

University of British Columbia

Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

# The Taste of Home: Cultural Food Availability, Well Being, and Consumer Activity

Prepared by: Airi Hirota, Alysse Franklin, Rachel So, Natalie Hanna, Nivedita Parikh

Prepared for: UBC Wellbeing & UBC Food Hub

Course Code: PSYC 421

University of British Columbia

Date: 16 April 2023

*Disclaimer: "UBC SEEDS Sustainability Program provides students with the opportunity to share the findings of their studies, as well as their opinions, conclusions and recommendations with the UBC community. The reader should bear in mind that this is a student research project and is not an official document of UBC. Furthermore, readers should bear in mind that these reports may not reflect the current status of activities at UBC. We urge you to contact the research persons mentioned in a report or the SEEDS Sustainability Program representative about the current status of the subject matter of a report".*



**The Taste of Home:  
Cultural Food Availability, Well Being, and Consumer Activity**

Group Name: Foodies

Airi Hirota, Alysse Franklin, Rachel So, Natalie Hanna, Nivedita Parikh

Department of Psychology,

University of British Columbia

PSYC 421 001 Environmental Psychology

Dr. Jiaying Zhao

University of British Columbia

April 16, 2023

### **Executive Summary**

Previous research suggests the benefits of personal cultural foods and effects of food-attitudes on personal well-being and mental health. Hence, this study aims to help inform food distribution on campus to support students and other UBC members of all backgrounds. We investigated with the focus on what effects does both in and out-culture food availability in an imagined grocery store have on well-being and consumer activity? Data was obtained through a Qualtrics survey where participants imagine a grocery store under one of three conditions: (1) in-culture: personal cultural foods available, (2) no-in-culture: personal cultural foods not available, and (3) out-culture: personal not available despite a diverse range of out-culture foods. Participants then report their corresponding mood (shortened PANAS), sense of belonging and welcomeness, and likelihood to purchase and revisit. We obtained 118 valid responses collected from UBC students (M= 21.3 years) who were recruited in classes, on Instagram, and on UBC Life Building. We performed descriptive statistical analyses, ANOVA and post-hoc Tukey tests for each dependent measure. We found that the in-culture condition had the highest ratings across all measures, while the no-in-culture and out-culture conditions had similarly lower ratings across all measures, thus partially supporting our hypotheses.

## Introduction

Food is an important factor not just for physical well-being, but also for self-identity and mental wellbeing (Write et al., 2021). Inadequate access to one's in-culture foods (foods from one's culture) can incite cultural stress (troubles faced when settling into new ways of living in new cultures) and negatively affect senses of identity and mental health (Write et al., 2021; Rodríguez-Arauz, 2016). This is inevitably an issue international students and even non-local domestic students may face, making it a crucial focus in improving student wellbeing. Existing research has predominantly used qualitative methods to build conceptual frameworks relating cultural foodways (e.g. preparation, sharing, consumption), identity, well-being, and other factors (Write et al., 2021). One key element in these frameworks is how in-culture foods, as a part of one's food identity, can elicit positive food attitudes, a sense of belonging, welcome, or feeling 'seen' and 'at home', (Write et al., 2021). Rodríguez-Arauz et al. (2016) also found that positive versus negative food attitudes can affect mood, with negative attitudes correlating to depression and anxiety. Hence, we believe there is a need to quantitatively assess how access, or lack thereof, to in-culture food options connects to mood as well as sense of belonging and feeling welcomed. Based on the above research, we would expect these factors to be most positive when personal cultural food options are available.

Furthermore, food can stimulate discovery and learning which can contribute to self-enhancement and happiness (Zarantonello et al., 2021). This finding inspired us to explore additional nuances in our research. First, we aim to assess the effect of access to diverse cultural foods *excluding* one's own. This addition could make the research uniquely useful since although not all cultures' foods can realistically be represented in markets, we may still be able to show some benefit of cultural food diversity. Secondly, this idea of food stimulating discovery pushed us to investigate how cultural food availability may influence or increase purchasing tendencies, such as likelihood to purchase and revisit a store. If cultural food diversity stimulates discovery and learning we might expect an increase in purchasing tendencies. Furthermore, in-culture options but a diversity of out-culture options might still provide some benefit to mood.

## Research question

We aim to answer the question: how does cultural food availability and diversity impact well-being and consumer activity? We operationalized well-being and consumer activity as reported mood (using the shortened Positive and Negative Affect Schedule (PANAS)), sense of belonging, sense of feeling welcomed, reported willingness to purchase and likelihood to revisit.

## Hypotheses

(1) Having personal cultural foods available ("in-culture" condition) will result in the highest positive ratings across all measures. (2) The "no-in-culture" and "out-culture" conditions will have similarly lower ratings in the sense of belonging and feeling welcomed. See *Appendix C* in for a visual outline of hypotheses. (3) For mood and consumer activity, having no in-culture food options ("out-culture" condition) will result in the most negative ratings while having a diverse range of cultural food options excluding your own ("no-in-culture" condition) will rank in between "no-in-culture" and the "in-culture" conditions.

## Methods

**Participants:** The study aimed to gather participants from the UBC community from various backgrounds. With a power analysis with a minimum effect size of 0.2, alpha level of 0.05, and a power of 0.8, the study required at least 246 participants. We received 155 responses but excluded 37 as they were incomplete, leaving us with 118 responses. The sample included 52%

women, 47% men, and 1% non-binary individuals and the age range mainly fell between 18 and 25 years old ( $M = 21.30$ ,  $SD = 2.48$ ) (see *Appendix D(iii), (iv)*). In terms of ethnicity, the study obtained a diverse range of cultural backgrounds with the majority of participants being East Asian as indicated in *Appendix D (ii)*.

**Conditions:** Our independent variable (IV) was cultural food availability. In the survey, participants first listed personal cultural foods ‘that make them feel at home.’ The use of ‘at home’ in the phrasing of this set-up question was justified from Write et al.’s (2021) use of the phrase to describe foods people identify with. Participants then imagine a grocery store with varying availability of said foods. The IV was operationalized across three conditions: (1) “in-culture”: participants’ personal cultural foods are available, (2) “no-in-culture”: personal cultural foods are not available, (3) “out-culture”: personal cultural foods not available but a range of other cultural foods are available. Participants were randomly assigned to a condition and then complete questions regarding our dependent measures. The third condition aims to investigate the potential benefits of cultural variety, as noted in the introduction and hypotheses, since it is infeasible to represent every culture in a grocery store.

**Measures:** We had five dependent measures all measured quantitatively with a Likert scale. Our five measures were (1) mood as measured by a shortened PANAS scale (Thompson, 2007, pg 235), (2, 3) reported sense of belonging and feeling welcomed at the store ranked definitely not to definitely yes and (4, 5) consumer tendencies measured as reported likelihood to purchase and revisit the store ranked very unlikely to very likely. 2-5 were measured with one question each, designed to ask participant’s response to those measures directly. We finished with a qualitative question asking cultural dishes or foods our respondents would like to see at UBC. We chose our survey questions based on the literature provided above.

**Procedure:** Our Qualtrics survey was divided into three sections (*Appendix B*). The first section involved the aforementioned set-up of a question regarding foods that make participants feel most at home. Then, participants were randomly assigned into one of the three conditions. In the second section, participants were asked to imagine a grocery store with the cultural food availability corresponding with which condition they were in. Then they were asked to respond to the questions detailed under *measures*. The third section included demographics and the optional qualitative open question described in *measures*. We recruited participants through posting the survey on social media platforms, primarily Instagram, asking our class professors to share the survey, and in-person recruiting in the UBC LIFE building. One challenge was failing to reach our target goal of 246 respondents. We had 36 people with incomplete surveys that had to be excluded, which interfered with the statistical analysis of our data. We also excluded one participant from the survey who was 14 years old as this was below the age requirement (18+).

## Results

We performed a one-way analysis of variance (ANOVA) with a post-hoc Tukey test on JASP (JASP Team, 2023) to examine the effect of different cultural food availability on mood in three groups: “in-culture”, “no-in-culture”, and “out-culture”.

