

Don't Judge a (Face)Book by its Cover: Exploring judgement accuracy of others' personality on Facebook



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ABSTRACT

With interaction across social networking sites (SNSs) becoming more prominent, the ability to accurately judge another's personality through these digital platforms is an important area of investigation. A number of studies demonstrate that SNSs can be an effective means of communicating information on personality (Evans, Gosling & Carroll, 2008). Much less research has examined the online cues that people use when forming their impressions of another's personality. The current research adopted a mixed methods approach to examine 1) accuracy of first impressions formed on the basis of viewing a person's Facebook behaviour and 2) how judgements are formed. Findings suggested that the traits of openness and conscientiousness can be judged most accurately through observing Facebook behaviour. To explore the cues used in forming personality judgements, thematic analysis was undertaken. This revealed six information 'cues' including: (1) vocabulary of target, (2) photographs, (3) written online interactions, (4) relationships with others, (5) health status and, (6) occupational status. Findings are discussed in terms of Funder's Realistic Accuracy Model (1995, 1999) along with limitations and suggestions for future research.

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1. Introduction

Human beings are naturally curious and often form judgements about others' personality. Every day decisions are made on the basis of such judgements, such as who to employ, befriend and even marry (Funder, 2012) and are often made from minimal, and sometimes no direct interaction (Ambady, Hallahan, & Rosenthal, 1995). Given that these judgements are useful and can help us understand others' behaviour (Funder, 1991), it is important for personality judgements to be 'accurate'. Although a number of studies have examined first impression accuracy in face-to-face encounters (Bar, Neta, & Linz, 2006; Carney, Colvin, & Hall, 2007; Willis & Todorov, 2006), much less research has examined this issue in online contexts which are typically more limited in the amount of cues available, particularly regarding non-verbal ones (Evans, Gosling, & Carroll, 2008). In addition to the practical importance of examining whether people can form accurate first impressions it is imperative to explore *how* such judgements are made in terms of the types of online cues that may be employed

when rating another's personality. Knowledge of the specific traits people are more likely to make accurate judgements for and insight into the types of cues that may facilitate or hinder this process is arguably important in a range of contexts such as online dating, and job recruitment. When considering the practical means of exploring these issues, the rise in online social networking sites represents a useful context in which to explore the expression and perception of personality. Therefore, the current research examines whether people can make accurate judgements from the information available within a typical Facebook profile (Study 1), and explores how such judgements are formed (Study 2).

1.1. First impression accuracy online

Research exploring accuracy of personality traits tends to conclude that context is an important factor in the extent to which certain traits are judged (Vazire & Gosling, 2004; Wall, Taylor, Dixon, Conchie, & Ellis, 2013). A wealth of research has examined judgement accuracy in face-to-face contexts and typically reveals that the trait of extroversion is accurately judged (Albright, Kenny, & Malloy, 1988; Borkenau, Brecke, Möttig, & Paelecke, 2009; Borkenau & Liebler, 1993a,b). In comparison, less research has examined judgement accuracy online and reveals a very different

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pattern of findings in terms of the specific traits that are accurately judged. Specifically, less visible traits such as openness have been shown to be accurately judged online (Stopfer, Egloff, Nestler, & Back, 2014; Wall et al., 2013) whereas this trait is typically harder to detect in face-to-face first impression encounters (Borkenau & Liebler, 1993a,b; Carney et al., 2007). This is underpinned by the trait visibility effect (Funder & Drobth, 1987), whereby traits with relevant frequent behaviours, known as “visible traits”, lead to more accurate judgements, than less frequent behavioural traits (Watson, Hubbard, & Wiese, 2000). Moreover, a study by Wall et al., (2013) revealed that openness and conscientiousness were the most accurately judged traits from online contexts, due to the saliency in which language-based cues were available. A number of studies have shown that extroversion tends to be the most accurately judged personality trait when viewing others' Facebook profiles and neuroticism the least accurate (Back et al., 2010; Gosling, Gaddis, & Vazire, 2007). This was corroborated in research using personal websites (Vazire & Gosling, 2004), and email correspondence. Taken together, such trait-specific findings suggest that nuanced context–behaviour relations exist. Therefore, it is important to explore how such trait-specific accuracy is achieved online, hence the present focus on the cues people report they use when rating others using the popular SNS of Facebook.

When theorising about how an accurate, or valid, personality judgement is formed, Funder's Realistic Accuracy Model (RAM; 1995, 1999) suggests that bottom-up processing underlies accuracy in the sense that availability of cues is an important part of the judgement process. This interpersonal and cognitive model posits that the individual being judged must display behaviour that is *trait relevant*. Secondly, the relevant behaviour must be made *available* to the individual forming the judgement. Next, the behaviour must be *detected* by the judge correctly. Lastly, this behavioural information must be *utilized* by the judge correctly (see Fig. 1).

