

The Effects of Salesperson Visual and Audio Cue Combinations Online on Customer "Motivation and Ability to Process" for Attitude Change

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Abstract

Although digital-based business communication has developed since the pandemic, there are not enough studies on salespeople persuasion online. Based on the *Elaboration Likelihood Model*, the framework of persuasion, this study examined the effects of salesperson visual and audio cue combinations on customer "motivation to process" and "ability to process" when using an online tool. Six combination videos of a salesperson are composed of three kinds of still images (*Name*, *Profile photo with no expression*, and *Profile photo with a smile*), and two kinds of voices (*Dull* and *Bright*). First, 107 participants as customers were divided into two groups (uninterested and interested) based on their interest in the topic. After watching each video, motivation and ability to process messages (comprehensibility) were evaluated on a 7-point Likert scale. The multiple comparison analysis showed that for uninterested customers, "*Name x dull voice*" in particular hinders motivation and comprehensibility more than other combinations. For interested customers, "*Profile photo with a smile x bright voice*" in particular facilitated motivation and comprehensibility more than other combinations. It is suggested that more attention should be directed by salespeople to visual and audio cue combinations to strengthen their persuasion skills. This study contributes to online business communication strategies.

Keywords: Elaboration Likelihood Model, Motivation and Ability to process, Nonverbal cue combinations, Online Business Communication

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1 Introduction

The digital environment for business communication continues to innovate and evolve, but there is still much that is not academically clear about the effectiveness of salespeople's online communication [1]. In particular, persuasion strategies, which are essential for

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business communication, remain much to be understood in the digital environment, despite the abundance of research in traditional face-to-face settings [2][3]. Since the Covid-19 pandemic occurred, as salespeople have more opportunities to use their online tools for business communication, it is urgent to solve this issue. [4] Certainly, Zoom and Team are convenient, but many people turn off their cameras and use still images of names and photos as visual cues when speaking due to the state of the connection and the environment they are in [4]. It is said that the unintentional use of nonverbal cues in online tools, which do not exist in face-to-face communication, widens the communication gap between face-to-face and online [5]. While in online business communications, the camera is often on, we must also consider camera-off situations, which are not uncommon due to company and /or people's preferences, and for unexpected situations such as unstable internet connections [4].

The *Elaboration Likelihood Model* (ELM), one of the well-known persuasion frameworks in marketing, is claimed to apply to a variety of sources, messages, and contexts and describes the goal as an attitude change in the recipient [6][7]. In other words, "persuasion" in ELM means "attitude change" of recipients. ELM research has also been conducted in online communication [8][9], and more findings are needed due to its scope and complexity [4]. In this study, we focus on the first stage of the process to change the recipients' attitude in ELM: the "motivation to process" and the second stage: "ability to process"[6][7], to examine the impact of nonverbal cues when a salesperson makes proposals or transactions to a customer using online tools. There are two reasons for focusing on "motivation to process" and "ability to process". The first is because both are said to have significant impacts on customer attitude change [6][10]. The second reason is that many studies verify each of them respectively, and there are not many studies that examine them simultaneously [11]. In this article, considering the ELM flow, we would also like to focus on the change of effect when moving from "motivation" to "ability" in information processing in a stepwise manner. This is because it is the next key to attitude change.

Some previous studies regarding "motivation to process" online have examined it from the aspect of the visual effect. For example, in marketing through websites and social networking sites, word-of-mouth with visual features influences customers' motivation to process [9]. It is also clear that website design and creativity help customers form impressions and influence their motivation for attitude changes [12][13]. These, however, do not address human visual cues. With the development of the sharing economy, regarding human faces, it has been suggested that information about the owner's face presented on the Airbnb website can influence the renter's motivation to apply [14], but unlike our study, it is limited to the effect of visual cues only. There is also research on the impact of speech pitch, volume, intonation, etc., on motivation to process for persuasion, but those are limited to audio cues [15][16].

