How Race and Language Affect Degree of Nervousness and Impression of Others for Japanese College Students

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This study examined the influences of a person's race and language on the degree of tension and impression of the other person among Japanese college students who are Japanese nationals and of a single Asian race. We asked participants to watch a woman (Asian or Black) in virtual reality introduce herself (in Japanese or English), then introduce themselves to her using the same language. The subjective evaluation revealed the following: First, Black women were significantly more likely than Asian women to be rated "would be a good friend." Second, participants were likely to feel more nervous when introducing themselves in English to Asian women than Black women. Physiological parameters such as pulse rate and perspiration indicated that participants were more nervous when speaking English to Asian women. The results suggest that people converse more comfortably to people of a different race than their own while speaking in a non-native language.

Keywords: race, foreign language, tension, speech, impression.

Introduction

Today, there persist increasing opportunities to speak English in the international community. Acquiring global literacy (the ability to interact internationally) is essential for living well in the 21st-century world (Prime Minister's Office of Japan, 2000). Japanese policy states:

> *It is the knowledge of information skills such as the use of computers and the Internet, as well as English, the global standard of communication. In addition, communicative competence, including the ability to express oneself, clarity of thought, the abundance of content, and persuasiveness in interactive exchanges, especially in debates and dialogues with multiple participants, are also important factors. (Prime Minister's Office of Japan, 2000)*

However, Japanese people are acutely aware of their lack of communicative competence in English (Prime Minister's Office of Japan, 2000). Among various activities (reading, writing, listening, and speaking) using foreign languages, speaking causes the most anxiety (Fischer et al., 2019; Horwitz, Horwitz, & Cope, 1986). Therefore, we focused on Japanese college students who are Japanese nationals and of a single Asian race, who studied English since junior high school as compulsory education, who had no experience studying abroad, and who had no non-

Japanese friends; and we investigated the situation where they had to speak English. In a Bosnian study, Uzun (2020) examined the degree of anxiety about Bosnian, the native language, and Turkish, a foreign language; 49 female students were interviewed about the causes of their anxiety in line with their experimental findings. The results showed that the level of out-of-class speech anxiety, one type of foreign language anxiety, was higher than that of the native language.

One of the concerns regarding speaking a foreign language is the evaluation of others. For example, Ogawara (2001) conducted a questionnaire survey on 357 university students who had never been to Japan but were studying Japanese at a Thai university. He found that evaluation by others and awareness of another's presence were factors for anxiety in pronunciation. Anxiety is considerably reduced if students perceive themselves as proficient in some aspect of the language (Allen, 1997). Experiential differences are present in speech anxiety, and peer evaluation and self/other comparisons are also considered factors influencing speech anxiety. Therefore, the present study focuses on the race of in- and out-group members.

In our study, we used Black women as the out-group members. There are vastly more White foreign residents in Japan than Black. Therefore, people in Japan seldom spend time with Black people compared to White people, which means that Black people are more likely to be regarded as out-group members than White people. The study chose two specific criteria for defining a participant as Black: 1) self-identification; 2) individuals would be seen by other people as Black, independent of concepts such as "the one drop rule," that is, not just being Black by heritage or even identity but being seen as Black by the Japanese conductors of this experiment. This did not mean that the self-identification by heritage was inaccurate (Omi & Winant, 2014). Rather, for clarification and simplification, the category of individuals was determined as mentioned above. Schroeder, Lyons, and Epley (2022) conducted a field experiment with London-area train commuters and found that male strangers were likely to be avoided by women, while female strangers were not. That is, female participants might feel anxious of speaking in front of a male person just because he is a male. Therefore, to focus on the effect of race in this study, female participants were selected.