**Mood:** Participants in the in-culture condition had a higher mean score of positive affect ( $M = 14.373$ ,  $SD = 4.476$ ) compared to no-in-culture ( $M = 11.125$ ,  $SD = 4.433$ ) and out-culture conditions ( $M = 12.225$ ,  $SD = 4.191$ ) (see *Appendix E(i)(b)* for descriptives). The one way ANOVA (*Appendix E(i)(a)*) revealed that the effect of different culturally available food conditions was significant ( $F(2, 115) = 13.830$ ,  $p < 0.001$ ). Post-hoc Tukey test in *Appendix E(i)(c)* showed a significant difference between in-culture and no-in-culture conditions (Mean

Difference (MD), 3.612, SE = 0.989,  $2(115) = 3.651$ , Cohen's  $d = 0.827$ ,  $p = 0.001$ ). However, there was no significant difference in the in-culture and out-culture condition (MD, 2.512, SE = 0.989,  $2(115) = 2.539$  Cohen's  $d = 0.575$ ,  $p = 0.033$ ) and no-in-culture and out-culture condition (MD, -1.100, SE = 0.976,  $2(115) = -1.127$ , Cohen's  $d = 0.252$ ,  $p = 0.500$ ). The findings for all three groups were consistent with our hypotheses.

Mean negative affect was significantly lower in the in-culture condition ( $M = 6.947$ ,  $SD = 2.217$ ) compared to no-in-culture ( $M = 10.325$ ,  $SD = 4.085$ ) and out-culture ( $M = 10.500$ ,  $SD = 3.419$ ) (see *Appendix E(ii)(b)* for descriptives). Impact of different culturally available food options was significant ( $F(2, 115) = 13.830$ ,  $p < 0.001$ ) (see *Appendix E(ii)(a)*). In Post-hoc Tukey test in *Appendix E (ii)(c)*, both in-culture and no-in-culture (MD, -3.378, SE = 0.758,  $2(115) = -4.454$ , Cohen's  $d = -1.009$ ,  $p < 0.001$ ) and in-culture and out-culture (MD, -3.553, SE = 0.758,  $2(115) = -4.685$ , Cohen's  $d = -1.061$ ,  $p < 0.001$ ) had a significant difference. However, no-in-culture and out-culture (MD, -0.175, SE = 0.749,  $2(115) = -0.234$ , Cohen's  $d = -0.052$ ,  $p = 0.970$ ) were not significantly different. The hypothesis for in-culture conditions was supported, but not for out-culture and no-in-culture conditions.

Sense of Belonging: Participants in the in-culture condition expressed a higher sense of belonging ( $M = 3.816$ ,  $SD = 1.036$ ) than those in no-in-culture ( $M = 2.10$ ,  $SD = 0.90$ ) and out-culture ( $M = 1.925$ ,  $SD = 0.94$ ) (see *Appendix F(ii)* for descriptives). The one-way ANOVA revealed a statistical difference in sense of belonging scores among the three different conditions ( $F(2,115) = 45.740$ ,  $p < 0.001$ ) (see *Appendix F(ii)*). Post-hoc Tukey tests in *Appendix F(iii)* revealed significant differences between the in-culture condition and no-in-culture condition (MD = 1.716, SE = 0.218,  $2(115) = 7.886$ , Cohen's  $d = 1.786$ ,  $p < .001$ ), as well as between in-culture condition and out-culture condition (MD = 1.891, SE = 0.218,  $2(115) = 8.690$ , Cohen's  $d = 1.969$ ,  $p < .001$ ). However, there was no significant difference between no-in-culture and out-culture conditions (MD = 0.175, SE = 0.215,  $2(115) = 0.815$ , Cohen's  $d = 0.182$ ,  $p = 0.695$ ). Our hypotheses for the in-culture condition were supported and were not supported for no-in-culture and out-culture conditions.

Sense of Feeling Welcomed: Participants in the in-culture condition expressed a higher sense of feeling welcomed ( $M = 4.289$ ,  $SD = 0.768$ ) than those in no-in-culture ( $M = 2.850$ ,  $SD = 0.949$ ) and out-culture conditions ( $M = 2.850$ ,  $SD = 0.893$ ) (see *Appendix G(i)* for descriptives). There was a marginal difference between the no-in-culture and out-culture conditions. The one way ANOVA revealed a statistical difference in the sense of feeling welcomed scores among different conditions ( $F(2, 115) = 34.874$ ,  $p < 0.001$ ) (*Appendix G(ii)*). Post Hoc Tukey in *Appendix G(iii)* results revealed significant differences between in-culture condition and no-in-culture conditions (MD = 1.439, SE = 0.198,  $2(115) = 7.264$ , Cohen's  $d = 1.645$ ,  $p < .001$ ) and between in-culture condition and out-culture condition (MD = 1.439, SE = 0.198,  $2(115) = 7.264$ , Cohen's  $d = 1.645$ ,  $p < .001$ ). However, no significant difference was found between no-in-culture and out-culture conditions (MD =  $2.331 \times 10^{-15}$ , SE = 0.196,  $2(115) = 1.192 \times 10^{-14}$ , Cohen's  $d = 3.109 \times 10^{-15}$ ,  $p = 1.000$ ). Our hypotheses for the in-culture condition were supported and were not supported for no-in-culture and out-culture conditions.

Willingness to purchase: Participants in the in-culture condition expressed a higher willingness to purchase ( $M = 4.079$ ,  $SD = 0.784$ ) compared to the participants in the no-culture ( $M = 3.150$ ,  $SD = 1.027$ ) and out-culture conditions ( $M = 2.975$ ,  $SD = 0.920$ ) (see *Appendix H(i)* for descriptives). The one way ANOVA revealed statistical differences in the willingness to purchase among different conditions ( $F(2,115) = 16.168$ ,  $p < 0.001$ , (*Appendix H(ii)*). Results from the

post-hoc Tukey tests, shown in *Appendix H(iii)*, showed that the in-culture condition was significantly different from no-culture condition (MD = 0.929, SE = 0.208,  $2(115) = 4.469$ , Cohen's  $d = 1.012$ ,  $p < .001$ ), as well as from out-culture condition (MD = 1.104, SE = 0.208,  $2(115) = 5.311$ , Cohen's  $d = 1.203$ ,  $p < .001$ ). However, there was no significant difference between no-culture condition and out-culture condition (MD = 0.175, SE = 0.205,  $2(115) = 0.853$ , Cohen's  $d = 0.191$ ,  $p = 0.671$ ). The results supported the in-culture condition hypothesis and did not support the no in-culture and out-culture conditions hypotheses.

Likelihood to visit again: Participants in in-culture condition expressed higher likelihood to visit the grocery store again (M = 4.289 SD = 0.732) compared to the participants in no-in-culture (M = 3.000 SD = 0.906) and out-culture conditions (M = 2.775 SD = 0.920) (see *Appendix I (ii)* for descriptives). The one way ANOVA revealed a statistical difference in the likelihood to revisit the grocery store among the three different conditions ( $F(2, 115) = 35.026$ ,  $p < 0.001$ ). Post Hoc Tukey results in *Appendix I (iii)* tests revealed significant difference between the in-culture and no-in-culture condition (MD = 1.289, SE = 0.195,  $2(115) = 6.629$ , Cohen's  $d = 1.502$ ,  $p < .001$ ) and between the in-culture and out-culture condition (MD = 1.514, SE = 0.195,  $2(115) = 7.786$ , Cohen's  $d = 1.764$ ,  $p < .001$ ). However, there was no significant difference between the no-in-culture and out-culture conditions (MD = 0.225, SE = 0.192,  $2(115) = 1.172$ , Cohen's  $d = 0.262$ ,  $p = 0.472$ ). The results revealed that the in-culture condition's hypothesis was supported. The no-in-culture and out-culture conditions hypotheses were not supported.

