularity grew exponentially which can be exemplified when Statista reported in 2021 that there are over one billion monthly Instagram users globally.

Due to the dependence and increased usage of smartphones, many turn to social media sites to increase their social interactions. Huang and Su (2018, p.1) stated that "Among the adults that use their smartphones for nearly three hours every day, 59% indicate that they are very reliant on social media, over half of them accessing social media sites at least once every hour". Instagram's key characteristics are the potential to capture real-time events through taking pictures or videos, possibly editing them using the filter tools offered by the platform, share the pictures or videos with other followers, follow other Instagram profiles and potentially like and comment on their posts (Diefenbach & Anders, 2021). Ting, Ming, de Run and Choo (2015, p.16) emphasised that "*Instagram has excelled as an effective communication and marketing tool to display products with visual descriptions*". Instagram allows its users to take

pictures, apply the various filters or tools to manipulate the images and share them with their friends on the various social networking platforms (Ting et al.,2015).

There can be two types of Instagram profiles- Public versus private. An Instagram profile that is public can be accessible to all, not only one's own followers. It is commonly known that brands, traditional celebrities and Instafamous celebrities/influencers usually use their public profiles to reach a larger audience while promoting a brand or a product (Diefenbach & Anders, 2021). There are strategies such as "follow-2-follow" or "like-for-like" that allow users to gain more likes and followers. These strategies are considered a part of a give-and-take approach where Instagram users follow another user to be followed back too (Diefenbach & Anders, 2021).

3.2. Functional design of Instagram

Instagram as a social media platform allows its users to upload and share pictures and/or videos on their profile or their Instagram stories. These uploads may include captions on which followers may either like or comment if they wish. According to Russmann and Svensson (2016), Instagram users are divided into two roles: Posters and followers. Posters own Instagram accounts and only they can post a new picture or video on their accounts. The posters can share on their accounts "selfies" (self-taken pictures) of themselves to even disclosures about their personal stories of negative feelings and vulnerabilities (Lowe-Calverley, Grieve & Padgett, 2019).

While the followers subscribe to the posters accounts and are able get updates in the forms of pictures, videos and Instagram stories. The followers can react to these posts by "liking" them through the heart-shaped icon, commenting on them and even re-posting them on their feed. According to Bakshi, Shamma and Gilbert (2013), Instagram has allowed the sharing of images, rather than words alone, to foster greater bonds easily amongst friends and those who have similar interests which makes it captivating and perfect for the users.

One of the reasons for the users to go on their social media profiles is because of the designs of the platforms (Huang & Su, 2018). Many users post their selfies on Instagram and use the platform more for personal use (Huang & Su, 2018). Huang and Su (2018, p.3) mentioned that *"Most people devote a lot of time and focus to Instagram; users first take numerous pictures*

before uploading the most important picture to get praise and likes". By doing so, the users either get instant gratification or feel bad about themselves. This is further emphasised by Huang and Su (2018, p.3) that *"Instagram utilises the general need to pursue social validation, which gives users a unique sense of satisfaction"*. This is also supported by Erdoğan, Arslan, Hepdoğan, and Özbay (2018, p.11) who stated that *"Online self-presentation can be meticulously constructed, highlighting desirable and positive aspects of oneself and concealing perceived flaws"*. This conveys that Instagram users are more concerned in portraying an attractive persona and work hard to only put their ideal image for the online community to view and evaluate them. To further emphasise the motives of individuals using Instagram by Trifiro (2018) include to attain a sense of belonging and to shape how one is perceived by others. This implies that Instagram usage can cause one's self-esteem to be impacted and affects how one views himself/herself.

3.3. Social Interaction

A main reason why people use Instagram is for social interaction with others. This is closely associated with the goals of why Instagram was created. It was meant to be a social networking platform for people to interact with one another easily and conveniently. According to Lee, Lee, Moon, and Sung (2015), social interaction has been the most important motivating factor for users to use Instagram to form and to maintain social relationships with others. Pittman and Reich (2016) found that those who have a lesser possibility to feel lonely, tend to be the ones who have a more positive attitude towards Instagram. Through social media platforms such as Instagram, individuals can form social attachments and gain supportive social networks to improve wellbeing (Baumeister & Leary, 1995).

3.4. Surveillance/Knowledge about others

A study conducted by Sheldon and Bryant (2016) found that one of the most significant reasons for people to use Instagram was to find out information about others. Many use social media platforms to keep themselves up to date with information about other users or even to gain knowledge about what they are doing. This can be shown through either following and "liking" other user's posts. One can find out other users' information such as socio-economic status, relationship status and number of friends just simply through the poster's Instagram profile.

But this is still dependent on what the poster chooses to show on their profile. If the profile is public, strangers are also able to view a poster's account. Sheldo and Bryant (p.94) even highlighted that "*In a matter of moments, one can click on a person's profile and scroll through days, months, or years of posts*". This conveys the ease of finding out information on Instagram profiles which leads to many who are interested in the lives of others to use Instagram as a form of surveillance and to gain knowledge about others.

3.5. Uses and gratifications approach

The uses and gratifications approach is another way that we can understand why people use Instagram. (Diefenbach & Anders, 2021). This approach emphasises "*on the fulfilment of needs behind choosing and using specific forms of media, which therefore make it gratifying*" (Diefenbach & Anders, 2021, p.4). People use social media to attain feelings of positivity and joy. This helps them to make them feel good about themselves.

Studies have found that this approach showed that when individuals use Instagram, they expect a certain gratification from it (Huang & Su, 2018; Kaye & Johnson, 2002; Lee and Ma, 2012; Shao, 2009).

Studies have shown that social connectedness, which is a basic need to associate with others and to gain social acceptance, is the gratification obtained through social media, while self-esteem and social status are related needs (Dumas et al., 2017; Maulana, 2018; Nadkarni & Hofmann, 2012). Instagram provides the avenue for the users to be socially connected that fulfils their gratification and at the same time also influences their self-esteem and perceived social status. (Nadkarni & Hofmann, 2012).

There has been research that found that females are more likely to use social media compared to males (De Cock et al, 2014). This gender difference should be examined with caution and regarding the use of Instagram. Haferkamp, Eimler, Papadakis, and Kruck, (2012) found that many women were highly concerned about their appearances when posting selfies online because they wanted to present what they believe is the best image of themselves. For females who care about their body image, Instagram allows them to compare themselves with models who are considered ideal and also internalise "*(...) a third-party perspective on their physical selves and regarding themselves as objects to be looked at and evaluated may be associated*

with increased use of Instagram” (Feltman & Szymanski, 2018, p.312). They value the opinions of how others view them seriously.

This conveys that Instagram is a platform that people use to put in effort in showcasing their best selves and are concerned about the number of likes and comments that they receive from others.

3.6. Fear of missing out (FoMO)

Another reason for the use of Instagram is to prevent the fear of missing information and to stay updated on what is happening in one’s social circle. Fear of missing out (FoMO) has been described as *“pervasive apprehension that others might be having rewarding experiences from which one is absent”* and is further manifested as *“the desire to stay continually connected with what others are doing”* (Przybylski, Murayama, DeHaan & Gladwell, 2013, p. 1841). By not doing so, the users may have a sense of emptiness and detachment that can cause them to feel unfavourably.

The fear of being excluded and the need to feel belonged is a motivating factor in using Instagram. This FoMo tends to be more apparent amongst the youths and those who tend to report higher FOMO tend to feel less connected with others (Barry, Reiter, Anderson, Schoessler & Sidoti, 2019). Barry, Reiter, Anderson, Schoessler, and Sidoti (2019, p.24) also discussed that *“FoMO may play a role in the display of self-images on social media based on motives to elicit and participate in interactions with others and to portray oneself as more connected”*. FoMO also appears to mediate the negative relations between increased social media use and overall life satisfaction and general mood (Przybylski et al., 2013, p. 1841).

From the above, there are various reasons why Instagram is being used by many. Instagram certainly provides a form of gratification for its users and also, prevents the fear of missing out. However, it can also serve as an avenue that influences one’s self-esteem because of such uses which will be discussed in this paper.

Chapter II - Methodology

Methodological options,
data collection and processing

1. Methodology

1.1. Contextual Background

The literature review discusses the influence of social media, particularly Instagram, on individuals' self-esteem. Scholars have explored this topic, defining self-esteem as one's self-worth and approval of oneself. External qualities, such as physical appearance and hobbies, shared online can impact self-esteem. People often curate a perfect image on Instagram, boosting their self-esteem. However, comparing oneself to others' profiles, likes, and comments can lead to negative self-esteem. Prolonged social media use has been linked to decreased self-esteem and confidence. The relationship between social media and self-esteem is complex, influenced by factors like social comparison, social feedback, and self-reflection.