The definition of "ability to process" is more complex than "motivation", but in this study, *message comprehensibility* is adopted from among the ELM components. [6][7] Based on the ELM, more details are given in the following sections. Regarding comprehensibility in marketing communications, it has been shown that strategies such as emphasis on the most important words and distinctive prosody by the sender increase the recipient's comprehension of the message. At the same time, unnatural accents decrease comprehension [17][18]. However, these studies are only the effect of audio cues. In the previous studies, little has been mentioned impacts of nonverbal cue combinations on message comprehension. Since message comprehension depends on logical structure and understandable words [19], studies have mostly focused on text and design rather than human nonverbal cues [20][21].

Regarding the combination of nonverbal cues, each of the visual and audio channels is said to produce verbal and nonverbal cues, that lead to the recipients' emotional evaluation and behavioral outcomes [22][23]. Many researchers have studied individual cues, but the visual and audio cue combinations should be approached thoughtfully since nonverbal cues are seldom used individually in actual communication [4][23]. It was found that visual and audio cue combinations influence salesperson credibility in Zoom [24]. As credibility is one of the essential elements as a source characteristic in ELM, the effects of combinations on other elements in ELM should also be examined.

From the above, the novelty of this study is to experimentally clarify the effects of salesperson visual and audio cue combinations on customer "motivation to process" and "ability to process" based on the ELM when using online tools. This study is critical to the persuasion strategy of online business communication.

In the following, Section 2 explains the previous research. Section 3 describes the research procedure, and Section 4 states the evaluation results, including the analysis. Section 5 is the discussion, and in Section 6, the conclusion of this study and the direction of future work is stated.

2 Literature Review

2.1 Overview of Elaboration Likelihood Model

Figure 1 shows the *Elaboration Likelihood Model* for persuasion [6][7]. This model was introduced to the academic field by Petty and Cacioppo in the 1980s and has been developed to study customer attitude change, especially in marketing communications [25]. A key concept to understanding this model is the elaboration continuum. Elaboration is defined as the recipient's thoughtful consideration of the message and related information [6][7]. Depending on the degree of the elaboration continuum, different routes toward persuasion are said to be taken. Thus, the basic assumption of ELM is that, depending on the degree of the components of the elaboration continuum, the receiver's process is guided via two routes, the central route and the peripheral route, to attitude change. In the central route, the recipients decide whether to change their attitudes after carefully considering the content. The central route has four main stages of process senders' messages: "motivation to process", "ability to process", "Nature of cognitive process", and "Cognitive structure change". In the peripheral route, recipients decide whether to change their attitudes based on simple cues. According to this model, at each stage of processing in the central route, there is a "yes" or "no" split by the recognition of the recipients, and in the case of "no", moving toward the peripheral route. On the other hand, some of the subsequent studies have claimed that the two routes are not exclusive but interact as they make the process[25].

2.2 The Features of "motivation to process" and "ability to process" in the ELM

As the ELM indicates, the recipients' "motivation to process" and "ability to process" belong to the central route. Since the degree of elaboration will be high or low depending on those processes [6][10], these two processes are thought to play an important role in what route is taken [25]. In other words, when "motivation to process" and "ability to process" are high, recipients tend to consider thoughtfully and follow the central route to attitude change.