There is a degree of shame in exposing one's lack of self-confidence among in-group members. Social identity theory (Tajfel, 1978) indicates that people are motivated to maintain a positive self-concept. They derive their social identity from the group to which they belong (Tajfel, 1978). Reportedly, on the identity continuum, adults who are a threat to their in-group's evaluation of their abilities and opinions and are inferior are psychologically detached from the in-group and devaluated, as a means of protecting the group identity (Festinger, 1954). According to social comparison theory, self-evaluations are formed by comparing oneself with others (Festinger, 1954). The "black sheep" effect attempts to sustain high self-evaluations by maintaining in-group evaluations and comparing situations between the in- and out-group (Marques & Yzerbyt, 1988). Therefore, people strive to maintain and enhance their inner group evaluation in comparative situations between the outer and inner groups. As a lack of self-confidence may lead to low evaluation from the in-group, one may feel embarrassed about their lack of self-confidence. In fact, in a faux-pas situation (Eller, Koschate, & Gilson, 2011), participants reported higher embarrassment when they imagined the audience to be in-group than out-group members.

Based on previous research, it can be assumed that, for Asian people, speaking in English to Asian people (i.e., an in-group) is more embarrassing than speaking in English to Black people (i.e., an out-group). However, the degree of tension caused by differences in the other's appearance regarding race has not been clarified. Therefore, in this study, we examine the effects of the race and language of the participants holding a conversation on the degree of nervousness and their impression of the person using virtual reality (VR). Previous studies have shown that VR can be used in experiments to observe the effect of variables in a more realistic way than in traditional laboratory and study situations that are difficult to replicate experimentally (Lecouvey et al., 2017; Ye et al., 2017). In fact, a systematic review and meta-analysis showed the effectiveness of VR therapy (VRT) for symptoms related to social anxiety disorder (SAD), namely fear and avoidance of social interactions and performance situations (FASIP), fear of negative evaluation (FNE), anxiety, and depression. Therefore, a speech situation that looks real can be set in VR. We had each participant wear a head-mounted display (HMD) to create a situation where the participant and a woman in VR introduced themselves to each other. We asked participants to listen to the woman's introduction in the VR first, then introduce themselves using the same language as the woman in the VR. The woman in the VR was either a Black or an Asian woman, and the language used was either English or Japanese. We hypothesized that people would feel more nervous when speaking English to Asian people, an in-group, than when speaking English to Black people, an out-group.

Method

Participants

A total of 128 undergraduates (male: 60, female: 68) with a mean age of 20.25 years ($SD = 1.14$) were recruited. Inclusion criteria were being physically and mentally healthy at the time of the study and having no history of mental illness. This is because people with anxiety or speech anxiety might feel stressed by the task, and mental illness sometimes causes cognitive decline that might affect the task performance (Villeneuve et al., 2017). All the participants were Japanese nationals and of a single Asian race. They were also native Japanese speakers, passing an English examination in their school entrance test. All the participants had normal vision and no depth perception problems. They had no experience studying abroad and no non-Japanese friends. Participants were paid a participation fee of 1,000 yen (~7 USD).

Ethics Approval

Participants participated in the experiment of their own free will after reading and agreeing to the outline of the experiment. They provided written informed consent with the understanding that all the experimental data and results would be kept separate from their personal information including their name, gender, and age, and their privacy would be protected. They were also informed that the speech during the experiment would not be recorded and the email address that was used to schedule the experiment would be deleted after the experiment. If they felt uncomfortable during or after the study, they could discontinue participation and withdraw their data at any time. Their consent was obtained before the study was conducted. After the experiment, all the participants were debriefed and asked if they had any questions. This study was approved by Waseda Ethics Review Procedures concerning Research with Human Subjects (approval No. 2021-136).

Design

The experiment was conducted using VR. It consisted of the following three factors: the race of the person in the VR (Black or Asian), the language being spoken (English or Japanese), and the role of the participant (speaking or listening). The race and language were between-participant factors, while the role was a within-participant factor. We used heart rate (HR) and skin conductance response (SCR) as objective data and a questionnaire with three items as subjective data ("Were you nervous when you introduced yourself?"; "Did you do well when you introduced yourself?"; and "How well do you think you can be friends with the woman in the VR?").

