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Ellen S. Kim

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Cultural Differences in Nutrition in French and Chinese Cuisine

Senior Project Report

By

Ellen S. Kim

Senior Project

Dr. Ruth WilliamsMorris

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Running Head: CULTURAL DIFFERENCES IN NUTRITION

Cultural Differences in Nutrition in French and Chinese Cuisine

Ellen S. Kim

Southern Adventist University

Abstract

Questions about racial and ethnic health disparities are major issues in health psychology and medicine. A previous study on health behaviors showed that there are cross-cultural differences among college students at Southern Adventist University. The previous study examined health behavior variables such as exercise, water, nutrition, sleep, smoking, alcohol, seatbelt use, medical examination, and dental examination. As a follow-up, this study represents phase two of the previous study. In the current study, the focus was on nutrition. Even though nutrition is an important aspect of health behaviors, there has not been significant amount of cross-cultural research done on nutrition in terms of food consumption. The purpose of this study was to investigate the relationship between cultural cuisine and nutrition. Ninety-four recipes from two cookbooks, 56 of which are Chinese and 38 of which are French, were analyzed individually and each ingredient was categorized. Results showed that there are indeed cultural differences in nutrition. Results show that French cuisine use more fruits, milk, egg, sugar, soy sauce, alcohol, cheese, butter, cream, and herbs, while Chinese cooking uses more oil, soy sauce, and cornstarch. Findings from this study raise the question of whether people from different cultures have different diets and thus differing health outcomes.

Cultural Differences in Nutrition in French and Chinese Cuisine

For the last few decades, the patterns of disease and death in the United States have shifted from infectious diseases to chronic diseases (Brannon & Feist, 2007). According to the National Center for Health Statistics (2003), the top three causes of death in the United States were heart diseases, cancer, and stroke during the year 2001. These are all chronic diseases that are related to unhealthy lifestyles and behavior. Furthermore, statistics show that different ethnic groups present different profiles for causes of death (Brannon & Feist, 2007). Based on these findings, I conducted a research study on cross-cultural differences in health behaviors as partial fulfillment of the course for my Research Design & Statistics II in the winter of 2007. The results of the study showed that there are indeed ethnic differences in health behaviors and that Caucasian students report better health behaviors than other ethnic groups in terms of sleep hours, eating habits, and seatbelt usage.

Although the popular statement 'You are what you eat' emphasizes the role of nutrition in people's health, there has not been significant amount of cross-cultural research done on eating behavior in terms of different food consumptions. Therefore, it is essential for the field of health psychology, medicine, and cross-cultural discipline to have an understanding of the relationship between eating behavior and cause of death for different ethnic groups. This study is an explorative and descriptive study on the cross-cultural differences in nutrition. Furthermore, this is phase two of the previous study on cross-cultural differences in health behaviors. The focus of this study is on nutritional aspect of health behaviors.

The following is a literature review selected studies that addressed culture and food consumption in addition to studies on food consumption and health.

Culture and Food Consumption

The importance of culture and society in forming a person's eating habit cannot be emphasized more. A person's food consumption is influenced by advertisement, parents and caregivers, familiarity with the food, and access to information. Research results indicated that fast-food marketing and parents may contribute to childhood obesity by increased fast-food consumption (Grier, Mensinger, Huang, Kumanyika, & Stettler, 2007). Studies showed that television advertisement influences children's food consumption (Buijzen, Schuurman, & Bomhof, 2007; Halford, Gillespie, & Brown, 2004). Previous studies confirm that parental and caregiver contribute significantly to children's food consumption (Blijham, De Kan, & Niehof, 2007; Hughes, Patrick, & Power, 2007). Moreover, Schyver and Smith (2005) found that lack of familiarity with soy food prevented people from using soy consumption (Schyver & Smith, 2005), indicating how reluctant people could be in trying a food of different cultures. Information given to an individual also contributes to food consumption. According to Hansmann, Scholz, and Francke (2005), people who were taught the consequences of food consumption had more positive food consumption pattern than people who were not. Moreover, just as culture defines what we should eat, food defines culture as well. According to Dalessio (2007), food consumption plays an important role in formation of cultural identities. In short, culture and society is related to food consumption.

