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Like Me by My Profile: The Role of Types of Online Cues and Information Congruence on Online Impression Formation

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Abstract

With adolescents at the forefront of Information and Communication Technology (ICT) adoption, the researchers investigated the online cues that influence online impression formation. This is based on the premise that social cues contribute to the formation of people's impressions of others, and that these impressions in turn influence behavior. On the assumption that computer-mediated communication (CMC) is socially impoverished, it was hypothesized that, given limited exposure, trustworthiness impressions would be predominantly based on visual cues (i.e., photos) rather than verbal cues (i.e., statements). In addition, it was hypothesized that the type of online cues (visual, verbal, or mixed) and information congruence (congruent, incongruent) would influence trustworthiness impressions of an online target, which would in turn influence behavioral intentions to engage in future interactions. Participating in the investigation were one hundred forty-five (145) junior high school students. Except for the function of the type of online cues (visual, verbal, or mixed) on trustworthiness impressions, where no main effect was found, all study hypotheses were supported. Overall, the results are consistent with the lens model (Brunswik, 1956) which proposes that online cues correspond to a target's trait, and that observers use these online cues to form impressions of the target, as well as the warranting theory (Walther & Parks, 2002; Hall, Pennington, & Lueders, 2013) which proposes that observers assign warranting values to online cues, thereby creating a link between the online and offline self. Given the benefits and risks of ICT, the findings of this study have significant implications for understanding the psychological mechanisms that facilitate online behavior, particularly among young users.

Keywords

Online impression formation, Online cues, Information congruence

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Introduction

Computer-mediated communication (CMC) refers to all forms of human communication mediated by computers (Simpson, 2002). Two types of CMC exist: synchronous CMC, in which real-time interactions occur via the computer (e.g., video call and conferencing, chat, audio call), and asynchronous CMC, in which communicating parties do not need to be online at the same time (e.g., email, discussion forums, newsgroups, social media posts). The computer-aided and asynchronous nature of CMC has made it possible for this form of communication to overcome some of the commonly recognized barriers to communication, such as race, language, ideology, time, and geographical distance (e.g., Hiltz & Turnoff, 1978; Postmes et al., 1998). Despite this identified benefit of CMC, its capacity to convey social information is limited (Bordia, 1997; Culnan & Markus, 1987; Walther, 1996). Not only does computer-mediated communication take longer than face-to-face interaction, but the absence of metacommunicative features (e.g., facial expressions, body language, voice tone, etc.) forces communication partners to search for other cues in order to complete the communication process (Riva & Galimberti, 1998).

The socially impoverished nature of CMCs has prompted researchers to investigate adolescents' impression formation through online social cues. Seventy-five (75) percent of 15- to 24-year-olds use the internet, while only sixty-five (65) percent of the remainder of the population does (International Telecommunication Union, 2022). This increased use of CMC among youth, along with their increased interest in exploration, experimentation, and self-discovery (Arnett, 2000), frequently exposes them to elevated online risks (Asam & Katz, 2018; Livingstone & Helsper, 2007; Whittle et al., 2013). In addition, many studies on CMC (e.g., Hall, Pennington, and Lueders, 2013; Marcus, 2006; Pelled et al., 2017) emphasize impression formation about a target individual's personality traits without linking it to behavioral intention to engage in future interactions with other online users, especially strangers. This connection between online impression formation and offline behavior is a fascinating area of study with potentially significant practical implications. Moreover, given that Filipinos are the most prevalent social media users in the Asia-Pacific region (Statista Research Department, 2022), it would be worthwhile to investigate this phenomenon using a local sample of adolescents.

The researchers base this study on existing work in the field of social psychology, specifically research on person perception, which focuses on the mental processes that individuals use to form impressions of others. This includes not only how perceptions are formed but also the various conclusions drawn about other individuals based on these impressions (Brooks & Freeman, 2019).

The majority of research on impression formation focuses on its structure and content. For instance, Asch's (1946) seminal study posited that impressions are organized around personality trait themes. This was later supported by studies such as that of Hamilton, Katz, and Leirer (1980a, 1980b) wherein, when presented with a series of items describing the behaviors of a target, participants who were given impression formation instructions not only recalled more items compared to participants who were given memory task instructions, but also recalled items in a way that was clustered by traits (Hamilton & Carlston, 2013). Moreover, while impressions are formed based on various criteria depending on the perceiver's specific objectives, the most basic and frequently used criterion is that of self-interest—whether a target has a positive bearing on one's well-being or not (Wojciszke, 2005). Hence, impressions typically include morality assessments (i.e., honesty, trustworthiness, and kindness) based on the approach-avoidance motivation.