Theoretically, research on the accuracy of personality judgements should further our understanding of *how* personality is revealed through behaviour in different contexts. That is, drawing on RAM's assumption that judgements are based on the behavioural cues available (Funder, 1995, 1999), to understand when and how an accurate judgement is made one has to understand how personality influences what people do in specific contexts. These context-specific correlates can speak to important behaviour–personality links, albeit at a broad level, and can ultimately contribute to an understanding of the nature of personality and how it is revealed through behaviour. Moreover, the importance is social-cognitive in nature. It concerns understanding more about the way in which humans navigate social situations to make the complex task of judging manageable (Taylor & Fiske, 1978). Contextual variations in judgement accuracy can ultimately broaden our understanding of the cues on which judges may rely when forming judgements of others.

For the purpose of the current study we explored the accuracy of first impressions about the Big 5 personality traits on Facebook. The Five Factor Model of personality (Costa & McCrae, 1992) has been accepted as the dominant model for categorising individual differences in personality (Ozer & Benet-Martinez, 2006). The five traits include: neuroticism, extroversion, openness, agreeableness

and conscientiousness. These broad traits are useful in predicting a range of behaviours (Funder & Sneed, 1993). Therefore, we aim to address a key hypothesis (Study 1):

H1. Big 5 judgements will be accurate for the “less visible” traits of conscientiousness and openness.

1.2. Behavioural cues and judgements

The question of *how* people form accurate judgements of others online remains a largely unexplored area (cf. Gosling, Ko, Mannarelli, & Morris, 2002; Walther, Van Der Heide, Kim, Westerman, & Tong, 2008). One reason arguably relates to the sheer amount of time involved in behavioural coding (Baumeister, Vohs, & Funder, 2007) and difficulties with objectivity in coding procedures (see Funder & Colvin, 1991). Nevertheless research is beginning to accrue, particularly in online contexts, on the behavioural cues that exist online. Using RAM as a conceptual framework, the present study asked participants to state what informational cues formed their judgements so as to develop our theoretical understanding of the judgement process. In support of this approach, research examining face-to-face interactions has shown that nonverbal communication cues help to elicit more accurate personality judgements than non-face to face contexts (Blackman, 2002). Specifically, research investigating judgements in face-to-face contexts has revealed that judges seem to rely on behavioural cues such as; tone of voice (McAlee, Todorov, & Belin, 2014), content/fluidity of speech (Isbister & Nass, 2000) and the use of compliments (Mairesse, Walker, Mehl, & Moore, 2007). Crucially, these behaviours are not available within online platforms (Amichai-Hamburger & Vinitzky, 2010), which contain cues such as number of online friends and status updates (Gosling, Augustine, Vazire, Holtzman, & Gaddis, 2011; Jarvis, 2010). Given the differences in certain types of behaviours able to be revealed online versus offline and the contextual differences in trait-specific accuracy that have begun to emerge it is important to continue to examine *how* such judgements are being formed. Although some research has begun to code aspects of behaviour in this regard (e.g. Bachrach, Kosinski, Graepel, Kohli, & Stillwell, 2012; Ross et al., 2009) we posit that a qualitative approach to this issue is a useful addition to the literature. Studies adopting a quantitative approach to this issue have tended to correlate behavioural and/or linguistic cues with scores on trait judgements with the assumption that significant correlations indicate that judges did actually *use* these traits. Although we are not in any way questioning this assumption we argue here for a complementary qualitative approach, which examines the cues that people explicitly report they used when judging others.

Thus, we draw on the available literature to consider what specific cues may be relevant in this regard. The Big 5 traits are considered to be expressed differently across a range of “Facebook behaviours” (Amichai-Hamburger & Vinitzky, 2010). For example, different behavioural manifestations have been observed at the trait level for a number of online behaviours including; number of Facebook friends, disclosure of personal information, uploading and modifying photographs, using different spaces on Facebook for

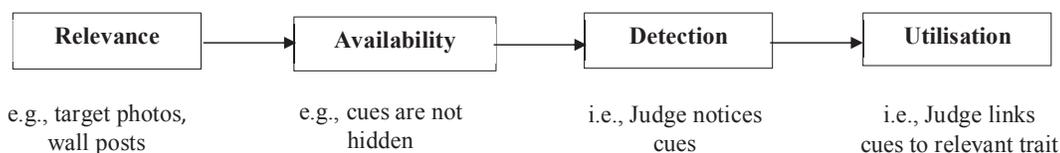


Fig. 1. Conceptual diagram of Funder's Realistic Accuracy Model (RAM; 1995, 1999).