Materials

We recruited two Black women (Black1 and Black2) and two Asian women (Asian1 and Asian2) online, ranging from 24–26 years old and living in Japan, who were bilingual English and Japanese speakers. We verified all four women's English and Japanese skills as comparable to native speakers. Two videos of each woman speaking in different languages, one in Japanese and the other in English, and one video of each woman pretending to listen to a participant were prepared. A 360-degree camera (RICOH THETA X) for VR was used to take the video of each seated woman. Each woman was filmed in the location where the experiment was conducted, sitting in a chair facing the chair in which the participant was going to sit during the experiment. The camera was set up so that when the participant sat down and put on the head-mounted display, the woman sitting 150 cm (about 57.3 inches) away was visible and the participant felt like they were talking/listening to the woman in front of them. The duration of each speaking video was about 1 min and the duration of each pretending-to-listen video was about 2 min in case the participant spoke for longer than expected. The self-introduction scripts in Japanese and English were handed out beforehand so that each speaker was well prepared before the video was made.

To measure HR, we used Polar OH1 (POLAR JAPAN), an optical HR monitor sensor worn around the arm. It demonstrates a high level of agreement with electrocardiography (ECG), which is the gold standard for HR measurement, and thus, can be used as a valid measure of HR in laboratory and field settings during moderate and high-intensity physical activities (Hettiarachchi, Hanoun, Nahavandi, & Nahavandi, 2019). To measure SCR, we used EDA100C as a skin electrical anti-activity amplifier and TSD203 as a skin resistance transducer (BIOPAC Systems). The TSD203 was used by applying gel (GEL101A) to two Ag-AgCl (nonpolarizable) electrodes and fixing them to the fingertip.

Procedure

A participant flow diagram for the experiment is shown in Figure 1. Before the experiment, participants were asked how nervous they feel when they talk to a stranger and how nervous they get when they speak English, on a 5-point Likert scale (1 = not at all, 5 = all the time). Based on the responses to these questions, participants were assigned to one of the four groups: Asian–English, Asian–Japanese, Black–English, or Black–Japanese (32 participants for each group). There was no significant difference in the score for "how nervous they feel when they talk to a stranger" among the four groups (Asian–English: Mean = 3.06 [SD = 1.14], Asian–Japanese: Mean = 2.75 [SD = 1.03], Black–English: Mean = 2.81 [SD = 1.16], and Black–Japanese: Mean = 2.72 [SD = 0.87], F [3, 124] = .67, p = .57.), or in the score of "how nervous they get when they speak English" (Asian–English: Mean = 1.66 [SD = 0.78], Asian–Japanese: Mean = 1.81 [SD = 0.81], Black–English: Mean = 1.75 [SD = 0.90], and Black–Japanese: Mean = 1.66 [SD = 0.81], F [3, 124] = .27, p = .85). That is, each group was roughly equal regarding their anxiety level of talking to a stranger and speaking English.

Participants wore an HMD (Oculus Rift, developed and manufactured by Oculus VR) and Polar OH1 around their left arm to measure HR, with TSD203 on their left forefinger and GEL101A on their middle finger to measure SCR. They sat still for 3 min to stabilize their HR and SCR. Then, they watched one of eight videos (Black1 speaking English, Black1 speaking Japanese, Black2 speaking English, Black2 speaking Japanese, Asian 1 speaking English, Asian1 speaking Japanese, Asian2 speaking English, or Asian2 speaking Japanese) after receiving instructions. The instructions were: "A woman in VR will introduce herself about 1 min from now. Please listen carefully to her self-introduction and then introduce yourself in the same language, in a similar manner." After the participants understood the experimental procedure, they put on the HMD and started the video in a sitting position.