Food Consumption and Health

According to Hollis and Mattes (2007), increasing dairy product consumption may eventually lead to weight gain. Furthermore, other study showed that increased fast food consumption and breakfast skipping during adolescence were associated with increased weight gain (Niemeier, Raynor, & Lloyd-Richardson, 2006). The effect of food consumption on health

is manifested in cases involving acculturation. According to Unger, Reynolds, and Shakib (2004), Asian-American and Hispanic adolescents showed obesity-related behaviors during their acculturation to the United States.

As can be seen from the literature review above, the food we eat influences much that happens in our lives, ranging from the specific culture with which we identify to our health outcomes. Thus, examination of cultural differences in nutrition is important in understanding cultural differences in chronic diseases.

Purpose of the study

The purpose of this study was to examine the nutritional components of cookbooks from two different ethnic groups French and Chinese. The study examined the relationships among three different variables: ethnicity, types of food, and nutrition in terms of ingredients used.

Definition of Terms

The current study focused on whether or not there is a relationship between cultural cuisine and different variables that can be categorized into ten areas: a) culture, b) types of food, c) carbohydrates, d) proteins, e) fat, f) dairy products, g) condiments, h) starch, i) seasonings, and j) alcohol.

Culture variable was categorized into two: a) Chinese cuisine and b) French cuisine. Type of food was categorized into eight: a) appetizer, b) soup, c) salad & vegetables, d) noodle & rice, e) fish & seafood, f) meat, g) chicken, and h) dessert. Ingredients included grains, vegetables, fruits, milk, seafood, egg, meat, oil, sugar, salt, soy sauce, alcohol, nut, cornstarch, spices, flour, stock, tofu, honey, cheese, butter, cream, and herbs that were categorized into the eight different groups.

Carbohydrates included grains, vegetables, and fruits. Grains were categorized into six: a) wrappers, b) rice, c) noodle and pasta, d) bread, e) macaroni, and f) potatoes. Vegetables and fruits were indicated by yes or no depending on their usage in a particular recipe.

Proteins included seafood, egg, meat, stock, and tofu. Seafood and tofu were indicated by yes or no depending on their usage in a particular recipe. Meat was categorized into five: a) poultry, b) beef, c) pork, d) game, and e) veal. Number of eggs was used to measure the amount of eggs used for a given recipe. Stock was defined as chicken stock, fish stock, or any kind of ready-made soups used for the recipe. Stock was measured by the unit of cups.

Fats included oil and nuts. Oil was defined as olive oil, sesame oil, or any kind of oil used for the recipe. The unit of tablespoon was used to measure the amount of oil. Nuts were indicated by yes or no depending on their usage in a particular recipe.

Dairy products included milk, cheese, butter, and cream. Milk and cheese were measured by the unit of cups while butter and cream were measured by the unit of tablespoon.

Condiments included sugar, salt, soy sauce, and honey. Salt was measured by the unit of teaspoon while sugar, soy sauce, and honey were measured by the unit of tablespoon.

Starch included flour and cornstarch. Flour was measured by the unit of cup while cornstarch was measured by the unit of teaspoon.

Seasonings included spices and herbs. Spices were defined as roots, bulbs, fruits, or seeds of plants such as garlic, onion, ginger, and pepper. Herbs were defined as leaves or branches of aromatic plants such as thyme, tarragon, and rosemary. Spices and herbs were indicated by yes or no depending on their usage in a particular recipe.

Alcohol was defined as any kind of alcoholic beverage such as cognac and wine used to enhance flavor in a given recipe. Alcohol was measured by the unit of tablespoon.

Research Questions

This study was guided by 23 research questions that addressed the relationship between each cultural cuisine and category of ingredients.

