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How do first impressions affect perceived approachability?

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Research Methodology and Analysis Report

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Abstract

This essay explores the impact of first impressions on perceived approachability in social interactions, considering factors like facial expressions, attire, and vocal cues. It establishes approachability as the dependent variable influenced by first impressions, measured by voice cues, facial expressions, attire, and non-verbal cues, while controlling for age, gender, race, height, and personality traits. In the literature review, we examine two key studies, focusing on face-based and voice-based impressions in a Chinese sample and rapid threat judgments based on facial appearance. The essay underscores the importance of non-verbal cues on first impressions and approachability. To understand the relationship, we use a survey questionnaire to gather insights into how the first impression affects perceptions. Data collection involves Qualtrics surveys and non-probability sampling, with analysis using ANOVA and Regression analysis. The essay contributes valuable insights into the complexities of how initial judgments influence perceived approachability, aiming to enhance comprehension and guide future research in this field.

Introduction

First impressions play a pivotal role in shaping our perceptions of others, particularly in terms of approachability. Approachability, or the perception of whether someone is open, friendly, and easy to approach, is a crucial aspect of human interaction. It directly influences how we engage with people, form relationships, and navigate social situations. (*MindTools / Home*, n.d.) Understanding the significance of approachability and how first impressions affect it is essential in both personal and professional contexts.

Approachability is a fundamental aspect of human interaction, greatly dependent on individual facial expressions and tone of voice. When meeting someone for the first time, these non-verbal cues play a crucial role in forming a first impression (Miles, 2009). For instance, when a person smiles warmly, it can signal friendliness and open-mindedness, making them appear more approachable (BA, 2022). In contrast, someone with a stern or impassive facial expression may convey aloofness or disinterest, potentially discouraging interaction. Similarly, the tone of voice, including factors like pitch, speed, and the way it sounds, can communicate emotions and attitudes that significantly influence how approachable a person seems (Miles, 2009). A friendly, melodic tone is likely to invite conversation, whereas a monotone or harsh tone can have the opposite effect. Therefore, it is important to be mindful of variations in facial expressions and tone of voice, as they set the tone for a first impression and have a lasting impact on how others perceive us in terms of approachability. Within the field of social psychology, first impressions pertain to the preliminary assessments and conclusions that people make about others during their early interactions (Jiang et al., 2023). Humans are incredibly good at forming

fairly accurate first impressions, even after very brief and infrequent interactions with other people, according to research in the subject.

This study aims to explore and gain insights into the impact of first impressions, encompassing aspects of appearance and voice, on the formation of judgments that subsequently affect an individual's perceived approachability. It aims to disentangle the manner in which these impressions shape our judgments and, in turn, influence how we perceive an individual's approachability.

Literature Review

In this literature review, we will first examine studies that delve into the factors influencing the creation of first impressions. These studies include investigations into the role of verbal-nonverbal consistency in initial judgements, as well as examination of how face-voice gender consistency impacts the evaluation of impressions. Moreover, we will explore research such as Comparison of face-based and voice-based first impressions and Very First Impressions. Subsequently, we will transition into the factors that impact first impressions. It will delve into the complexity of misleading first impressions, particularly when assessing various facial images of the same individuals. We will also discuss research that approaches facial first impressions from an alternative angle. This dual perspective will provide a comprehensive understanding of what shapes and influences the intricate world of initial perceptions.

Studies about Comparison of Face-based and Voice-based First Impression and Very First Impressions

Understanding how individuals form first impressions is a complex and multifaceted area of research, delving into the interplay between facial and vocal cues. A recent study conducted

by Jiang et al. (2023), investigates the dynamics of making snap decisions based on auditory and facial clues, providing light on the complexity and subtleties that lie beyond these initial perceptions. The study started by contrasting the personality traits and adjectives used to describe people based on their voice and facial expressions, identifying significant differences in the frequency and content of these descriptions. Then, using face signals, vocal cues, or a combination of both, the researchers created word lists for the evaluation of initial impressions. The face and voice material acquisition task involved 106 Chinese students in the first study, while the face-free description or voice-free description task involved 200 participants. In the second research, 1,040 patients in a larger cohort were evaluated. It is important to note, nevertheless, that the study's use of the "free-description" approach may cast doubt on its validity because it creates differences in the way participants describe people based on voice and facial clues. However, the paper backs up its assertions with empirical data for studies pertaining to sensory signals and initial impressions. (Jiang et al., 2023b).