After watching the video, the participants were asked to think of 1 min self-introductory sentences in about 5 min. Then, they were asked to introduce themselves to the person in VR. After introducing themselves for about 1 min, they answered a questionnaire using Google Forms. The questionnaire consisted of three questions related to the speech and the person in the VR: "Were you nervous when you introduced yourself?"; "Did you do well when you introduced yourself?"; and "How well do you think you can be friends with the woman in the VR?" The questionnaire was administered using a 5-point rating scale (1 = not at all applicable, 5 = highly applicable).
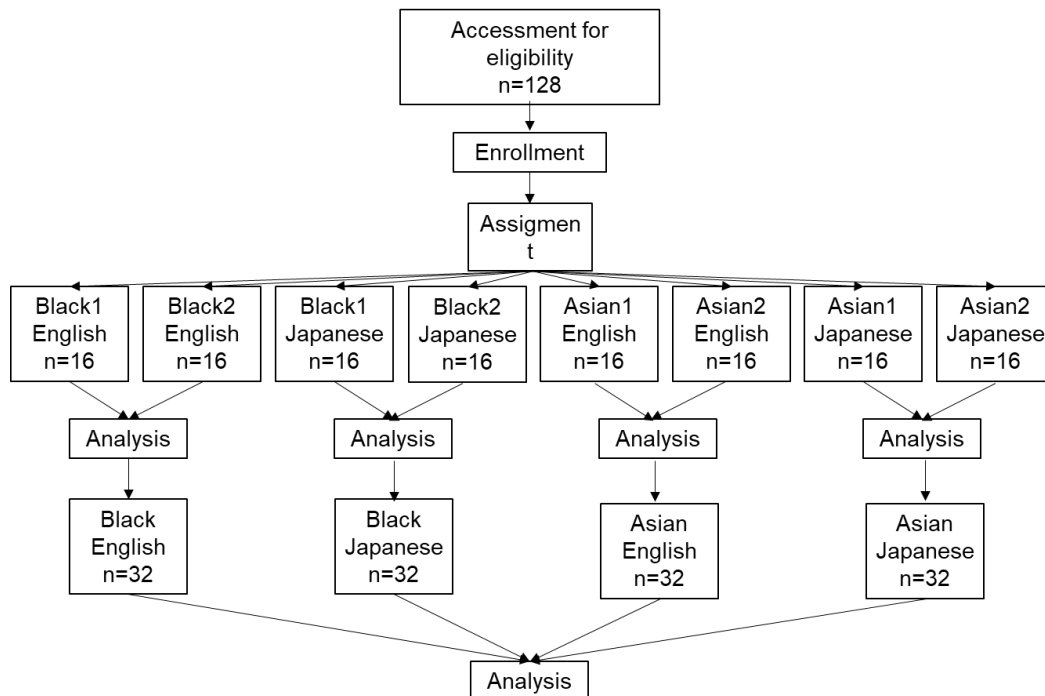

Figure 1. Participant flow diagrams for Experiment

Results

While the participants put on the HMD and watched one of the four videos (Asian–English, Asian–Japanese, Black–English, or Black–Japanese) in VR, HR and SCRs were measured. After watching the video, they answered questionnaires regarding their feelings during the self-introduction and their impressions of the person in VR.

Optical Heart Rate

To confirm that there was no difference in HR changes between individual persons of the same race, we conducted a three-factor analysis of variance (ANOVA): individual Asians in VR (between: Asian1 or Asian2) × spoken language (between: English or Japanese) × role of the participant (within: speaking or listening). There was no significant difference in HR changes between the conditions where Asian1 and Asian2 were used, $F(1, 60) = 2.21$, $p = .16$. We also conducted a three-factor ANOVA: individual Blacks in VR (between: Black1 or Black2) × spoken language (between: English or Japanese) × role of the participant (within: speaking or listening), and there was no significant difference in changes in HR between the conditions where Black1 and Black2 were used, $F(1, 60) = .02$, $p = .90$ (Table 1). Therefore, we combined the data of Asian1 and Asian2 as the data of Asian people and the data of Black1 and Black2 as the data of Black people.

Table 1
Differences in Heart Rate Averages between Listening/Speaking and Stable Conditions

	English				Japanese			
	Listening		Speaking		Listening		Speaking	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
Asian1	13.69	(6.56)	31.81	(10.51)	12.81	(5.69)	19.75	(6.17)
Asian2	14.19	(8.38)	38.00	(10.89)	13.25	(7.27)	23.88	(10.67)
Black1	14.50	(6.20)	29.63	(12.02)	12.63	(4.30)	21.69	(6.19)
Black2	16.69	(13.29)	25.81	(11.76)	14.69	(8.79)	22.25	(10.10)

Note. SD = standard deviation.