The literature review proposes three processes that affect self-esteem: social comparison, social feedback, and self-reflection. On Instagram, many are concerned about their personal attractiveness and general values as human beings. Therefore, they compare themselves with others to judge and evaluate their own personal worth. Many tend to compare upwards on Instagram as they feel that others are doing better than them. This can lead to negative outcomes such as impact on their well-being such as their self-esteem.

There is limited research as to how self-reflection affects self-esteem using Instagram or other social media sites. Therefore, this research study should investigate and discern the correlation between self-reflection and Instagram usage. Thereafter, whether there is a significant impact on one's self-esteem. The main question of this study is to understand how Instagram usage impacts self-esteem, with three dimensions being recognized as important components in the formulation of self-esteem: social comparison, social feedback, and self-reflection. We expect this study to pinpoint and confirm the fundamental risks and benefits of Instagram usage on users' self-esteem.

To conduct a research study, the relevant methodology needs to be used effectively. The right method(s) allows the researcher to understand, analyse and even come up with a relevant proposal or recommendation to either allow the researcher to solve a puzzle or a problem, discover new information or to come up with solutions with the objective of bettering the society. According to Almalki (2016, p.290):

“A methodology provides a piece of research with its philosophy, the values and assumptions which drive the rationale for the investigation as well as the standards that will be utilised for the interpretation information and the drawing of conclusions”.

The right method will allow the researcher to focus and take the appropriate approach for the study and use the correct method to address his/her research question(s) (Crotty, 1998).

1.2. Hypotheses Formulated

This research study aimed to underscore and enhance existing knowledge in academic literature, providing additional depth. Its primary objective is to analyse the effects of Instagram usage on self-esteem, social comparison, social feedback, and self-reflection. To rigorously explore these relationships, we have formulated the following null and alternative hypotheses, structured as follows.

Table 1: Summary of Hypotheses and Null Hypotheses

Variable	Null Hypothesis (H ₀)	Alternative Hypothesis (H ₁ -H ₄)
Social Comparison (H₁)	H ₀ : The increase in persistence of Instagram usage has no significant effect on social comparison.	H ₁ : The increase in persistence of Instagram usage has a significant effect on social comparison, either positive (H _{1a}) or negative (H _{1b}).
Social Feedback (H₂)	H ₀ : The increase in persistence of Instagram usage has no significant effect on social feedback.	H ₂ : The increase in persistence of Instagram usage has a significant effect on social feedback, either positive (H _{2a}) or negative (H _{2b}).
Self-Reflection (H₃)	H ₀ : The increase in persistence of Instagram usage has no significant effect on self-reflection.	H ₃ : The increase in persistence of Instagram usage has a significant effect on self-reflection, either positive (H _{3a}) or negative (H _{3b}).
Self-Esteem (H₄)	H ₀ : The increase in persistence of Instagram usage has no significant effect on self-esteem.	H ₄ : The increase in persistence of Instagram usage has a significant effect on self-esteem, either positive (H _{4a}) or negative (H _{4b}).

2. Instruments, Measurement Scales, and Data Collection

2.1. Data Collection Procedures

For this research study, the quantitative research approach was undertaken. This research method is considered as a “*deductive approach towards research*” (Almaki, p.290). Quantitative researchers put forward “*a theory that is exemplified within a specific hypothesis, which is then put to the test; conclusions can then be drawn with regard to this hypothesis, following a series of observations and an analysis of data*”. A feature of this approach towards research is that the collection and analysis of information is conducted utilising Mathematically driven approach using surveys and gathering numerical information from survey participants.

As part of the quantitative research, I have decided to use online surveys to collect data and to study the results.

According to Wyatt (2000), these are some of the benefits of using online/web-based surveys that have been pivotal for this study to make use of this method:

- 1) Online surveys are supposed to be more inclusive and have a greater reach. In this instant, this online survey was able to be easily sent out to participants from Singapore and Portugal. This allowed finding a suitable number of survey participants to take part in the study on a global scale. In this research study, 95 participants took part either through email marketing, word of mouth and even using WhatsApp messaging and social media platform, Facebook.
- 2) Online surveys are also cost-effective to carry out. Although time was spent to recruit participants to participate in the survey on several occasions, there was no monetary cost involved in the case of this research study.
- 3) The data are captured directly in electronic format, making analysis faster and cheaper. This allowed easier and efficient checking of data and also, able to collect a higher number of answers then compared to other methods.
- 4) Online surveys also allow rapid updating of questionnaire content and question ordering according to user responses.

2.2. Study population and sample

This research study initially wanted to analyse the impact of the usage of Instagram on millennials (born between 1981 and 1994) and their self-esteem. This was because according to Moreno, Lafuente, Carreón, and Moreno (2017), the millennials are “(...) *characterised by the use and adaptation of technology in their daily lives, as well as values, life experiences, motivations, and common buying behaviours*”.

The millennials are known to be the largest consumer group and as they become more affluent, they also become a likely group of potential investors. The millennials were also born into an era of when technology developed by leaps and bounds. Technology plays an important role in shaping their lifestyles from using smartphones to social media. However, to ensure that the study will have an increased validity and reliability, it was an impetus to include participants from other age groups too. This survey also included survey participants who were younger and belonged to the Generation Z. Although various sources provide different start dates for Gen Z, it is generally acknowledged to begin in 1995 (Bassiouni & Hackley, 2014; Kamenidou et al., 2018; Priporas et al., 2017). Members of this generation are known to be highly educated, technologically savvy, innovative and creative (Priporas et al., 2017). They are characterised as digital natives, individualistic, pragmatic, open-minded and socially responsible (Euromonitor, 2018). Given that this generation was the first one born into an entirely digital world (Bernstein, 2015), they use technology and digital devices extensively, and they strongly engage through social media which, inevitably, more or less shape their lives (Yussof et al., 2018). As a result, it makes them more digital in nature and socially connected than previous generations (Ruangkanjanases & Wongprasopchai, 2017).

Participants for the study are mainly living in Singapore and Portugal. Singapore was chosen because according to Guo and Zhang (2014, p.1154) “(...) *despite its small size and lack of natural resources of all kinds, the city-state has transformed into the most developed country in Southeast Asia within a short span of time*”. This is most likely due to rapid industrialisation, diversification and modernisation. Therefore, the millennials in Singapore will have ready access to technology and especially to social media sites due to their lifestyles. To further emphasise the ubiquity, Jiang and Ngien (2020, p.1) reported that “(..) *70% of Singaporeans use social media*”. Singapore is also a country where the East meets West thus, boasting a unique mixed culture (Jiang & Ngien, 2020). While most of the Singapore’s population is ethnic Chinese, Jiang and Ngien (2020, p.2) also highlighted that the “*Eastern culture has*

exerted significant impacts, such as suppression of individuality to maintain harmonious relationships in the social context, high power distance, and personal achievement through diligence and perseverance. On the other hand, Western culture also has profound influences in Singapore". This shows that Singapore has to offer diverse cultures or the union of various cultures together. Therefore, participants in Singapore will be an interesting and crucial demography analyse and study.

On the other hand, Portugal was chosen because of its rich historical heritage and development from a dictatorship to a liberal democracy. According to Alves (2019), the country has made extraordinary growth "*with the development of strong and rooted democratic institutions and processes, a widely based although frail Welfare State and public provision of education and health services, and modern although severely European-dependent economy*". This change is especially evident in impacting the Portuguese youths. Although the youth population is shrinking dramatically and the country faces an ageing crisis, the youths are definitely much more educated than their predecessors as many embark on a longer educational path and are much more qualified to join the job market. Many Portuguese millennials use social media as a form of communication. According to Statista (2021), there were over 4,790,000 Instagram users in Portugal in July 2021. In addition, 28.6 percent of those users were between 25 and 34 years of age. This conveys that a large proportion of millennials do use social media and to learn about its impact will be thought-provoking.

While the original focus of the study centered on participants from Portugal and Singapore, the survey inadvertently attracted respondents from a variety of other nations. Despite this, most participants (approximately 45.26%) were Portuguese, and around 28.42% were Singaporean. Moreover, the study exhibited notable demographic diversity. In terms of gender, 65.4% identified as female, 33.1% as male, and 1.5% as non-binary/non-conforming. Age-wise, a significant portion of the participants (63.92%) belonged to the millennial generation, with approximately 27.06% from Generation Z and 9.02% from Generation X. Regarding employment status, roughly 51.9% were employed, 22.6% were students, 3% were unemployed, 0.75% were retired, and around 3% fell into the 'other(s)' category. Despite unintentional global representation, the core emphasis on Portuguese and Singaporean participants provides a distinctive cross-cultural lens on the various demographic aspects within the study.