In spite of the fact that impression formation is an automatic and effortless process based on narrow slices of information, it is highly subjective. When making snap decisions about others, people rely on readily observable external characteristics (Wang, Moon, Kwon, Evans, & Stefanone, 2010). This includes physical cues such as facial characteristics, facial expressions, body language, and clothing, among others. Individuals may also take into account additional cognitive data (Duck, 1982), such as observable behaviors for which judgments are based on social roles and norms. When forming impressions of trustworthiness, for example, observers may consider physical cues such as a smiling face, eye contact, and a well-groomed overall appearance, as well as behaviors that demonstrate honesty, helpfulness, and dependability. While these cues are readily and directly observable in face-to-face interactions, they are inferred indirectly about online interaction partners based on information available in specific online environments. In social media (e.g., Facebook, Instagram), impressions of a target's trustworthiness can be formed based on his or her posts and comments, which can be in the form of photos, videos, or a combination of these.

Due to the fact that social cues contribute to the formation of people's impressions of others and that these impressions influence behavior, the researchers investigated how different types of online cues influence perceptions of an online target's trustworthiness. Tanis and Postmes (2003) referred to this process as "individuation," in which social cues provide a richer and nearly complete impression of an individual and, as a result, influence various social processes.

Brunswik's (1956) lens model provides a theoretical framework for understanding how social cues facilitate the formation of impressions. Due to its capacity to account for cues indicative of actors' personalities and cues used by strangers to form impressions, the lens model has acquired renewed prominence in person perception research (Gifford, 2006). The model proposed two crucial processes, namely cue validity and cue utilization, for

processing social cues. Encoding and decoding are the simplified terms used by Gifford (2006) for these processes.

An individual's personality (e.g., extraversion and social attractiveness) is manifested in non-verbal cues such as the number of Facebook friends (Tong et al., 2008) and the number of "likes" received from others during the encoding phase (Jensen et al., 2010; Pelled et al., 2017). During the decoding stage, observers assign meanings to social cues and form impressions of the target individual. Regarding the previous example, the observer's perceptions of extraversion and social attractiveness were based on the number of Facebook contacts and the number of "likes" received from others. Both the Brunswik and Gifford models included a third phase, which Brunswik referred to as achievement and Gifford as agreement. Despite differences in terminology, both models defined the third phase as the match between the target's personality and the observer's impression of that personality.

In line with this framework, the researchers aimed to investigate:

RQ 1. What cues are used as bases for making trustworthiness impressions of the online target?

In forming impressions of trustworthiness, visual cues are seen to be sufficient to make trait inferences even when individuals are exposed to visual stimuli for just less than 500 milliseconds (Willis & Todorov, 2006). Even a one-second glimpse is long enough for us to form an impression (Thoresen, Vuong, & Atkinson, 2012), and that visual cue can determine whether the impression is positive or negative (Milyavskaya, Reoch, Koestner, & Losier, 2010).

In a similar vein, a study by Tsankova (2013) supports the importance of visual cues in impression formation, namely the dominance of facial characteristics over environmental conditions and even the impression holder's personality. In contrast, Pelled and colleagues (2017) have a distinct perspective on the formation of online impressions, emphasizing the predominance of textual cues in impression formation. When overwhelming visual cues create a complex and ambiguous message, it is likely that verbal cues will dominate because they cannot be interpreted in multiple ways (Adaval, Isbell, & Wyer, 2007). This is especially true when verbal cues are brief, straightforward, and decisive (Howe, 1989).

In the present work, where participants are asked to form quick impressions of an unknown online target based on limited information, it is hypothesized that trustworthiness impressions will be primarily based on visual cues (i.e., photos) rather than verbal cues (i.e., statements), specifically in the condition where both cues exist (mixed cues condition).

While Brunswik's lens model provides a framework for comprehending how online social cues are used to form impressions of an online target, Hall and Pennington (2013)

questioned the lens model's applicability in CMCs. The lens model is appealing and practical for understanding the formation of online impressions due to its simplicity. However, the reliability of the numerous online cues available in CMCs can also be questioned. Basic examples include the veracity of textual cues (e.g., posts, comments), visual cues (e.g., images, videos), and the target's identity (i.e., profile).

This phenomenon can be explained by utilizing Stone's (1995) and Walther and Parks's (2002) warranting theory. A warrant is a piece of online information that establishes the perception of a connection between the online and offline selves (Walther & Parks, 2002). This theory implies that online users assign warranting value to online information, which determines whether a piece of information is reliable or trustworthy. Therefore, the warranting value refers to the "construct that reflects perceptions about the degree to which information is immune to manipulation by the source it describes" (DeAndrea, 2014, p. 187). As a result, information with a high warranting value is that which can be verified and is not perceived to be deceptive, as in the case of images over texts, as the former requires greater effort to alter than the latter. In contrast, information with low warranting value, such as contradictory information, is perceived as manipulated or deceptive.