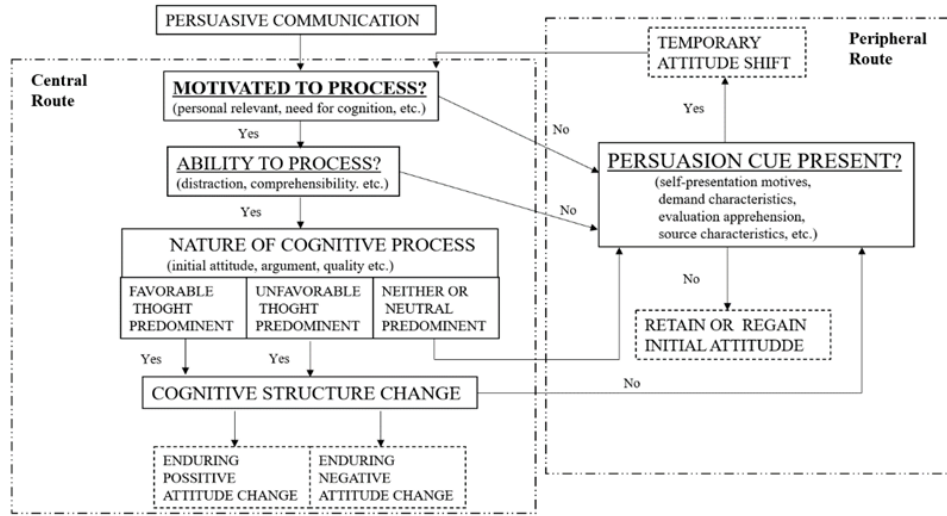


Figure 1: Elaboration Likelihood Model (Petty, R.E. et al. 1986, p.4 [6])

Conversely, when those are low, they tend to go the peripheral route to get simple cues. However, the factors that affect those processes are recognized to be very varied. The first stage, "motivation to process" is said to be affected by whether or not the senders' message has personal relevance, involvement, the need for recognition, and so on. Then, the second stage, "ability to process" is said to be affected by message comprehensibility, distraction, and so on. As mentioned earlier, this study will focus on the factor of "message comprehensibility" among many other factors. This is because we believe that it is a crucial point of view of whether a customer can understand a salesperson's proposal in business.

3 Research Procedure

The following are three main parts of procedures; *Preparation of materials*, *Implementation*, and *Analysis*.

3.1 Preparation of Materials

The presentation situation is that each male and female salesperson of an electronics retail store gives a presentation about a *Three-month product monitor* to a customer who meets them for the first time via PC. Besides the script, one PowerPoint slide is prepared to clarify. Then, each male and female salesperson gives two-minute presentations with Zoom using a PC camera. One is a presentation with facial expressions, and the other has no facial expressions. They are recorded as original presentations.

Next, we make presentation videos with six combinations of visual and audio cues on Zoom. Three kinds of still images are "Name", "Profile photo with no expression", and "Profile photo with a smile". Two kinds of voices as audio cues are extracted from the original videos recorded. Then, they are combined with the three kinds of still images, resulting in




Cues		Pattern of combinations		
Visual		Name	Profile photo with no expression	Profile photo with a smile
				
Voice	Dull	No.1	No.3	No.5
	Bright	No.2	No.4	No.6

Figure 2: Six patterns of combinations of visual and audio cues

six combinations. The two kinds of voices are expressed as “Dull” and “Bright” in this experiment because participants would eventually answer questionnaires about their impression of the voices. The six combinations of materials are the following: No.1 *Name x dull voice*, No.2 *Name x bright voice*, No.3 *Profile photo with no expression x dull voice*, No.4 *Profile photo with no expression x bright voice*, No.5 *Profile photo with a smile x dull voice*, and No.6 *Profile photo with a smile x bright voice*. To investigate the influence of the combinations of visual and audio cues exclusively, the timing and length of slide viewing and the overall presentation length of all combinations are edited to be the same.

A question about the customer's interest in the topic by reading the outline of the salesperson's proposal is set before watching combination videos. The scale is presented as 1= “not interested,” and 2= “interested” to make two groups based on their initial interests. There is concern that the two groups based on interest in the topic will not have the same number of participants. However, that reflects the actual situation. The first question is about “motivation to process”, that is “When the presenter started talking, did you want to know more about this topic?”. The second question is about “ability to process”. That is “Could you understand the proposal?”. Based on the Likert scale, a 7-level scale presented: 1= “strongly disagree,” 2= “disagree,” 3= “somewhat disagree,” 4= “neutral,” 5= “somewhat agree,” 6= “agree,” and 7= “strongly agree.”

