Personality attributes, selfie posting and university culture: understanding the psychological underpinning mechanism

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Abstract: The current study tries to find out the relationship between various characteristics of students personality and selfies posting behaviour among the students of University of Science and Technology Bannu (USTB) and National University of Modern Languages (NUML). The reason of selecting two universities from deferent culture is to validate the concept of the moderating role of culture. For this purpose data was collected from 220 students of both universities. It was analysed through SPSS via regression and correlation, while moderating role of culture was assessed through Preacher and Hayes (2008) macros. Results indicate that extraversion and openness to experience is significantly associated with selfies posting, while culture did not show any moderating effect between personality traits and selfie posting behaviour. Based on the results of the current study it is recommended to assess students personality through social media and be investigated through more detailed list of variables.

Keywords: personality big five model; PBFM; selfie posting behaviour; culture; SPSS; university.

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1   Introduction

A 'selfie' is an own-portrait, mostly captured through mobile or digital camera, for the social network sites (SNS) (Weiser, 2015). Use of SNSs is common among the youth and university students (Raza et al., 2020; Kim et al., 2020; Guraya et al., 2018; Abbas et al., 2019; Chaudhari et al., 2019; Veldhuis et al., 2020). The aims of SSNs is to keep in contact with associates, erudition regarding fresh and present happenings, exchange of words with others, utilising it in favour of enjoyment, distribution of pictures and videotapes, status views, gathering with new persons, seeking in favour of and purchase stuff. According to a survey organised in 34 nations, when it was inquired from the participants within the age of 16 to 64 years about their visits to SNSs for the previous month, 97% replies were positive (Mander, 2016). Bennett (2014) when iPhone introduced front-facing camera then a million of internet user start sharing their selfies.

According to Dhir et al. (2016), Kanwal et al. (2019), Chaudhari et al. (2019) and Veldhuis et al. (2020) research by the previous few years selfies become popular all over the world. Dhir et al. (2016) on different social media sites millions of self-portraits (selfies) are shared. Peoples or users posts 238 million pictures on Instagram with hashtag #selfie and pictures up to 128 million have #me as the hashtag. On Instagram 193 million pictures and videos in the same way were shared with hashtags #selfies (Dhir et al., 2016).

A research conducted by Katz and Crocker (2015) in the USA, respondents were undergraduate students of communication research at Boston University, shows that 98% within the age group of 18–24 participants captured selfies and within earlier day 46% participants posted selfies while 69% inclined 3 to 20 times every day to post their selfies. And according to their 2nd sample which they took in China participants were undergraduate students of communication research of Shandong University, China most of their participants were within the age group of 20 to 23 in which 96% captured a selfie and 25% captured selfies on the earlier time. Selfies give much freedom to an individual to capture their photo as they want. While capturing a selfie an individual has full command over their face appearance, style and face expression as contrasted to other kinds of pictures (Qiu et al., 2015). Moreover, for own exhibition selfies are posted on different websites (Mehdizadeh, 2010; Papacharissi, 2011; Raza et al., 2020; Kim et al., 2020; Guraya et al., 2018; Abbas et al., 2019).

A study was conducted by Kim and Chock (2017) which indicate that popularity of selfie actions boost questions about the psychological element that may drive such distinctive procedure of own-exhibition. They also observed the emotional meaning of selfie posting through personality traits. For instance a number of investigations proposed that narcissism considerably forecasted the frequency of selfie posting (Sorokowski et al., 2015). Though selfies are used to show uniqueness and community associations, there may be other possible emotional elements that could describe different kinds of selfie behaviours (Oliver and Krakowiak, 2009). Qiu et al. (2015) at the time of capturing a selfie, in photo persons can check their style and make a decision that which part of his/herself in photo they desire to exhibit. On different websites selfies have been placed in number of millions. Selfie have been used as a means for own-exhibition and own-expression (Qiu et al., 2015).

About demographic variables impact (Kim and Chock, 2017) finding shows that demographic variables might persuade particular selfie behaviour, e.g., gender and age have significant impact on the frequency of selfie posting behaviour (Sorokowska et al., 2016). The literature shows that most of the studies analysed demographic and culture as explanatory variables. This study analyses moderating role of culture in relationship between selfie posting behaviour and personality big five traits among the students of two university inherently situated in different culture, i.e., University of Science and Technology Bannu (USTB) and National University of Modern Languages (NUML), Islamabad.

In earlier research the idea of big five personality traits has widely been used with selfie posting, solo selfie, group selfie, and selfie editing in different countries but few researches have been carried out where moderating role of culture is tested to discover relationship between the big five traits and selfie behaviour inside the universities of Pakistan. Therefore, this research targets the USTB and NUML, Islamabad in this regard.

2 Literature review

Several studies documented that individuals' durable traits and moods have profound effect on self-portrait through SSNs (Oliver and Krakowiak, 2009; Rubin, 2009). The previous researches have studied the relationship between personality traits and computer-mediated communication (CMC) behaviours (Correa et al., 2010). Many of the researchers used the big five model of personality and selfie behaviour (Goldberg, 1990).

This model categorises personality traits into five parts: agreeableness, conscientiousness, extraversion, neuroticism and openness to experience (John and Srivastava, 1999).

For quite some times in the field of psychology the differences in an individual personality have been studies. Prior study has revealed that several features of life as associated with personality, comprising job achievement (Judge et al., 1999), good looks (Byrne et al., 1967), satisfaction of one with family life setup (Kelly and Conley, 1987) and level of pleasure (Ozer and Benet-Martinez, 2006). Inside the examination we used the BFFM peak extensive and normally accepted representation of personality (Goldberg, 1993; Russell and Karol, 1994). To incorporate the majority recognised personality traits this model was revealed and it is requested for representation of 'basic structure' primary variety of human behaviour and first choices, given a theoretical structure and a terminology which amalgamate most study discoveries inside the psychology of human changes. Here we fleetingly define the five personality traits (Goldberg, 1993; Russell and Karol, 1994).