1. Are there differences in the kinds of grains that French and Chinese cuisine use?

2. Does Chinese cuisine use more vegetables than French?

3. Does Chinese cuisine use more fruits than French?

4. Does French cuisine use more milk than Chinese?

5. Does French cuisine use more seafood than Chinese?

6. Does French cuisine use more eggs than Chinese?

7. Are there differences in the kinds of meat that French and Chinese cuisine use?

8. Does Chinese cuisine use more oil than French?

9. Does French cuisine use more sugar than Chinese?

10. Does Chinese cuisine use more salt than French?

11. Does Chinese cuisine use more soy sauce than French do?

12. Are there differences in the amount of alcohol that French and Chinese cuisine use?

13. Are there differences in the amount of nuts that French and Chinese cuisine use?

14. Are there differences in the amount of cornstarch that French and Chinese cuisine use?

15. Are there differences in the types of spices that French and Chinese cuisine use?

16. Are there differences in the amount of flour that French and Chinese cuisine use?

17. Are there differences in the amount of stock that French and Chinese cuisine use?

18. Are there differences in the amount of tofu that French and Chinese cuisine use?

19. Are there differences in the amount of honey that French and Chinese cuisine use?

20. Does French cuisine use more cheese than Chinese?

21. Does French cuisine use more butter than Chinese?

22. Does French cuisine use more cream than Chinese do?

23. Are there differences in the amount of herbs that French and Chinese cuisine use?

Method

Units of Analysis

A total of 94 recipes were used to analyze the ingredients. Fifty-six Chinese recipes and 38 French recipes were used for this study. All the recipes were taken from *Chinese Cooking* (Williams, 1968) and *Classic French Cooking* (Williams, 1970), both of which are part of the *Foods of the World Series* by Time-Life Books company. To ensure the recipes to be representative, all the recipes in each book were examined.

Design and Procedure

A non-experimental correlational research study using archival data represented the design of the study. Ninety-four recipes from 2 cookbooks were analyzed individually and each ingredient was categorized.

Data Analysis

Data were scored based on the unit of teaspoon, tablespoon, and cup. To indicate availability of ingredients such as vegetables, fruits, seafood, nuts, spices, and herbs, yes or no was used for scoring. For ingredients such as grains and meat, subcategories were used to score the data. Data were entered into SPSS version 13.0 and were analyzed. Descriptive statistics was used to see the frequency of each variable. Pearson's correlational analyses were used to measure linear relationship among the 25 variables. For nominal variables such as vegetables and grains, Chi-Square Analyses were used to interpret the data.

Results

Descriptive Statistics

A total of 94 recipes were analyzed. There were 56 Chinese recipes (59.6%) and 38 French recipes (40.4%) (See Figure 1). Furthermore, recipes analyzed were mainly soups (20.2%) and meat (22.3%) with few other types of food: Appetizers (7.4%), Salad & Vegetables (11.7%), Noodle & Rice (5.3%), Fish & Seafood (10.6%), Chicken (6.4%), and Dessert (16.0%) (See Figure 2).

Cultural Cuisine and Carbohydrates

Correlational analysis of cultural cuisine and carbohydrates showed that there are cultural differences in grains and fruit use in French and Chinese cuisine (Table 1).

Cultural cuisine and grains. To answer the first research question, crosstabulation and Chi-Square analysis were used to find the relationship between cultural cuisine and grains. The result was $X^2(6, N = 94) = 16.53, p = 0.01$. This finding is statistically significant. Therefore, French and Chinese cuisine are found to use different grains. The crosstabulation shows that only Chinese cuisine used wrappers and noodles, while both Chinese and French cuisine used rice frequently. On the other hand, it was also found that French cuisine used more bread than that of the Chinese.

Cultural cuisine and vegetables. To answer the second research question, crosstabulation and Chi-Square analysis was used to see whether the Chinese cuisine used more vegetables or not. The result was $\chi^2(1, N = 94) = 1.63, p = 0.20$. This is not statistically significant. Therefore, the answer to the question as to whether Chinese cuisine used more vegetables is inconclusive. French cuisine was found to use vegetables as frequent as Chinese cuisine.