3.2 Implementation

There are 107 participants: 52 participants for one female salesperson and 55 for one male salesperson. All participants were divided into eight groups to watch different orders of each salesperson's presentation to avoid the order effect. Before watching the videos, participants read only the proposal outline and answered the questionnaire about whether they were interested in the topic. Then, each participant watched the first presentation, answered the questionnaire, and so on until the sixth presentation. No mention was made to the participants that the experiment was about the influences of the combination of visual and audio cues.

3.3 Analysis

We analyzed all data with IBM SPSS 29. Two groups are set based on their interests in the topic: the uninterested group ($n=48$) and the interested group ($n=59$). Questionnaire scores were allocated from “1” to “7” points, from low to high respectively. First, we analyzed the data about “motivation to process”, and then analyzed the data about the “ability to process”. In each factor, since ANOVA showed a significant main effect for both groups, the Tukey-Kramer test was conducted subsequently. To avoid multiple comparison errors,

Holm's method was used to modify the group in which the significant difference was stronger in each factor. As a result, for the factor of "motivation to process", the statistical significance level is less than 0.05 ($p < 0.05$) for the uninterested group and less than 0.003 ($p < 0.003$) for the interested group. For the factor of "ability to process", the statistical significance level is less than 0.05 ($p < 0.05$) for the interested group and less than 0.003 ($p < 0.003$) for the uninterested group.

4 Evaluation Results

The following tables of results exclude duplicate parts from multiple comparisons.

4.1 Results of "motivation to process"

4.1.1 Uninterested group ($n=48$)

As Table 1 indicates, "Name x dull voice" ($M=2.63$) had the lowest mean value and significant differences ($p < 0.05$) with the other four combinations: "Name x bright voice" ($M=3.86$ / The effect size: Cohen's $d=0.80$, large), "Profile photo with no expression x bright voice" ($M=4.10/d=1.12$, large), "Profile photo with a smile x dull voice" ($M=3.52/d=0.76$, large), and "Profile photo with a smile x bright voice" ($M=4.15/d=1.12$, large). Further, the combination of "Profile photo with no expression x dull voice" ($M=3.06$) indicated significant differences with combinations, which are "Photo with no expression x bright voice" ($M=4.10/d=0.76$, large) and "Profile photo with a smile x bright voice" ($M=4.15/d=0.76$, large).

4.1.2 Interested group ($n=59$)

As Table 2 indicates, "Name x dull voice" ($M=2.58$) had the lowest mean value, and that indicated significant differences ($p < 0.003$) with the other three combinations: "Name x bright voice" ($M=4.05/d=0.64$, medium), "Profile photo with no expression x bright voice" ($M=3.93/d=0.56$, medium), and "Profile photo with a smile x bright voice" ($M=4.58/d=0.94$, large). Further, "Profile photo with no expression x dull voice" ($M=2.92$) had significant differences with "Name x bright voice" ($M=4.05/d=0.42$, small), "Profile photo with no expression x bright voice" ($M=3.93/d=0.41$, small), and "Profile photo with a smile x bright voice" ($M=4.58/d=0.82$, large). Finally, "Profile photo with a smile x dull voice" ($M=3.27$) showed significant differences with "Profile photo with a smile x bright voice" ($M=4.58/d=0.56$, medium).

4.2 Results of "ability to process"

4.2.1 Uninterested group ($n=48$)

As Table 3 indicates, "Name x dull voice" ($M=4.19$) had the lowest mean value and significant differences ($p < 0.003$) with two combinations: "Profile photo with no expression x bright voice" ($M=5.21/d=0.75$, large) and "Profile photo with a smile x bright voice" ($M=5.19/d=0.72$, large).

4.2.2 Interested group (n=59)

As Table 4 indicates, the highest mean value of "ability to process" is "Profile photo with a smile x bright voice" (M=5.05) and it showed significant differences ($p < 0.05$) with the other two combinations: "Name x dull voice" (M=4.12/ $d = 0.58$, medium) and "Profile photo with no expression x dull voice" (M=4.03/ $d = 0.73$, large).