Bar, Neta, and Linz's (2006) study "Very First Impressions" aims to dissect how quickly first impressions are formed, with a focus on how threat assessments are made based on facial features. It looks into how quickly people form first impressions, focusing on how people judge threats from face features. People can generate persistent perceptions of threat in extremely short times—as low as 39 milliseconds—according to the results of Experiment 1. Experiment 2 investigated the depth of perceptual awareness at these quick evaluations in more detail. The findings showed that even in these incredibly brief 39-millisecond presentations, participants were able to identify some information, indicating that the creation of impressions requires some awareness at least. The function of spatial frequencies in influencing these quick assessments of hazard was examined in Experiment 3. This experiment suggested that characteristics linked to

threat are mainly conveyed at low spatial frequencies. Finally, experiment 4 provided strong evidence in favor of the theory that suggests low spatial frequencies play a key role in the quick generation of threat impressions. The use of experiments and quantitative data bolsters the credibility of the findings, making this article a valuable resource for understanding rapid impressions formation in the domain of facial perception (Bär et al., 2006).

Studies about the effect of Verbal-Nonverbal (face-voice) Consistency in first impressions

One of the articles conducted by Weisbuch et al. (2010), published in the *Basic and Applied Social Psychology* journal, explores the impact of verbal-nonverbal consistency on first impressions. It seeks to understand whether individuals are perceived as more likable when their verbal and nonverbal behaviors align and, conversely, whether inconsistency leads to negative impressions. To gather data, the research conducted two distinct studies. The first involved 40 participants engaged in interpersonal interactions, with judges evaluating them based on emotional expressions and interpersonal concerns. The second study involved 49 medical students during clinical evaluations, with likability and concern ratings being measured. In both studies, observations of both verbal and nonverbal behaviors were collected, and judges provided likability or concern ratings. In both cases, judges assessed participants using transcripts of verbal communication and silent video clips, thereby measuring behavioral coherence through video recordings of their interactions. The research method can be subjective because it primarily relies on observational and subjective judgments. The data are collected through video recording in various settings, and ratings are subject to individual interpretation and potential bias, which can introduce subjectivity into the analysis. The results of both studies consistently indicate that people are perceived as more likable when their verbal and nonverbal behaviors align. Conversely, greater inconsistency between verbal and nonverbal behaviors led to negative

impressions, underscoring that inconsistency is correlated with reduced likeability. (Weisbuch et al., 2010)

Similarly, another article by Wen et al.(2023 investigates the impact of face-voice gender consistency on impression evaluation in social interactions. It explores the intriguing interplay between facial and voice cues, focusing on gender categorization, warmth and competence in impression formation during the evaluation of individuals. Data for this research was gathered through three distinct studies involving a total of 379 participants, who engaged in tasks related to gender categorization and impression evaluation. The study manipulated gender consistency by employing face and voice stimulus materials to assess its impact on participants' responses. The dataset includes reaction times, participant gender, and impressions of warmth and competence. The first study employed a cross-modal priming paradigm to explore the influence of face-voice gender consistency on gender categorization, using repeated-measure ANOVA. The second study used a sequential presentation task where participants viewed faces followed by voices, to evaluate the impact of gender consistency on warmth and competence evaluations. The third study utilized a simultaneous presentation task to investigate the effect of gender consistency on warmth and competence evaluations across different presentation conditions, while also assessing the priority of gender information from face and voice. The findings indicate that face-voice gender consistency led to faster gender categorization and influenced warmth and competence trait evaluations. Male participants displayed higher intolerance of face-voice gender inconsistency in sequential presentations, and females showed a stronger preference for the idea that a person's voice should match their face in simultaneous presentations. (Wen et al., 2023)

Both studies by Weisbuch et al. (2010) and Wen et al. (2023) emphasize the significance of verbal-nonverbal behavioral coherence in social perception and highlight the impact of gender consistency in aligning facial and vocal cues on impression formation during social interactions.