Qualitative analysis of food requests: Verbatim responses were grouped by cultural background of respondents and subgrouped by food culture to first better understand the data (see *Appendix J(i)* for raw data). Since our qualitative data processing may eliminate some nuances and connections embedded in participant's exact phrasing, this is included for its value and transparency despite its bulkiness. In producing frequency tables, note the role of the researcher in grouping certain items (e.g. dumplings and dim sum) and doing additional research on dishes to ensure accurate sorting. Certain phrases or words were grouped, reducing the granularity of the data but helping in providing bigger picture insights. To better describe these new 'units' of text, we use the term 'references'. References to quality included terms like "better" or "fresh." Authenticity was used verbatim but also includes the use of "non-whitewashed," and other synonyms relating to affordability and health. We produced two frequency tables, sorted by food culture (*Appendix J(ii)*) and highest-to-lowest frequency (*Appendix J(iii)*). The top four most frequent references were 'quality' (freq=12), 'authenticity' (freq=10), 'affordability' (freq=6), and 'health' (freq=6). These were followed by the top food references of 'noodles', 'dim sum', and 'South Indian Food,' all at freq=5.

*Appendix J(iv)* includes a pie chart of reference culture and shows that overall East Asian foods were most referenced, at 35.1%, while culture-neutral references follow at 23.2% and South Asian foods at 17.3%. Finally, *Appendix J(v)* includes a stacked bar chart of the culture of the foods requested by each cultural background which provide insights into the proportion of in-culture versus out-culture food requests. For all cultural backgrounds, with the exception of one African-Middle-Eastern participant, there were more out-culture than in-culture food references. If culture-neutral references are excluded, there is an additional exception of East Asian participants who made 19 in-culture references and 17 non-neutral out-culture references.

## Discussion

This study focused on the influence of cultural food availability and diversity on well-being and consumer activity (i.e., likelihood to purchase cultural food in or outside of one's culture and/or

visit the establishment selling these foods again). Our results showed that participants who imagined they had access to food from their own culture in a grocery store reported greater well-being and increased consumer activity. Interestingly, while we found no quantitative difference between mood (PANAS) or consumer activity in the “no-in-culture” and “out-culture” conditions, our qualitative data showed that many reported wanting more food options at UBC from both within and outside their own culture. Further research could specifically focus on the impact of access to out-culture foods as our study may not have been designed to capture this effect (if one is present). As well, responses to the open-ended question of “what cultural dishes or food items do you wish were available on the UBC Campus,” garnered responses which most frequently related to a desire for increased authenticity and quality of cultural foods on campus. Further research could elaborate upon how positive effects of cultural food availability depend on or relate to the authenticity and quality of the food.

While our study was open to anyone affiliated with UBC, as 96.6% of our participants were students, results may not hold true for populations beyond students at UBC. However, if this effect does hold true in more diverse samples, there could be large implications. With almost 25% of the Canadian population being landed immigrants or permanent residents (Statistics Canada, 2022), increasing access to cultural foods across Canada could help increase well-being in these populations that may identify with foods outside of “traditional” western markets.

A challenge faced was obtaining participants. As mentioned, though our power analysis determined we needed 246 participants, we only had 118 total. This small sample means that our results may not be broadly applicable. Another limitation was where we recruited participants, which was primarily in and around the UBC LIFE building. Only recruiting participants in this one area of campus influenced excluded any students who do not frequent these spaces. There was a lack of representation of African, Latinx, and Indigenous participants in our study, which could have been due to the way and spaces in which we recruited participants. Further research should focus on having a more diverse range of participants from different cultural backgrounds, which could be done by recruiting participants in more areas on campus or from specific student groups (e.g., the Black Students Union), or a more broad sampling from the general Canadian population. Finally, since our study only had students imagine likelihood to purchase and visit a market selling their cultural foods again, a longitudinal study where these behaviors are tracked could be done to better understand if these results only occur in imagined situations or in real life.

### **Recommendations for the UBC Food Hub**

Our findings suggest that access to one’s cultural foods can increase well-being and likelihood to purchase these foods and visit the establishment selling them again. We recommend that the UBC Food Hub diversifies its range of foods from different cultures to boost the positive effects of access to cultural foods. While the UBC Food Hub already offers a range of cultural foods, increasing diversity could allow more students to experience an increase in well-being. As mentioned previously, *Appendix J(i)*, *(ii)*, and *(iii)* detail the specific foods students would like greater access to at UBC. Outsourcing to local IBPOC businesses could provide more options that may have more authentic and higher quality cultural foods than other markets. Greater cultural food variety could increase the number of students who purchase food from the UBC Food Hub and increase their likelihood to visit again, as this trend was observed in our study.



## References

- JASP Team. (2023). JASP (Version 0.17.1) <https://jasp-stas.org/>
- Rodríguez-Arauz, G., Ramírez-Esparza, N., & Smith-Castro, V. (2016). Food attitudes and well-being: The role of culture. *Appetite, 105*, 180–188. <https://doi.org/10.1016/j.appet.2016.05.019>
- Thompson, E. R. (2007). Development and validation of an internationally reliable short-form of the positive and negative affect schedule (PANAS). *Journal of Cross-Cultural Psychology, 38*(2), 227-242. <https://doi.org/10.1177/0022022106297301>
- Statistics Canada. (2022, October 26). *Immigration, place of birth, and citizenship: 2021 census promotional material*. Retrieved April 15, 2023, from <https://www.statcan.gc.ca/en/census/census-engagement/community-supporter/immigration>
- Wright, K. E., Lucero, J. E., Ferguson, J. K., Granner, M. L., Devereux, P. G., Pearson, J. L., & Crosbie, E. (2021). The impact that cultural food security has on identity and well-being in the second-generation U.S. American Minority College Students. *Food Security, 13*(3), 701–715. <https://doi.org/10.1007/s12571-020-01140-w>
- Zarantonello, L., Grappi, S., Formisano, M., & Schmitt, B. H. (2021). A “crescendo” model: Designing food experiences for psychological well-being. *European Journal of Marketing, 55*(9), 2414–2438. <https://doi.org/10.1108/ejm-03-2020-0195>

## Appendix

### **Appendix A: Contributions of Team Members**

<b>Team Member</b>	<b>Contributions</b>
<b>Airi</b>	Proposal <ul style="list-style-type: none"> <li>- Methods section</li> </ul> Data collection <ul style="list-style-type: none"> <li>- Recruited participants in person</li> <li>- Recruited participants through social media</li> </ul> Presentation <ul style="list-style-type: none"> <li>- Research questions</li> <li>- Hypotheses table</li> </ul> Final Report <ul style="list-style-type: none"> <li>- Methods section: participants and condition</li> <li>- Results: likelihood to revisit the grocery store</li> <li>- Proofreading and editing</li> </ul>
<b>Alysse</b>	Proposal <ul style="list-style-type: none"> <li>- brainstorming /editing</li> <li>- Assisted in designing the survey</li> </ul> Data collection <ul style="list-style-type: none"> <li>- Distributed survey through social media</li> <li>- Recruited participants in person</li> </ul> Presentation <ul style="list-style-type: none"> <li>- Discussion and recommendations</li> <li>- Formatting of presentation</li> </ul> Final Report <ul style="list-style-type: none"> <li>- Discussion and recommendations</li> <li>- Initiated group meeting through zoom</li> <li>- Proofreading and editing</li> </ul>
<b>Rachel</b>	Proposal <ul style="list-style-type: none"> <li>- Assisted in designing the questions for Qualtrics</li> </ul> Running Data Collection <ul style="list-style-type: none"> <li>- Recruited participants in-person</li> </ul> Running Data Analysis <ul style="list-style-type: none"> <li>- Completed statistical analysis via JASP to generate descriptive data</li> </ul> Presentation <ul style="list-style-type: none"> <li>- Responsible for presenting the “result” section of the study</li> </ul> Final Report <ul style="list-style-type: none"> <li>- Collaborated on results section (i.e mood) presenting values on collected data</li> <li>- Proofreading and editing</li> </ul>