2.3. Instrument and scale used

The data collection methodology employed in this study utilised an online questionnaire, distributed extensively across the internet. A deliberate two-step approach was implemented to ensure the robustness and reliability of the collected data. In the initial phase, the first survey underwent rigorous testing among a sample of 40 respondents, predominantly comprising academic students. This preliminary step aimed to assess the internal consistency and reliability of the scale by analysing the Cronbach's alpha coefficient (α). Valuable feedback obtained during this pre-test phase led to refinements in the questionnaire, resulting in commendable levels of reliability.

Despite these positive outcomes, specific generic corrections were made, including the refinement of certain questions, to enhance the survey's clarity and precision.

The pre-survey did not include the:

- 1) The fourth dimension of the Self-reflection scale was not included in the pre-survey so, it was decided to use the short form of the Self-reflection and insight scale (Silvia, 2021) in the final survey to ensure that all dimensions are covered and at the same time, the efficacy of the scale was not compromised.
- 2) The initial social comparison scale in the pre-survey only covered 6 questions. Therefore, it was determined to add in all 11 questions from the original social comparison scale to ensure validity to test the social comparison dimension.
- 3) Likewise, the initial self-esteem scale in the pre-survey only covered 7 questions. Therefore, it was determined to add in all 10 questions from the original self-esteem scale to ensure validity to test the self-esteem dimension.

The dissertation questionnaire garnered a total of 95 valid responses, following the exclusion of participants without an active Instagram account. Additionally, surveys lacking any variance or displaying a zero-standard deviation, indicative of forced responses, were removed.

Responses identified as statistical outliers, were also excluded from the analysis. These rigorous filtering criteria ensured a robust dataset for a comprehensive and reliable examination of the research variables.

It is important to note that the sampling method employed in this study is referred to as a convenient sample. A convenient sample is one where the researchers' select participants based on their accessibility and availability, rather than employing a random or stratified sampling technique. In this context, the sample primarily consisted of individuals easily accessible online, which facilitated the timely collection of data while allowing for a comprehensive analysis of the research objectives.

2.4. Scales Development

The development of the final instrument for this study was a meticulous process, drawing upon established scales and adapting them to suit the specific context of Instagram usage and its psychological impact. The instrument comprised 48 items, carefully crafted to evaluate four key dimensions: Instagram usage, self-reflection, social comparison, and self-esteem.

- **To assess Instagram usage**, a scale proposed by Orosz, Tóth-Király and Bőthe (2016) was adapted. This scale, originally designed for evaluating Facebook usage, was modified to include four pertinent items specific to Instagram activities.
- **The dimension of self-reflection** was evaluated using a scale employed by Silvia (2021), which consisted of 12 items categorised into three subdimensions: engagement in self-reflection, need for reflection, and insight.
- **Social comparison**, a crucial aspect of online interactions, was assessed through items adapted from the scale proposed by Stapleton, Luiz and Chatwin (2017). This adapted scale comprised 11 items, further divided into two subdimensions: comparison of abilities and comparison of opinions.

Table 2: Final Instrument

INSTAGRAM-PERSISTENCE OF USAGE		Dimension
1	If I could visit only one site on the Internet, it would be Instagram.	Persistence in using IG
2	I feel bad if I don't check my Instagram daily.	
3	I often search for Internet connection in order to visit Instagram.	
4	Before going to sleep, I check Instagram once more.	
SELF REFLECTION		Subdimension
5	I frequently examine my feelings	Engagement in self-reflection
6	I frequently take time to reflect on my thoughts	
7	I often think about the way I feel about things	
8	It is important for me to evaluate the things that I do	Need for reflection
9	I am very interested in examining what I think about	
10	It is important to me to try to understand what my feelings mean	
11	I'm often confused about the way that I really feel about things. (Reversed)	Insight
12	I'm often aware that I'm having a feeling, but I often don't quite know what it is (Reversed)	
13	My behavior often puzzles me (Reversed)	
14	Thinking about my thoughts makes me more confused (Reversed)	
15	Often I find it difficult to make sense of the way I feel about things(Reversed)	
16	I usually know why I feel the way I do	
SOCIAL COMPARISON		Subdimension
17	I often compare on Instagram how my loved ones (boyfriend or girlfriend, family members,etc.)...	Comparisons of abilities
18	I always pay a lot of attention to how I do things compared with how others do things on Instagram.	
19	If I want to find out how well I have done something, I go on Instagram and compare what I have done with how ...	
20	I often compare on Instagram how I am doing socially (e.g., social skills, popularity) with other people.	
21	I am not the type of person who compares often with others on Instagram. (Reversed)	
22	I often use Instagram to compare myself with others with respect to what I have accomplished in life.	
23	I often like to talk with others via Instagram about mutual opinions and experiences.	Comparisons of opinions
24	I often use Instagram to try to find out what others think who face similar problems as I face.	
25	I always like to use Instagram to know what others in a similar situation would do.	
26	If I want to learn more about something, I use Instagram try to find out what others think about it.	
27	When I use Instagram, I never consider my situation in life relative to that of other people. (Reversed)	
SELF ESTEEM		Dimension
28	When I am scrolling through Instagram, I feel that I am a person of worth, at least on an equal basis with others.	Self Esteem
29	When I am scrolling through Instagram, I feel that I have a number of good qualities.	
30	When I am scrolling through Instagram, I am inclined to feel that I am a failure. (Reversed)	
31	When I am scrolling through Instagram, I feel that I am able to do things as well as most other people.	
32	When I am scrolling through Instagram, I feel I do not have much to be proud of. (Reversed)	
33	When I am scrolling through Instagram, I take a positive attitude toward myself.	
34	On the whole, I am satisfied with myself.	
35	When I am scrolling through Instagram, I wish I could have more respect for myself. (Reversed)	
36	When I am scrolling through Instagram,I certainly feel useless at times. (Reversed)	
37	When I am scrolling through Instagram, at times I think I am no good at all. (Reversed)	
SOCIAL FEEDBACK		Dimension
38	When I am scrolling through Instagram, I feel that I am not a good person.	Social Feedback
39	When I am scrolling through Instagram, I feel that I should be really disappointed in myself.	
40	When I'm scrolling through Instagram, I feel that there must be something wrong with me.	
41	When I am scrolling through Instagram, I feel that I never seem to get things together.	
42	When I am scrolling through Instagram, I feel that I am so helpless.	
43	When I am scrolling through Instagram, I feel that my future is bleak.	
44	When I am scrolling through Instagram, I feel that I am a good person. (Reversed)	
45	When I am scrolling through Instagram, I feel that if I do poorly at one thing, it is likely that I will do poorly at other things too.	
46	When I am scrolling through Instagram, I feel that my problems and difficulties are a reflection of my inadequacy.	
47	When I am scrolling through Instagram, I feel that I will never make it.	
48	When I am scrolling through Instagram, I feel that my future is promising. (Reversed)	

- **Self-esteem**, a fundamental psychological construct, was measured using the well-established scale developed by Rosenberg (1965). This scale, widely utilized in the literature, included 10 items focused on assessing individuals' self-worth and confidence.
- **Social Feedback** was evaluated through a scale of the same name, developed by Dobkin, Panzarella, Alloy, Cascardi, Truesdell and Gara (2007). This scale, consisting of 11 items, delved into participants' experiences and perceptions of social feedback received through their online interactions.

In summary, the final instrument was meticulously crafted by combining items from these established scales, resulting in a comprehensive tool comprising 48 items.

These items were thoughtfully designed to assess the intricate interplay between Instagram usage, self-reflection, social comparison, and self-esteem among the study participants. A detailed table displaying all the items used in the study is presented in the previous page.

3. Methods and Statistical Tests Employed

In this study, diverse methods and statistical tests were employed to ensure the validity and reliability of the collected data, as well as to analyse the relationships between the variables under investigation.

3.1. Internal Consistency Assessment

Lee Cronbach came up with the Cronbach's alpha in 1951 to provide a measure of the internal consistency of a test or scale (Tavakol, 2011). The measure of the scale is displayed as a number between 0 and 1. The Cronbach's alpha (α) is portrayed as the symbol "α".

The more α is close to 0, the more the collected answers are not reliable, whereas the closer to 1 alpha happens to be, the stronger the accuracy in the replies will be (Leontitsis & Pagge, 2007).

A cut-off value of >0.70 was employed as a benchmark, indicating satisfactory internal consistency. The internal consistency of a scale conveys the extent to which all the items in a test measure the same concept or construct and hence it is connected to the inter-relatedness of the items within the test. Internal consistency should be determined before a test can be employed for research or examination purposes to ensure validity.