Table 1: Results of "motivation to process" (Uninterested group/ significant differences only)

Tukey HSD		* $p < 0.05$					
Combinations of visual x audio		Difference in average	Standard error	p value	95% Confidence		Effect size
					lower	upper	d
Name x dull voice	Name x bright voice	-1.229	0.286	0.000*	-2.05	-0.41	0.80
	Profile photo with no expression x bright voice	-1.479	0.286	0.000*	-2.30	-0.66	1.12
	Profile photo with a smile x dull voice	-0.896	0.286	0.024*	-1.72	-0.07	0.76
	Profile photo with a smile x bright voice	-1.521	0.286	0.000*	-2.34	-0.70	1.12
Profile photo with no expression x dull voice	Profile photo with no expression x bright voice	-1.042	0.286	0.004*	-1.86	-0.22	0.76
	Profile photo with a smile x bright voice	-1.083	0.286	0.003*	-1.90	-0.26	0.76

d: Cohen's d (Small:0.2, Medium:0.5, Large:0.8)

Table 2: Results of "motivation to process" (Interested group/ significant differences only)

Tukey HSD (modified by Holm's)		* $p < 0.003$					
Combinations of visual x audio		Difference in average	Standard error	p value	95% Confidence		Effect size
					lower	upper	d
Name x dull voice	Name x bright voice	-1.475	0.265	0.000*	-2.46	-0.48	0.64
	Profile photo with no expression x bright voice	-1.356	0.265	0.000*	-2.35	-0.37	0.56
	Profile photo with a smile x bright voice	-2.000	0.265	0.000*	-2.99	-1.01	0.94
Profile photo with no expression x dull voice	Name x bright voice	-0.151	0.265	0.000*	-0.15	-2.13	0.42
	Profile photo with no expression x bright voice	-1.017	0.265	0.002*	-2.01	-0.03	0.41
	Profile photo with a smile x bright voice	-1.681	0.265	0.000*	-2.65	-0.67	0.82
Profile photo with a smile x dull voice	Profile photo with a smile x bright voice	-1.305	0.265	0.000*	-2.29	-0.32	0.56

d: Cohen's d (Small:0.2, Medium:0.5, Large:0.8)

Table 3: Results of "ability to process" (Uninterested group/significant differences only)

Tukey HSD (modified by Holm's)		* $p < 0.003$					
Combinations of visual x audio		Difference in average	Standard error	p value	95% Confidence		Effect size
					lower	upper	d
Name x dull voice	Profile photo with no expression x bright voice	-1.021	0.250	0.001*	-1.96	-0.08	0.75
	Profile photo with a smile x bright voice	-1.000	0.250	0.001*	-1.94	-0.06	0.72

d: Cohen's d (Small:0.2, Medium:0.5, Large:0.8)

Table 4: Results of "ability to process" (Interested group/significant differences only)

Tukey HSD		* $p < 0.05$					
Combinations of visual x audio		Difference in average	Standard error	p value	95% Confidence		Effect size
					lower	upper	d
Profile photo with a smile x bright voice	Name x dull voice	-0.932	0.275	0.010*	-1.72	-0.15	0.58
	Profile photo with no facial expression x dull voice	-1.017	0.275	0.003*	-1.80	-0.23	0.73

d: Cohen's d (Small:0.2, Medium:0.5, Large:0.8)

5 Discussion

5.1 Characteristics of the Result of "motivation to process"

Figure 3 shows significant differences in "motivation to process" of the uninterested and interested groups, respectively. For the uninterested group, it is clear that "*Name x dull voice*" and "*Profile photo with no expression x dull voice*" have a lower mean value than others, which is also significantly different from other combinations. "*Name x dull voice*" and "*Profile photo with a smile x dull voice*", suggest that a smiling photo can increase the customer's motivation even with a dull voice. Moreover, in the case of a profile photo with no facial expression, it was confirmed that a bright voice can increase customer motivation. Hence, the results suggest that visual and audio cue combinations are influential. On the other hand, the unique characteristics of the interested group is that significant differences were found between "*Profile photo with a smile x dull voice*" and "*Profile photo with a smile x bright voice*" suggesting that even with a smile as a visual cue, a dull voice reduces the customer's motivation. Hence, the results suggest that voice is influential.