Figure 2 shows the changes in optical HR with respect to HR mean values while participants are speaking and stable, and listening and stable. We conducted a three-factor ANOVA: race of the person in VR (between: Black or Asian) × spoken language (between: English or Japanese) × role of the participant (within: speaking or listening). There was a significant second interaction among these three factors, $F(1, 124) = 5.20$, $p = .02$. While there was no significant simple interaction between the race of the person in VR (between: Black, Asian) × spoken language (between: English, Japanese) for the listening condition, $F(1, 248) = .10$, $p = .76$, a significant simple interaction was found between these two for the speaking condition, $F(1, 248) = 4.94$, $p = .03$. Furthermore, in the speaking condition, there was a significant simple main effect of the race of the person in VR (between: Black, Asian) for the English speech (Asian > Black), $F(1, 248) = 9.46$, $p = .002$, but there was no significant simple main effect of race for the Japanese speech, $F(1, 248) = .004$, $p = .95$.

Figure 2
Heart Rate Differences Between Listening/Speaking and Stable Conditions
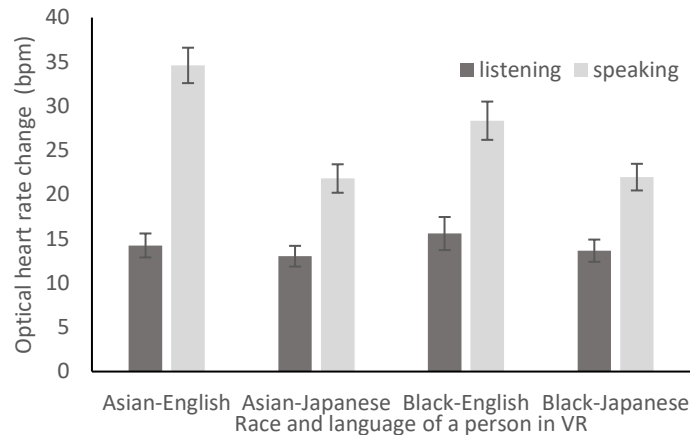
There was also a significant main effect of the language being spoken (between: English, Japanese), $F(1,124) = 15.60$, $p = .0001$ (English > Japanese), and a significant main effect of the role of the participant (within: speaking, listening), $F(1,124) = 186.43$, $p < .001$ (listening < speaking). There was no significant main effect of the person's race in VR (between Black, Asian), $F(1, 124) = .75$, $p = .39$.

Skin Conductance Response

To confirm that there was no difference in SCR changes between individual persons of the same race, we conducted a three-factor ANOVA: individual Asians in VR (between: Asian1 or Asian2) × spoken language (between: English or Japanese) × role of the participant (within: speaking or listening). There was no significant difference in SCR changes between the conditions where Asian1 and Asian2 were used, $F(1, 60) = 1.66$, $p = .20$. We also conducted a three-factor ANOVA: individual Blacks in VR (between: Black1 or Black2) × spoken language (between: English or Japanese) × role of the participant (within: speaking or listening), and there was no significant difference in SCR changes between the conditions where Black1 and Black2 were used, $F(1, 60) = .85$, $p = .36$. (Table 2). Therefore, we combined the data of Asian1 and Asian2 as the data of Asian speakers and the data of Black1 and Black2 as the data of Black speakers.

Table 2
Differences in Skin Conductance Response Averages between Listening/Speaking and Stable Conditions

	English				Japanese			
	Listening		Speaking		Listening		Speaking	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
Asian1	.37	(0.13)	.43	(0.29)	.29	(0.23)	.41	(0.32)
Asian2	.25	(0.15)	.99	(1.30)	.32	(0.45)	.50	(0.87)
Black1	.22	(0.11)	.34	(0.34)	.39	(0.30)	.42	(0.37)
Black2	.39	(0.68)	.41	(0.31)	.35	(0.33)	.51	(0.60)

Note. SD = standard deviation.