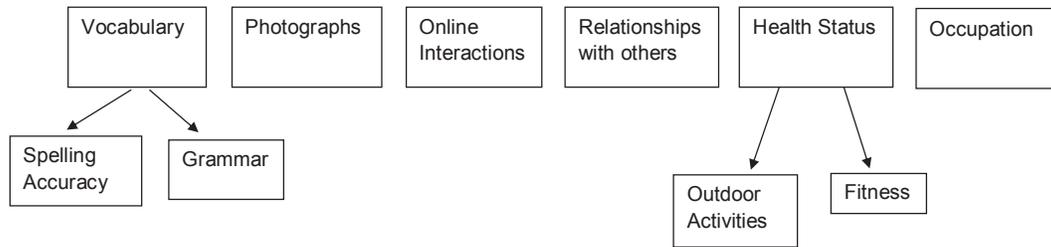


Fig. 2. Visual representation of themes and sub-themes.

uploading information, and the nature of interactions (Amichai-Hamburger & Vinitzky, 2010; Butt & Phillips, 2008; Gosling et al., 2011; Hollenbaugh & Ferris, 2014; Moore & McElroy, 2012; Ross et al., 2009). According to Funder's RAM (1995, 1999) the *relevance* and *availability* of these types of cues in online contexts is key for judgement accuracy. For the purposes of the current research, however, we aim to elucidate whether judges actually *detect* these available cues (as measured through explicit self-reported cues) and *utilize* them to form judgements (as measured through actual trait accuracy).

To the best of our knowledge no study has qualitatively examined this issue and asked participants to report on the behaviours they felt they used when rating others. This distinctive approach offers a useful complement to existing research that quantitatively codes the behaviours available. Importantly, a qualitative exploration of the cues judges' report they use when rating another's personality online aims to develop our understanding of RAM's detection and utilisation stages. Specifically, we intend to gain information from participants ("judges") on what information they use when forming their impression of targets' personality. Specifically, this forms our research question (Study 2) in which we intend to qualitatively explore:

- 1: What online cues are influential when forming judgements pertaining to others' personality?

2. Study 1: Judgement Accuracy

2.1. Method

2.1.1. Design/procedure

Following appropriate ethical assurances, and completion of a demographics questionnaire, participants were asked to choose whether they wished to participate as a "target" or "judge".¹ Although some studies use dyadic data designs whereby each participant serves as a target and a judge (e.g. Wall et al., 2013) this can create the potential for non-independence; thus, separate targets and judges were employed to avoid this potential confound (see Kenny, 1995).

Participants who selected to be a "target" were asked to log onto their Facebook profile and allow the researcher to take static screen

¹ Participants were asked to choose whether or not they wanted to be a target or a judge so that the researchers could ensure that there would be a judge for every target. Although this raises the possibility that certain types of people may have signed up to be a target as opposed to a judge it is important to note that the alternative option would likely have obtained similar biases in sample selection. Specifically, if target participants were first recruited and then judges on a separate participant recruitment phase this would likely entail the same self-selection criteria that may have occurred with any study. Given that target data is needed first so that the judges can rate target personality the present approach was deemed reasonable for present purposes and is acknowledged as a possible limitation in the discussion in terms of the generalisability of the sample.

shots of their profile. They then completed a self-report measure of personality. For those who selected to be a "judge", they were scheduled to participate at a later date (once target data had been collected). Judges were then randomly assigned to judging one anonymised target's Facebook information. Subsequently judges completed a personality inventory on their impression of the target whose profile information they had viewed.

2.1.2. Participants

A total of 50 participants were recruited using an opportunity sample from various locations in North-West England. Specifically, researchers recruited participants in lectures and seminars at Edge Hill University and on Social Networking Sites. This recruitment involved informing participants that the study was interested in online first impressions and asked people who were interested in participating to leave contact details with the researcher in addition to indicating whether they wanted to be a "target" or a "judge". As 25 participants requested to participate as a target, only 25 out of those who requested to be a judge were contacted and requested to participate at a specified date. This was to ensure that there was always one judge per target. Of these, 25 were targets, consisting nine males and 16 females, between the ages of 19 and 51 years ($M = 25.46$, $SD = 9.62$). The remaining 25 participants were judges, constituting eight males and 17 females ($M = 31.79$, $SD = 17.27$), between the ages 18 and 76 ($M = 32.39$, $SD = 17.41$).