Hence, in the present work, where photos, statements, and a mix of photos and statements (mixed cues condition) were used to facilitate trustworthiness impression formation, the researchers hypothesize that trustworthiness impressions will be more positive in the presence of visual cues alone than in the presence of verbal cues alone and visual and verbal cues combined (mixed cues condition). Furthermore, it is hypothesized that the presence of incongruent information with low warranting value will negatively influence perceptions of trustworthiness. Consequently, the researchers aimed to address the following research questions:

RQ 2. Is there a significant difference in the trustworthiness impressions formed across types of online cues (i.e., visual, verbal, and mixed cues)?

RQ 3. Is there a significant difference in the trustworthiness impressions formed across types of information congruence (i.e., congruent- all trustworthy information, and incongruent- trustworthy and untrustworthy information)?

A more recent conceptualization of the warranting theory by Hall, Pennington, and Lueders (2013) led to the formulation of the construct's three components: warrant credibility, the perceived value of a warrant, and warrant diagnosticity. The first component of a warrant resembles the original conception of the theory. In other words, "warrant credibility" refers to the observer's perception of the information's resistance to manipulation. The second component of a warrant, its perceived value, refers to the observer's reliance on particular cues to form impressions of the target (Walther et al., 2009). If warrant credibility is the

perceived veracity of online information, then perceived warrant value is merely the cues that perceivers use to evaluate the targets.

Based on this more recent conceptualization, warrant diagnosticity refers to the "actual predictive value of a warrant." For a warrant to be diagnostic, the authors hypothesized that (1) the target with the trait will use certain cues consistent with the trait, and (2) observers will estimate the trait using those cues. This conception of a diagnostic warrant is consistent with Brunswik's lens approach, as its first criterion corresponds to the encoding or cue validity phase and its second criterion corresponds to the decoding or cue utilization phase.

This integration of the lens approach and warranting theory is substantiated by empirical evidence. Hall, Pennington, and Lueders (2013), for instance, discovered that observers have nearly accurate estimates of the personalities of Facebook profile owners based on social cues on the aforementioned social media platform. Specifically, their study revealed a significant vector correlation between encoding and decoding for all 53 cues of extraversion (e.g., emoticon use, laughter use, pictures, number of friends, Facebook games played, etc.). Marcus and colleagues (2006) also discovered a correlation between the personality of German owners of personal websites and the content of their websites. The content of their websites could be used to form impressions of them that are nearly accurate. This extension of the framework has thus demonstrated the congruence between online social cues and the personality of the profile owner.

Given the evolutionary significance of accurately assessing another person's trustworthiness, these findings are noteworthy. Interaction with a reliable person can result in cooperation and, ultimately, survival. Conversely, interaction with an untrustworthy person can result in exploitation and deception. Given this, it is anticipated that perceptions of trustworthiness will influence behavior, specifically the decision to approach or avoid.

This connection between impressions and behavior has been thoroughly investigated. For one, Brambilla and colleagues (2011) discovered that individuals not only tended to select more morality information (i.e., honesty, trustworthiness) than competence and sociability information when forming impressions of an unknown person but also acted more cooperatively toward the moral target than the intelligent target (De Bruin & Van Lange, 1999). In group contexts, the perceived trustworthiness of an in-group member was viewed as a significant predictor of cooperation with other group members (Tyler and Blader, 2003). In a more recent study, Pagliaro and colleagues (2012) discovered that morality information, as opposed to competence information, not only determined an individual's initial affective responses to an unknown target but also their propensity to assist that individual.

In this regard, it is hypothesized in the present study that trustworthiness impressions of an online target will correlate with behavioral intent. Specifically, the more

positive the impressions of a target's trustworthiness, the higher the intention to engage in a future interaction. Thus, researchers investigated the following questions:

RQ 4. Is there a significant relationship between trustworthiness impressions and behavioral intention for future interactions, specifically in the:

RQ 4.1. online context?

RQ 4.2. offline (face-to-face) context?

The theoretical framework described in the aforementioned paragraphs is illustrated in the next figure.

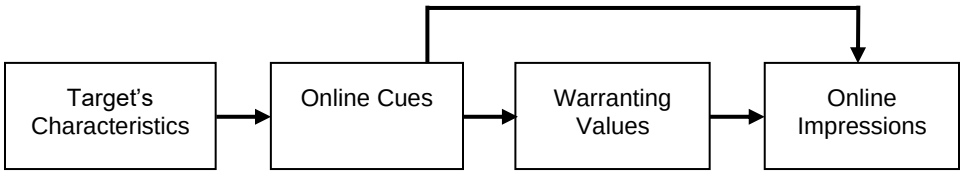

Figure 1 Illustration of the process of online impression formation from online cues. Online cues correspond to the target's personality. Observers processed these cues, thereby assigning warranting values that aid in the formation of online impressions.