The reliability of the questionnaire was assessed in all dimensions of the survey. The Cronbach's Alpha (α) test was applied to all 48 survey items, and to each subdimension and dimensions as well. The Cronbach's Alpha of each dimension conveyed a strong internal consistency and displayed that the survey scale items are strongly associated with one another, an outcome which contributes to its good psychometric quality.

The reliability analysis was carried out for each dimension of the online questionnaire with the aim of identifying potential improvements in the assessment of each specific item. When the answers were analysed. The results obtained were more than satisfactory.

Based on the analysis, it was found that the lowest Cronbach's Alpha of all dimensions was scored by the "Self-reflection dimension" with $\alpha=0.865$ then, followed by "Instagram usage" dimension of $\alpha=0.873$.

The "Self-esteem" dimension had a value of $\alpha=0.876$. The "Social comparison" dimension had a higher value of $\alpha=0.914$ and, lastly, "Social feedback" dimension with the highest alpha of $\alpha=0.930$. These results demonstrated that the instrument used had a strong internal consistency and was reliable to the relationship of self-esteem with the various dimensions under study.

Upon closer examination, the "Self-reflection" dimension's subcategories also demonstrated strong internal consistency which proved the reliability of all 3 subcategories.

The "Engagement in Self-reflection" dimension had a value of $\alpha=0.927$. The "Need for Reflection" dimension had a similar value of $\alpha=0.927$. The "Insight" dimension had the lowest value of $\alpha=0.892$. These values show that the "Self-reflection" dimension is very reliable and emphasises the strong internal consistency.

Table 3: Cronbach's Alpha results

Dimension	Sub Dimension	Survey Item	Coef. Alfa	Alfa if item deleted	
Instagram Usage		I1. If I could visit only one site on the Internet, it would be Ins ...	0,873	0,836	
		I2. I feel bad if I don't check my Instagram daily. ...		0,828	
		I3. I often search for Internet connection in order to visit Insta ...		0,810	
		I4. Before going to sleep, I check Instagram once more. ...		0,877	
Self Reflection	Engagement in Self-Reflection	R1. I frequently examine my feelings ...	0,927	0,825	
		R2. I frequently take time to reflect on my thoughts. ...		0,872	
		R3. I often think about the way I feel about things. ...		0,857	
	Need for Reflection	R4. It is important for me to evaluate the things that I do. ...	0,927	0,857	
		R5. I am very interested in examining what I think about. ...		0,858	
		R6. It is important to me to try to understand what my feeling ...		0,833	
	Insight		R7. I'm often confused about the way that I really feel about th ...	0,892	0,869
			R8. I'm often aware that I'm having a feeling, but I often don't ...		0,870
			R9. My behavior often puzzles me. (Reversed) ...		0,871
			R10. Thinking about my thoughts makes me more confused. (f ...		0,872
			R11. Often I find it difficult to make sense of the way I feel ab ...		0,856
			R12. I usually know why I feel the way I do. ...		0,920
Social Comparison	Comparisson of Abilities	S1. I often compare on Instagram how my loved ones (boyfrie ...	0,905	0,875	
		S2. I always pay a lot of attention to how I do things compare ...		0,867	
		S3. If I want to find out how well I have done something, I go ...		0,883	
		S4. I often compare on Instagram how I am doing socially (e.g ...		0,866	
		S5. I am not the type of person who compares often with othe ...		0,932	
		S6. I often use Instagram to compare myself with others with ...		0,886	
	Comparisson of Opinions	S7. I often like to talk with others via Instagram about mutua ...	0,714	0,661	
		S8. I often use Instagram to try to find out what others think ...		0,531	
		S9. I always like to use Instagram to know what others in a s ...		0,593	
		S10. If I want to learn more about something, I use Instagram ...		0,623	
		S11. When I use Instagram, I never consider my situation in li ...		0,826	
Self Esteem		E1. When I am scrolling through Instagram, I feel that I am a p ...	0,876	0,878	
		E2. When I am scrolling through Instagram, I feel that I have a ...		0,866	
		E3. When I am scrolling through Instagram, I am inclined to fee ...		0,860	
		E4. When I am scrolling through Instagram, I feel that I am ab ...		0,865	
		E5. When I am scrolling through Instagram, I feel I do not hav ...		0,864	
		E6. When I am scrolling through Instagram, I take a positive a ...		0,863	
		E7. On the whole, I am satisfied with myself. ...		0,865	
		E8. When I am scrolling through Instagram, I wish I could hav ...		0,862	
		E9. When I am scrolling through Instagram, I certainly feel use ...		0,855	
		E10. When I am scrolling through Instagram, at times I think I ...		0,857	
Social Feedback		F1. When I am scrolling through Instagram, I feel that I am no ...	0,93	0,925	
		F2. When I am scrolling through Instagram, I feel that I should ...		0,922	
		F3. When I'm scrolling through Instagram, I feel that there mus ...		0,922	
		F4. When I am scrolling through Instagram, I feel that I never ...		0,922	
		F5. When I am scrolling through Instagram, I feel that I am so ...		0,922	
		F6. When I am scrolling through Instagram, I feel that my futu ...		0,925	
		F7. When I am scrolling through Instagram, I feel that I am a c ...		0,953	
		F8. When I am scrolling through Instagram, I feel that if I do p ...		0,925	
		F9. When I am scrolling through Instagram, I feel that my prob ...		0,925	
		F10. When I am scrolling through Instagram, I feel that I will n ...		0,923	
		F11. When I am scrolling through Instagram, I feel that my futu ...		0,952	

The “Social Comparison” dimension demonstrated a moderately strong internal consistency which proved the reliability of all 2 sub-categories. The “Comparison of Abilities” dimension had a higher value of $\alpha=0.905$. However, the “Comparison of Opinions” dimension had a lower value of $\alpha=0.714$. This conveys that the latter is only moderately strong and reliable compared to the former.

3.2. Normal Distribution Testing

To assess the normality of the data distribution, the Kolmogorov-Smirnov and Shapiro-Wilk tests were applied. The outcomes of these tests demonstrated a deviation from the normal distribution assumption. It was confirmed that the collected data did not adhere to a normal distribution, providing a foundation for the utilization of non-parametric statistical methods.

3.3. Non-Parametric Tests – Spearman Correlation (r_s)

Given the non-normal distribution of the dataset, the application of the Pearson coefficient correlation was precluded. Instead, the Spearman correlation emerged as the preferred statistical measure for evaluating associations among the study's dimensions. Spearman correlation, calculated based on the rank values of the variables, is adept at capturing monotonic relationships, regardless of their linearity. Unlike Pearson's correlation, which gauges linear associations exclusively, Spearman's correlation encompasses both linear and non-linear trends.

It is crucial to highlight that in instances where there are no repeated data values, a perfect Spearman correlation of +1 or -1 signifies a scenario where each variable constitutes a flawless monotone function of the other. The dissertation dedicates a specific section to a meticulous discussion of these Spearman correlation analyses. Notably, statistical parameters such as correlation coefficients and associated *p-values* are rigorously presented and analysed. This scrutiny ensures the thorough validation and substantiation of the results, contributing to the robustness and reliability of the interpretation.

3.4. Descriptive Statistics

Descriptive statistics were employed to provide a comprehensive understanding of the collected data. Average values, variances, and standard deviations were calculated for each item, offering insights into the central tendency and dispersion of the responses. Additionally, the values corresponding to the latent variables were derived from a composite new variable. This composite variable was created by aggregating the average values resulting from the specific items that evaluated each dimension. The internal consistency of these latent variables

was previously validated through Cronbach's alpha coefficient, ensuring the reliability of the derived variables.

3.5. Software used

All calculations and data processing were conducted utilizing the Statistical Software package of SPSS Statistics v28, ensuring accuracy and consistency in the statistical analyses performed.

Chapter III - Results and Discussion

Analysis of the main Dimensions of Self Esteem

1. Analysis of the main Dimensions under study

1.1. Persistence of usage

Instagram usage is a dimension aimed at evaluating the time one spends on Instagram or the number of friends and the intensity of involvement in Instagram activities. The persistence usage of Instagram refers to those who check Instagram before going to bed and they also recognise Instagram as one of the major internet sites or even the most important one to visit. Those who persistently use Instagram even go to the extent of making sure there is internet connection to access Instagram. An emotional bond is formed between the Instagram user and the social network. Persistence includes mainly affective and behavioral aspects.

The affective dimension is related to the Instagram user experiencing negative feelings when Instagram is not available easily. When a person feels a strong attachment to Instagram use; it can lead to more intensive usage in terms of posting, messaging others, or viewing her/his profile more frequently (Orosz, Tóth-Király, & Bóthe, 2016)

In the evaluated sample, a reduced result was obtained ($M=2.49$; $SD=1.188$) a figure below the average level of the scale ($M=2.5$; $SD=0$). This result seems to indicate that respondents show a normal, or neutral, Instagram usage, without showing signs of significant dependence. This is evident in the question asking which single website they would like to visit on the Internet if only one choice were allowed, with respondents indicating a neutral preference for Instagram ($M=2.40$) and the least variation in opinions on this matter (lower standard deviation with $SD=1.316$).