Over decades of research in the field of psychology show that a person's behaviour and first choice can be judged with the help of psychological construct named personality traits (Allport, 1962). This is valuable in practice, as it implies that knowledge of a person's personality enables to know his/her behaviour and first choices. The research about personality exposed that reactions to a comparatively tiny questionnaire about personality in several characteristics of life may forecast behaviour of individual, i.e., Barrick and Mount (1991) to better perform their duty/job whether they come on time, to the habit of drug, Orzeck and Lung (2005) and disloyalty. It might be probable to evaluate personality through examining an individual's behavioural remains – detect in the surrounding of the person's activities. Gosling et al. (2003) for example, personality traits can be judged with the help of examinations the living spaces in which an individual reside, Rentfrow and Gosling (2006) or gatherings in concert.

Succeeding the change in individual relations, interaction with others, and in the direction of online internet stages the communication activities, scholars have found that such behavioural residues are not are not restricted to the offline environment and presented that from the use of keyboard and mouse records personality can be incidental, or likes for Facebook (Kosinski et al., 2014), contents of own web pages (Marcus et al., 2006; Vazire and Gosling, 2004).

2.1 Selfie posting behaviour

The Oxford English Dictionary formally placed the word 'selfie' in 2013 and described it as "a portrait that he/she has captured of by self, commonly he/she captured through cell phone or digital camera and transferred to a social network sites." Although selfies were also in the earlier period, the process of capturing selfies has increased and boosted with the introduction of the smart phone and the proliferation of SNSs.

The selfie of the computerised era has rapidly turned into an extensive, worldwide phenomenon (Day, 2013). Self portraits give a different and many-sided form of own-exhibition. They permit public to show particular characteristics of their self to their social media in an online ambiance. The face to face online ambiance permits public to show his/her self extra selectively (Walther, 1996). Walther's (1996) found that two main features of CMC, synchronicity and editability, permit consumers to generate good pictures of his/her self for viewers. For instance, study has established that in online settings such as meeting webpages, persons are capable to build helpful own-exhibition

through purposely emphasising preferred characteristics (Hancock and Toma, 2009). These choosy own-exhibition behaviours also happen on SSNs.

Zhao et al. (2008) established that consumers tend to build and express his/her preferred self or 'hoped-for potential selves' on Facebook. The optical component on SSNs profiles (i.e., snaps) has a main part in showing own-snaps and performing online identity (Eftekhar et al., 2014), and have been established to be powerful in determining others' perception (Van Der Heide et al., 2012). SNSs not only shows portraying own self but also offer a chance for persons to show themselves as member of community cluster and to highlight suitable community associations (Harpaz, 2014). With a specific target on selfie posting, researches have started to discover the motives that the public has to connect in such optical own-exhibition behaviours. Several researchers have discovered which kinds of personality traits might be linked with the frequency of posting selfies on SSNs.

2.1.1 Selfie posting behaviour attributes

1 Selfie captured solely (or own or solo selfie).

2 Editing selfie.

3 Bunch selfie or group selfie.

The term was also known as groupies later on (Wang et al., 2017). According to earlier investigation, persons commonly capture and place selfies in favour of self-presentation, looking for reaction from peers, for sharing information, for archiving and for having amusement (Kiprin, 2013; Katz and Crocker, 2015; Sung et al., 2016). The explanation of these three kinds of selfies is as below:

2.1.1.1 Selfies captured solely (or own or solo selfies)

It can be defined as 'capturing one's image individually through camera'. It can also be explained as; generally it's a human tendency to capture his/her own picture when he/she is in a good mood and looking smart. And with the advancement of technology individuals want to share their pictures with friends' circle to get positive remarks. Hence solo selfie may be possible with any special landscape product or looks (Kim and Chock, 2017; El Khoueiry et al., 2021).

2.1.1.2 Editing selfie

When an individual takes his/her own photo with mobile or camera and in order to look charming/more beautiful and unique from others, they edit their own captured photo or selfie with different tools through cropping his/her selfie or with some photo editing applications, he/she cut some unnecessary parts of their selfies then it is called editing selfie (Kim and Chock, 2017; El Khoueiry et al., 2021; Stuart and Kurek, 2019).

2.1.1.3 Bunch selfies or group selfie

It can be described as when someone captures his/her own photo with members/ colleagues or with group of peoples through cell phone/mobile or camera. The term is

common and nowadays it is shortly called 'groupie' (Stuart and Kurek, 2019; Kim and Chock, 2017; Wang, 2019).

2.1.2 Relationship between personality big five traits and SNS's

Eftekhar et al. (2014) analysed the relationship between Facebook users' photo related activities and big five personality traits. The authors took a sample of 130 active participants of Facebook users having age of more than 18 years with 84 female and 31 males. About 85% participants were undergraduate psychology students. The study used content analysis and regression method to draw the final conclusions. The results showed that people with Neuroticism and extraversion behaviour uploaded more photos and conscientiousness led to more video upload and album creation. In addition, agreeableness predicted more the average number of 'likes' and comments on a share. In a nutshell, the study found that Facebook photo sharing has a significant relationship with the big five personality trait.