Sources: Adapted from "Multi-layered lens depiction" by M. L. Jensen, T. O. Meservy, J. K. Burgoon, & J. F. Nunamaker Jr., 2010, *Group Decision and Negotiation, 19,* p. 373. Copyright 2010 by the Springer Science+Business Media B.V.

Given this theoretical framework, the objectives of the current study are illustrated in the conceptual framework below.

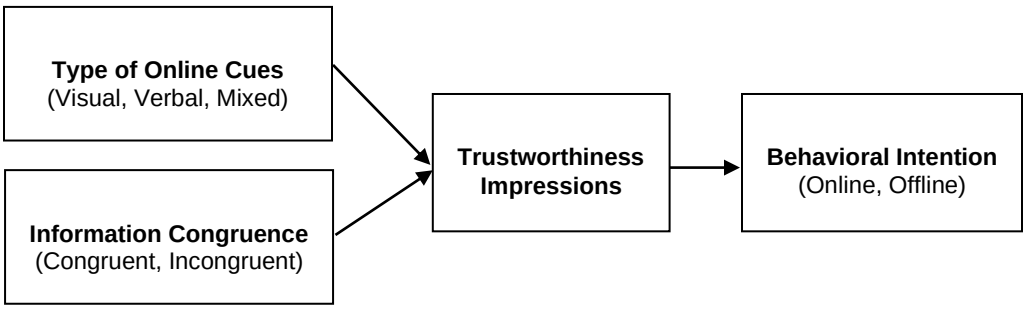

Figure 2 Conceptual framework

Methodology

Research Design

This study employed a 3x2 between-subjects design. The independent variables include: types of online cues (verbal, visual, mixed) and information congruence (congruent: trustworthy information, incongruent: trustworthy and untrustworthy information). The dependent variables include: trustworthiness impression and behavioral intention.

Research Participants

One hundred and forty-five (male = 57, female = 88) junior high school students at a university in Cebu City, Philippines took part in the study. Their ages ranged from 12 years old to 17 years old. Consent from parents/guardians was secured through the school administration. Once consent was secured, participants were invited to the laboratory for the actual study.

Inclusion criteria. The age range of the participants was between early and middle adolescence, which has been found to be the most susceptible to impression formation, particularly on the Internet (e.g., El Asam & Katz, 2018; Whittle et al., 2013). The distribution of gender was proportional to the actual population. The participants were matriculated during the academic year during which the data were collected. In addition, the selection of the university was based on its accessibility in light of the specific inclusion criteria, the sensitivity of the subject matter, and the experimental nature of the study.

Exclusion criteria. Students who were on official leave during the data collection period were excluded from the study. Additionally, only those students who completed the assent and consent forms were included in the experiment.

Research Materials

Conditions. Using a pre-tested set of statements and photos, six dummy social media pages (i.e., similar to Facebook) were created, reflecting the six conditions shown in Table 1. Three congruent information conditions included: (A) four statements describing trustworthy behavior, (B) four photos depicting trustworthy behavior, and (C) two photos depicting trustworthy behavior and two statements describing trustworthy behavior. On the other hand, three incongruent information conditions included: (D) two statements describing trustworthy behavior and two statements describing untrustworthy behavior, (E) two photos depicting trustworthy behavior and two photos depicting untrustworthy behavior, and (F) two photos depicting trustworthy behavior and two statements describing untrustworthy behavior.

Table 1 Experimental conditions

Conditions	Congruent information	Incongruent information
Verbal cues (statements)	A	D
Visual cues (photo)	B	E
Mixed	C	F

The experimental manipulations used in this study were patterned after social cognition studies (e.g., Winkielman & Nowak, 2022; Pelled et al., 2017; Tsankova & Kappas, 2015; Hall & Pennington, 2013).

Verbal cues. In a pre-survey, 32 junior high school students with the same characteristics as the target participants were asked to list at least five behaviors of 30-year-old individuals that they consider trustworthy and at least five untrustworthy behaviors as well. From this, the researchers used the ten most common answers for each. The 20 statements (10 trustworthy, 10 untrustworthy) were then pretested to another set of 71 junior high school students with the same characteristics as the target participants. They were asked to rate the statements in terms of trustworthiness using a 7-point bipolar scale.

Based on the results, the four most trustworthy statements, which had a score ranging from 5.76 to 5.59, were used. On the other hand, the two most untrustworthy statements had a score ranging from 2.27 to 2.56.