Cultural cuisine and fruits. To answer the third research question, crosstabulation and Chi-Square analysis was used. . The result was $\chi^2(1, N = 94) = 9.19, p = 0.002$. This finding is statistically significant. Therefore, French cuisine seemed to use more fruits than that of the Chinese.

Cultural Cuisine and Proteins

Correlational analysis of cultural cuisine and proteins showed that there are cultural differences in meat and stock use in French and Chinese cuisine (Table 2).

Cultural cuisine and seafood. To answer the fifth research question, crosstabulation and Chi-Square analyses were used. The result was $\chi^2(1, N = 94) = 1.48, p = 0.22$. This finding is not statistically significant. Therefore, there seems to be no difference in the amount of seafood that Chinese and French cuisine consumed.

Cultural cuisine and eggs. To answer the sixth research question, correlational analysis was used. The result was $r(94) = 0.38, p = 0.000$. This finding is statistically significant. Therefore, French cuisine seemed to be using more eggs than that of the Chinese.

Cultural cuisine and meat. To answer the seventh research question, cotabulation and Chi-Square analyses were used. The result was $\chi^2(5, N = 94) = 24.72, p = 0.000$. This finding is statistically significant. Therefore, there are differences in the kinds of meat that French and Chinese cuisine use. The crosstabulation showed that Chinese cuisine used more pork and poultry than that of the French, while French cuisine used more veal than that of the Chinese. Nevertheless, one has to note that French and Chinese cuisine seemed to be using similar amount of beef and game.

Cultural cuisine and stock. To answer the seventeenth research question, correlational analysis was used. The result was $r(94) = 0.10, p = 0.33$. This finding is not statistically

significant. Therefore, there seems to be no difference in the amount of stock that French and Chinese cuisine use.

Cultural cuisine and tofu. To answer the eighteenth question, crosstabulation and Chi-Square analyses were used. The result was $\chi^2(1, N = 94) = 2.84, p = 0.09$. This finding is not statistically significant. Therefore, there seems to be no difference in the amount of tofu that French and Chinese cuisine used. However, one thing to note is that while French cuisine never used tofu, Chinese cuisine used tofu four times. Chinese cuisine seemed to be using similar amount of beef and game.

Cultural Cuisine and Fats

Correlational analysis of cultural cuisine and fats showed that there are cultural differences in oil use in French and Chinese cuisine (Table 3).

Cultural cuisine and oil. To answer the eighth research question, correlational analysis was used. The result was $r(94) = -0.23, p = 0.02$. This finding is statistically significant. Therefore, Chinese cuisine seemed to use more oil than that of the French.

Cultural cuisine and nuts. To answer the thirteenth research question, crosstabulation and Chi-Square analyses were used. The result was $\chi^2(1, N = 94) = 0.46, p = 0.50$. This is not statistically significant. Therefore, there seemed to be no difference in the amount of nuts that French and Chinese cuisine consumed.

Cultural Cuisine and Dairy Products

Correlational analysis of cultural cuisine and dairy products showed that there are cultural differences in dairy product use in milk, cheese, butter, and cream in French and Chinese cuisine (Table 4).

Cultural cuisine and milk. To answer the fourth research question, correlational analysis was used. The result was $r(94) = 0.36$, $p = 0.000$. This finding is statistically significant. Therefore, French cuisine seemed to use more milk than that of the Chinese.

Cultural cuisine and cheese. To answer the twentieth research question, correlational analysis was used. The result was $r(94) = 0.21$, $p = 0.04$. This finding is statistically significant. Therefore, French cuisine seems to use more cheese than that of the Chinese.

Cultural cuisine and butter. To answer the twenty-first research question, correlational analysis was used. The result was $r(94) = 0.58$, $p = 0.000$. This finding is statistically significant. Therefore, it seems that French cuisine use more butter than that of the Chinese.

Cultural cuisine and cream. To answer the twenty-second research question, correlational analysis was used. The result was $r(94) = 0.32$, $p = 0.002$. This finding is statistically significant. Therefore, it seems that French cuisine use more cream than that of the Chinese.