2.2. Materials

2.2.1. Demographics

A questionnaire was used to gather demographical information. This included questions on participants' age, gender and ethnicity. Additionally, it asked two questions about Facebook activity. For example, 'how many years have you been using Facebook?' and 'how many friends do you have?'

2.2.2. Big 5 personality

The International Personality Item Pool Big 5 Factor Markers (Goldberg, 1992) questionnaire was used as a measure of personality, for targets' self-reports and judges' impressions of others. This includes five subscales of; extroversion, conscientiousness, openness to new experiences, agreeableness and neuroticism. The questionnaire entails 50 statements with ten questions measuring each trait. Participants are asked to indicate the extent to which they agree that the statement is characteristic of themselves (targets) or the anonymised target (judges), on a 7-point scale (1 = extremely inaccurate, 7 = extremely accurate). An example of a question asked for extroversion is "I am the life of the party". Reverse scoring was necessary on some questions for analysis of data. The alpha reliabilities for extroversion, agreeableness, conscientiousness, neuroticism and openness were .83, .80, .68, .69 and .75 respectively. The only difference between the target and judges' version of this questionnaire was the prefix of each

statement, in which it was changed from “I” to “This person”.

2.2.3. Facebook stimuli

The Facebook stimuli was gained through obtaining static screenshots from each participants' Facebook. These screen shots were saved on individual Microsoft Word (2013) documents and anonymised by covering over names, addresses, and any other identifying information using black coloured squares. These anonymised word documents were then saved as PDF files and allocated a random number to ensure that judges were randomly given a target's Facebook information to view.

3. Results

To assess accuracy, correlations were computed between targets' self-ratings and judges' rating of the target for each Big 5 trait (see Carlson, Furr, & Vazire, 2010 for similar analysis). As hypothesised, correlational analysis revealed a significant, moderate positive correlation between targets' self-ratings of openness with judges' ratings, $r = .44$, $p < .05$. Similarly, conscientiousness revealed a significant moderate positive correlation ($r = .42$, $p < .05$) as predicted. However, no significant correlations were found for extroversion ($r = -.31$, $p > .05$), agreeableness ($r = -.31$, $p > .05$), or neuroticism ($r = .13$, $p > .05$).

As participants self-selected as a judge or a target, additional analyses were performed to determine whether there were any significant differences between targets and judges in terms of age, $t(45) = 1.70$, $p > .05$, number of years using Facebook, $t(45) = 1.43$, $p > .05$, and gender and ethnicity (both t 's < 1). A difference was found in the number of friends, $t(45) = 2.67$, $p < .05$ with targets ($M = 664$, $SD = 350.79$) having more friends than judges ($M = 406$, $SD = 293.59$).

Given the possibility that targets and judges may be significantly different in terms of their personality it is imperative to examine whether the mean levels of traits differed between targets and judges. An additional series of independent t -tests were run to compare the differences between targets and judges for each trait. Analyses revealed that there were no significant differences for the traits of conscientiousness, neuroticism, and openness (all p 's $> .05$). However, significant differences were found between the interpersonal traits of extroversion, $t(45) = 3.58$, $p < .05$ and agreeableness, $t(45) = 4.22$, $p < .01$ whereby targets were more extrovert ($M = 49.04$, $SD = 9.87$) and agreeable ($M = 51.83$, $SD = 8.43$) than judges ($M_{\text{extroversion}} = .4050$, $SD = 2.46$; $M_{\text{agreeableness}} = 42.14$, $SD = 4.55$).

On the basis of these analyses it was important to determine whether the present findings of judgement accuracy for conscientiousness and openness were dependent on differences in personality between targets and judges. A series of partial correlations were performed between targets' self-ratings and judges' ratings of the target partialling out the judge's self-reported personality for the same trait. For example, for the trait of extroversion, targets self-reports were correlated with judges' ratings of the targets extroversion with the judges self-reported score for extroversion partialled out. This analysis was performed for all traits and revealed no change in the pattern of results previously obtained. Specifically, judgement accuracy for conscientiousness and openness were still significant when separately controlling for judges' self-reported level of conscientiousness, openness and extroversion, all $r_{\text{partial}} > .38$, $p < .05$.

4. Discussion

The aim of the current study was to extend research examining first impression accuracy that typically explores this issue in face-

to-face contexts. Previous research exploring face-to-face personality judgements suggests extroversion is the most accurately judged Big 5 personality trait (Borkenau et al., 2009). Given the rise in online SNS and practical implications of first impressions it is important to examine the accuracy of judgements in online contexts. In response to our first research enquiry, the present study found that openness and conscientiousness were the most accurately judged personality traits, which converges with previous research highlighting the “language-traits” to be the most easy to assess in online contexts (Vazire & Gosling, 2004; Wall et al., 2013).