Table 2 Trustworthy statements and pre-test scores

Statement	Score
Play hard. Work hardest. #hardworkpays #theindustrious	5.59
A memorable day with my family #happinesswiththeFabFam #familyoriented	5.66
Thank you to those who helped me achieve this recognition. #blessed #employeeofthemonth	5.73
Trust strengthens the relationship. #givetrust #gaintrust	5.76

Table 3 Untrustworthy statements and pre-test scores

Statement	Score
Gross. Dirty. An eyesore. Yuck! #whereareetheirparents #societystrash	2.27
The thrill of not getting caught. #thelifeofathief #self-confessedkleptomaniac	2.56

Visual cues. From the results of the pre-test, photos of an online target depicting the scenarios based on the trustworthy/untrustworthy statements were created. To identify a male online target, front view, left-side view, and right-side view photos of seven male individuals were pre-tested in terms of trustworthiness, attractiveness, and masculinity through a 7-point bipolar scale to the 71 junior high school students with the same characteristics as the target participants. These male individuals were in their early 30s, which is representative of a typical Filipino social media user: 25-to 34-year-old males (Amurthalingam, 2022).

The individual who appeared to be the most neutral in terms of trustworthiness (3.99) and attractiveness (3.97) was chosen to be the model for the experiment. This individual also garnered the highest masculinity rating (5.58).

With the model, the photos with the following scenarios were created:

Table 4 Trustworthy scenarios

Scenario
The model is focusing on his laptop while doing his work at a café.
The model is enjoying a meal with his family.
The model is smiling and holding his “Employee of the Month” certificate.
The model is hugging his special someone.

Table 5 Untrustworthy scenarios

Scenario
The model is inside his vehicle, pointing at the mendicants outside with a disgusted face.
The model is inconspicuously placing an item in his pocket while at a convenience store.

Measures. The dependent variables were measured using the following scales:

Basis of Trustworthiness Impression. This was based on the responses to the open-ended question, “Thinking about the trustworthiness of the person in the profile, what was your basis for your earlier rating?”

Trustworthiness Impression. Impressions were measured through a scale that includes trustworthiness statements. The 10 statements were adapted from the Propensity to Trust Survey (Evans & Revelle, 2008). The statements related to ability, benevolence, and integrity, such as: “Listens to his conscience”, “Returns extra change when a cashier makes a mistake”, and “Believes that laws should be strictly enforced”. Responses were on a 7-point Likert scale (1 = “not at all likely”, 7 = “extremely likely”). A response of 0= “cannot say” was also made available. The scale had relatively high reliability (Cronbach alpha of 0.86).

Behavior Intention. This was measured through an anchored 7-point scale of the likelihood of future interaction with the online target (1 = “will not interact”, 7 = “will most likely interact”). Specifically, the two questions in this measure were: “If given the chance, how likely are you to interact or not interact (ONLINE) with the person in the profile in the future?” and “If given the chance, how likely are you to interact or not interact (OFFLINE/ IN PERSON) with the person in the profile in the future?”

Research Procedure

During the conduct of the experiment, each participant was randomly assigned to one of the six conditions and was led to a cubicle with a networked computer. They were then informed that the researchers were working on a new social media platform, and they would be given a few minutes to review it.

After three minutes, a link to an online questionnaire was provided. The first part of the questionnaire included a filler word search task, where the participants were tasked to list five (5) school-related words.

After the filler task, the next section asked the participants about their impression of the trustworthiness of the online target based on the profile. This part included 10 statements, and responses were on a 7-point Likert scale (1 = “not at all likely”, 7 = “extremely likely”). A response of “0- cannot say” was also made available. The participants were not allowed to go back and review the profile of the online target. They were then asked to assess the online target based on two characteristics: attractiveness (1 = "ugly", 4 = “neutral”, 7 = “attractive”) and masculinity (1 = “feminine”, 4 = “neutral”, 7 = “masculine”).

Afterward, the participants were asked about the basis of their impressions about the trustworthiness of the online target. They were also asked about the likelihood of them interacting with the online target in the future, both online and offline. The response was

on an anchored 7-point scale (1 = “will not interact”, 7 = “will most likely interact”). The final part of the questionnaire included participant information such as grade level, age, and sex. Once they were able to submit their answers, the researchers proceeded with the debriefing process and the distribution of refreshments and tokens.

Data Analysis

A thematic analysis was made to explore the qualitative data in terms of the categories of the bases of the participants’ trustworthiness impressions. Moreover, a two-way analysis of variance (ANOVA) was employed to identify any main effects of the type of online cues and information congruence on the trustworthiness impressions. Furthermore, a correlational analysis was done to examine the relationship between the trustworthiness impressions and the behavioral intention to engage in future interactions with the online target.