Studies about Misleading First Impressions and How social judgements are influenced by changeable and invariant facial properties

An examination of the current literature reveals that facial perception is a complex, multidimensional process influenced by numerous factors and plays a significant role in making social judgments. (Todorov & Porter, 2014) However, it is crucial to acknowledge the limitations and complexities associated with attributing personality solely based on facial images. (Todorov & Porter, 2014) The choice of facial images is a key variable influencing social judgments. Research has demonstrated that different pictures of the same individual can lead to diverse character attributions, highlighting the impact of image selection on perception. Furthermore, the context in which these images are presented also matters, as image preferences and evaluations are context-specific, emphasizing the need to consider the context when interpreting social judgments from facial images. (Sutherland et al., 2016)

The literature also emphasizes the real-world implications of image selection bias, particularly in contexts like online dating or political campaigns where first impressions play a crucial role (Sutherland et al., 2016). Importantly, studies reveal that biases can form rapidly after short-term exposure to facial images, underscoring the speed at which facial perception occurs and the significance of first impressions even with limited information. Previous research in this field consistently demonstrates the importance of facial cues, particularly emotional expressions and viewpoints, in shaping initial social impressions (Todorov and Porter, 2014).

Emotional expressions, spanning happiness to anger, significantly influence trustworthiness, dominance, and attractiveness judgments, as they are associated with intentions, approachability, and mate suitability. (Todorov & Porter, 2014)

The orientation of the face, also known as the viewpoint, further complicates social impressions as it interacts with emotional expressions to modify judgments (Sutherland et al., 2016). The significance of a viewpoint varies depending on the specific judgment being made. Several recurring themes emerge from these studies, including the primacy of emotional expression, the interaction between viewpoint and expression, the complexity of social judgments, and the adaptive nature of these judgments. While there is a consensus regarding the importance of emotional expressions in shaping social impressions (Todorov and Porter, 2014), some studies offer varying perspectives on the strength and direction of certain effects. The interaction between viewpoint and expression, particularly in the context of dominance judgments, remains a subject of debate, highlighting the complexity of the issue and the need for further research. (Sutherland et al., 2016)

Current research suggests the need to build comprehensive models of social impressions, considering the intricate relationships between facial cues and social judgments. Researchers are exploring various approaches, from controlled image databases to real-life context variations. In summary, facial cues, especially emotional expressions and viewpoints, significantly impact initial social impressions. Researchers continue to investigate the complex interactions between these cues and the specific consequences of trustworthiness, dominance, and attractiveness judgments. Future research aims to provide a more nuanced understanding of the processes involved in this multifaceted social phenomenon. (Todorov & Porter, 2014)

Research Question

This research seeks to answer the question, “How do first impressions affect perceived approachability?”

Theoretical Framework

Dependent Variable

- Approachability: It is the focal point of the study. This perception influences how individuals engage with one another, form connections, establish relationships, and navigate various social and professional situations.

Independent Variable

- First Impressions: It serves as the key independent variable. The rapid judgments and perceptions individuals form upon initial contact are pivotal in influencing approachability. There are four measures: Verbal Cues (tone, pitch, and speaking style), Facial features, body language (postures, facial expression, and gestures), attire (how individual dress affect the image gives to others)

Control variables

Cultural background: The cultural context of participants could impact their perceptions of approachability and responses to various cues.

Environmental settings: The surroundings in which interactions take place may influence participants' impressions and judgments.

Demographic variables: Participant demographics, such as age, gender, or socioeconomic status, might play a role in shaping perceptions.

Hypothesis

H0: First impressions have no significant effect on approachability

HA: First impressions have significant effect on approachability

Study Design

Aspects of facial expressions and tone of voice variations are used in forming first impressions that determine approachability perception. The research question guiding this investigation is concisely stated as follows: "How do first impressions affect perceived approachability?" Two hypotheses support this exploration: the null hypothesis (H0) proposes that first impressions have no significant effect on approachability, while the alternative hypothesis (HA) suggests that first impressions do indeed have a significant effect on approachability.