Specifically, in support of previous research (Stopfer et al., 2014), the current study found openness was the most accurately judged trait from the online context Facebook and that conscientiousness was the second most accurately judged trait. These findings corroborate previous research examining online contexts and support the recent suggestions that these two traits may be expressed and perceived through aspects of a person's language (Back, Schmukle, & Egloff, 2008; Qiu, Lin, Ramsay, & Yang, 2012). In accordance with RAM (Funder, 1999), accurate judgements of these traits appear to relate to the availability and detection/utilisation of language based cues. Although useful, the results of this study are largely descriptive and the question of whether or not these types of cues were actually noticed and used by judges requires further exploration (see Study 2).

Moreover, these two traits are typically described as “less interpersonal” traits when compared to other Big 5 traits such as extroversion and agreeableness (see also Wall, Taylor, & Campbell, 2016). The present finding that the less interpersonal traits of openness and conscientiousness were rated more accurately in a context stripped of non-verbal behaviour needed for face-to-face interactions is interesting and compelling. It suggests that not only are we able to reveal aspects of these traits online but also that others are able to detect these types of traits. In support, our finding that extroversion and agreeableness, the two “interpersonal” traits (DeYoung, Weisberg, Quilty, & Peterson, 2013; McCrae & Costa, 1989) were not significantly rated supports this possibility and warrants further research to determine if this pattern of trait specific accuracy (i.e., interpersonal vs. less interpersonal traits) can be replicated in other online contexts (cf Vazire & Gosling, 2004). It is possible that the differential pattern of trait accuracy found online relates not just to the type of context and cues available as theorised in this paper, but also relates to judges' motivation or ‘need’ to judge certain traits (Funder, 1995; Wall et al., 2016). In support, previous research suggests that power and interaction orientation alters the way in which judges make inferences (Ames & Bianchi, 2008). Although speculative, it is possible that judges of the current study may not have been interested in cues for these interpersonal traits as the likelihood of directly meeting the target was low.

As for the remaining Big 5 traits, the current study found no evidence to suggest accurate judgements of the target could be made. In terms of neuroticism this supports previous research which suggests neuroticism is the least accurately judged trait, and most difficult trait to accurately judge in any context (Funder & Sneed, 1993; Gill & Oberlander, 2003; Kenny, 1994). Recent evidence has shown that Facebook is the least likely place individuals will express neurotic behaviours (Hirschmüller, Egloff, Schmukle, Nestler, & Back, 2015). In line with the above distinction between interpersonal and less interpersonal type traits online contexts appear to shape the expression and perception of personality. Although the present findings can usefully be interpreted through the lens of RAM a more direct investigation of how judgements are formed is warranted so that the actual behaviours judges appear to detect when assessing others can be examined and thus, formed the basis for Study 2.

5. Study 2: method

5.1. Participants

A total of 33 participants were recruited through a snowballing sampling approach, meaning the majority of participants were recruited through word of mouth. Participants were originally recruited through approaching students around campus who were then also asked to mention the study to anyone they think may be interested in participating, hence providing a wider network of individuals to participate. To ensure judges had never met the target before, the researcher asked each participant if they knew the target pictured in the Facebook stimuli (none did). The majority of the sample was from the North West of England; however three participants were currently located in the North East of England. All participants were of White British ethnicity, 13 participants were males, 20 participants were females all between the ages of 20 and 69 years ($M = 29.03$, $SD = 11.76$).

5.2. Procedure

Once ethical considerations had been undertaken, participants were asked to log in to their Facebook profile to permit the researcher to obtain a static screenshot of their information. These screenshots were subsequently saved as Word files for each individual participant, with identities being Anonymous. In most cases, each profile consisted of 10 pages of wall posts, an information about page (including descriptions of the individual such as relationship/occupational status), and five pages of photographs. However, this varied across participants. This therefore comprised the stimuli for exploring the cues used in forming judgements of others from their Facebook information.

Participants were asked to view the Facebook screenshots of an unknown target, and to provide a few statements regarding what judgements they had made about their impression of the targets' personality, and *how* they had made these judgements. Specifically, the measure obtained open-responses in which participants were asked to provide a general overview on what they may have noticed about the target individual, and the information they used to form any impressions they had made. Here participants were given more freedom in terms of what they wanted to write. This free response format enabled thematic analysis to occur so that any reoccurring themes/cues could be identified.