<b>Natalie</b>	<p>Proposal</p> <ul style="list-style-type: none"> <li>- Originally proposed topic/question</li> <li>- Background information</li> <li>- Research question/hypothesis</li> <li>- Proofreading, discussion, recommendations on all</li> </ul> <p>Data collection</p> <ul style="list-style-type: none"> <li>- Through social media</li> <li>- Distributing in classes</li> </ul> <p>Running Data Analysis</p> <ul style="list-style-type: none"> <li>- Completed in-depth qualitative analysis; interpretation, tallying of references, tables, graphs. Largely done manually due to nature of data.</li> </ul> <p>Presentation</p> <ul style="list-style-type: none"> <li>- All visuals/table/diagrams and slide layout/design</li> <li>- Discussion and recommendations on all</li> </ul> <p>Final Report</p> <ul style="list-style-type: none"> <li>- Executive summary, background research, research question, hypotheses</li> <li>- Qualitative data analysis and presentation/description</li> <li>- Proofreading, rewriting, recommendations on all</li> </ul>
<b>Nivedita</b>	<p>Proposal</p> <ul style="list-style-type: none"> <li>- Power analysis, statistical analysis proposal, methods section</li> </ul> <p>Data collection</p> <ul style="list-style-type: none"> <li>- through social media</li> <li>- recruitment participants in person</li> </ul> <p>Presentation</p> <ul style="list-style-type: none"> <li>- All graphs</li> <li>- Methods- measures</li> </ul> <p>Final Report</p> <ul style="list-style-type: none"> <li>- Methods section - measures and procedure subsection</li> <li>- Results section - sense of belonging, sense of feeling welcomed and willingness to purchase</li> <li>- Formatting and presentation</li> <li>- Proofreading and editing</li> </ul>

## Appendix B: Survey Questions

Consent FormStudent Conceptualization

Q1. What foods from your culture make you feel most at home? List as many food items or dishes as you like. (Please keep this answer in mind as you progress to the next page).

**Condition 1 (In-Culture)**

*Q1. Imagine you are in a grocery store which has the cultural food(s) you listed previously. Please indicate how you would feel in this grocery store.*

	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes
Upset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hostile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ashamed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inspired	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nervous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attentive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Afraid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Active	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Q2. Would you feel welcomed at this grocery store? (Definitely not ~ Definitely yes)*

*Q3. Would you feel a sense of belonging at this store? (Definitely not ~ Definitely yes)*

*Q4. How likely would you be to purchase food from this grocery store? (Very Unlikely ~ Very Likely)*

*Q5. How likely would you be to visit this grocery store again? (Very Unlikely ~ Very Likely)*

*Optional*

Q. 1 What cultural dishes or food items do you wish were available on the UBC Campus?

**Condition 2 (No In-Culture)**

*Q. 1 Imagine you are in a grocery store which DOES NOT have any of the cultural food(s) you thought of previously. Please indicate how you would feel in this grocery store.*

	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes
Upset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hostile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ashamed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inspired	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nervous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attentive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Afraid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Active	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Q2. Would you feel welcomed at this grocery store? (Definitely not ~ Definitely yes)*

*Q3. Would you feel a sense of belonging at this store? (Definitely not ~ Definitely yes)*

*Q4. How likely would you be to purchase food from this grocery store? (Very Unlikely ~ Very Likely)*

*Q5. How likely would you be to visit this grocery store again? (Very Unlikely ~ Very Likely)*

**Condition 3 (Out-Culture)**

*Q.1 Imagine you are in a grocery store which sells a diverse range of cultural foods, EXCLUDING your own. Please indicate how you would feel in this grocery store.*

	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes
Upset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hostile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ashamed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inspired	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nervous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attentive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Afraid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Active	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Q2. Would you feel welcomed at this grocery store? (Definitely not ~ Definitely yes)*

*Q3. Would you feel a sense of belonging at this store? (Definitely not ~ Definitely yes)*

*Q4. How likely would you be to purchase food from this grocery store? (Very Unlikely ~ Very Likely)*

*Q5. How likely would you be to visit this grocery store again? (Very Unlikely ~ Very Likely)*

Demographics

Are you a...

- Student
- Staff member
- Faculty Member
- Community Member

If you are a student in UBC, what year of standing are you in?

- 1st year
- 2nd year
- 3rd year
- 4th year
- +5th year
- Other

Age

Gender

- Man
- Woman
- Two Spirit
- Non-binary
- None of the above, I identify as:

Do you have trans experience?

- Yes
- No

What is your cultural background? Choose all that apply.

African  
 European  
 East Asian  
 South Asian  
 South East Asian  
 First Nations or Indigenous (please specify)   
 Hispanic or Latinx  
 Middle Eastern  
 Other (please specify)   
 Prefer not to answer

What cultural dishes or food items do you wish were available on the UBC campus?

### Appendix C: Table of hypotheses

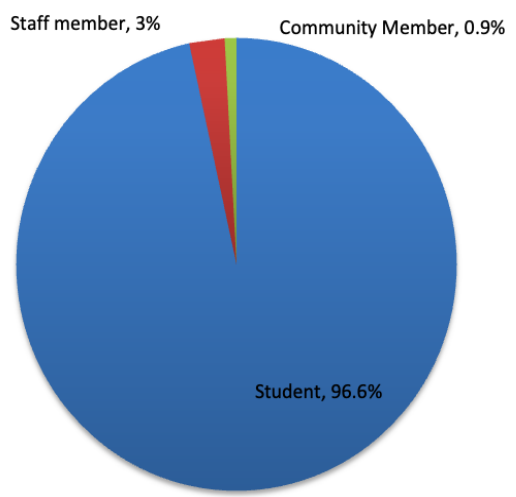
	Availability of personal cultural food options		
	1. “In-culture” ✓ personal cultural options	2. “No-in-culture” ✗ personal cultural options	3. “Out-culture” ✗ personal options ✓ range of OTHER cultural options
<b>Mood (PANAS)</b>	Highest positive rating Lowest negative rating	Lowest positive rating Highest negative rating	Moderate positive and negative ratings
<b>Sense of Belonging</b>	Highest rating	Lowest ratings	
<b>Sense of feeling Welcomed</b>	Highest rating	Lowest ratings	
<b>Willingness to Purchase</b>	Highest rating	Lowest rating	Moderate rating
<b>Likelihood to visit again</b>	Highest rating	Lowest rating	Moderate rating

### Appendix D: Participant Demographics



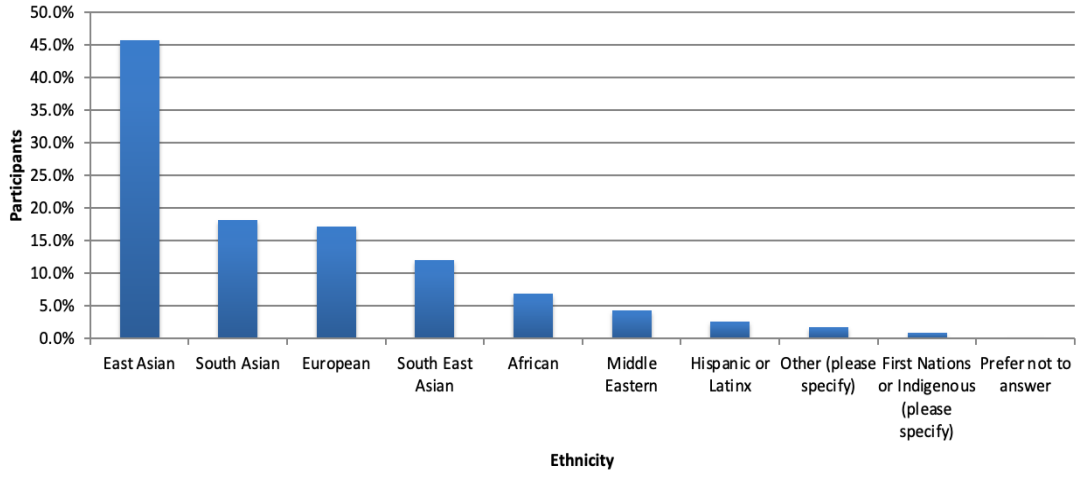
**Appendix D(i): Participant community demographics**