The data collection process will focus on obtaining cross-sectional data. Cross-sectional data, gathered at a single point in time, aims to capture a snapshot of the relationship dynamics between first impression, and perceived approachability.

Surveys and questionnaires will serve as the primary tools for data collection. Participants will engage with a series of carefully designed questions and sets of facial images, each featuring distinct combinations of facial expressions and vocal cues. By presenting participants with

diverse scenarios, the study aims to simulate real-world situations where individuals form initial judgments based on non-verbal cues. The surveys and questionnaires will prompt participants to articulate their perceptions of approachability in response to these inputs, allowing for a detailed exploration of how variations in facial expressions and tone of voice contribute to first impressions. The collected data will undergo thorough analysis, particularly focusing on quantitative aspects derived from rating systems in surveys. To choose the most suitable analysis methods, we will consider the type of data and research questions. We intend to use various statistical techniques, such as one-way ANOVA, alongside regression analysis, to measure the significance of the observed effects. ANOVA will also prove valuable in exploring the significance of observed variations in our research questions, particularly when means are compared, or the effects of different conditions are assessed. This analytical process, inclusive of regression analysis, will provide a rigorous examination of the quantitative aspects, significantly enhancing the study's ability to draw meaningful conclusions regarding the impact of first impression on perceived approachability.

Population and Sample

The population under study comprises adults actively engaging in diverse social interactions, where their initial impressions are shaped by verbal and nonverbal cues, including facial expressions and attire. The sample for this study is carefully selected and consists of 300 individuals.

In the process of selecting these 300 participants, a thoughtful and representative sampling strategy has been employed. Two methods of non-probability sampling were utilized. The first method, convenience sampling, was employed to select participants who were readily

available and willing to participate in our surveys and questionnaires (McCombes, 2023). While convenient, it's important to note that this method may introduce some bias due to the self-selection of participants.

To mitigate this bias and enhance the diversity of experiences, the second method employed is snowball sampling. This method proves effective in capturing individuals with relevant experiences similar to the focus of our research study. Through this method, initial participants are identified and then asked to refer or recommend other potential participants (McCombes, 2023). This chain referral process not only expands the participant pool but also brings in individuals with varied perspectives and experiences.

While the sample size of 300 individuals may provide a substantial dataset for analysis, it's essential to acknowledge that the distribution method, specifically the use of non-probability sampling through convenience and snowball sampling, may introduce certain limitations to the generalizability of the findings. Convenience sampling, while efficient, raises concerns about potential selection bias since participants are chosen based on their availability and willingness to participate. Similarly, snowball sampling, while effective in capturing individuals with relevant experiences, relies on referrals and recommendations, potentially leading to a sample that is not fully representative of the broader population.

Given these considerations, it's important to interpret the findings with caution, recognizing that the sample might not be fully representative of the entire population engaging in diverse social interactions. The results may offer valuable insights into the specific experiences of those included in the study, but caution should be exercised when extending these conclusions to a wider demographic. Future research with a more extensive and diverse sample could

enhance the external validity of the findings and provide a more comprehensive understanding of the intricate dynamics explored in this study.

Variables and Measures

This research investigates the intricate relationships between various factors, including facial expressions, tone of voice, body language, attire, and ethnicity, and their collective influence on perceived approachability. The main focus of the study is on approachability, which represents individuals' perceptions of openness, friendliness, and ease of approach. The key independent variable, first impressions, captures the rapid judgments and perceptions formed during initial contact, playing an essential role in shaping approachability (Miles, 2009). Verbal cues encompass auditory qualities such as tone, pitch, and speaking style, significantly contributing to the formation of first impression. Facial features serve as an additional measure influencing perceived approachability (Jiang et al., 2023). Body language comprises postures, facial expressions, and gestures, remaining essential in forming first impression and subsequently impacting how approachable someone appears. Attire, representing clothing choices, is also considered a significant factor in forming a first impression and plays a substantial role in the rapid assessment of individuals. Additionally, demographic variables, including ethnicity, are implicitly regarded as control variables, accounting for potential influences on the variables of interest.