5.2 Characteristics of the Result of "ability to process"

Figure 4 shows significant differences in "ability to process", that is "message comprehensibility" of the uninterested and interested groups, respectively. In the uninterested group, "*Name x dull voice*", which has the lowest mean value, shows a significant difference from "*Profile photo with no expression x bright voice*" and "*Profile photo with a smile x bright voice*", respectively. In other words, "*Name x dull voice*" should be avoided especially when customers are not interested in the topic. In addition, it is implied that any facial images of a salesperson with a bright voice can increase customer's comprehension of the message. On the other hand, for the interested group, it is evident that using "*Profile photo with a smile x bright voice*" can obtain more comprehensibility by the customer than "*Name x dull voice*" and "*Profile photo with no expression x dull voice*". Hence, for customers who are interested in the topic, "photo with a smile x bright voice" can be used more intentionally than other combinations to go forward to attitude changes.

5.3 Effect of Visual and Audio Cue Combinations for Attitude Change

In Section 2, we noted that the sender's visual and audio cues are thought to influence the factors of the peripheral route and play important roles in impression formation [14][24]. However, it results support the study by Fukada, who pointed out that the "*impression*" influences not only the peripheral route but also the central route [4][26]. Then, we further discuss the results of this study following the flow of the ELM model by Fukada. As Figure 5 shows, first, the salesperson's visual and audio cue combinations catch the customer's motivation in the central route, and then the message is further processed. The combinations shown in bold (Figure 5) continue to influence the customer's comprehension as well. Analyzing the transition helps the salesperson to use which combinations to be used for the customer. For uninterested a customer, salespeople would be careful not to use "*Name x dull voice*" and for interested customers, "*Profile photo with a smile x bright voice*" could be used intentionally to proceed to the next step toward attitude change, which is cognitive processing.