Figure 2 shows the differences in SCR mean values while participants were speaking and stable, and listening and stable. We conducted a three-factor ANOVA: race of the person in VR (between: Black, Asian) × spoken language (between: English, Japanese) × role of the participant (within: speaking, listening). There was a significant main effect of the role of the participant (within: speaking, listening) $F(1, 124) = 7.09$, $p = .009$, that is, the SCR was significantly higher when participants were speaking than when they were listening. Neither the main effect of the race of the person in VR (between: Black, Asian), $F(1, 124) = .95$, $p = .33$, nor the main effect of the spoken language (between: English, Japanese), $F(1, 124) = .15$, $p = .70$, were significant.

Figure 2

Differences in Skin Conductance Response between Listening/ Speaking and Stable Conditions
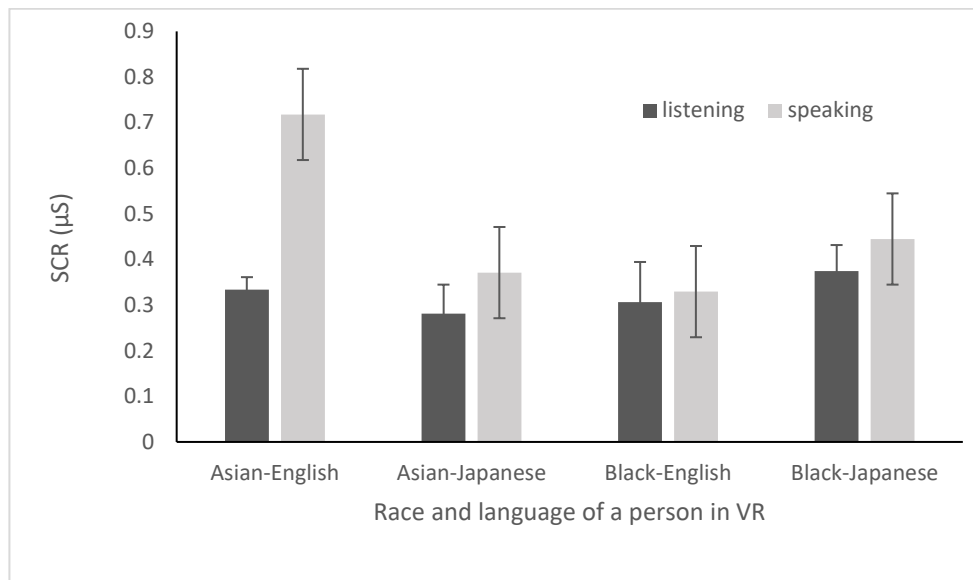
Subjective Feelings About Their Speech and Impressions of the Person in VR

To confirm that there was no difference in subjective feelings between individuals of the same race, we conducted a three-factor ANOVA: individual Asians in VR (between: Asian1 or Asian2) × spoken language (between: English or Japanese) × role of the participant (within: speaking or listening). There were no significant differences in responses to all the questions when Asian1 and Asian2 were used: "Were you nervous when you introduced yourself?" $F(1, 60) = .77, p = .38$; "Did you do well when you introduced yourself?" $F(1, 60) = .03, p = .87$; and "How well do you think you can be friends with the woman in the VR?" $F(1, 60) = .12, p = .73$. We also conducted a three-factor ANOVA: individual Blacks in VR (between: Black1 or Black2) × spoken language (between: English or Japanese) × role of the participant (within: speaking or listening), and there were no significant differences in responses to all the questions when Black1 and Black2 were used: "Were you nervous when you introduced yourself?" $F(1, 60) = .82, p = .37$; "Did you do well when you introduced yourself?" $F(1, 60) = .14, p = .69$; and "How well do you think you can be friends with the woman in the VR?" $F(1, 60) = .26, p = .62$. (Table 3). Therefore, we combined the data of Asian1 and Asian2 as the data of Asian and the data of Black1 and Black2 as the data of Black.