Kosinski et al. (2014) exertion inspects how personality is established in users' online behaviour as reproduced through websites they peruse and their Facebook activity. They also indicate that as internet surfing is to a huge amount an isolated activity, interactions between website selections and personality might be genuine by peer pressure and the tendency to present oneself in a constructive manner. Likewise, though the substances of Facebook status updates, uploaded pictures, or the selection of Facebook likes might transmit an element of self-enhancement, the frequencies and distribution of liking behaviour, amount of uploaded photos, or concentration of the friendship network are fewer likely to be pretentious by users' conscious efforts to have full command on their photo.

Therefore, they also found that website selections and Facebook profile structures might propose significant and possibly impartial insights into the operators' personalities. They also used dataset in their work is comparatively large and assorted, containing of more than 350,000 US Facebook users. To the best of their information, it is the largest dataset ever documented connecting psychological traits to web behaviour. Users' personality was measured using a standard international personality item pool questionnaire (Goldberg, 1999; Goldberg et al., 2006) representing a widespread five factor model of personality. Users' website favourites were noted by their website-related Facebook likes and a questionnaire precisely planned for this study. The Facebook profile structures examined here comprise: the size and density of the users' Facebook friendship networks, the quantity of Facebook groups and likes that a user has linked with, the number of photographs and status updates uploaded by the user, and the amount of times the user was labelled on photographs uploaded to Facebook, such that amount of occasions in which the user appeared. With extraversion trait he/she was linked with more use of Facebook, huge list of Facebook friends, superior stages of social relations, further picture sharing on Facebook, and further everyday status modernise (Eftekhar et al., 2014). It has been recommended that conscientious users are more likely to receive comments on their Facebook uploading's (Eftekhar et al., 2014). Agreeableness is also linked with having more Facebook friends and agreeable users tend to feel extra happy and delightful when they get a huge number of 'likes' and 'remarks' on their outline photos (Amichai-Hamburger and Vinitzky, 2010). In addition, some studies found no significant association between openness to experience and Facebook pictures (Eftekhar et al., 2014), but others studies documented that openness is certainly linked with

uploading more pictures on Facebook (Correa et al., 2010), and extremely open users are too much interested to upload and exchange pictures (Gosling et al., 2011).

A study was conducted by Kircaburun and Griffiths (2018) according to them that the association between the usage of internet habits and personality traits has inspected by so many studies. According to McCrae and John (1992) there are five main personality traits and in their study they explained these traits as the personality with extraversion trait has more interaction with others and more conversational, and with agreeableness trait they have a sympathetic heart and are well behaved, with neuroticism trait are irritable and anxious, those who have conscientiousness trait are diligent and well systematic, and with openness to experience trait are innovative and love to gain new experiences. According to Kayiş et al. (2016) research all the personality traits have significant relation with internet users and have effect on the internet habit. To check the connection among personality traits, internet and the usage of other net working sites mostly studies has been used big five personality traits.

1   According to the study of Wang et al. (2015), they found that extraverts and neurotics give more time to internet.

2   While according to Marino et al. (2016) the pupils with neurotic, conscientious, and introvert traits use Facebook hardly.

3   Błachnio et al. (2017) conducted a study and found that because they are less open to experience, emotional stable, conscientious individual has Facebook habit.

4   According to Kırcaburun and Baştug (2016) study the students with introverted, less agreeable, less conscientious trait of personality have the greater twitter addiction.

According to former studies the photos comprise valid personality-related signs (Qiu et al., 2015). The study observed that uniform photographs which originate that extraversion connected with good face looks, while openness is related with lips volume, the womanliness of face shows the conscientiousness (Nestler et al., 2012). All these signs are about the facial appearance which cannot be altered while capturing photos. According to Borkenau et al. (2009) and Naumann et al. (2009) analysis extraversion related to cheeriness and grin these results showed by researchers contains unstructured photographs captured by the experts. In Vazire et al. (2008), good looks, garish dresses, and make up were connected with narcissism.

In Naumann et al. (2009), adding more, in whole body pictures extraverts erected in more active behaviours although introverts displaying anxious manner. In Qiu et al. (2015), the photos cast-off in the current study includes cues which can be operated by the contributors (e.g., facial appearance of the facial and position of the body), for the purpose of own exhibition that's not captured in a pragmatic condition. Besides this many current studies observed internet for profile photos. According to Hall and Pennington (2013) analysis those with extraversion behaviour have huge amount of Facebook profile photo friends and those with conscientiousness behaviour have affable qualities. Ong et al. (2011) analysed that extraversion and narcissism showed that self-rated good looks of profile pictures predicted extraversion and narcissism trait have own-liking profile photo magnetism. A research conducted by Krämer and Winter (2008) on a German SNS profile photos found that extravert people have no realism in their pictures (edit selfie).

2.2   *Relationship between personality big five traits and selfie posting behaviour attributes*

A study conducted by Kim and Chock (2017) state that associations between personality big 5 traits and selfie behaviours varies, the particular kind of selfie behaviour may be of specific value. The associations with the big five traits may also differ by the kind of selfie behaviour. For example, agreeable users give preference to post group selfie than solo-selfie. Neurotic users, which give more attention to hazard, may be likely to post limited selfies. Additionally, the researchers have established diverse findings regarding few of these qualities and SNS selfie posting behaviours (Kircaburun et al., 2020; Chaudhari et al., 2019; Kachur et al., 2020; Kircaburun and Griffiths, 2018). Though Ross et al. (2009) found that those who have neurotic trait do not like to post pictures, while Amichai-Hamburger and Vinitzky (2010) found that neurotic users are extra prone to upload his/her pictures on Facebook outline. Demographic elements may also be nearly linked with different kinds of selfie behaviours. As earlier discussed, studies have found that posting a selfie depends upon gender and age (Sorokowska et al., 2016). For instance, study has noted that age has negative relationship with selfie posting rate (Weiser, 2015), and men post less selfie than women (Sorokowska et al., 2016).