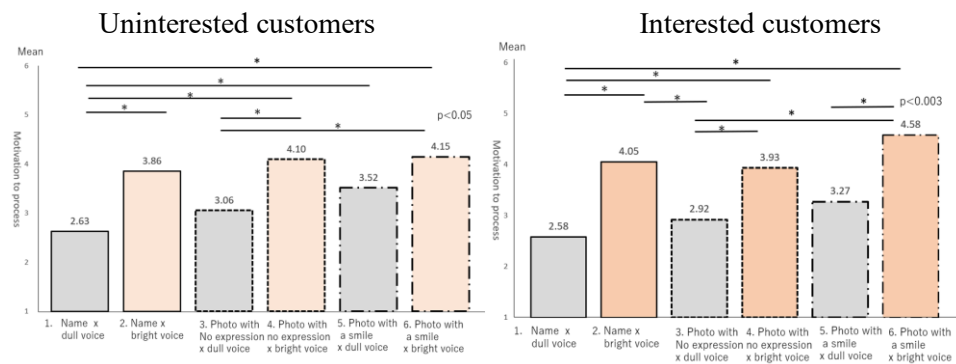


Figure 3: Motivation to process Mean value and significant differences

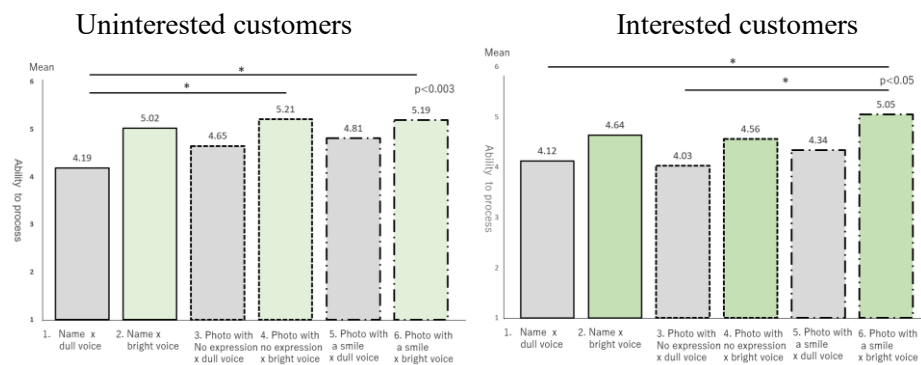


Figure 4: Ability to process Mean value and significant differences

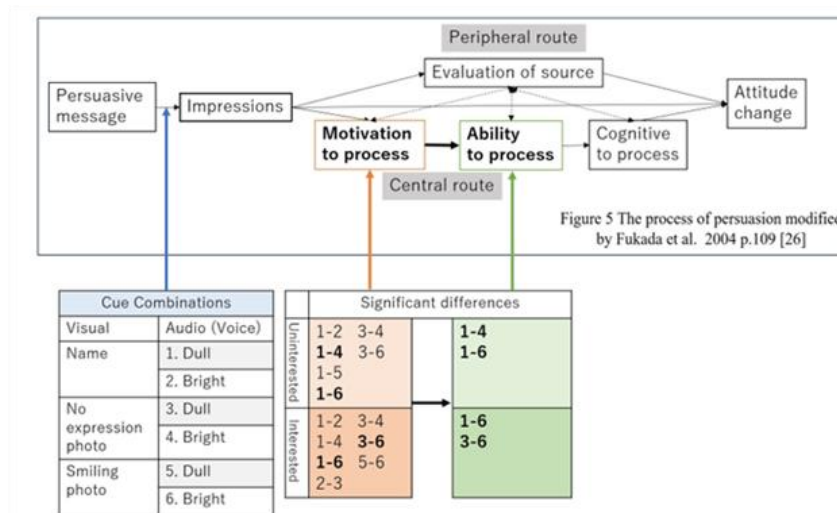


Figure 5: The change in the effect of cue combinations based on the modified ELM [26]

6 Conclusion

6.1 Summary

The results of our experiment indicate that visual and audio cue combinations that a salesperson presents through online tools make significant differences in customer "motivation to process"

process" and "ability to process" for attitude change. Therefore, it should be noted that a salesperson pays more attention to the combinations of visual image and voice quality in online tools to increase customer motivation and comprehensibility. We also found that the effect of the combinations varied depending on the customer's level of initial interest. Furthermore, the effect of the combination changes and narrows as one progresses from "motivation to process" to "ability to process". As a result, for customers who are not interested in the topic, "*Name x dull voice*" tends to decrease customer motivation and message comprehensibility more than other combinations. On the other hand, for customers who are interested in the topic, "*Profile photo with a smile x bright voice*" tends to increase them more than others.

We support the studies online that salespeople can make a positive impression on customers and influence their perception and attitude change with facial and voice features [27][28]. However, since all of those are validated as factors of the peripheral routes, it is significant that this study clarified the impact on the central route.

In considering the characteristics of online communication, the results of this research apply to any online communication type, it may also be utilized in business, education, and personal communications such as webinars and lecture Q & A sessions or any online situations where participants often turn off the camera.

Lastly, the results implied that the variety of visual and audio combinations online, compared to face-to-face, makes it easier to create different impressions on customers and influence the persuasion process. Thus, it also suggests that paying more attention to the combinations online can be expected to produce better impressions and be more persuasive.

6.2 Future Research

Further issues to be considered are as follows. Since this study had only one male and one female salesperson, verifying the results with many salespeople is necessary to determine whether individual characteristics may have influenced the result. Also, since there are various ELM elements, and the interpretation of the central and peripheral route is complex, further research on how the combinations of a sender's visual and audio cues affect, and make better roles for persuasion, should be conducted.

Therefore, we will continue our research to contribute to online ELM studies that have changed since the COVID-19 pandemic

Ethical Statement

We obtained Informed consent from all participants included in this study and written consent for the use of his facial photographs from the experimental collaborator. None of the authors has any conflicts of interest or any financial ties to disclose.

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