Table 3

Averaged Responses to Questions on Listening and Speaking Conditions by Individual

	"Were you nervous when you introduced yourself?" (SD)	"Did you do well when you introduced yourself?" (SD)	"How well do you think you can be friends with the woman in the VR?" (SD)
Asian1–English	4.44 (0.61)	1.81 (0.88)	1.82 (0.88)
Asian2–English	4.63 (1.05)	1.75 (0.56)	1.63 (0.60)
Asian1–Japanese	3.75 (0.83)	2.50 (0.61)	1.76 (0.66)
Asian2–Japanese	3.94 (0.75)	2.50 (0.94)	1.58 (0.60)
Black1–English	3.69 (1.26)	2.00 (0.94)	2.29 (0.73)
Black2–English	4.00 (0.79)	2.00 (0.79)	2.65 (1.35)
Black1–Japanese	3.75 (0.82)	2.56 (1.12)	2.00 (1.00)
Black2–Japanese	3.88 (0.78)	2.38 (0.78)	2.19 (0.58)

Note. SD = standard deviation.

Table 4
Averaged Responses to Questions on Listening and Speaking Conditions by Race

	"Were you nervous when you introduced yourself?" (SD)	"Did you do well when you introduced yourself?" (SD)	"How well do you think you can be friends with the woman in the VR?" (SD)
Asian–English	4.53 (0.87)*	1.78 (0.74)	1.72 (0.76)
Asian–Japanese	3.84 (0.80)	2.50 (0.79)**	1.66 (0.69)
Black–English	3.84 (1.06)	2.00 (0.87)	2.47 (1.12)***
Black–Japanese	3.81 (0.81)	2.47 (0.97)**	2.09 (0.91)***

Note. * "Were you nervous when you introduced yourself?" When the participants spoke English, Asian > Black, while Asian ≒ Black when they spoke Japanese.
** "Did you do well when you introduced yourself?" Regardless of the race of a woman in front of the participant, Japanese > English.
*** "How well do you think you can be friends with the woman in the VR?" Regardless of the language participants used, Black > Asian.

Table 4 shows the averages of all the questionnaires in each condition. Regarding the answer to the question "Were you nervous when you introduced yourself?" we conducted a two-factor ANOVA: race of the person in the VR (between: Black, Asian) × spoken language (between: English, Japanese). There was a significant interaction between the race of the person in the VR and the spoken language, F (1, 124) = 4.22, p = .04. There was a significant simple main effect of the race of the person in VR when the self-introduction was conducted in English, $F(1, 124)$ = 9.26, p = .003 (Asian > Black); however, there was no significant main effect of the race of the person in the VR when the self-introduction was conducted in Japanese, $F(1, 124)$ = .02, p = .89. There was also a significant simple main effect of the spoken language when the person in the VR was Asian, F (1, 124) = 9.23, p = .003 (English > Japanese), while there was no significant main effect of the spoken language when the person in the VR was Black, F (1, 124) = .02, p = .88.

Regarding the answer to the question "Did you do well when you introduced yourself?" we conducted a two-factor ANOVA: race of the person in the VR (between: Black, Asian) × the spoken language (between: English, Japanese). There was a significant main effect of the spoken language, $F(1, 124)$ = 15.30, p = .0002 (Japanese > English). The main effect of the race of the person in the VR and the interaction between the race of the person in the VR and the spoken language were not significant, F (1, 124) = .38, p = .54 and F (1, 124) = .68, p = .41, respectively.

Regarding the answer to the question, "How well do you think you can be friends with the woman in the VR?" we conducted a two-factor ANOVA: the race of the person in the VR (between: Black, Asian) × the spoken language (between: English, Japanese). There was a significant main effect of the race of the person in the VR, F (1, 124) = 13.94, p = .0003 (Black > Asian). The main effect of the spoken language and the interaction between the race of the person in the VR and the spoken language were not significant, F (1, 124) = 1.89, p = .17 and F (1, 124) = .97, p = .33, respectively.

Discussion

In this study, we examined the influences of a person's race and language on the degree of nervousness and the impression of the other person. We had each participant wear an HMD to create a situation where the participant and a woman in VR introduced themselves to each other. We asked participants to first listen to the woman in the VR introduce herself, then to introduce themselves using the same language. The woman in the VR was either a Black or an Asian woman, and the language used was either English or Japanese.