Nevertheless, it is interesting to note that the response with the highest average value ($M=3.11$) is related to the confirmation that Instagram is an effective choice before respondents go to sleep although, the opinion is not unanimous ($SD=1.512$).

Table 4: Overview of the Instagram Usage descriptive results (n=95)

Dimension	Survey Item	Std.		Std.	
		Mean	Deviation	Mean	Deviation
Instagram Usage	11. If I could visit only one site on the Internet, it would be Instagram.	2,40	1,316	2,49	1,188
	12. I feel bad if I don't check my Instagram daily.	2,27	1,380		
	13. I often search for Internet connection in order to visit Instagram.	2,18	1,368		
	14. Before going to sleep, I check Instagram once more.	3,11	1,512		

1.2. Self-Reflection

Self-Reflection is a dimension aimed at analysing and evaluating “one's thoughts, feelings and behaviour and insight” (Grant, Franklin, & Langford, 2002, p.821). When one comprehends his/her thoughts, feelings and behaviour, he/she is able to embark on a meaningful and purposeful change of oneself (Carver & Scheier, 1998).

Through this dimension, we can understand that purposeful progress through the cycle of self-regulation towards a specific goal rest on an individual’s ability to monitor and evaluate his/her progress and use such feedback to improve his/her performance (Grant, Franklin, & Langford, 2002).

The results obtained show a moderate positive outcome in self-reflection, indicating an average result of $M=3.56$ with strong consistent answers supported by a very low standard deviation coefficient ($SD=0.689$). This result may suggest that the respondents may exhibit some levels of self-reflection. Considering that this dimension evaluates how one views himself/herself and his/her action, this implies that these respondents tend to keep track of his/her progress in life and examine their thoughts and feelings.

Regarding the subdimensions constituting the Self-Reflection dimension, it is possible to observe that the subdimension 'Need for Reflection' has the highest value ($M=3.86$; $SD=0.888$), followed by the subdimension 'Engagement in Self Reflection' ($M=3.67$; $SD=0.968$) and 'Insight' ($M=3.35$; $SD=0.941$). Based on these results, it is possible to conclude that the participants did place some importance in engaging in self-reflection and needing to think about their thoughts, feelings and behaviours.

Table 5: Overview of the Self Reflection descriptive results (n=95)

Dimension	Sub Dimension	Survey Item	Mean	Std. Deviation	Mean	Std. Deviation	Mean (Main Scale)	Std. Deviation (Main Scale)
Self Reflection	Engagement in Self-Reflection	R1. I frequently examine my feelings	3,67	1,036	3,67	0,968	3,56	0,689
		R2. I frequently take time to reflect on my thoughts.	3,63	1,032				
		R3. I often think about the way I feel about things.	3,72	1,038				
	Need for Reflection	R4. It is important for me to evaluate the things that I do.	3,93	0,878	3,86	0,888		
		R5. I am very interested in examining what I think about.	3,77	0,983				
		R6. It is important to me to try to understand what my feelings mean.	3,87	0,992				
	Insight	R7. I'm often confused about the way that I really feel about things. (Reversed)	2,97	1,259	3,35	0,941		
		R8. I'm often aware that I'm having a feeling, but I often don't quite know what it is. (Reversed)	3,24	1,191				
		R9. My behavior often puzzles me. (Reversed)	3,39	1,104				
		R10. Thinking about my thoughts makes me more confused. (Reversed)	3,59	1,189				
		R11. Often I find it difficult to make sense of the way I feel about things. (Reversed)	3,41	1,225				
		R12. I usually know why I feel the way I do.	3,53	0,966				

1.3. Social Comparison

Social comparison is a dimension when individuals evaluate their abilities and test the validity of their opinions and conclude about oneself by comparing himself/herself with others (Festinger, 1954). Through this dimension, we can understand that social comparison is an important human need for individuals to learn information about himself/herself by comparing with others (Bergagna & Tartaglia, 2018) and in this case, through the usage of Instagram. The results obtained portray a reduced result ($M=2.36$; $SD=0.972$) a figure below the average level of the scale ($M=2.50$; $SD=0$). This result seems to indicate that respondents show a slightly low or neutral reaction towards Social Comparison without showing signs of significant dependence. Considering the answers were supported by a slightly low standard deviation ($SD=0.689$). The results may suggest that the respondents may either exhibit slightly low levels or neutral levels of social comparison.

Considering that this dimension evaluates one views himself/herself vis-à-vis others, this implies that these respondents tend to not really compare their life and life's progress with others on Instagram or tend to be more open-minded and impartial when scrolling through other users' Instagram profiles.

Regarding the subdimensions constituting the social comparison dimension, it is possible to observe that the sub dimension 'Comparison of Abilities' has a slightly higher value ($M=2.39$; $SD=1.091$), followed by the sub dimension 'Comparison of Opinions' ($M=2.32$; $SD=1.012$). Based on these results, it is possible to conclude that the participants did place lesser importance or closer to neutral value when comparing how they are doing regarding others and what they think/feel when comparing their opinions with others.

Table 6: Overview of the Social Comparison descriptive results (n=95)

Dimension	Sub Dimension	Survey Item	Mean	Std. Deviation	Mean	Std. Deviation	Mean (Main Scale)	Std. Deviation (Main Scale)
Social Comparison	Comparison of Abilities	S1. I often compare on Instagram how my loved ones (boyfriend or girlfriend, family members, etc.) are doing with how I am doing.	2,52	1,398			2,36	0,972
		S2. I always pay a lot of attention to how I do things compared with how others do things on Instagram.	2,55	1,270				
		S3. If I want to find out how well I have done something, I go on Instagram and compare what I have done with how others have done it.	2,04	1,271				
		S4. I often compare on Instagram how I am doing socially (e.g., social skills, popularity) with other people.	2,25	1,368				
		S5. I am not the type of person who compares often with others on Instagram. (R)	2,61	1,394				
	Comparison of Opinions	S6. I often use Instagram to compare myself with others with respect to what I have accomplished in life.	2,36	1,263	2,39	1,091		
		S7. I often like to talk with others via Instagram about mutual opinions and experiences.	2,20	1,268				
		S8. I often use Instagram to try to find out what others think who face similar problems as I face.	2,48	1,270				
		S9. I always like to use Instagram to know what others in a similar situation would do.	2,31	1,203				
		S10. If I want to learn more about something, I use Instagram try to find out what others think about it.	2,27	1,250				
		S11. When I use Instagram, I never consider my situation in life relative to that of other people. (R)	3,18	1,280	2,32	1,012		

1.4. Self-esteem

Self-esteem is a dimension aimed at understanding the emotional aspect of self and generally refers to how he/she feels about or how he/she values himself/herself (one's self-worth) (Huitt, 2009). Through this dimension, we can understand that self-esteem is based on an individual's set of thoughts and feelings about his or her own worth and importance, that is either a positive or negative attitude toward oneself (Rosenberg, 1965).

In the evaluated sample, a slightly positive result was obtained ($M=3.44$; $SD=0.790$) a figure above the average level of the scale ($M=2.50$; $SD=0$). This result seems to indicate that respondents show moderately strong signs of self-esteem without showing signs of significant dependence. This is evident in the question asking when a participant is scrolling through Instagram, they hope that they have more respect for himself/herself, if only one choice was allowed, with respondents indicating a slight increase in its average value at ($M=3.76$; $SD=1.244$) for Self-esteem.

Table 7: Overview of the Self-esteem descriptive results (n=95)

Dimension	Survey Item	Std.		Mean	Std. Deviation
		Mean	Deviation		
Self Esteem	E1. When I am scrolling through Instagram, I feel that I am a person of worth, at least on an equal basis with others.	3,22	1,023	3,44	0,790
	E2. When I am scrolling through Instagram, I feel that I have a number of good qualities.	3,17	1,048		
	E3. When I am scrolling through Instagram, I am inclined to feel that I am a failure. (Reversed)	3,58	1,199		
	E4. When I am scrolling through Instagram, I feel that I am able to do things as well as most other people.	3,05	1,004		
	E5. When I am scrolling through Instagram, I feel I do not have much to be proud of. (Reversed)	3,60	1,180		
	E6. When I am scrolling through Instagram, I take a positive attitude toward myself.	3,23	1,026		
	E7. On the whole, I am satisfied with myself.	3,49	1,051		
	E8. When I am scrolling through Instagram, I wish I could have more respect for myself. (Reversed)	3,76	1,244		
	E9. When I am scrolling through Instagram, I certainly feel useless at times. (Reversed)	3,58	1,309		
	E10. When I am scrolling through Instagram, at times I think I am no good at all. (Reversed)	3,69	1,345		

1.5. Social Feedback

Instagram usage is a dimension aimed at evaluating how to capture people's perceived need for online social feedback (not limited to likes) on most social media and internally and externally validate it (Duradoni, Spadoni, Gursesli, & Guazzini, 2023). When a person feels a strong attachment to Instagram; it can lead to more intense negative social feedback.