**Participant Demographics**

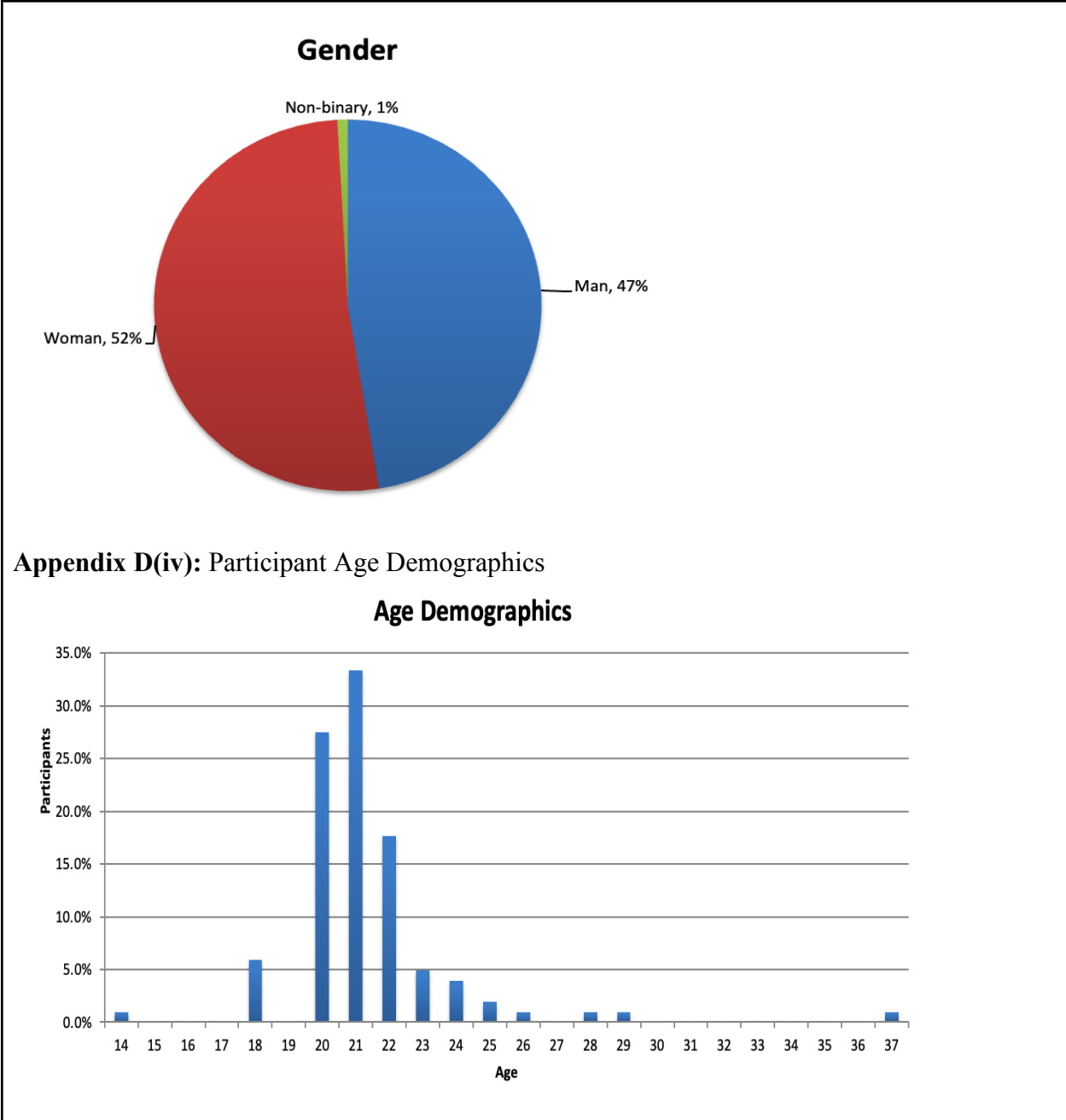


**Appendix D(ii): Participant Cultural Background / Ethnicity Demographics**

**Ethnicity Demographics**



**Appendix D(iii): Participant Gender Demographics**



**Appendix E: Mood/PANAS Analysis**

(i)- Positive Affect

(a) ANOVA - Positive

Cases	Sum of Squares	df	Mean Square	F	p	$\eta^2$

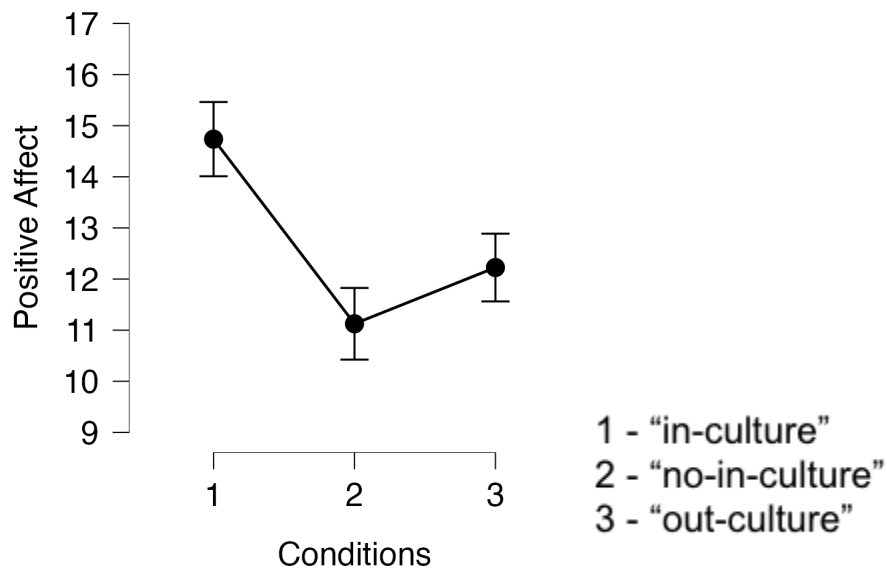
Conditions	265.722	2	132.861	6.968	0.001	0.108
Residuals	2192.718	115	19.067			

*Note.* Type III Sum of Squares

**(b) Descriptives - Positive**

Conditions	N	Mean	SD	SE	Coefficient of variation
1	38	14.737	4.476	0.726	0.304
2	40	11.125	4.433	0.701	0.398
3	40	12.225	4.191	0.663	0.343

**Descriptives plots**



**(c) Post Hoc Comparisons - Conditions**

		Mean Difference (MD)	SE	t	Cohen's d	P <sub>tukey</sub>
1	2	3.612	0.989	3.651	0.827	0.001
	3	2.512	0.989	2.539	0.575	0.033
2	3	-1.100	0.976	-1.127	-0.252	0.500

*Note.* P-value adjusted for comparing a family of 3

**(ii)- Negative Affect**

**(a) ANOVA - Negative**

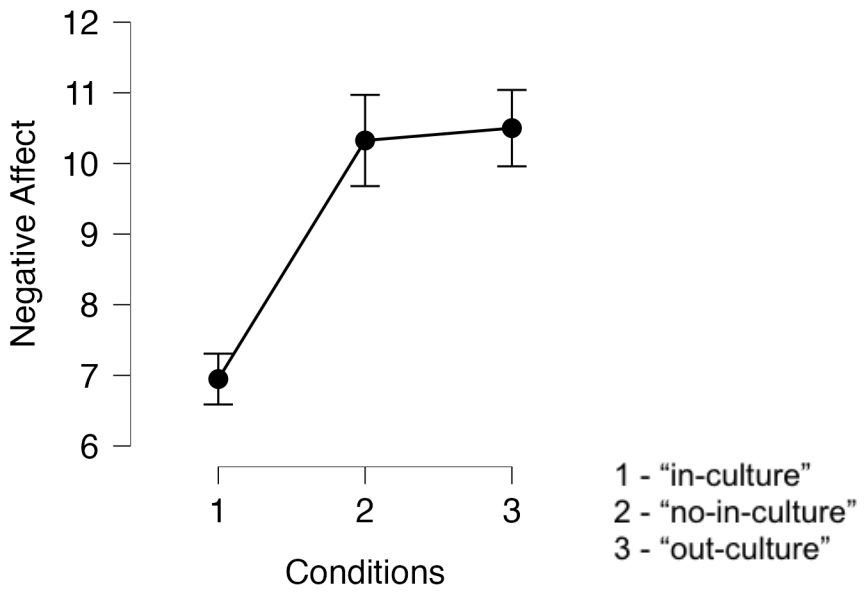
Cases	Sum of Squares	df	Mean Square	F	p	$\eta^2$
Conditions	309.949	2	154.974	13.830	< .001	0.194
Residuals	1288.670	115	11.206			