Braun and Clarke (2006) thematic analysis approach was utilised for data analysis, in that the data was repeatedly read by the researcher before analysis commenced. Themes were then identified by the researcher due to prominence and or frequency of reoccurring subject matters amongst the raw data. Sub themes were then categorised and defined into larger themes. Data was then double checked to ensure accuracy in coding, whilst extracts of texts and quotes were extracted in order to provide support for themes generated.

6. Results & discussion

A number of themes were found, which were then condensed into several cluster themes (See Braun & Clarke, 2006 for similar procedure). Of the six themes identified, these included; (1) vocabulary, (2) photographs, (3) online interactions, (4) relationships with others, (5) health status and (6) occupational status. These will be discussed in further detail below (see Fig. 2).

6.1. Vocabulary

One common cue used in forming judgements included the

accuracy of words and phrases which targets used. This included writing they posted on Facebook, including their spelling accuracy and evident range of vocabulary. In support of this theme, one participant stated that they noticed "Incorrect spelling e.g. 'are' not 'our' " (Participant 4), and another stated that the target "Uses big words on some posts" (Participant 7), likewise another stated they noticed "Misspelling/bad grammar-low vocab" (Participant 12). These quotes show that the judges looked at how accurately written online interactions were, including spelling accuracy and correct grammar, to judge the vocabulary of the target and possibly level of general intelligence. Hence a possible cue for judging intelligence appears to be the accuracy of English language skills. This therefore relates to trait accuracy as intelligence is associated with the trait openness (Costa & McCrae, 1992). For example, those who are considered high in openness are more likely to engage in learning, due to their nature of enjoying exposure to new ideas (Komarraju & Karau, 2005), thus when judging another on their evidenced range of vocabulary individuals may actually be measuring how open the target is.

6.2. Photographs

The most widely reported cue included photographs of the target, interestingly photographs appeared to be a cue for three of the big five traits, as demonstrated by the following quotes: "Pictures-more often than not in a large social group – most of which are of a nightclub drinking/socialising. Rarely on own" (Participant 1), this cue appears to have allowed the judge to make an inference on how extraverted the individual is as demonstrated by their comments on sociability of the target. Similarly, another participant made the assumption "looking at his pictures he seems to be a caring, family person due to having lots of pictures of his nieces and nephews" (Participant 14), as the judge has suggested here the person appears to be a caring individual due to their photographs, it is likely the judge had utilised photographs as a cue to form an impression of the targets levels of agreeableness. Additionally, it appears judges have utilised the cue photographs and made inferences on how conscientious the target is, as demonstrated in the following quote "Pictures of slacking and doodling in college" (Participant 4). Again here this quote implies the judge has assessed the targets levels of procrastination, an important aspect of conscientiousness (Costa & McCrae, 1992). It seems therefore that three of the big 5 personality traits have been attributed to targets in the current study simply by looking at pictures of them; including the traits extroversion, agreeableness and conscientiousness.

6.3. Online interactions

Online interactions included; making comments, posting statuses, general posts, interaction on the Facebook wall, gossiping, and chit-chat visible to all Facebook friends. Online interactions seem to have been cues detected for all of the big five personality traits, as demonstrated in the following quotes; "She seems fairly outgoing and chats online with friends a lot" (Participant 20), thus it appears here that the judge has detected a cue for trait extraversion, as demonstrated by their comment on how outgoing the target seems. Similarly, another participant judge stated "Meets deadlines "I will finish this essay if it kills me!" (Participant 6), here it appears the judge has commented on how organised and self-disciplined the target is, and consequently how conscientious they are. Again another trait that may have been inferred through online interactions is openness, as demonstrated by the following quote "The young lady on the profile appears to be very intelligent, talks about the books she has read and is at university" (Participant

11), here the judge appears to be drawing from the targets levels of intellectual inquisitiveness, and consequently levels of openness. Additionally, it appears as though agreeableness was also judged from online writing as demonstrated here “Seems to ask how people are on posts, not often however” (Participant 7), here the judges seems to be drawing on the content of the writing to infer how caring the target is, and also the frequency of how often the target asks about others to evaluate again how caring they are, thus it appears using these online interaction cues to make inferences on the target regarding their levels of agreeableness. Finally, neuroticism also appears to have been judged from online interactions the target has engaged in, as demonstrated by the following quote “highly sensitive/open—says openly how upset she is, seems easily offended (Participant 12). It seems what people say, and the context it is said is also used widely to form impressions of others. The writing shared in this online manner tends to be used by the judge to form impressions of all of the big five traits.