Regarding nervousness, HR, SCR, and the participants' subjective impressions, the result showed that speaking made participants more nervous than listening, and speaking English made participants more nervous than speaking Japanese. These results, consistent with previous studies, reveal that speaking skills are the most anxiety-inducing skills (Sahoo & Sinha, 2020) and that speaking in a non-native language induces substantial anxiety (Uzun, 2020). Especially, when people talk in a non-native language with a native person, they feel anxious (Woodrow, 2006). In

this study, both Black and Asian women were native English speakers. If their level of English fluency was as low as the participants', the results might be different.

Interestingly, our study showed that when participants spoke in English, speaking to an Asian woman made them more nervous than speaking to a Black woman, as seen from the changes in HR. The results can be explained from the viewpoint of in- and out-group differences. People are likely to be threatened by the evaluations of their in-group members (Festinger, 1954). In contrast, conversation with an out-group member might not induce evaluation anxiety; therefore, participants might feel more relaxed. These results are consistent with those in a previous study, where participants just imagined the audience to be in-group or out-group members (Eller et al., 2011). In this study, participants actually saw the person who seemed to listen to them in VR, and similar results were found wherein the individuals reported higher embarrassment of speaking English with the in-group than with the out-group. Major, Sciacchitano, and Crocker (1993) found that individuals who compared themselves unfavorably with in-group members reported a lower self-esteem and more depressed affect, and made lower ability-related attributions than individuals who compared themselves unfavorably with out-group members.

Regarding the impression of the person to whom they introduced themselves, the responses showed that participants were more likely to be willing to be friends with Black women than with Asian women, regardless of the language they spoke. Possibly, participants regard Asian women as in-group members, and they might feel they do not need other Asian friends because they already have intimate in-group friends in real life. The black sheep effect could also be applied to this phenomenon, in that members of a group consider other members favorably if they regard them as deserving, while those members of the group that deviate from them in any way are looked upon less favorably than outsiders. That is, Japanese people might evaluate other Japanese individuals positively; however, when they evaluated the Asian person in the VR, who they were not sure was "an ideal Japanese," they might evaluate the person less positively than an individual of another race in the VR.

Any discussion of race must account for that category's varied contexts and complex history. Terms like "Black" and "Asian" that allegedly delineate distinct human categories have fuzzy and unstable borders. In this experiment, the subjects, conductors, and eventual readers of this paper bring their own assumptions about identity that might widely differ based on when and where they grew up, what racial category they were assigned by their society of origin, and what identity they embraced themselves. For our current purposes, a Black person is someone who defines themselves as such and is unmistakably defined that way by members of the experiment. Many self-defined and generally designated African Americans that owe their racial designation to the historic adoption of the "one-drop rule" and by both pride in their heritage and outside categorization (both positive and malevolent) would not, at the same time, be viewed as "Black" by a typical Japanese person with no understanding of this identity existing outside of what is visible through skin pigmentation and hair texture. No value judgement about the correct way to designate identity should be implied here; rather, there is a neutral description to our approach.

Moreover, as an experiment that is conducted in Japan to specifically measure an aspect of difference, one must consider the notion of Japan's alleged homogeneity. Despite Japan being more diverse than is assumed in the West, with consistent immigration from other parts of Asia and the small but consistent presence of Westerners for the last few hundred years, and especially since the end of the Second World War, this country is nonetheless less diversity-minded than other countries that share its level of wealth and technology. However, owing to internationalization today, people's way of judging in-groups and out-groups might change.

In this study, our participants did not have experience of studying abroad, and their idea of in- and out-groups might change in the future. However, considering the situation where many students experience anxiety in speaking in their second language in classrooms (Phillips, 1999), this study showed that, for Asian people, speaking English with non-Asian people might help reduce their nervousness more than speaking English with other Asian people. In other words, Asian people might feel less nervous speaking in a non-native language with non-Asian people than with Asian people. In terms of language learning programs, VR should be useful as VRT for SAD. The learning situation can be set in multiple ways, including an interpersonal conversation, a group discussion, or giving a speech in front of an audience; the physical appearance of the partner, group members, or audience can also be controlled. Together, this experiment is a first step toward suggesting that one's physical appearance (race in this case) should be considered when learning or speaking languages that do not comprise one's mother tongue.

Acknowledgment

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