*Note.* Type III Sum of Squares

**(b) Descriptives - Negative**

Conditions	N	Mean	SD	SE	Coefficient of variation
1	38	6.947	2.217	0.360	0.319
2	40	10.325	4.085	0.646	0.396
3	40	10.500	3.419	0.541	0.326

**Descriptives plots**



(c) Post Hoc Comparisons - Conditions

		Mean Difference (MD)	SE	t	Cohen's d	$p_{\text{Tukey}}$
1	2	-3.378	0.758	-4.454	-1.009	< .001
	3	-3.553	0.758	-4.685	-1.061	< .001
2	3	-0.175	0.749	-0.234	-0.052	0.970

Note. P-value adjusted for comparing a family of 3

**Appendix F: Sense of Belonging Analysis**

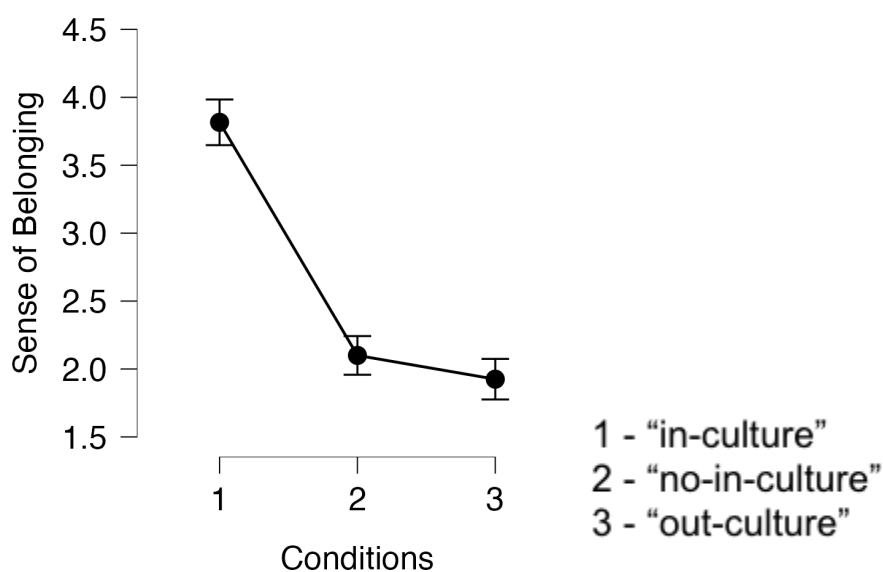
(i) ANOVA - Would you feel a sense of belonging at this grocery store?						
Cases	Sum of Squares	df	Mean Square	F	p	$\eta^2$
Conditions	84.389	2	42.195	45.740	< .001	0.443
Residuals	106.086	115	0.922			

Note. Type III Sum of Squares

**(ii) Descriptives - Would you feel a sense of belonging at this grocery store?**

Conditions	N	Mean	SD	SE	Coefficient of variation
1	38	3.816	1.036	0.168	0.271
2	40	2.100	0.900	0.142	0.429
3	40	1.925	0.944	0.149	0.491

**Descriptives plots**



**(iii) Post Hoc Comparisons - Conditions**

		Mean Difference (MD)	SE	t	Cohen's d	$p_{\text{Tukey}}$
1	2	1.716	0.218	7.886	1.786	< .001
	3	1.891	0.218	8.690	1.969	< .001
2	3	0.175	0.215	0.815	0.182	0.695

*Note.* P-value adjusted for comparing a family of 3

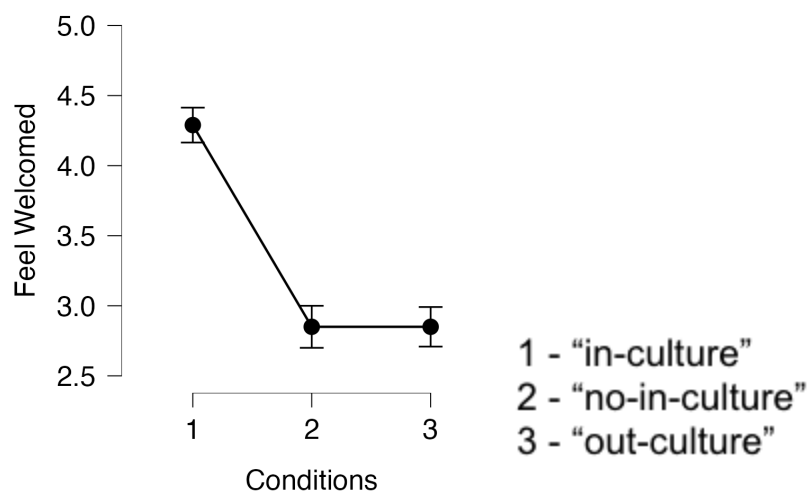
### Appendix G: Sense of Welcome Analysis

<b>(i) ANOVA - Would you feel welcomed at this grocery store?</b>						
<b>Cases</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>p</b>	<b><math>\eta^2</math></b>
Conditions	53.383	2	26.691	34.874	< .001	0.378
Residuals	88.016	115	0.765			

*Note.* Type III Sum of Squares

<b>(ii) Descriptives - Would you feel welcomed at this grocery store?</b>					
<b>Conditions</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>SE</b>	<b>Coefficient of variation</b>
1	38	4.289	0.768	0.125	0.179
2	40	2.850	0.949	0.150	0.333
3	40	2.850	0.893	0.141	0.313

**Descriptives plots**



**(iii)- Post Hoc Comparisons - Conditions**

		Mean Difference (MD)	SE	t	Cohen's d	$p_{\text{tukey}}$
1	2	1.439	0.198	7.264	1.645	< .001
	3	1.439	0.198	7.264	1.645	< .001
2	3	$2.331 \times 10^{-15}$	0.196	$1.192 \times 10^{-14}$	$3.109 \times 10^{-15}$	1.000

*Note.* P-value adjusted for comparing a family of 3

**Appendix H: Willingness to Purchase Analysis**

**(i) ANOVA - How likely would you be to purchase food from this grocery store?**

Cases	Sum of Squares	df	Mean Square	F	p	$\eta^2$
Conditions	27.230	2	13.615	16.168	< .001	0.219
Residuals	96.838	115	0.842			

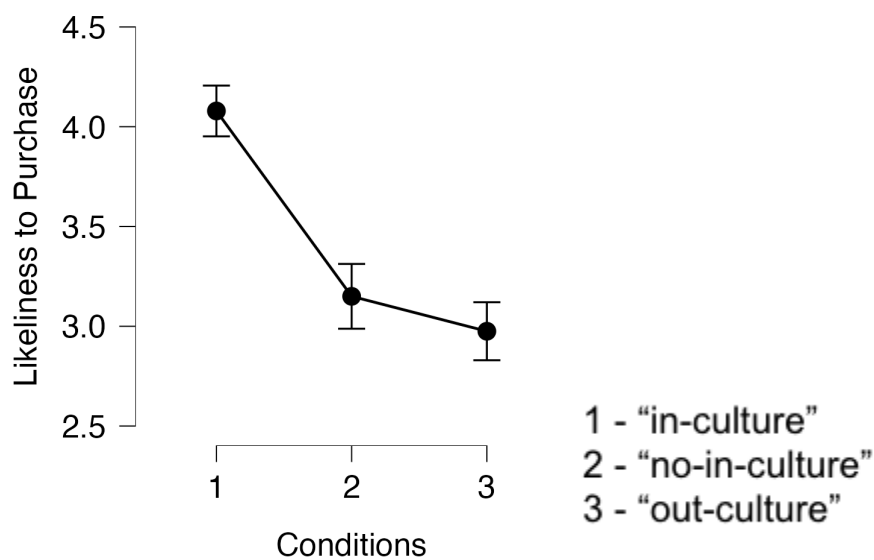


Note. Type III Sum of Squares

**(ii) Descriptives - How likely would you be to purchase food from this grocery store?**

Conditions	N	Mean	SD	SE	Coefficient of variation
1	38	4.079	0.784	0.127	0.192
2	40	3.150	1.027	0.162	0.326
3	40	2.975	0.920	0.145	0.309