Cultural Cuisine and Condiments

Correlational analysis of cultural cuisine and condiments showed that there are cultural differences in sugar and soy sauce use in French and Chinese cuisine (Table 5).

Cultural cuisine and sugar. To answer the ninth research question, correlational analysis was used. The result was $r(94) = 0.24$, $p = 0.02$. This finding is statistically significant. Therefore, French cuisine seemed to use more sugar than that of the Chinese.

Cultural cuisine and salt. To answer the tenth research question, correlational analysis was used. The result was $r(94) = 0.04$, $p = 0.74$. This finding is not statistically significant. Therefore, Chinese cuisine did not seem to use more salt than that of the French.

Cultural cuisine and soy sauce. To answer the eleventh research question, correlational analysis was used. The result was $r(94) = -0.23, p = 0.03$. This finding is statistically significant. Therefore, Chinese cuisine seemed to use more soy sauce than French do.

Cultural cuisine and honey. To answer the nineteenth research question, correlational analysis was used. The result was $r(94) = -0.12, p = 0.27$. This finding is not statistically significant. Therefore, there seems to be no difference in the amount of honey that French and Chinese cuisine use.

Cultural Cuisine and Starch

Correlational analysis of cultural cuisine and starch showed that there are cultural differences in cornstarch use in French and Chinese cuisine (Table 6).

Cultural cuisine and cornstarch. To answer the fourteenth research question, correlational analysis was used. The result was $r(94) = -0.28, p = 0.006$. This finding is statistically significant. Therefore, there seems to be difference in the amount of cornstarch that French and Chinese cuisine use. Chinese cuisine seems to use more cornstarch than that of the French.

Cultural cuisine and flour. To answer the sixteenth research question, correlational analysis was used. The result was $r(94) = 0.08, p = 0.43$. This finding is not statistically significant. Therefore, there seems to be no differences in the amount of flour that French and Chinese cuisine use.

Cultural Cuisine and Seasonings

Correlational analysis of cultural cuisine and seasonings showed that there are cultural differences in herb use in French and Chinese cuisine (Table 7).

Cultural cuisine and spices. To answer the fifteenth research question, crosstabulation and Chi-Square analyses were used. The result was $\chi^2(5, N = 94) = 21.28, p = 0.001$. This finding is statistically significant. Therefore, there seems to be difference in the types of spices that French and Chinese cuisine use. The crosstabulation showed that Chinese cuisine seemed to use more ginger and garlic, while French cuisine used more onions. Furthermore, both Chinese and French cuisine seemed to be using similar amount of peppers of different types.

Cultural cuisine and herbs. To answer the twenty-third research question, crosstabulation and Chi-Square tests were used. The result was $\chi^2(1, N = 94) = 24.24, p = 0.000$. This finding is statistically significant. Therefore, it seems that French cuisine use more herbs than that of the Chinese.

Cultural Cuisine and Alcohol

Correlational analysis of cultural cuisine and alcohol showed that there are cultural differences in alcohol use in French and Chinese cuisine (Table 8).

Cultural cuisine and alcohol. To answer the twelfth research question, correlational analysis was used. The result was $r(94) = 0.41, p = 0.000$. This finding is statistically significant. Therefore, there is a difference in the amount of alcohol French and Chinese cuisine use. French cuisine seems to use more alcohol than that of the Chinese.

Other Interesting Findings

Types of food and sugar. Correlational analysis was used to determine the relationship between types of food and sugar. The result was $r(94) = 0.42, p = 0.000$. This finding is statistically significant. Therefore, as one would expect, desserts tended to use more sugar than other types of food for both French and Chinese cuisine.

Discussion

The purpose of this study was to examine the cultural differences in nutrition in terms of different ingredients in different recipes. The study showed that there were cultural differences in nutrition. It was found that French used more fruits, milk, egg, sugar, soy sauce, alcohol, cheese, butter, cream, and herbs, while Chinese used more oil, soy sauce, and cornstarch. Furthermore, study showed that desserts tended to use more sugar than other types of food. However, there are several limitations in this study.