Kim and Chock (2017) analysed the relationship between selfie posting and various personality traits including narcissism, the big 5 traits, the need for popularity and the essence of belonging. The authors took a survey of 260 online surveys including 137 males and 123 females. While using correlation and regression methods, the authors documented that narcissism is the major factor behind selfie posting. In addition, gender moderated the relationship for the need of popularity and selfie posting. It was found that frequency of posted selfie for popularity was more common among men.

Figure 1   Kim and Chock (2017)
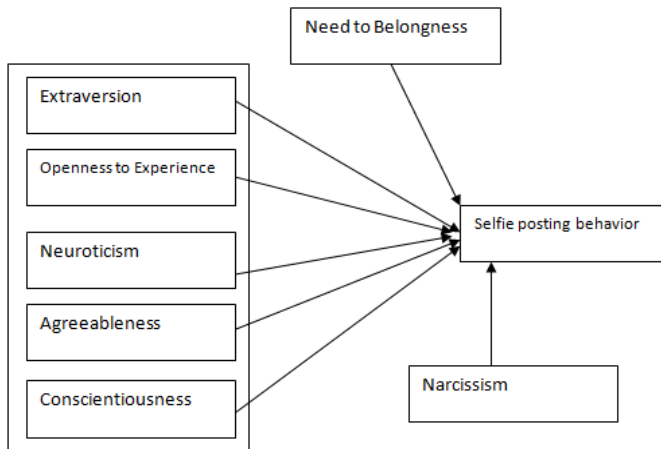
2.2.1   *Extraversion vs. selfie posting behaviour*

Kim and Chock (2017) found the relationship between selfie posting behaviour and extraversion that solo selfies posting have positive relationship with extraversion and also have positive relationship with group selfies but have no relation with posting selfie

editing. The consequences of Kim and Chock (2017) research propose that group selfies posting by different personality traits might be motivated. Extraversion one of the personality trait is classified by behaviours as hospitable and friendly. According to their clarification that individual with extraverted trait are mostly like gathering with bunches of different individuals. Thus with this personality trait the people have much chances to place group selfies instead of those who have less extraversion trait. People with extraversion trait have significant relationship with friends on SNSs (Amichai-Hamburger and Vinitzky, 2010); thus more friends on SNSs might enhance the chance that individual with their buddy would share this kind of pictures on social media. In gathering program usually group selfies are placed and s shared and with person belonging to the particular group. Extraversion has great knowledge about the group rules and regulations, thus, this kind of trait enhances the chances that people would like to post group selfies rather than solo selfies (Baiocco et al., 2017). While extraversion has weakly and positive relationship with solo selfies and posting group selfies with low extraversion trait use less social media so they also post less selfies (Gosling et al., 2011). Individuals with extraversion trait have more interaction with social media so due to this interaction with social media they also have a significant relationship with posting selfies; while Sorokowska et al. (2016) gives different opinion about extraversion and selfies posting according to them there is a significant relationship between extraversion and posting partner selfies. While according to Baiocco et al. (2017) research there is no relationship between extraversion and partner selfies posting. Based on the findings of previous studies (Sorokowska et al., 2016; Gosling et al., 2011; Guo et al., 2018; Richa et al., 2021; Van Der Schyff et al., 2020) it is hypothised that:

H$_1$ Extraversion has positive attitude toward selfie posting behaviour.

2.2.2 *Conscientiousness vs. selfie posting behaviour*

Kim and Chock (2017) found that relationship between selfie posting behaviour and conscientiousness that conscientiousness has negative relation with posting editing selfies but has no relation with group and solo selfies posting. With entire sorts of posting selfies consciousness has a modest and a negative relationship (Baiocco et al., 2017). Based on the findings of previous studies (Veldhuis et al., 2020; Kim and Chock, 2017; Baiocco et al., 2017) it is hypothised that:

H$_2$ Extraversion has positive attitude toward selfie posting behaviour.

2.2.3 *Neuroticism vs. selfie posting behaviour*

Kim and Chock (2017) found the relationship between selfie posting behaviour and neuroticism that neuroticism has no relation with any type of selfie posting behaviour (solo selfie, group selfie, and editing selfie). Based on the findings of previous studies (Van Der Schyff et al., 2020; Kim and Chock, 2017; Marciano et al., 2020; Chaudhari et al., 2019) it is hypothised that:

H$_3$ Neuroticism has no attitude toward selfie posting behaviour.

2.2.4 *Openness to experience vs. selfie posting behaviour*

Kim and Chock (2017) found the relationship between selfie posting behaviour and openness to experience that there is no relation between openness and any type of selfie posting behaviour like group selfie, editing selfie, and solo selfie. While Baiocco et al. (2017) findings indicate that with entire sorts of posting selfies openness to experience has modestly and negative relationship.

Based on the findings of previous studies (Christensen et al., 2019; Kircaburun et al., 2020; Balakrishnan and Griffiths, 2018) it is hypothised that:

H$_4$ Openness to experience has attitude toward selfie posting behaviour.