**Descriptives plots**



**(iii) Post Hoc Comparisons - Conditions**

		Mean Difference (MD)	SE	t	Cohen's d	$p_{\text{tukey}}$
1	2	0.929	0.208	4.469	1.012	< .001
	3	1.104	0.208	5.311	1.203	< .001
2	3	0.175	0.205	0.853	0.191	0.671

*Note.* P-value adjusted for comparing a family of 3

## Appendix I: Likelihood to Revisit Analysis

### (i) ANOVA - How likely would you be to visit this grocery store again?

Cases	Sum of Squares	df	Mean Square	F	p	$\eta^2$
Conditions	51.650	2	25.825	35.026	< .001	0.379
Residuals	84.791	115	0.737			

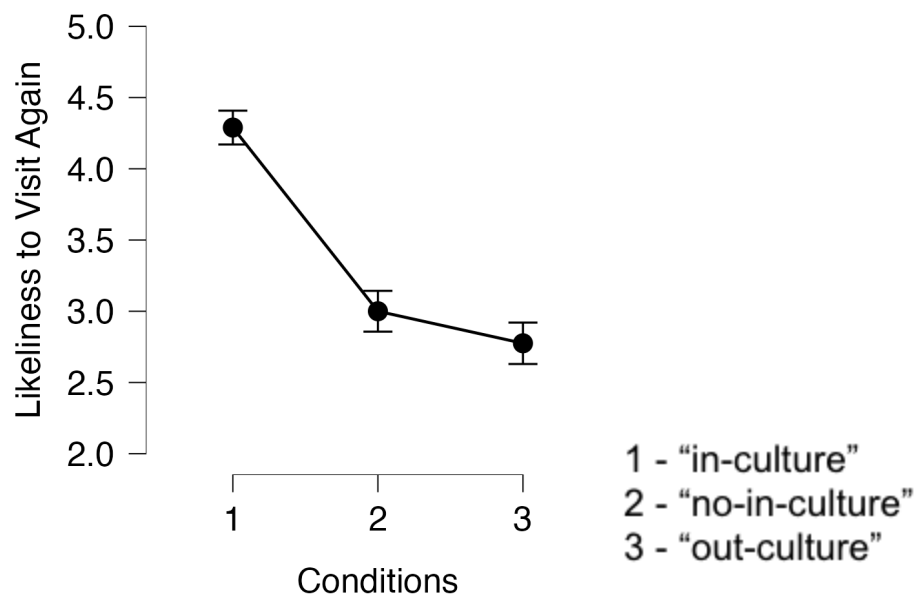
*Note.* Type III Sum of Squares

### (ii) Descriptives

#### Descriptives - How likely would you be to visit this grocery store again?

Conditions	N	Mean	SD	SE	Coefficient of variation
1	38	4.289	0.732	0.119	0.171
2	40	3.000	0.906	0.143	0.302
3	40	2.775	0.920	0.145	0.331

Descriptives plots



(iii) Post Hoc Comparisons - Conditions

		Mean Difference (MD)	SE	t	Cohen's d	$p_{\text{tukey}}$
1	2	1.289	0.195	6.629	1.502	< .001
	3	1.514	0.195	7.786	1.764	< .001
2	3	0.225	0.192	1.172	0.262	0.472

*Note.* P-value adjusted for comparing a family of 3

## Appendix J: Qualitative Analysis

**Appendix J(i):** Raw data table grouped by participant cultural background and subgrouped by food culture.

Qualitative raw data (verbatim responses) grouped by participant cultural background and subgrouped by food culture.

Participant  
cultural  
background

Food Culture

Consolidated Raw Data

<b>East Asian</b>	East Asian	miso soup, more japanese food, Oden, more variety of Steamed Bun, sweet rice dumplings, takoyaki, non-whitewashed ramen, bubble tea other than chatime, "More authentic asian food (not fast food).", better quality noodles, Sukiyaki and shabushabu, hot pot/shabu shabu, better quality sushi, curry, pork cutlet or beef cutlet, Sweet and sour short ribs, Authentic Tempura, Cheaper Japanese or Asian food. Red beans and rice. Dim sum
	South Asian	freshly made south asian food, more authentic and affordable indian food, Palak paneer, Mathi paratha, chaat, south Indian
	South East Asian	filipino food, molo (filipino), taho (filipino), Vietnamese foods like Che, fried spring rolls
	European	Perogies
	African	literally anything from the continent of Africa
	Hispanic or Latinx	mexican, chipotle
	Middle Eastern	Koobideh
	First Nations or Indigenous	–
	Other/ Culture-neutral	pre-made food, More grilled and healthy meat options with healthy fats. Not fried or sauce covered things. More fruit as well. Simple healthy ingredients., cheaper food,,
<b>South Asian</b>	South Asian	Indian vegan food (Rajma Chawal, Chole Bhature, Dosa Sambar, Dal Chawal)
	East Asian	Mooncakes with cured pork, I want more authentic Chinese food that actually matches the price, Korean food, dumplings, Taiwanese desserts, Noodles with fish balls, tempura
	South East Asian	satay would probably be the easiest Indonesian dish to make so for starters, satay would do!
	European	Perogis. Rice pilaf, cabbage rolls, crepes
	African	East african food <a href="https://www.bonjourmauriti.us.com/mauritianfood-boulettes/">https://www.bonjourmauriti.us.com/mauritianfood-boulettes/</a>
	Hispanic or Latinx	–
	Middle Eastern	–
	First Nations or Indigenous	–
	Other/ Culture-neutral	Couscous!, More fresh whole plant foods, like smoothies!

<b>South East Asian</b>	South East Asian	rice dishes,
	East Asian	Authentic sushi, better ramen, rougamo (chinese), Better / more authentic sushi or japanese food, east asian food (korean, chinese) noodles more warm "winter" foods (e.g., soups & noodles), chinese food
	South Asian	–
	European	greek food
	African	–
	Hispanic or Latinx	mexican food (ie tacos, quesadillas, burritos)
	Middle Eastern	–
	First Nations or Indigenous	–
	Other/ Culture-neutral	–
<b>European</b>	European	Latkes, brisket, chicken noodle matzo ball soup,
	East Asian	Dumplings, hotpot, oden, Cheap korean filling foods (Bibimbap, mixed noodles/rice), Washoku (japanese)
	South Asian	More South Indian or homemade Indian food, Curries and naan, Dosa, Any Indian dish with roti
	South East Asian	–
	African	–
	Hispanic or Latinx	Churrasco, any foods from Brazil!, Corn on a stick! But like organic corn, with colors and not GMO yellow US stuff
	Middle Eastern	More middle eastern food! jam jar is so mediocre and the grocery offers limited middle eastern food, Iranian
	First Nations or Indigenous	–
	Other/ Culture-neutral	–
<b>African</b>	African	–
	East Asian	natto
	South Asian	Simple dal and rice, Indian sweets, Chicken curry (not butter chicken!), Dosa, vada pav, pav Bhaji, paneer, sev Puri, panipuri,

	South East Asian	–
	European	–
	Hispanic or Latinx	–
	Middle Eastern	–
	First Nations or Indigenous	–
	Other/ Culture-neutral	–
<b>Hispanic or Latinx</b>	Hispanic or Latinx	–
	East Asian	–
	South Asian	–
	South East Asian	–
	European	–
	African	Red stew, fufu
	Middle Eastern	–
	First Nations or Indigenous	–
	Other/ Culture-neutral	–
<b>Middle Eastern</b>	Middle Eastern	Good Falafel (unless it already exists)
	East Asian	Nikujaga, sushi, tempura, oden, takowasa, edamame, natto, miso, umeboshi, mochi, ramen
	South Asian	South Indian dishes, and Bengali dishes
	South East Asian	–
	European	–
	African	–
	Hispanic or Latinx	–
	First Nations or Indigenous	–
	Other/ Culture-neutral	–