Measurement Methods

First, method of measurement for data like vegetables, fruits, nuts, spices, and seafood was the frequency of occurrence, not the actual amount. For example, vegetables were not measured in ounces or any other systems of units. Instead, whether vegetables were used or not was indicated by yes or no. As a result, a meat dish containing a meager amount of vegetables may be identified as using equal amount of vegetables as other vegetable dishes. Therefore, method of measurement using frequency data may mislead people to a wrong conclusion about the actual ingredients.

Subdivision of Ingredients

Second, subdivisions of each ingredients were not considered. For example, vegetables may be divided into green, yellow, starchy, legumes, etc. Also, fruits may be subdivided into alkaline, acidic, melon, etc. Fish and other seafood were also not subdivided. Furthermore, different kinds of alcohol, such as Cognac, Chinese rice wine, and French wine, may work differently in the body depending on the percentages of alcohol in it. There are also different types of nuts that were used for the cooking that may contain different amount and types of fat. In addition, different types of spices were not differentiated from one another. For example,

peppers of different kinds were categorized as peppers. In addition, butter could have also been categorized into salted butter, unsalted butter, etc. Therefore, the data do not account for the cross-cultural differences in subcategories of each ingredients.

Nutritional Value

Third, cultural differences in ingredients and seasonings of equal nutritional value were not taken into consideration. For example, even though Chinese use more oil than French do, French may be using more butter and cheese, thus making no difference nutritionally once broken down in the body. Moreover, even though French and Chinese use similar amount of salt, Chinese may be consuming more salt via their consumption of soy sauce, which contains quite a lot of salt. Therefore, there is the danger of concluding that the nutritional values in two different cultures are different when both cuisines are equal in terms of nutritional values.

Ready-made Stock

Fourth, ready-made stock and grains were not analyzed. For example, ready-made wrappers and bread may contain more flour, salt, etc. Furthermore, stocks made out of chicken or fish may make a huge difference and stocks from French and Chinese cultures may have totally different ingredients in it under the same name. Therefore, difference in the nutritional value may be expected once the stocks and grains were analyzed.

Sample Size

Fifth, the study has only a small sample size. Even though the result showed that Chinese do not consume more tofu compared to French, it may due to the small sample size of recipes. Even the results shows that while French never used tofu, Chinese used it four times. This may due to small sample size.

Cuisine Diversity

Sixth, the study needs to have more representation from different cultures. Because French does not represent European cuisine and Chinese cuisine does not represent Asian cuisine, one cannot generalize the findings as Asian or European phenomenon. For example, the result showed that Chinese eat more noodles than French and one may conclude that Asians eat more noodles than Europeans. However, Italian cuisine, even though European, may include many different kinds of spaghetti, or noodles. Therefore, in order to generalize the findings, more cultures need to be investigated.

Health Outcomes

Finally, it should be noted that differences in ingredients in cuisine does not necessarily mean differences in health outcomes. According to Davis and Sherer (1994), "individual food preferences do not ordinarily influence nutritional adequacy of diet." (p. 519). In other words, whether eating bread or rice does not indicate nutritional adequacy of a diet. Rather, whether eating grains or not is more important for determining adequate diet (Davis & Sherer, 1994). Furthermore, one cannot say that French diet is unhealthier than Chinese diet. For example, one may say that French diet is unhealthy because it consumes a lot of sugar, while neglecting the data that Chinese cuisine uses more soy sauce, indicating that they may be consuming more sodium, and oil.

This study is based on the assumption that the ingredients represented in French and Chinese cuisine reflect the actual consumption of ingredients of each culture. Furthermore, the cuisine is assumed to be the cuisine used in mainland China and France, and not by the Chinese Americans and French Americans. Therefore, the studies of this findings cannot be generalized to the general population in the United States.

Importance of Study

This study is important because it demonstrates that there indeed are cross-cultural differences in nutrition in terms of ingredients. Moreover, the result indicated that the cross-cultural differences in health behavior may be due to cultural differences in diet and nutrition. Furthermore, the study provided support for the possibility of nutrition and health behaviors involved in different chronic illnesses in different cultures that may determine the causes of death. Therefore, this study may be beneficial to health professionals in dealing with patients and in providing treatments and advices to people from different cultural backgrounds.