In the evaluated sample, an above-moderate result was obtained ($M=3.71$; $SD=0.930$), a figure higher than the average level of the scale ($M=2.50$; $SD=0$). This result seems to indicate that

respondents show signs of slight significant dependence on Instagram. This is evident in the question asking which single website they would like to visit on the Internet if only one choice were allowed, with respondents indicating a stronger preference for Instagram ($M=3.71$) and the least variation in opinions on this matter (lower standard deviation with $SD=0.930$).

Nevertheless, it is interesting to note that the response with the highest average value ($M=4.03$) is related to the confirmation that the opinion is slightly unanimous ($SD=1.162$).

Table 8: Overview of the Social Feedback descriptive results (n=95)

Dimension	Survey Item	Std.	
		Mean	Deviation
Social Feedback	F1. When I am scrolling through Instagram, I feel that I am not a good person. (Reversed)	4,03	1,162
	F2. When I am scrolling through Instagram, I feel that I should be really disappointed in myself. (Reversed)	3,97	1,198
	F3. When I'm scrolling through Instagram, I feel that there must be something wrong with me. (Reversed)	4,02	1,203
	F4. When I am scrolling through Instagram, I feel that I never seem to get things together.	3,87	1,205
	F5. When I am scrolling through Instagram, I feel that I am so helpless.	4,04	1,157
	F6. When I am scrolling through Instagram, I feel that my future is bleak.	3,79	1,336
	F7. When I am scrolling through Instagram, I feel that I am a good person.	3,00	1,042
	F8. When I am scrolling through Instagram, I feel that if I do poorly at one thing, it is likely that I will do poorly at other things.	3,86	1,172
	F9. When I am scrolling through Instagram, I feel that my problems and difficulties are a reflection of my inadequacy.	3,67	1,316
	F10. When I am scrolling through Instagram, I feel that I will never make it.	3,84	1,223
	F11. When I am scrolling through Instagram, I feel that my future is promising.	2,65	1,070

2. Correlations and main effects in Self Esteem

2.1. Global Results and Hypothesis Confirmation

A Spearman's rank-order correlation was run to determine the relationship between all the dimensions (and subdimensions as well) in this study. A general overview allows us to see that almost all the studied dimensions are statistically correlated with each other, either positively or negatively, except for the relationship between the dimension related to the persistence of Instagram usage and the dimension evaluating 'Self Reflection' ($r_s = -.095$, $p = .358$), as it lacks statistical significance.

The lowest Spearman coefficient was identified in the association between 'Self Reflection' and 'Social Comparison' ($r_s = -.244$, $p = .017$) within a 95% confidence interval. The highest Spearman coefficient was identified in the association between the dimensions of 'Self Esteem' and 'Social Feedback' ($r_s = .865$, $p < .001$), within a 99% confidence interval. Maybe it is a sign to make them feel included. The following table below summarises all the coefficients obtained from the Spearman (r_s) test conducted with the sample of respondents.

Table 9: Spearman correlation test applied to the main dimensions under study (n=95)

Dimensions	Persistence of Usage	Self Reflection	Social Comparisson	Self Esteem	Social Feedback	Spearman test
Persistence of Usage	1,000	-0,095	,608**	-,268**	-,293**	Correlation Coefficient
		0,358	<,001	0,009	0,004	Sig. (2-tailed)
Self Reflection	-0,095	1,000	-,244*	,581**	,544**	Correlation Coefficient
	0,358		0,017	<,001	<,001	Sig. (2-tailed)
Social Comparisson	,608**	-,244*	1,000	-,467**	-,585**	Correlation Coefficient
	<,001	0,017		<,001	<,001	Sig. (2-tailed)
Self Esteem	-,268**	,581**	-,467**	1,000	,865**	Correlation Coefficient
	0,009	<,001	<,001		<,001	Sig. (2-tailed)
Social Feedback	-,293**	,544**	-,585**	,865**	1,000	Correlation Coefficient
	0,004	<,001	<,001	<,001		Sig. (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed) | * Correlation is significant at the 0.05 level (2-tailed)

Considering these results, it is possible to confirm or reject the hypotheses established in the present study, as summarized in the following table.

Table 10: Summary of Hypotheses, Null Hypotheses, and Hypotheses Confirmation

Variable	Null Hypothesis (H ₀)	Alternative Hypothesis (H ₁ -H ₄)	Confirmed Hypothesis
Social Comparison (H₁)	H ₀ : The increase in persistence of Instagram usage has no significant effect on social comparison.	H ₁ : The increase in persistence of Instagram usage has a significant effect on social comparison, either positive (H _{1a}) or negative (H _{1b}).	H _{1a} : The increase in persistence of Instagram usage has a significant and positive effect on Social Comparison ($r_s = .608, p = .001$)
Social Feedback (H₂)	H ₀ : The increase in persistence of Instagram usage has no significant effect on social feedback.	H ₂ : The increase in persistence of Instagram usage has a significant effect on social feedback, either positive (H _{2a}) or negative (H _{2b}).	H _{2b} : The increase in persistence of Instagram usage has a significant and negative effect on Social Feedback ($r_s = -.293, p = .004$)
Self-Reflection (H₃)	H ₀ : The increase in persistence of Instagram usage has no significant effect on self-reflection.	H ₃ : The increase in persistence of Instagram usage has a significant effect on self-reflection, either positive (H _{3a}) or negative (H _{3b}).	H ₀ : The increase in persistence of Instagram usage has no significant effect on self-reflection. ($r_s = -.095, p = .358$)

Self-Esteem (H₄)	H ₀ : The increase in persistence of Instagram usage has no significant effect on self-esteem.	H ₄ : The increase in persistence of Instagram usage has a significant effect on self-esteem, either positive (H _{4a}) or negative (H _{4b}).	H _{2b} : The increase in persistence of Instagram usage has a significant and negative effect on Self-Esteem <i>(r_s = -.268, p = .009)</i>
Variable	Null Hypothesis (H₀)	Alternative Hypothesis (H₁-H₄)	Confirmed Hypothesis

The findings suggest that as individuals engage more persistently with Instagram, they are likely to experience changes in their social dynamics and personal perceptions. The positive correlation between Instagram usage persistence and ‘Social Comparison’ implies that increased usage may contribute to a heightened tendency to compare oneself to others within the platform's social milieu. This aligns with the notion that prolonged exposure to curated content on Instagram may influence users to assess their lives in comparison to the content they encounter.

Conversely, the negative correlation observed between persistent Instagram usage and ‘Social Feedback’ indicates that as individuals spend more time on the platform, there is a decrease in value of how they perceive themselves from the feedback received on their social network. This could be attributed to various factors, such as a shift in interactions, decrease in likes on a post or story or a saturation effect where frequent users may not receive as much direct feedback on themselves due to the volume of content that is available on the platform.

Furthermore, the negative correlation between Instagram usage persistence and ‘Self-Esteem’ implies that prolonged engagement with the platform is associated with a decline in self-esteem. This may be linked to the potential impact of ‘Social comparison’ and the curated nature of content on Instagram, which can contribute to unrealistic standards and ideals.

While these findings offer valuable insights into the connections between Instagram usage patterns and psychological factors, it's essential to approach the hypothesis related to ‘Self-reflection’ with caution. Additional analysis and a deeper exploration of specific statistical details are warranted to draw conclusive insights into the relationship between Instagram usage

persistence and ‘Self-reflection’. Overall, these results underscore the nuanced effects that varying levels of Instagram engagement may have on individuals' social experiences and self-perceptions.

2.2. The effects of persistence of usage

A Spearman's rank-order correlation was conducted to examine the relationship between ‘Persistence of usage’ and ‘Social Comparison’. The results indicate that there is a moderate, positive correlation between these two dimensions, which is statistically significant ($r_s = .608$, $p < .001$).

On the contrary, there is a negative correlation between ‘Persistence of Usage’ and ‘Self Esteem’, with a moderate effect ($r_s = -.268$, $p = .009$), and a negative and moderate correlation with ‘Social Feedback’ ($r_s = -.293$, $p = .004$).