2.2.5 *Agreeableness vs. selfie posting behaviour*

Kim and Chock (2017) found the relationship between selfie posting behaviour and agreeableness showing that agreeableness has a positive association with group selfie posting but has no relation with editing selfies and solo selfies posting. The consequences of Kim and Chock (2017) research propose how group selfies posting by different personality traits might be motivated. Agreeableness sends back a direction to others. According to their clarification that individual with agreeable trait mostly likely gathers with bunches of different individuals. Thus with this personality trait the people have much chances to place group selfies instead of those who have less agreeableness trait. People with agreeableness trait have significant relationship with friends on SNSs (Amichai-Hamburger and Vinitzky, 2010), thus more friends on SNSs might enhance the chance that individual with their buddy would share this kind of pictures on social media. In gathering program usually group selfies are placed and s shared and with person belonging to the particular group. Agreeableness has great knowledge about the group rules and regulations thus this kind of traits enhance the chances that people would like to post group selfies rather than solo selfies. Agreeableness has a negative relationship with posting solo selfies (Baiocco et al., 2017). Based on the findings of previous studies (Morelli et al., 2020; Kircaburun et al., 2020; Amichai-Hamburger and Vinitzky, 2010; Kim and Chock, 2017) it is hypothised that:

H$_5$ Agreeableness has positive attitude toward selfie posting behaviour.

2.3 *Relationship between personality big five traits and culture*

According to Costa et al. (2001) and Lynn and Martin (1997), analysis in personality traits examined gender dissimilarity such as nervousness and aggressiveness. A study was conducted by Feingold (1994) and found that in Russia, Germany, Canada, China, Poland, and Finland females inclined to attain top numbers on scales associated with the personality traits like agreeableness, neuroticism and conscientiousness from males. While males have top numbers in the trait linked with extraversion around cultures than females. Around 36 cultures a huge study shows that females in the majority countries have greater relationship with openness to feelings, agreeableness, neuroticism, and warmth traits of personality while males have relationship with openness to ideas and assertiveness traits (Costa et al., 2001; McCrae, 2002). McCrae and Terracciano (2005) conducted a huge study around 50 cultures and asked from the students of college to recognise a college mature male or female about which they know better and give rate to

that mature's personality traits. According to the respondents rates males have significant relationship with assertiveness, openness to ideas and excitement seeking than females while according to the respondent's rates females have relationship with, vulnerability, feelings, and tender-mindedness and aesthetics and especially in anxiety traits.

A study conducted by Schmitt et al. (2009) and analysed that gender differences in big five personality traits. The authors took a sample of 55 countries with different cultures. According to their results around the International Sexuality Description Project (ISDP) females have significant relationship with extraversion, consciousness, and agreeableness, and neuroticism, traits of personality from males. Based on the findings of previous studies (Schmitt et al., 2009; Liu et al., 2019; Omori and Allen, 2021; Arpaci et al., 2018; Al-Kandari and Abdelaziz, 2018) it is hypothised that:

H$_6$ Culture moderate the relationship between personality big five model (PBFM) and selfie posting behaviour.

3   Research methodology

3.1   Procedure

The current quantitative research motive is to recognise the relationship between personality big five traits and selfie posting behaviour with culture as moderator. In order to achieve this, the researchers organised a survey for achieving the demanded purpose and collected the data through questionnaire. The study is non-contrived and the information is obtained from students of the USTB and NUML, Islamabad. For this study a survey was conducted and for achieving the demanded objectives data was collected by questionnaire. While the data has been collected from the USTB and NUML, Islamabad, therefore the unit of analysis of this study is individuals (students).

In this research, the data is collected for particular point of occasion. So the cross – sectional, character of time horizon was used.

3.2   Population and sample size

The population of this research includes the universities of Khyber Pakhtunkhwa and Universities of Islamabad. In this research survey was conducted and it collects the data by questionnaire for testing the hypotheses of the research. There are so many universities in Khyber Pakhtunkhwa and Islamabad but for data gathering this study chose the USTB from Khyber Pakhtunkhwa and NUML, Islamabad. According to the suggestion of Uma and Roger (2003) if possible one should select the sample size more than the research variables it may be ten times or more. Hence based on the Sekaran's (2003) suggestion 220 students (male and female) were randomly chosen from the USTB and National University of Modern Language, Islamabad with different ages and the questionnaires was circulated among them.

3.3   Research instruments

A survey was conducted and it collected the data by questionnaire. For data gathering, this study uses the questionnaire technique because through this technique huge information can be gathered easily and also it's less expensive. In this study following procedures were used to evaluate the dependent, independent, and moderating variables. In earlier research study the following procedures have been used. On five-point Likert scale all the variables were measures.

3.3.1   Big five personality traits

The big five personality was measured using the big five inventory (BFI) (John and Srivastava, 1999). The BFI scale consists of 44 items that assesses the five dimensions of personality traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. This scale was chosen because it has clear factor structure and each subscale has satisfactory reliability (Srivastava et al., 2003). On a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), participants rated the extent to which personality characteristics apply to themselves.

3.3.2   Selfie posting behaviour

Two aspects of selfie posting behaviours have been assessed through adopted questionnaires of Kim and Chock (2017), solo selfies and selfies with a group. On a five-point scale (1= strongly disagree, 5 = strongly agree), participants rated the frequency with which they posted selfies using two items: "how often do you take photographs of yourself?" and "how often do you post photographs of yourself on your social media page?"

3.3.3   Culture

Culture question have been used from the previous studies in order to examine the basic nature of Pakistan environment. In this regard new construct that have measure various attributes of Pakistani culture have been designed. Response has been obtained through five-point Likert scale.

3.4   Analysis of data

After gathering the data from chosen universities next this study has used SPSS V-23 software to analyse the relationship between independent, dependent, moderating variables. For this purpose different statistical procedures have been used. In first stage descriptive statistics through skewness and kurtosis was assessed. In the next stage reliability of the constructs was conducted followed by correlation and regression analysis. In the final stage Preacher and Hayes (2008) moderation technique through SPSS macros was applied to assess the moderating role of newly designed culture contract.