Results and Discussion

Basis of Trustworthiness Impressions

The first research objective of the current work was to look into the cues that are used as bases in forming trustworthiness impressions of an online target. This is in line with Brunswik’s Lens Model (1956) and Hall, Pennington, and Lueders’ (2013) most recent conceptualization of the warranting theory, which states that online social cues are reflective of the profile owner’s personality and that observers make meaning out of these cues, thereby developing impressions of the online target.

As shown in the table below, when participants were presented with both visual and verbal cues (Mixed Cues: Condition C and Condition F), 40.43% of the participants based their trustworthiness impressions of the online target mainly on visual cues alone (i.e., photos), 21.28% based their impressions on both visual and verbal cues (i.e., photos and statements), and 17.02% based their impressions mainly on verbal cues alone (i.e., statements). There was no observed difference in this pattern as a function of information congruence.

Table 6 Categories of the basis of impressions as a function of the type of online cues

Categories of Basis of Impressions	Mixed Cue Condition	
	f	%[a]
visual cues only[b] (i.e., photos)	19	40.43
visual & verbal cues (i.e., photos & statements)	10	21.28
verbal cues only (i.e., statements)	8	17.02
cannot tell	6	12.77
not specified	4	8.51
profile picture[c]	0	0.00
Total	47 [d]	100

Note: [a]Percentages within mixed cues condition

[b]Photos used in the visual cue manipulation other than the profile picture of the online target

[c]Profile picture of the online target used in the dummy social media platform

[d]Total number of participants in the mixed cues condition

With the limited cues provided by the dummy social media profile, it was discovered that participants relied more on visual cues than verbal cues to form their impressions. According to the responses of the participants, the contexts and behaviors depicted in the photos reflected the online target's trustworthiness. Specifically, the most frequently cited positive behaviors were those associated with being a competent employee and being family-oriented. Among their responses are:

> "*It's because of one of his pictures that showed he became an employee of the month. Most likely managers pick the Employee of the Month based on how hard they work and that they are trusted by the business*."
>
> "*I think he is quite easy to be trusted because he was the Employee of the Month.*"
>
> "*His pictures show that he is family-oriented."*

Other than positive behaviors, the physical appearance of the online target, specifically his posture and facial expression, was also mentioned to be reflective of trustworthiness. Some of their answers include:

"His physical appearance looks trustworthy because he is cheerful."

"His posts looked like he was very formal yet friendly."

"Through the way he presented himself with a good posture."

The results corroborate previous research demonstrating the greater importance of visual cues in making trait inferences, such as trustworthiness, and the positive or negative valence of such impressions (Tsankova, 2013; Thoresen, Vuong, & Atkinson, 2012; Milyavskaya, Reoch, Koestner, & Losier, 2010; Willis & Todorov, 2006). First, compared to statements, photos appeared to provide more information about the online target's behaviors (i.e., behaviors that are expected of a trustworthy individual, such as being a "good employee") and physical cues (i.e., how trustworthy individuals are expected to look, such as having a "cheerful expression"), from which trait impressions are inferred. Second, this reliance on visual cues, which are processed more quickly than verbal cues, may have also been facilitated by the participants' limited time to form impressions of the online target.

In contrast, the result is inconsistent with the textual primacy hypothesis of Pelled and colleagues (2017), according to which verbal cues would likely dominate when presented with contradictory visual cues or with complex, ambiguous messages because verbal cues cannot be interpreted in multiple ways. However, such instances are facilitated primarily when individuals are motivated to form accurate impressions, such as when they anticipate meeting the rated individual, in which case they are more likely to use individuated processing than schematic processing (Pelled et al., 2017). In contrast, there is no incentive for participants to form accurate impressions in the current study (i.e., they are not expected to interact with the online target in the future). Hence, participants relied primarily on visual cues (i.e., photos) rather than verbal cues (i.e., statements).

Existing studies in the domains of person perception and emotion recognition are also consistent with the specific reliance on facial indicators. One possible explanation for the dominance of facial cues is that deceptive cues are channeled through modes that individuals have little control over, such as facial micro-expressions (e.g., Ekman & Friesen, 1969). Alternatively, it could be through a more indirect route, as Tsankova and Kappas explain (2015). They focused predominantly on skin smoothness, which was manipulated as the presence or absence of skin blemishes, spots, and acne. Similarly, they discovered that when facial and vocal information were combined, the facial component had a significantly greater impact than the vocal component, not only on trustworthiness impressions but also

on competence, attractiveness, and health. They explained that it could be a result of a combination of factors in which smooth skin increases perceived attractiveness, which in turn signifies reliability (i.e., Halo Effect). This could be a possible explanation for this current study, albeit not directly measured, as the results show congruence of trustworthiness (M = 4.24) and attractiveness (M = 4.21) ratings.