The complex relationships among variables, including first impressions, verbal cues, facial features, body language, attire, and ethnicity, collectively contribute to shaping the perception of approachability in this study. The research aims to explore and gain insights into

how variations in these factors contribute to the formation of judgments, ultimately influencing an individual's perceived approachability. To measure approachability and the independent variables, the study employs surveys or questionnaires. Participants are encouraged to express their perceptions through questionnaires and images designed to manipulate the variables under investigation. Quantitative data will undergo statistical analysis, employing methods, such as one-way ANOVA and regression analysis, to determine the significance of observed effects.

Data Collection Methods

Any research project depends on the careful planning and execution of data collection techniques. In this study, we aim to investigate how differences in speech and facial expression patterns affect the way in which initial impressions are formed and, in turn, how approachability is evaluated. We have employed a comprehensive strategy that includes non-probability sampling techniques in order to obtain the required insights; our research focuses on nominal data.

Non-Probability Sampling:

When it comes to non-probability sampling, we have purposefully used two techniques:

Convenience Sampling: We spread the survey link among friends and family by utilizing our immediate network's accessibility. This approach not only makes gathering data easier, but it also helps respondents feel more at ease and acquainted. (Nikolopoulou, 2023)

Snowball Sampling: Our respondents will be urged to forward the survey link to their friends who fit the study's eligibility requirements, in recognition of the possibility for

increased participant involvement. This natural growth, like a snowball going downhill, offers a larger and more varied response pool.

Taking advantage of the widespread availability of the internet, we conducted our survey virtually through the Qualtrics platform. The survey is easily accessible and can be completed at participants' convenience, ensuring a geographically diversified pool of respondents. Moreover, the data collection period spans from October to November 2023. This timeframe strikes a balance by providing participants with ample time for thoughtful responses. The Qualtrics platform facilitates the non-probability sampling methods, which puts our study in a position to produce complex and perceptive results. This helps ensure a diverse and representative sample, obtaining unbiased responses and allowing inferences about the broader population based on the collected data.

Data Analysis Methods

Analysis of Variance (ANOVA)

A statistical technique called Analysis of Variance (ANOVA) is essential for analyzing group differences in a dataset. It is especially helpful for examining the effects of several independent factors on a dependent variable, which is a situation that comes up frequently in a variety of research projects. ANOVA is a strong analytical tool that is particularly useful in the context of our study, which examines the subtleties of initial impressions and perceived approachability, for a number of reasons. (Kenton, 2023)

In our research, we consider several independent variables, including attire, voice cues, and facial expressions. When multiple independent variables exist across different groups,

ANOVA proves effective, allowing us to investigate how these variables among groups influence the dependent variable—perceived approachability.

One-way ANOVA serves as our methodology to assess if differences exist between genders concerning perceived approachability, encompassing several independent measures such as clothing, non-verbal and verbal cues, and facial features. This statistical tool enables a comprehensive analysis of how these factors influence perceived approachability, crucial given the multiple levels within each independent variable. This effectiveness is essential for unraveling the complex network of relationships between various aspects of human perception. The choice to use ANOVA was supported by its exceptional capacity to manage the intricacy of our study design. In addition to examining any interactions between the factors, our study aims to comprehend the effects of each one separately. The capacity of ANOVA to examine complicated interactions is well suited to the complex nature of human perception and the multivariate variables under investigation. (Kenton, 2023)

Regression Analysis

Regression analysis is a statistical tool that aids with the relationships between independent variables and perceived approachability. Regression Analysis allows us to understand how individual factors contribute to the overall perception of approachability.

Regression analysis aids in identifying which independent variables significantly contribute to the variability in the dependent variable. Moreover, regression analysis provides metrics such as R-squared which assess the overall fit of the model which informs us the proportion of the variability in perceived approachability that can be explained by the selected independent variables. It also facilitates predictive modeling by assessing the influence of multiple independent variables on the dependent variable. Relating to our study, this means

exploring how variables such as clothing, voice cues and facial expressions predict variations in perceived approachability. (*Regression Analysis: The Ultimate Guide - Qualtrics, 2023*)

Another methodology we employ involves using regression analysis to determine potential differences among various independent variables regarding perceived approachability. This analysis incorporates independent measures from various aspects, such as facial features, verbal and nonverbal cues, and clothing choices. By utilizing this statistical approach, our aim is to establish a relationship between the dependent variable (approachability) and the primary independent variable, which encompasses first impressions formed by attire, verbal and non-verbal cues, and facial features, alongside other variables like age, gender, and race.