4 Result and discussion

4.1 Profile of respondents

Demographic information being collected from NUML and UST, Bannu students. Out of 110 sample size, 80 were male and 30 were female students of NUML. The age group were as, zero below 20 years, 68 (61.8%) between 21–25 years, 30 (27.27%) between 26–30 years while 12 (10.9%) respondents were at the age of 31 years and above age group. The marital status indicate 89 (80.9%) respondents were single, 20 (18%) were married while 1 (0.90%) was divorced. About family setup response shows that 70 (63.66%) were in joint family system while 40 (36.00%) were in separate family system. The number of respondents from UST, Bannu were 110, comprising of 90 (81.8%) male and 20 female students. 8 (7.2%) respondents were below 20 years, 60 (54.54%) between 21–25 years 32 (29.00%) between 26–30 years and 10 (9.00%) respondents were of the age of 31 and above. About marital status indicate that 70 (63.63%) were single, 40 (36.36%) were married and zero were divorced. 88 (80.00%) were in joint family system and 22 (20.00%) were in separated family system.

Table 1 Measurement of personality attributes, selfie posting and culture

Construct	Author	Items	Reliability in earlier studies
Extraversion	John and Srivastava (1999)	6	0.91
Openness to experience	John and Srivastava (1999)	7	0.88
Neuroticism	John and Srivastava (1999)	6	0.87
Agreeableness	John and Srivastava (1999)	7	0.83
Conscientiousness	John and Srivastava (1999)	8	0.89
Selfie posting behaviour	Kim and Chock (2017)	5	0.804
Culture	Developed by current research study	12	...

As the personality and selfie constructs are adopted from previous studies, hence its internal consistency is measured via cronbach alpha. Results are presented in Table 2. The highest alpha value is 0.91 for extraversion, followed by 0.88 for neuroticism, while the lowest cronbach alpha value is related to conscientiousness (0.79). According to Hair (2017), the value of cronbach alpha must be equal or higher than 0.80. In our study almost all the variable alpha value are higher than 0.80, which indicate higher internal consistency.

Table 2 Reliability analysis for current research work

SN	Construct	Alpha	Original item	Items retained	Mean	SD
1	Extraversion	0.91	8	6	2.6857	0.81646
2	Openness to experience	0.81	8	7	3.1417	1.05044
3	Neuroticism	0.88	9	6	2.6233	0.85201
4	Agreeableness	0.84	9	7	2.6593	0.85687
5	Conscientiousness	0.80	9	8	3.8776	1.02085
6	Selfie posting behaviour	0.81	4	4 + 3	2.6649	0.87415
7	Culture	0.82	15	12	2.9193	0.71727

Table 3   Correlation among the variable

	Mean	SD	1	2	3	4	5	6	7	8	SKW	KUR
1 SPST	2.6649	0.87415	1	0.308**	0.448**	0.736**	0.115	0.587**	0.159*	0.498**	0.05	0.52
2 Culture	2.9193	0.71727		1	0.543**	0.296**	0.195**	0.219**	0.089	0.244**	-0.05	-0.66
3 PBFM	3.1147	0.69555			1	0.422**	0.127	0.333**	0.023	0.208**	0.16	0.41
4 ExtraV	2.6857	0.81646				1	0.138*	0.499**	0.214**	0.464**	0.18	0.51
5 OPTE	3.0417	0.75044					1	0.072	-0.025	0.112	0.14	-0.89
6 NEURO	2.6233	0.85201						1	0.237**	0.884**	0.03	0.56
7 CONS	3.0776	0.72085							1	0.176**	-0.04	-0.61
8 AGREA	2.6593	0.85687								1	0.05	0.52

Notes: SPST = selfie posting behaviour; PBFM = personality big five model; ExtraV = extraversion; OPTE = openness to experience; NEURO = neuroticism; CONS = consciousness; AGREA = agreeableness; SD = standard deviation; SKW = skewness; KUR = kurtosis.
**correlation is significant at the 0.01 level (two-tailed). *correlation is significant at the 0.05 level (two-tailed).

Table 3 shows the strength of relationship between selfie posting behaviour among students of different universities, their personality characteristics as well as cultural influence. Results indicate that personality overall factor (combine effect) on selfie posting behaviour is $r = 0.448$; $p < 0.01$. While relationship between culture and personality BFM is $r = 0.543$; $p < 0.01$ followed by culture and SPST ($r = 0.308$; $p < 0.01$). Hence relationship between all the variables is significant at 0.01 level. On the other hand, the strength of relationship between PBFM factor namely extraversion and SPST is 0.73; $p < 0.01$ followed by neuroticism ($r = 0.487$; $p < 0.01$) and agreeableness ($r = 0.498$; $p < 0.01$) are high as well as significant. While consciousness correlation value is $r = 0.159$; $p < 0.05$) and surprisingly openness to experience shows no strength of correlation. On the other hand PBFM factors relationship with culture also shows variation in results. Findings indicate that the highest correlation is between culture and extraversion ($r = 0.296$; $p < 0.01$) followed by agreeableness ($r = 0.244$; $p < 0.01$), neuroticism (0.219; $p < 0.01$) and openness experience ($r = 0.195$; $p < 0.01$).