Agenda for Future Research

For future studies, a broader cross-cultural study, including cuisine from more number of different cultures, is needed to generalize the findings. Furthermore, in-depth study that subcategorizes variables may be necessary (e.g. Subcategorizing vegetables into green, yellow, starchy, etc.) to find more differences in ingredients between cultures. In addition, whether there is discrepancy between the ingredients indicated in cuisine and actual consumption of ingredients in each culture should be addressed to generalize the finding as cultural differences. Moreover, relationship between diet and chronic diseases may be necessary to link nutrition as a factor of health behaviors that contribute to development of chronic illnesses. Finally, more cross-cultural studies on chronic diseases and cause of death may be necessary to confirm the cultural differences in causes of death.

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Table 1

Intercorrelations Between Cultural Cuisine and Carbohydrates

Carbohydrates	1	2	3	4
1. Culture	-	.21*	.13	-.31**
2. Grains		-	.19	.03
3. Vegetables			-	-.21*
4. Fruits				-

*p < .05. **p < .01.

Table 2

Intercorrelations Between Cultural Cuisine and Proteins

Proteins	1	2	3	4	5	6
1. Culture	-	.13	.38**	.25*	.10	.17
2. Seafood		-	-.01	-.10	-.09	.03
3. Eggs			-	.19	.01	-.04
4. Meat				-	-.39**	.05
5. Stock					-	-.09
6. Tofu						-

*p < .05. **p < .01.

Table 3

Intercorrelations Between Cultural Cuisine and Fats

Fats	1	2	3
1. Culture	-	-.23*	.07
2. Oil		-	-.33*
3. Nuts			-

*$p < .05$. **$p < .01$.

Table 4

Intercorrelations Between Cultural Cuisine and Dairy Products

Dairy Products	1	2	3	4	5
1. Culture	-	.36**	.21**	.58**	.32**
2. Milk		-	-.06	.19	.60**
3. Cheese			-	.14	.16
4. Butter				-	.04
5. Cream					-

*$p < .05$. **$p < .01$.

Table 5

Intercorrelations Between Cultural Cuisine and Condiments

Condiments	1	2	3	4	5
1. Culture	-	.24*	.04	-.23*	-.12
2. Sugar		-	-.15	-.06	-.04
3. Salt			-	.-.06	-.08
4. Soy Sauce				-	.02
5. Honey					-

*$p < .05$. **$p < .01$.

Table 6

Intercorrelations Between Cultural Cuisine and Starch

Starch	1	2	3
1. Culture	-	-.28**	.08
2. Cornstarch		-	.03
3. Flour			-

*$p < .05$. **$p < .01$.