Table 11: Spearman correlation test applied to the dimension of Persistence of Usage (n=95)

Dimensions	Self Reflection	Social Comparisson	Self Esteem	Social Feedback	Spearman test
Persistence of Usage	-0,095	,608**	-,268**	-,293**	Correlation Coefficient Sig. (2-tailed)
	0,358	<,001	0,009	0,004	

** Correlation is significant at the 0.01 level (2-tailed) | * Correlation is significant at the 0.05 level (2-tailed)

This means that, in the studied population, an increase in Instagram usage tends to increase the dimension of ‘Social Comparison’ moderately and positively. This conveys that through persistent usage of Instagram, one will tend to compare himself/herself inevitably. At the same time, when there is a Persistent usage of Instagram, ‘Self-esteem’ becomes more negatively impacted- thus proving that intense usage of Instagram can make a significant impact.

2.3. The effects of Self Reflection

A Spearman's rank-order correlation was conducted to examine the relationship between ‘Self Reflection’ and the other dimensions under study. Upon initial examination, it was found that there are statistically significant correlations between ‘Self-reflection’ and the other dimensions: ‘Social Comparison’ with a slight negative effect ($r_s = -0.244$, $p=.017$); ‘Self-esteem’ with a positive and moderate effect ($r_s = .581$, $p < .001$); and ‘Social Feedback’ with also a positive and moderate effect ($r_s = .544$, $p = .001$).

However, these effects are only supported by some of the subdimensions, as indicated in the following table and explained below.

Table 12: Spearman correlation test applied to the dimension of Self Reflection (n=95)

Dimension	Sub Dimensions	Persistence of Usage	Social comparison		Self Esteem	Social Feedback	Spearman test
			Comparission of Abilities	Comparission of Opinions			
Self Reflection	Engagement in Self Reflection	0,137	0,022	0,113	,282**	0,193	Correlation Coefficient Sig. (2-tailed)
		0,187	0,829	0,276	0,006	0,061	
	Need for Self Reflection	0,038	-0,117	-0,023	,403**	,374**	Correlation Coefficient Sig. (2-tailed)
		0,716	0,261	0,827	<,001	<,001	
	Insight	-,235*	-,411**	-,253*	,499**	,524**	Correlation Coefficient Sig. (2-tailed)
	0,022	<,001	0,013	<,001	<,001		

** Correlation is significant at the 0.01 level (2-tailed) | * Correlation is significant at the 0.05 level (2-tailed)

‘Self-reflection’ consists of 3 subdimensions, but only the sub dimension of Insight is correlated with ‘Persistence of usage’ ($r_s = -.235, p = .022$). This means that engagement in ‘Self-reflection’ and ‘Need for self-reflection’ are two subdimensions that don't seem to be influenced by the ‘Persistence of usage’, because they are not statistically significant.

The same happens in correlation with ‘Social Comparison’. the sub dimension of ‘Insight’ influences in a negative way the 2 subdimensions of ‘Social Comparison’, namely ‘Comparison of abilities’ ($r_s = -.411, p < .001$) and ‘Comparison of opinions’ ($r_s = -.253, p = .013$).

Concerning ‘Self-esteem’, we got results much broader, meaning that all subdimensions of ‘Self-reflection’ seem to be statistically correlated. As mentioned in the table, ‘Engagement in self-reflection’ is slightly positively affects ‘Self-esteem’ ($r_s = .282, p = .006$); the ‘Need for self-reflection’ is also slightly positively strong ($r_s = .403, p < .001$).

Regarding ‘Social Feedback’, the ‘Engagement in Self-reflection’ affects slightly positively ($r_s = .193, p = .061$), ‘Need for self-reflection’ is slightly positively correlated with ‘Social Feedback’ ($r_s = .374, p < .001$) and ‘insight’ is also moderately positively correlated with ‘Social Feedback’ ($r_s = .524, p < .001$).

2.4. The effects of Social Comparison

Upon initial examination, it was found that there are statistically significant associations between ‘Social Comparison’ and the other dimensions: ‘Self-esteem’ with a slight negative and moderate effect ($r_s = -.467, p < .001$); and ‘Social Feedback’ with also a negative and moderate effect ($r_s = -.585, p < .001$). However, these effects are only supported by some of the subdimensions, as indicated in the following table and explained below.

Table 13: Spearman correlation test applied to the dimension of Social Comparison (n=95)

Dimension	Sub Dimensions	Persistence of Usage	Self Reflection			Self Esteem	Social Feedback	Spearman test
			Engagement in Self Reflection	Need for Reflection	Insight			
Social Comparison	Comparison of Abilities	,561** <,001	0,022 0,829	-0,117 0,261	-,411** <,001	-,562** <,001	-,625** <,001	Correlation Coefficient Sig. (2-tailed)
	Comparison of Opinions	,551** <,001	0,113 0,276	-0,023 0,827	-,253* 0,013	-,238* 0,02	-,404** <,001	Correlation Coefficient Sig. (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed) | * Correlation is significant at the 0.05 level (2-tailed)

Social Comparison consists of 2 subdimensions, they are ‘Comparison of Abilities’ and ‘Comparison of Opinions’. There was a negative, moderate correlation between the 2 dimensions of ‘Comparison of abilities’ and ‘Social feedback’, which was statistically significant ($r_s = -0.625, p < 0.001$). This means that when comparing one’s abilities and behaviour with others, participants tend to evaluate themselves negatively.

The same happened with ‘Comparison of Abilities’ and ‘Self-esteem’, which has a moderately negative significance ($r_s = -0.562, p < 0.001$). The subdimension of ‘Comparison of abilities’ have higher correlation coefficient with other dimensions than ‘Comparison of Opinions’ negatively and moderately impacts ‘Self-esteem’ ($r_s = -0.238, p < 0.001$) and ($r_s = -0.404, p < 0.001$). This shows that ‘Comparison of Opinion’s has a lower impact in affecting other dimensions when individuals scroll through Instagram.

2.5. The effects of Self Esteem

A Spearman's rank-order correlation was conducted to examine the relationship between Self-esteem and the other dimensions under study. Upon initial examination, it was found that there are statistically significant correlations between ‘Self-esteem’ and the other dimensions: ‘Social Comparison’ with a slight negative effect ($r_s = -.467, p < .001$); ‘Self-reflection’ with

a positive and moderate effect ($r_s = .581, p < .001$); and ‘Social Feedback’ with also a largely positive and strong effect ($r_s = .865, p < .001$).

On the contrary, there is a negative correlation between ‘Persistence of Usage’ and ‘Self Esteem’, with a moderate effect ($r_s = -.268, p = .009$).

Table 14: Spearman correlation test applied to the dimension of Self Esteem (n=95)

Dimensions	Persistence of Usage	Self Reflection	Social Comparison	Social Feedback	Spearman test
Self Esteem	-,268** 0,009	,581** <,001	-,467** <,001	,865** <,001	Correlation Coefficient Sig. (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed) | * Correlation is significant at the 0.05 level (2-tailed)

This means that, in the studied population, an increase in Instagram usage tends to increase the dimension of ‘Social comparison’ moderately and positively. This conveys that through persistent usage of Instagram, one will tend to compare himself/herself inevitably. At the same time, when there is a persistent usage of Instagram, ‘Self-esteem’ becomes more negatively impacted- thus proving that intense usage of Instagram can make a significant impact.

2.6. The effects of Social Feedback

Upon initial examination, it was found that there are statistically significant correlations between ‘Social feedback and the other dimensions. There is a moderate negative correlation concerning ‘Social Comparison’ ($r_s = -0.585, p < 0.001$). This means that when an individual puts emphasis on ‘Social feedback’ when scrolling through Instagram, he/she faces a downward ‘Social comparison’ effect.

There was a positive, moderate and statistically significant correlation between the dimensions of ‘Social feedback’ and ‘Self-reflection’ ($r_s = .544, p < .001$). This shows that Instagram users can view themselves positively or negatively depending on the social feedback received while using Instagram.

There was a positive, strong and statistically significant correlation between the dimensions of ‘Social Feedback’ and ‘Self-esteem’ ($r_s = .865, p < 0.001$). This shows that the social feedback

does positively/negatively affect Instagram users' self-esteem. This is crucial to take note as it emphasises the literature review that the dimension of 'Social feedback' does impact an individual's self-esteem. Here we can see that scrolling through Instagram can impact one's self-esteem when compared with one's social feedback.

Table 15: Spearman correlation test applied to the dimension of Social Feedback (n=95)

Dimensions	Persistence of Usage	Self Reflection	Social Comparisson	Self Esteem	Spearman test
Social Feedback	-,293** 0,004	,544** <,001	-,585** <,001	,865** <,001	Correlation Coefficient Sig. (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed) | * Correlation is significant at the 0.05 level (2-tailed)

Chapter IV - Conclusions and Final Considerations

1. Brief Retrospective on this Dissertation

1.1. What is addressed and studied in this research?

This paper strived to address and study the impact of Instagram on the self-esteem of the users. According to Rosenberg (1965), Self-esteem is understood as how an individual forms a personal judgement of himself/herself. Self-esteem can have an influence on an individual's various life segments- health, relationships, or career. It is considered as a measure of an individual's accomplishments and failures (Baldwin & Sinclair, 1996). Based on the academic review, an individual's self-esteem is mostly influenced by how he or she is viewed by others.