Table 4 illustrates the detailed information about PB5 model characteristics and selfie posting behaviour. Result shows that R value is 0.126 which indicates that personality characteristics explain (12.6%) variation in selfie posting behaviour of students among the selected universities. F statistics value is 6.140 with 5,213 degree of freedom. Durbin Watson value is also within the range, which shows that there is no problem of auto correlation among independent variables. Beta values for extraversion = 0.219 with $p < 0.05$ and openness to experience = 0.150 with $p < 0.05$. Hence H_1 and H_5 are accepted. The significant results possess that these two attributes of BFPM play an important role in shaping selfie posting attitude of students. On the other side, coefficient value for neuroticism = -0.063; $p > 0.05$, consciousness = 0.030; $p > 0.05$ and agreeableness = 0.176; $p > 0.05$) indicate insignificant result. This leads to rejection of hypotheses H_2, H_3 and H_4. The rejection of these hypothesis state that these three characteristics of PB5M have no serious impact on shaping self-posting attitude among students. Table also shows tolerance and VIF values all the variables of PBFM. Values of both indices for all variables are in the prescribed limits.

Table 4   Regression result for personality traits and selfie posting attitude

R	R-square	ARS	DW	F	Df	Sig.	SEE
0.355	0.126	0.105	1.04	6.140	5 (213)	0.000	0.67840

Model	Unstandardised coefficient		Standardised coefficient	T	Sig.	VIF	Tolerance
Const	1.621	0.296		5.481	0.000		
ExtrV	0.192	0.066	0.219	2.918	0.004	1.374	0.728
OPTE	0.144	0.062	0.150	2.310	0.022	1.032	0.966
NEURO	−0.053	0.120	−0.063	−0.447	0.656	4.912	0.204
CONS	0.030	0.066	0.030	0.450	0.653	1.083	0.921
AGREA	0.147	0.116	0.176	1.276	0.203	4.644	0.215

Notes: a predictors: (constant), AGREA, OPTE, CONS, ExtrV, and NEURO.
     b dependent variable: SPSB.

Table 5 shows the values of different indices in making the relationship between student personality BFM and their selfie posting behaviour. From table it is evident that R^2 (0.201) with F statistics (54.640) has degree of freedom (1,217). The value of R^2

indicates that 20% change in the selfie positing behaviour of student is because of five big personality traits. The value of Durbin Waston (1.824) shows that there is no problem of auto correlation. Beta value for personality BFM is 0.5640; $p < 0.05$ with standard error of 0.0764. The value indicates that 100% change in personality leads to 56.40% change selfie posting behaviour of students. The value of tolerance and VIF are also in the acceptable range. Regression residual values are also presented via graphical charts, which indicate that most of the values are in the region of 0 and 1.

Table 5   Regression result for personality BFM and selfie posting behaviour

R	R-square	ARS	DW	F	Df	Sig.	SEE
0.448	0.201	0.197	0.988	54.640	1 (217)	0.000	0.78310

Model	Unstandardised coefficient		Standardised coefficient	T	Sig.	VIF	Tolerance
Const.	0.909	0.243		3.737	0.00		
PBFM	0.564	0.076	0.448	7.392	0.000	1.00	0.728

Notes: a predictors: (constant), PBFM.
       b dependent variable: SPST.

Table 6 shows detail information about the moderating role of Culture between PBFM and selfie posting behaviour among the student of two different universities namely University of Science and Technology Bannu and NUML University Islamabad. The results indicate that culture did not show any moderating effect between PBFM (and its components) and selfie posting behaviour. That leads to rejection of hypothesis H_6. As from the Table, the combined value of PBFM and culture results indicate that (0) lies between (ULCI and LLCI) while p-value is also higher than (0.05), while R-square value is very much low (.005). Hence it is proved that culture has insignificant moderating effect between personality differences and selfie posting behaviour. When culture is taken as moderating variable for each individual trait of PBFM, the results show the same insignificance. It shows that culture does not have a moderating effect on the relationship of selfie posting behaviour of combined value of PBFM and individual trait of PBFM.

Table 6   Moderation analysis via Preacher and Hayes

	ΔR^2	F	p	ULCI	LLCI
PBFM * culture	0.005	1.301	0.255	–0.279	0.074
Extraversion * culture	0.001	0.603	0.438	–0.069	0.159
Openness to experience * culture	0.005	1.861	0.281	0.249	–0.073
Neuroticism * culture	0.001	0.206	0.650	–0.117	0.187
Consciousness * culture	0.006	1.527	0.218	–0.080	0.349
Agreeableness * culture	0.001	0.205	0.651	–0.134	0.214

Notes: ULCI = upper level confidence interval; LLCI = lower level confidence interval;
       n = 219.