<b>First Nations or Indigenous</b>	–	–
<b>Undeclared</b>	East Asian	Donburi, Guy-don, Karaage
	South Asian	More South Indian!
	South East Asian	Sweet soy sauce (or called Kecap Manis), Vietnamese foods
	Hispanic or Latinx	Better Mexican food
	Other/ Culture-neutral	Im pretty happy w the food but some healthier but still not expensive options would be nice
<b>Mixed</b>		
African, South East Asian	East Asian	Takoyaki
European, South East Asian	African	Ethiopian food
African, Middle Eastern	African	Injera (Ethiopian food )
African, South East Asian	East Asian	Takoyaki
European, Hispanic or Latinx	Other/ Culture-neutral	I always make and bring my own!
European, South East Asian	African	Ethiopian food

**Appendix J(ii):** Reference frequency table (sorted by culture)

<b>Reference Frequency (Organized by Culture)</b>		
<b>Food Culture</b>	<b>Reference (Food/word/phrase)</b>	<b>Frequency</b>
<b>Other/ Culture-neutral</b>	Quality (e.g. "better", "fresh")	12
	Authenticity (e.g. "non-whitwashed")	10
	Affordability (e.g. "cheaper")	6
	Health (e.g. "not fast food", "plant-based")	6
	Convenience (e.g. "easy, simple, premade")	4
	couscous	1

<b>East Asian</b>	Noodles	5
	Dim sum Dumplings, sweet rice dumplings, dumplings, steamed Bun)	5
	Korean food	4
	hotpot/shabushabu	3
	Japanese food	3
	Oden	3
	Tempura	3
	Ramen	3
	Sushi	3
	Miso	2
	Takoyaki	2
	Natto	2
	Chinese food	2
	"bubble tea other than chatime"	1
	Red beans and rice	1
	Sweet and sour short ribs	1
	Rougamo	1
	Mooncakes with cured pork	1
	Taiwanese Desserts	1
	Bibimbap	1
	mixed rice	1
	Takowasa	1
	Sukiyaki	1
	Japanese curry	1
	Pork/Beef	1
	Nikujaga	1
	Edamame	1
	Umeboshi	1
	Mochi	1
	Washoku (japanese)	1
Donburi	1	

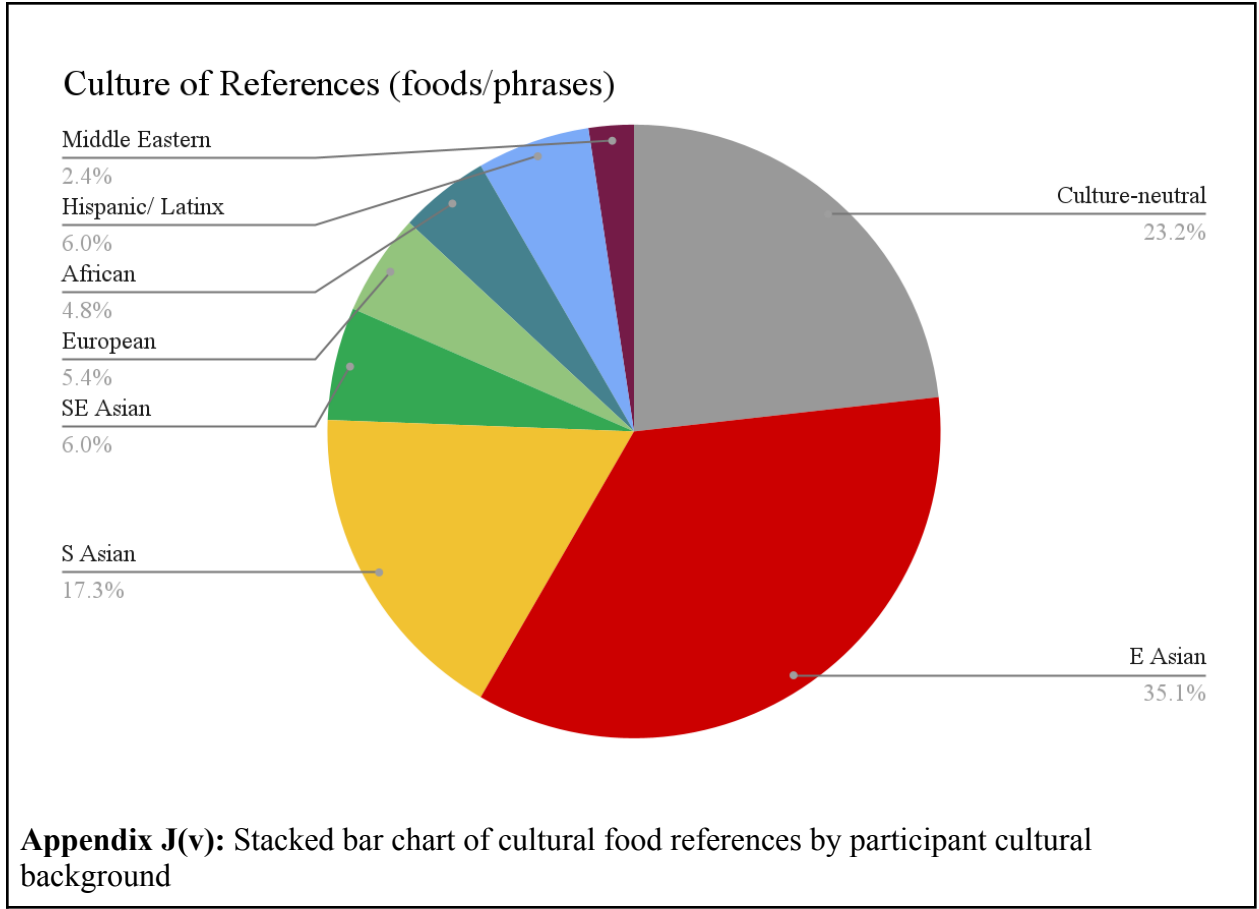


**Appendix J(iii):** Reference frequency table (sorted by most to least frequent)

Reference Frequency (Organized by Highest-Lowest)					
Reference (Food/word/phrase)	Frequency	Reference (contd 1)	Frequency (contd 1)	Reference (contd 2)	Frequency (contd 2)
Quality (e.g. "better", "fresh")	12	Rougamo	1	Panipuri	1
Authenticity (e.g. "non-whitwashed")	10	Mooncakes with cured pork	1	Curries and naan	1
Affordability (e.g. "cheaper")	6	Taiwanese Desserts	1	Roti	1
Health (e.g. "not fast food", healthier)	6	Bibimbap	1	Bengali food	1
Noodles	5	mixed rice	1	Filipino	1
South Indian Food	5	Takowasa	1	molo,	1
Dim sum Dumplings, sweet rice dumplings, dumplings, steamed Bun)	5	Sukiyaki	1	taho	1
Convenience (e.g. "fast, simple")	4	Japanese curry	1	Che,	1
Korean food	4	Pork/Beef	1	fried spring rolls,	1
hotpot/shabushabu	3	Nikujaga	1	rice dishes	1
Japanese food	3	Edamame	1	Sweet soy sauce (or Kecap Manis)	1
Oden	3	Umeboshi	1	Greek food	1
Tempura	3	Mochi	1	Rice pilaf	1
Ramen	3	Washoku (japanese)	1	Cabbage rolls	1
Sushi	3	Donburi	1	Crepes	1
Dosa	3	Guy-don	1	Latkes	1
Ethiopian Food	3	Palak paneer	1	Brisket	1
Mexican food	3	Mathi paratha	1	Chicken noodle matzo ball soup	1

Miso	2	Chaat	1	African food	1
Takoyaki	2	Satay	1	East african food	1
Natto	2	Simple dal and rice	1	Injera	1
Chinese food	2	Indian vegan food	1	Red stew	1
Indian Food	2	Rajma Chawal	1	Fufu	1
Vietnamese, vietnamese	2	Chole Bhature	1	Brazilian food	1
Perogies	2	Dosa Sambar	1	Chipotle	1
Persian/Iranian food	2	Dal Chawal	1	Tacos	1
"bubble tea other than chatime"	1	Indian sweets	1	Quesadillas	1
Red beans and rice	1	Chicken curry	1	Burritos	1
Sweet and sour short ribs	1	Vada pav	1	Churrasco	1
Sev Puri	1	Pav Bhaji	1	Organic corn on a stick	1
Paneer	1	Falafel	1	Middle eastern food	1

**Appendix J(iv):** Pie chart of total references to food from each culture



### Cultural food references frequency by participant ethnicity