Our regression equation, $Y = \alpha + \beta x_1 + \beta x_2 + \beta x_3 + \beta x_4 + \beta x_5 + \beta x_6 + \beta x_7 + \varepsilon$, where Y is a dependent variable, X is an independent variable and ε is an error. Also known as the following:
 $Y(\text{Approachability}) = \text{intercept} + \beta(\text{facial features}) + \beta(\text{nonverbal cues}) + \beta(\text{verbal cues}) + \beta(\text{attire}) + \beta(\text{gender}) + \beta(\text{age}) + \beta(\text{race}) + \text{standard error}$

After running the regression analysis based on our data survey, in Figure 2, we can ascertain whether any independent variables significantly influence the dependent variable. This determination relies on several factors: the adjusted R-square in the summary results, the P-value of each variable, and the size of the coefficient associated with each variable.

Conclusion

In concluding our research on the impact of facial expressions and tone of voice on perceived approachability, it is evident that first impressions play a pivotal role in shaping interpersonal perceptions. The study explored the intricate dynamics of initial judgments, considering factors such as verbal and nonverbal cues, clothing choices, and facial expressions. Despite yielding valuable insights, certain limitations warrant acknowledgment. The study's

modest sample size, drawn from convenience and snowball sampling, raises questions about the generalizability of findings to a more diverse population.

Considering the limited sample size obtained through convenience and snowball sampling methods, concerns arise regarding the generalizability of the study findings to a more diverse population. Despite efforts to control variables, participant responses may have been less accurate due to the impact of uncontrollable external factors and the possibility of self-reporting bias. In addition, there is a contextual constraint that the virtual survey environment might not adequately represent the intricacies of in-person interactions. It's possible that seasonal or temporal differences in perceptions are not fully accounted for by the data collection period, which was limited to October and November. Furthermore, because the study only looked at initial impressions, it left up the possibility of further research into long-term impacts and how views change over time. Despite these limitations, the findings underscore the significance of first impressions in shaping approachability perceptions. The Analysis of Variance (ANOVA), such as the one-way ANOVA results, indicates significant differences among groups, highlighting the impact of clothing, facial features, and verbal and nonverbal cues on approachability judgments between genders. Furthermore, the results of the regression analysis indicate that the four measures - facial features, verbal and non-verbal cues, and attire, signify the formation of the first impression, serving as key independent variables. These findings suggest an expected and significant impact on perceived approachability.

In moving forward, addressing these limitations and expanding the scope of research to include a more diverse and extensive participant pool could enhance the robustness and applicability of future studies in this domain. The study lays the groundwork for continued

exploration into the nuanced world of human perception, paving the way for a more comprehensive understanding of the factors influencing our social interactions.

Appendix

Anova: Single Factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Outfit	2	10	5	0
facial feature	2	17	8.5	12.5
non-verbal cue	2	2	1	0
verbal cue	2	1	0.5	0.5

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	84.5	3	28.1666667	8.66666667	0.03181269	6.59138212
Within Groups	13	4	3.25			
Total	97.5	7				

Figure 1 - ANOVA Test

The figure above (Figure 1) illustrates the outcome of the Analysis of Variance (ANOVA) conducted to assess differences between groups. The obtained p-value of 0.0318 indicates a statistically significant difference among the independent variables: attire, facial features, verbal, and nonverbal cues. This significant p-value from the ANOVA suggests the four measures of first impression have different impact of approachability.. In our study context, it signifies significant impacts of first impressions on approachability among these groups. With a significance level of 0.0318, falling below the 5% threshold, it is highly likely that a significant difference exists in individuals' perceptions upon first-time meetings, considering both male and female genders.

SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.974831904							
R Square	0.950297241							
Adjusted R Square	0.936380468							
Standard Error	2.438939572							
Observations	33							
ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	7	2843.289344	406.184192	68.28431184	1.0361E-14			
Residual	25	148.7106559	5.948426235					
Total	32	2992						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.571683025	0.974077481	0.58689687	0.562536016	-1.434467101	2.57783315	-1.434467101	2.57783315
Non Verbal	10.85348669	1.237429441	8.7709944	4.21792E-09	8.304953056	13.40202033	8.304953056	13.40202033
Facial Features	2.031389743	0.103916483	19.54829187	1.15838E-16	1.81736974	2.245409747	1.81736974	2.245409747
Outfit	1.871719122	0.148273461	12.62342642	2.40695E-12	1.566344213	2.177094031	1.566344213	2.177094031
Verbal	8.321640178	2.691788666	3.091490904	0.004841475	2.777797644	13.86548271	2.777797644	13.86548271
Gender	0.20350349	0.31096331	0.654429265	0.518811076	-0.436937435	0.843944416	-0.436937435	0.843944416
Age	0.276669199	0.147388533	1.877141961	0.072215946	-0.026883166	0.580221565	-0.026883166	0.580221565
Race	-1.930278634	2.540722832	-0.759736013	0.454517511	-7.162995259	3.30243799	-7.162995259	3.30243799

Figure 2 - Regression analysis

The Adjusted R-Square in Figure 2 shows a very high goodness-of-fit, with an R-Square of 0.936 signifying that 94% of the observations could be explained by the estimated model. This implies that 94% of the differences in approachability have been accounted for by the independent variables in the model, including facial features, verbal and non-verbal cues, attire, gender, age, and race. However, examining the P-values of each independent variable is crucial. If the P-value for a variable exceeds 0.05, that particular variable does not significantly impact the dependent variable, and the variables that do not significantly impact are gender, age and race. Therefore, the only “statistically significant” variables are facial features, verbal and non-verbal cues, and attire - forming our key independent variable, the first impression. Hence, with these significant predictor variables identified, the size of their coefficients reflects the magnitude

of their impact on the variable. This confirms that all four variables - facial features, verbal and non-verbal cues, and attire, have a substantial and expected impact on perceived approachability.

Y 2.0 survey

We have developed an extensive survey as part of our investigation into the dynamics of first impressions and their relationship to perceived approachability. Participants will be asked to provide their opinions on the several aspects that affect approachability, with a focus on clothing, voice cues, and facial expressions.

Q1. Gender

- (1) Male
- (2) Female

Q2. First thing you notice about a person?

- (1) Facial features (Nose, eyes, smile, etc.)
- (2) Outfit (how they put themselves together, tidy / messy)
- (3) Verbal cues (Tone of their voice, pitch, attitude)
- (4) Non-verbal cues (Body language)

Q3 What makes someone approachable?

- (1) Gender (female / male)
- (2) Race (Chinese / Malay / Indian, etc.)
- (3) Physical features (Appearance / Height / etc.)
- (4) Age (Similar age)

Q4. Based on the picture, who is more approachable?



Figure 3 - "Misleading First Impressions: Different for Different Facial Images of the Same"

- (1) Option 1
- (2) Option 2

Display This Question:

If Q4 = Option 1

Q5. Why Option 1? Rank in order ; from top (1) preference to lowest (3)

- (1) Appearance (Facial features)
- (2) Well-groomed
- (3) Friendliness

Display This Question:

If Q4 = Option 2

Q5. Why Option 2? Rank in order ; from top (1) preference to lowest (3)

- (1) Appearance (Facial features)
- (2) Well-groomed
- (3) Friendliness

Q6. What factors in vocal cues determine approachability to you?

- (1) Tone (Nice / Rude)
- (2) Accent (Foreign / Local Accent)
- (3) Volume (Soft / Loud)
- (4) Speed (Fast / Slow)

Q7. What is the first thing you notice when someone talks to you?

- (1) Tone (Nice / Rude)
- (2) Accent (Foreign / Local)
- (3) Volume (Soft / Loud)
- (4) Speed (Slow / Fast)

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