5   Discussion and conclusions

The study examines the relationship between selfie posting behaviour and big five personality traits using culture as moderator. Firstly, all five components of big five personality traits do not exert similar effect on selfie posting behaviour. Two traits (i.e., extraversion and openness to experience) have significant impact on selfie posting attitude of students studying at UST, Bannu and NUML, Islamabad. Arpaci et al. (2018) analysed that there is highly significant relationship between selfies posting behaviour and extraversion. Nowadays posting selfies on different SNSs are becoming a famous way of digital communication (Raza et al., 2020; Kim et al., 2020; Guraya et al., 2018; Abbas et al., 2019; Chaudhari et al., 2019; Veldhuis et al., 2020). According to Frosh (2015) gestural communication signs are the influential ways of network communication. Extravert has great relationship with others and they want to continue this relationship (Veldhuis et al., 2020; Kim and Chock, 2017; Baiocco et al., 2017). However, selfie posting does not show any effect due to other three personality traits, i.e., neuroticism, consciousness and agreeableness. Hence, posting selfies have more importance for extraverts in such type of relationships with others. Furthermore extraverts are sociable and mostly busy in such type of interaction with others. So the results shows that the extraverts always want to share their thoughts, tricks, and memories with others have optimistic approaches in the direction of posting selfies and share more selfies on SNSs. Hence the findings of the current study shows similar results with previous studies (e.g., Kim and Chock, 2017; Lee et al., 2014; Sorokowska et al., 2016; Sung et al., 2016; Raza et al., 2020; Kim et al., 2020; Guraya et al., 2018; Abbas et al., 2019; Chaudhari et al., 2019; Veldhuis et al., 2020; Kim and Chock, 2017; Baiocco et al., 2017). According to the response from 1296 students of college in the research study conducted by Sorokowska et al. (2016) state that there is significant relationship between extraversion and selfies posting behaviour. While another study of Qiu et al. (2015) also give the same result that on SNSs there is significant relationship between big five personality traits and posting of selfies behaviour). According to their recognition that in selfies particular cues also have relation with conscientiousness, openness to experience, agreeableness and neuroticism. Their results indicate that the extravert's basic qualities enhance the relationship with posting selfies behaviour. The finding of Arpaci et al. (2018) research is to make happy their self with the social activities they would carry on selfies posting behaviour. With great extraversion trait persons have self confidence personality, have interaction with others (sociable) and sensation-seekers (Giluk and Postlethwaite, 2015). While finding of Ryan and Xenos (2011) state that whenever these personality qualities arrive together, so it is possible that extraverts have positive relationship with others (sociable) have great objectives in posting selfies behaviour on social sites (Veldhuis et al., 2020; Kim and Chock, 2017; Baiocco et al., 2017).

From personality BFM openness to experience also trend significant relationship with selfies posting behaviour. Qiu et al. (2015) found that just openness to experience trait recognised exactly, after contrasting the personality traits of selfies posting behaviour respondents. According to the Kim and Chock (2017) studies that the selfies permit to an individual to have full command on their photo and they can simply control their face look. Hence for self representation the persons post their selfies. Secondly, when culture is taken as dependent variable, two personality traits (i.e., extraversion and neuroticism) have significant effect while the remaining three personality traits (openness to experience, consciousness and agreeableness) have insignificant effect on selfie posting

behaviour. The current study investigate the relationship between PBFM all factors and cultural association for the first time. As previously Arpaci et al. (2018) try to establish the association between extraversion attribute of personality with individualism and collectivism attribute of culture. Hence the findings of the current study open new vistas of opportunities to the researchers in the field of psychology, data science and decision behaviour to understand such kind of relationship in more detail way among not only the students but also among the employees of different organisations. Thirdly, the combined effect of big five personality traits is significant on selfie posting attitude of students of two different universities in Pakistan. Fourthly, the culture variable has significant relationship with selfie posting attitude of students of UST, Bannu and NUML, Islamabad.

Lastly, the culture variable does not have moderating effect on the relationship between selfie posting behaviour and big five personality traits for both combined and individual value of each five traits, while Arpaci et al. (2018) found positive association between extraversion attitude of personality and individualism among universities students. As the current study use newly designed construct to measure the impact of culture between personality big five traits and selfies posting behaviour. Which show significant association with PBFM and selfies posting but did not evidence any moderating role. While the previous studies use culture on the basis of individualism and collectivism among extraversion and selfie posting. So the current study novel in its nature to offer newly developed construct for further researchers.

5.1   Contribution of the study

The study is conducted in two culturally different localities of UST, Bannu and NUML, Islamabad. It is important to mention that UST, Bannu is situated in a remote rural area of Pakistan while NUML, Islamabad is located in the urban capital city of Pakistan. The results show that the big five personality traits have significant effect on selfie positing attitude of students studying in entirely different cultures. Similarly, culture plays a significant role in selfie posting behaviour while taking it as independent variable. However, culture does not play moderating role in the relationship between selfie posting behaviour and big five personality traits. It refers that culture is an important predicator of selfie behaviour instead of moderating role.

For the human resource managers, the study provides some basic insights to know about the personalities of employees through scanning their SNSs. After judging the behaviour of individual employee, an organisation can device their overall HR activities including recruitment, selection, training, and development. The recognition of individual personality can help to mitigate the wastage of resources on useless training and development activities. The training and development of individual employees is designed after careful analysis of individual personality trait identified via SNSs.

5.2   Limitations of the study

Not a single research is without limitations, hence this study is also not an exemption. The limited sample of students in two universities may not allow to generalise the results for all sectors in Pakistan. The results can be more rigorous and generalised while taking a bigger sample in different sectors of Pakistan. In addition, the research takes a cross-sectional data of respondents at a single moment. The longitudinal collection of

data at different intervals may have different results as the situation of an individual changes with the passage of time. A future research on the basis of longitudinal data can give time-variant results. The data is collected via questionnaires instead of interviewees and focus groups which aims to get more in-depth analysis of a situation. The personality traits can be best judged with the help of conducting interviews with the target audience who posted different selfies.

5.3 Practical contribution of the study

The current study is novel in its nature from different prospective.

This is the first kind of study to explore the selfie posting behaviour among the students of selected varsities. While previous researcher's measure culture from individualism and collectivism prospective, the construct for cultural measurement is newly designed. Third the current study use culture as a moderator for the first time. Fourth the selfie related work with psychological prospective is investigated in management sciences in Pakistan for the first time.

5.4 Recommendation for future studies

Based on the findings of the current study it is recommended for further studies to investigate the relationship between personality traits and selfie posting in more detail way by getting information from students of various universities across the different provinces of Pakistan. Future studies may also use different attributes of selfie (e.g., attitude, edited selfie, solo selfie, group selfie, location wize, etc.). Gender effect of the self may also be investigated in further studies.

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