6.4. Relationships with others

Relationship with others included family, friends and pets. These interactions were also largely noted as cues used to form an impression, as demonstrated in the following quotes; “This person appears very friendly and outgoing and their family mean everything to them (Participant 15)”, whilst another participant noted “She has lots of friends that care about her” (Participant 17), similarly another participant concluded “She likes going out and spending time with friends and her partner” (Participant 11). Relationship with others was mentioned as a cue by the majority of participants. It appears that interactions with others may provide the judge with information about how likeable this person is, and also if they are caring towards others. Hence as perceived caring and kindness are facets of agreeableness (Costa & McCrae, 1992), judges were potentially using these cues of social relations, to form an insight into how agreeable the target is, suggesting judges utilise the apparent strength of targets connections and relationships with others, to infer agreeableness personality judgements.

6.5. Health status

Factors associated with health were also cues used by the judge to form personality impressions, including; if they keep fit/active and outdoors activities they engage. For example, one participant surmised “Likes to keep fit—pictures and statuses about running” (Participant 3), whilst another deduced “Seems to be a very outdoors person, that likes to keep fit, I could tell this as there was many pictures of him in what looked to be marathons” (Participant 22). Responses from participants suggest health cues to be particularly influential factors in judgement-making. The Big 5 trait extroversion reflects how outgoing, sociable and active a person is (Costa & McCrae, 1992), hence it is possible cues such as fitness status should not be underestimated here, as it appears these may have been detected by judges to help infer how extroverted the target is.

6.6. Occupational status

Occupational status formed a cue for judgements about the actual occupation of the target, which seemed to coincide with the targets perceived levels of qualifications and organisation skills. Example judgements included, “Is quite organised—has a job” (Participant 3), whilst another judge stated “about page says she's at uni” (Participant 5), similarly another judged stated “barmaid and at uni” (Participant 6). It therefore appears that judges used what current occupational status targets were in, and how

functional and work orientated they appear to be, in order to form personality judgements. Specifically, work orientated themes, in this case including actual occupation and organisational skills, are likely to be drawn upon when making inferences of the Big 5 trait conscientiousness.

7. General discussion

The present mixed methods study sought to examine *which traits* could be accurately judged online (Study 1) in addition to *how* such judgements were formed (Study 2). Study 1 revealed that the “less interpersonal” traits of conscientiousness and openness could be accurately rated but not the remaining traits of extroversion, agreeableness, and neuroticism. Study 2's exploration of individuals' conscious perceptions of the cues used via the platform of Facebook revealed the following cues: vocabulary (an indication for openness), and occupational status (an indication for conscientiousness), both of these themes contained all language based predictors for the traits openness and conscientiousness. For example, sub themes amongst the vocabulary theme included; spelling, and use of grammar, both of these sub themes are suggested to be predictors of intelligence, and as intelligence is a facet of openness (Costa & McCrae, 1992) it is suggested that an accurate judgement of openness was formed due to the way the judge detected these cues and then subsequently utilised them. It is important that future research replicates this finding to substantiate this claim. Similarly, sub themes amongst the occupational status theme included; organisation levels and procrastination levels, both of which were indicators for conscientiousness (Costa & McCrae, 1992). This concurs with previous research (Wall et al., 2013), which suggests language cues may be more prominent in online contexts, thus allowing accurate judgements of these traits to be formed. Importantly, this pattern of findings has an interesting implication and suggests certain cues may be more salient in online contexts. For example, it is highly possible that people attend to less interpersonal aspects of a person as the possibility of a future face-to-face encounter is minimal and thus instead, judges focus on the most salient aspects – language/content – which for the traits of openness and conscientiousness appeared to be detected and relevant cues for these two traits.

In regards to the “inaccurately” judged traits in Study 1 (neuroticism, agreeableness and extroversion); Neuroticism was not judged accurately but aspects relevant to the facets of this trait (e.g., anxiety) were mentioned. Therefore although trait relevant cues appear to have been present and detected in the form of linguistic behaviours, it is considered utilisation did not occur as no accurate trait judgement was formed. Thus inaccurate judgements may have occurred for a variety of reasons including; lack of motivation by the judge to make an accurate judgement for this trait (Christiansen, Wolcott-Burnam, Janovics, Burns, & Quirk, 2005), or perhaps a lack of understanding on the judges behalf that these cues reflect facets of neuroticism. Overall the finding that neuroticism was not accurately judged concurs with previous research (Back et al., 2010; Gosling et al., 2007), however the current study's findings extend the literature concerning neuroticism as a difficult trait to accurately judge (Kenny, 1994), as it appears cues were available but may not have been utilised.