Trustworthiness Impressions

The second set of research objectives of the current work includes finding significant main effects of the types of online cues and information congruence on trustworthiness impressions. A two-way analysis of variance (ANOVA) was employed for each of these research objectives.

A 3 (verbal vs. visual vs. mixed) x 2 (information congruent vs. information incongruent) ANOVA for trustworthiness impressions showed significant main effects only for information congruence ($F_{(1,139)} = 4.74$, $p = .031$, $\eta^2 = .033$). No significant interaction effects ($F_{(2,139)} = 1.85$, $p = .162$, $\eta^2 = .026$) were observed.

More than the type of online cues (i.e., photos, statements, or mixed), participants' trustworthiness impressions were influenced more by the congruence of available information. The table below shows that participants had significantly more positive trustworthiness impression ratings of the online target when they were presented with congruent information (i.e., all trustworthy cues) than when presented with incongruent information (i.e., mixed trustworthy and untrustworthy cues).

Table 7 Means, (Standard Deviations), and [95% Confidence Intervals] for trustworthiness impressions as a function of information congruence

	Information Congruence	
	Information Congruent	Information Incongruent
Trustworthiness impressions	4.52 (1.17)	3.91 (1.21)
	[4.28, 4.85]	[3.59, 4.17]

Note: Trustworthiness impression mean scores are from a 10-item, 7-point scale, where 1 as *"Not At All Likely"* and 7 as "*Extremely Likely".*

This finding is consistent with Walther and Park's (2002) and Hall, Pennington, and Lueders' (2013) conceptualization of the warranting theory, which states that observers assign warranting values to online cues. Specifically, cues with high warranting value are those that can be verified, while cues with low warranting value are

perceived to have been manipulated or are deceptive. The inconsistency among the different cues, regardless of whether they are visual cues only, verbal cues only, or mixed cues (i.e., visual and verbal), negatively affects their warranting value. And as a warrant creates a perceived link between the online and offline selves, the inconsistency among cues is perceived to be reflective of the target individual's traits and characteristics, thereby leading to a less positive trustworthiness impression.

This is further supported by the qualitative responses of participants in the incongruent information conditions (Condition D, Condition E, and Condition F). Some of their responses include:

> *"He has a girlfriend in the picture, but he put single in his bio."*
>
> *"He was awarded Employee of the Month. But he spoke of other people as society's trash."*
>
> *"My basis was that his profile stated that he is employed... and I thought he was trustworthy. But when I saw a picture of him in a convenience store where it looked like he was slipping something in this pocket, I began to think that he is not as trustworthy as I initially thought."*

The results are also supported by recent research, including that of Winkielman and Nowak (2022). Consistency of verbal description (i.e., coherent/incoherent noun-adjective word pairings) and visual displays (i.e., coherent/incoherent person-context photo pairings) uniquely predicted trust towards a target, regardless of whether trust was measured by a single Likert scale, multiple-item scale, or behavior (i.e., investment in a trust game). Their research indicates that when forming impressions of a person's trustworthiness, observers pay attention not only to individual cues but also to the internal consistency of those cues. Therefore, when individual cues match, the target is more trusted than when the fit between cues is poor (Winkielman & Nowak, 2022).

Trustworthiness Impressions and Behavioral Intention

The last major objective of the current work was to investigate the relationship between trustworthiness impressions and behavioral intentions, both online and offline (face-to-face). The next table summarizes the results of the correlational analyses of these factors.

Table 8 Correlations of trustworthiness impressions with types of behavioral intentions

	Online behavioral intentions	Offline behavioral intentions
Trustworthiness impressions	.249**	.261**

Note: **p<0.05, two-tailed; **p<0.01, two-tailed*

The participants' perceptions of the online target's trustworthiness were substantially and positively related to their intentions to engage in future online and offline (face-to-face) interactions with the online target. However, these correlations were relatively modest in terms of association strength. Nonetheless, this result is consistent with prior research regarding the relationship between impressions and behavior. Those who perceived the target to be trustworthy were more likely to have intentions to engage in future interactions with the target. Those who perceived the target to be less trustworthy, on the other hand, were less likely to have intentions to interact with the target in the future. This also lends credence to the evolutionary imperative that has led humans to be sensitive to signals of trustworthiness among individuals and to the manner in which this sensitivity guides an approach or avoidance behavioral response, particularly towards strangers.