A straightforward 21st century platform where an individual's merits and demerits are either criticised or praised more easily is social media. Therefore, this study decided to focus on Instagram (due to its' large number of users) and how it influences the Instagram users' self-esteem.

The self-esteem updating model helps to explain why and how social media can impact self-esteem through three main mechanisms. They are: 1) Social comparison; 2) Social feedback and 3) self-reflection. These three mechanisms impact an individual's self-esteem both online and offline. However, according to Cingel, Carter and Krause (2022, p.2.) “(...) *the specifics of computer-mediated communication and the specific activities that users engage in on social media can accentuate the effects of these mechanisms*”.

Therefore, studying how Instagram usage can impact self-esteem through social comparison, social feedback and self-reflection will be useful in understanding the risks and benefits of Instagram usage to users' self-esteem and when and which Instagram users are impacted greatly. Social comparison can negatively impact user's self-esteem because they are usually making detrimental upward social comparisons with other users. Instagram users tend to present an ideal image which may reflect a biased and harmful comparison. On the other hand, social feedback can lead to an increase in self-esteem. This is especially so when the responses gained on an individual's post/story are positive (such as a large number of likes or favourable comments). Similarly, the self-reflective mechanism can positively impact Instagram users. Instagram provides its users to save and curate their profile and information that they want to portray to their followers. Hence when they browse through their main page or reflect on past

interactions with other users, positive self-aspects can be highlighted which can provide self-affirming qualities which can positively influence self-esteem. To understand more of how self-esteem is influenced by Instagram, the research study carried out quantitative research by validating the responses of 95 participants.

1.2. What is the primary research question of this study, and what significant conclusions were reached?

The primary research question of this study is “How does Instagram usage impact self-esteem?”. The impact of Instagram usage on self-esteem was understood through the study of 3 dimensions – “Social Comparison”, “Self-reflection” and “Social feedback”. After conducting an online survey with 95 participants, a significant and conclusion of the following was reached: On a broader scale, it was found that there were statistically significant correlations between Self-esteem and the other dimensions:

1) **Social Comparison with a slight negative effect** ($r_s = -.467, p < .001$). From the research findings, we can comprehend that ‘Self-esteem’ can be influenced by ‘Social comparison’ based on the Social Comparison theory. Individuals have the inclination to compare himself/herself with others. This is made possible and easier through Instagram which has become a tool for ‘Social comparison’.

2) **Self-reflection with a positive and moderate effect** ($r_s = .581, p < .001$). The relationships between ‘Self-esteem’ and ‘Self-reflection’ while using Instagram were slightly strong and statistically significant. By scrolling through Instagram, users assess and examine their own thoughts, feelings and behaviour. This in turn affects their self-esteem to some level which shows that the usage of Instagram caused a positive correlation between ‘Self-reflection’ and ‘Self-esteem’.

3) **Social Feedback with also a largely positive and strong effect** ($r_s = .865, p < .001$). The findings show a strong and positive correlation between the two dimensions. This is broadly consistent with past research that suggests that ‘Social Feedback’ is related with ‘Self-esteem’. It can be postulated that valuing other users’ feedback on Instagram through the number of likes or followers can have an impact on the users’

‘self-esteem’ (e.g. they can have a low self-esteem). This would help to justify that the more individual Instagram users gain social feedback on the site, their ‘self-esteem’ will also be affected by this.

1.3. What were the personal motivations and academic opportunity for conducting this study?

The main reason to conduct this study was to gain more personal and intellectual knowledge and satisfaction of the impact of Instagram usage. In recent years, Instagram has become a powerful and influential social media tool. Instagram’s reach has expanded exponentially worldwide reaching over a billion users. It was an impetus to research how Instagram can make an important contribution to understanding how it negatively or positively impacts the self-esteem of its users in this contextual age. This can become important for Professionals in their respective fields of Social Sciences and Human Sciences to problem-solve how to improve an individual's wellbeing in an era when one can be so easily influenced by others online.

2. What insights does this study offer to Academic Study

This research study served to emphasise and establish knowledge in the academic literature and provided additional depth. Many researchers have shown either mixed or small links between measures of social networks and self-esteem.

For example, studies have found that social media usage is linked to lower self-esteem amongst young adults. But the question beckons on how self-esteem is affected by social media usage. The study by Krause, Baum, Baumann and Krasnova (2021) puts forward that the self-esteem updating model helps to explain why and how social media can impact self-esteem through three main mechanisms. They are: 1) Social comparison; 2) Social feedback and 3) Self-reflection.

They provided the academic groundwork to convey that self-esteem can be impacted through the three main dimensions. The current study builds upon this academic framework together

with other studies to find out specifically the impact of Instagram usage. The current study solely focused on the use of Instagram. This helps to narrow down the impact of this social network solely and not the others such as Facebook, X and/or Snapchat. Thus, being able to provide more definitive analysis on Instagram usage's impact of self-esteem. In addition, unlike other research studies that usually focused only on one or at most two dimensions, this academic study conducted a study using all three dimensions.

This study was useful in understanding the fundamental risks and benefits of Instagram usage to users' self-esteem. For example, we are able to see from the results of the study that Social comparison can negatively impact user's self-esteem because they are usually making detrimental upward social comparisons with other users. We also learnt from the results that social feedback can lead to a large increase in self-esteem. This is especially so when the responses gained on an individual's post/story are positive (such as a large number of likes or favourable comments).

In addition, we are also able to understand from the results that the self-reflective mechanism can positively impact Instagram users. Instagram provides its users to save and curate their profile and information that they want to portray to their followers. Hence when they browse through their main page or reflect on past interactions with other users, positive self-aspects can be highlighted which can provide self-affirming qualities which can positively influence self-esteem.

3. Limitations and Recommendations for Future Studies

This study was only able to reach only 95 participants living mainly in Portugal and Singapore. The data collection was challenging, and the researcher ended up leveraging mostly on networking sampling. Further studies should try using other sampling methods that allow the random sampling procedure to be used for data collection. For future research, it is suggested to broaden the population base to more participants in either Portugal or Singapore for better representation. This will also ensure that the study will be able to provide better analysis on how different environmental, social and other external factors affect Instagram users from these countries. As the survey participants are from both countries, we are not able to acquire other information if the country's culture or socio-economic situation affect the results of the study too.

In addition, perhaps limiting the age group to either just Generation X or millennials will also be able to provide deeper understanding of how Instagram impacts the respective age groups instead of a general understanding. Going to the various learning institutions, most specifically Universities, in either Portugal or Singapore will help to also garner more participants to participate in the survey and provide targeted results. Future studies could also tap on existing studies that focused on gender differences or study just one gender to analyse the impact of Instagram usage on self-esteem.

Another factor to take note was that this study focused solely on Instagram usage on self-esteem. To build upon this current study, it will be beneficial to tap on other social networks such as Facebook, X, TikTok and SnapChat. These are other known social networks that many use to spread and/or acquire information quickly that can impact their self-esteem. Thus, future studies should include other social networks to widen their depth and scope of the studies. Moreover, other social media platforms may possibly impact the social media users differently and provide novel insights.

Another limitation is that this study only made use of an online survey (quantitative data) that provided some insights into the way how the individual participants are impacted. In future studies, it will be fruitful to also collect qualitative data to understand the narrative on why the Instagram users use Instagram and understand the narrative on a more psychological and deeper level.

While this study has provided valuable insights into the relationships among variables, it is essential to acknowledge and address certain limitations stemming from the non-normal distribution of the collected data. The non-normality of the data posed constraints on the application of parametric statistical tests such as linear regression, structural equation modelling, and Pearson correlations.

One significant consequence of this limitation is the inability to establish causal interpretations among variables. The absence of parametric tests restricts our capacity to infer causation and necessitates caution when drawing conclusions about the directionality of relationships.

Instead, the findings primarily allow for the identification of associations between variables, emphasizing correlation rather than causation.

Furthermore, the non-normal distribution imposes a limitation on the generalizability of the study's conclusions. The inability to employ parametric tests hinders the extrapolation of results to a broader population beyond the studied sample. This confinement to the sample underscores the importance of interpreting the findings within the context of the specific group under investigation. It is crucial for future research to consider these limitations and explore alternative methodologies to overcome the challenges posed by non-normal data distribution.

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