In support of the above explanation a similar pattern was observed for the interpersonal traits of extroversion and agreeableness. Specifically, judges mentioned the presence of behavioural trait cues relevant for these traits such as “perceived sociability in photographs” but did not accurately judge these traits. Given that sociability is a facet of extroversion (Costa & McCrae, 1992) it appears that although judges detected this trait relevant information they did not utilise it correctly. Reasons for the lack of

accuracy in judging extroversion is worthy of further consideration. One potential explanation may be attributed to the amount of information available for judges in making judgements on extroversion. Namely, it is suggested that cue detection is reliant on there being a large amount of information from which to make trait judgements (Funder, 1999). Thus, the trait of extroversion is more likely to rely on higher quantities of information pertaining to amount of friendships and associated interactions (Moore & McElroy, 2012) compared to other traits which rely more on language-based cues. Therefore, the limitations in the amount of available information may have restricted judges' ability in cue detection for the trait of extroversion.

7.1. Limitations and future directions

A possible limitation is that self-presentation was not measured in this study. Given some of the debates surrounding whether or not people present a different self in different contexts it would be important to integrate this into future studies. In support, it is argued that the self-image presented on Facebook is controlled for so that it portrays a highly favourable self which for a variety of reasons has not been presented in real-world settings (Zhao, Grasmuch, & Martin, 2008). In contrast, alternative research suggests individuals do display their true self online (Back et al., 2010). An integration of self-presentation in future studies examining the issues presented here may lead into a whole new debate in which we can consider how personality about individuals may be accurate in online vs offline contexts along with a deeper appreciation of the underlying processes.

Although it could be argued that the sample size in study 1 is low and limits the generalisability of the findings it is important to note that the findings support a number of previous studies. Specifically, less visible traits such as openness and conscientiousness have been shown to be accurately judged online (Stopfer et al., 2014; Wall et al., 2013). Importantly study 2 helps to strengthen the conclusions drawn from study 1 in terms of the cues present and how they relate to the pattern of trait cues found. Indeed, a strength of study 2 is the sample size for a qualitative study; thus, when viewed together we believe these findings make a useful contribution to the literature and warrants further research attention and replication. However, although within this we acknowledge that the accuracy findings from Study 1 may not correspond directly to the additional insights of cues utilized for judgements in Study 2, we feel the two studies provide complementary insight into these two important lines of enquiry.

Importantly, both studies relied on self-report measures to collect data. Self-reports were utilised in the current study as they have several advantages, such as being a widely relied upon psychometric assessment of personality, and also being efficiently communicated and thus easy to administer (Paulhus & Vazire, 2007). However much research has debated the reliability and validity concerning the use of self-report questionnaires, especially when used in organisational settings (Morgeson et al., 2007; Ones, Dilchert, Viswesvaran, & Judge et al., 2007). The main issue with using self-report measures is they are considered susceptible to distortions. Future research should consider including the use of informant ratings in addition to self-reports (e.g., Connolly, Kavanagh, & Viswesvaran, 2007; Vazire, 2006; Vazire & Mehl, 2008). As the general pattern of findings converge with previous research and are in line with the thematic analysis of cues utilised in Study 2 we believe that the findings are encouraging and worthy of further investigation.

Another possible limitation stems from the sampling strategy in which targets and judges were self-allocated, which may have resulted in biases. Indeed, the additional analyses reported on

pages 10 and 11 support this possibility as targets had more online friends and were more extroverted and agreeable than judges. Critically, these findings did not appear to impact on accuracy for conscientiousness and openness in any way but it is important for future research to determine if the present findings can be replicated.

Finally, it is possible that age and/or gender differences may have contributed to present findings. The ratio of males to females was largely balanced across targets and judges which lessens this possibility but it is important for future research to examine the role of gender and age on online accuracy in a larger sample.

Taken together, the present findings can develop our theoretical understanding of how individuals form judgements in everyday life. Such research is important for elucidating the theoretical links between personality and person perception and has practical implications. Indeed, judgements made through Facebook may affect individuals' lives in substantial ways, affecting important choices individuals make, such as; friendships and relationships they choose to engage in, as well as chances of employment (Brown & Vaughn, 2011; Funder, 2012). Additionally, understanding the cues individuals use arguably has practical and real-world implications as it provides an insight into which cues individuals should put forth about themselves on Facebook. The results suggest that the context of Facebook permits some degree of accuracy, at least for the less interpersonal traits of conscientiousness and openness but that perhaps for the three remaining traits we should not "Judge a (Face)Book by its Cover".

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