Overall, the results of this study are coherent with the integration of the lens model and the warranting theory. Characteristics of online users—in this case, the trustworthiness of the online target—were manifested in various online cues. This corresponds to the cue validity (encoding) phase of the lens model. Consequently, observers—in this case, the participants—used the cues to form impressions of the online target's traits. This corresponds to the cue utilization (decoding) phase of the lens model. Specifically, visual cues were more prominent compared to verbal cues as they provided more information (i.e., behaviors and physical cues) regarding the online target. More importantly, the congruence of available information, regardless of type (i.e., photos, statements, mixed), provided information in determining the warranting values of the cues. Consistent with the warranting theory, this perceived warrant value was influential in the trustworthiness impressions formed of the online target, which, in turn, influenced their intentions to interact with the target in the future.

More notably, these findings have both theoretical and practical implications. For one, this could add to the limited local Filipino literature on online impression formation, specifically in adolescents using an experimental design. This investigation is timely and relevant in this day and age where information and communication technology

(ICT) and the internet have infiltrated every aspect of people's lives. However, while benefits abound, undeniably, so do risks.

The internet and social media platforms allow for tremendous freedom to share and consume information, with very little room for control over the accuracy of such information. Additionally, young online users are exposed to different types of individuals with just a simple click or scroll on one's social media page. The developing prefrontal cortex and executive function abilities of adolescents, along with their growing curiosity and desire for independence at this age, make them especially susceptible to the risks associated with online activities (i.e., sexual exploitation, grooming, and fraud).

Based on the results of this study, it appears that young social media users are discerning of inconsistencies in the information they are presented with, despite their very limited exposure. As it negatively affects the trustworthiness impressions formed, it can further guide young users to take a more cautious approach toward the online target. As shown in numerous studies, first impressions are mostly accurate estimates of a target individual's traits and characteristics. Hence, responding appropriately based on these impressions can spell the difference between whether an interaction leads to a positive or negative experience.

Conclusion

As the online environment, to which most people are now very much exposed, offers a unique experience (i.e., asynchronicity, accessibility, anonymity), basic social processes as they occur online merit closer examination, as there may be similarities and differences in the underlying mechanisms that enable them. Online impression formation appears to be based on and inferred from factors similar to impression formation in face-to-face interactions—behavioral expectations based on social norms and roles, as well as physical cues—as reflected more prominently in online visual cues (i.e., photos). More importantly, online impression formation appears to be influenced by the congruence of available information.

If the goal of online users is to create positive impressions in shorter time frames, then congruency and the use of visual cues may be facilitative of such a goal. This is evident in how online users make sense of their profiles and make an effort to maintain consistency in their online consumption behaviors (e.g., posting a comment or a photo). From the point of view of the observer, this consistency makes it easier to organize online information and, as a result, to form impressions of the target. After all, we tend to like individuals who seem to exude certain forms of internal consistency.

Inconsistencies, on the other hand, may be perceived as a form of deception and may imply ill intent. In the online world, which affords users enormous freedom to produce and consume content, recognizing these inconsistencies is crucial to ensuring that our online

activities result in positive experiences, given the likelihood of a variety of serious negative outcomes (e.g., sexual exploitation, grooming, and fraud). This is especially important today when individuals are exposed to online content at a very young age without the assurance of adequate supervision from adults.

Even though the scope of this study is limited to impression formation, it can serve as a stepping stone toward a deeper understanding of online behaviors and the underlying psychological mechanisms that facilitate them. As research on online behavior progresses, all relevant sectors, including parents, educators, development workers, and policymakers, can be guided to ensure a safe online and offline environment for everyone, especially young people.

Limitations

The scope of the current work is restricted to a single public high school in Cebu City, Philippines. The homogenous sample poses a problem in terms of the unique characteristics of the participants. A more heterogeneous sample addresses this problem and increases the generalizability of the results.

In terms of experimental manipulations, it is evident that the ratings of participants' trustworthiness indicate a neutral evaluation of the online target. The ratings for neutral impressions have been consistent and traceable to the conducted pre-test. Consequently, the use of other online target models rated on both ends of the trustworthiness scale (i.e., trustworthy and untrustworthy) and representative of both sexes (male and female) are potential experimental manipulations for future research. In addition, displaying a participant's profile picture as the first online visual cue for encoding may serve as an additional cue and influence the experiment's results. This cue's removal may enhance the salience of the intended online cues and the consistency of the manipulations. Additionally, information incongruence manipulations can be counterbalanced to eliminate the primacy and recency effects (e.g., by presenting untrustworthy visual cues and trustworthy verbal cues).

Motivation is another important factor that can be considered. This can be done to determine if there is a difference in the impression's accuracy and clarity. An intriguing manipulation of motivation is to relate it to behavioral intention, such as the likelihood (i.e., less or more likely) of meeting an online target. Given that real-world online interactions are typically accompanied by numerous distractions and stimulations, cognitive load is also an interesting factor to investigate.

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