Table 7

Intercorrelations Between Cultural Cuisine and Seasonings

Seasonings	1	2	3
1. Culture	-	-.06	-.51**
2. Spices		-	.43**
3. Herbs			-

$*p < .05. **p < .01.$

Table 8

Intercorrelations Between Cultural Cuisine and Alcohol

Alcohol	1	2
1. Culture	-	.41**
2. Alcohol		-

$*p < .05. **p < .01.$
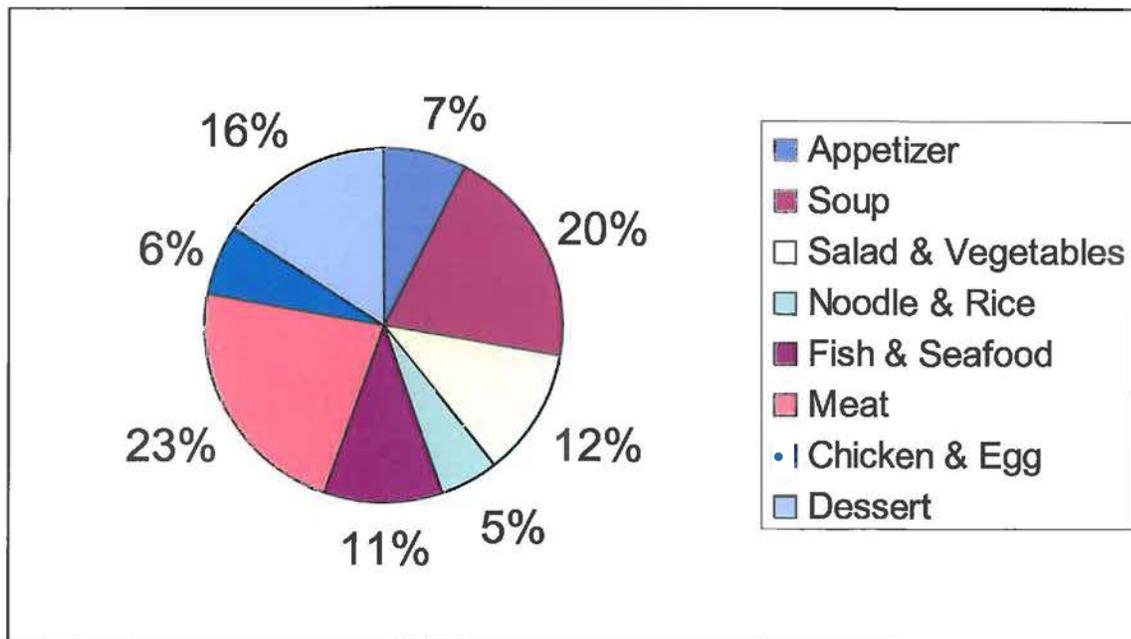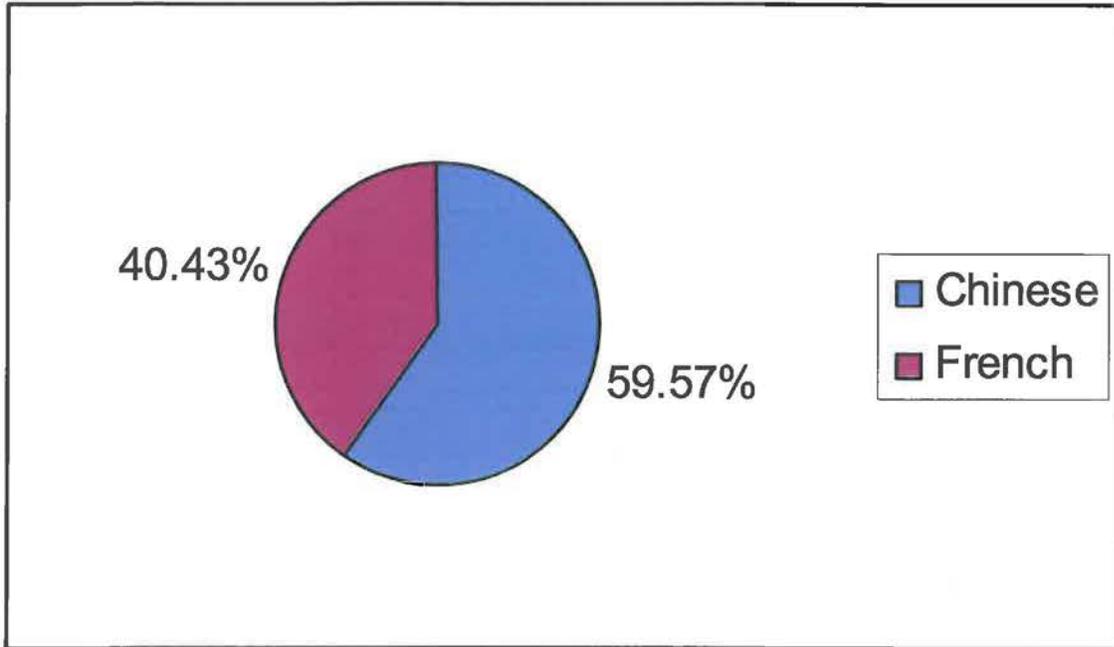
Southern Scholars Honors Program
Senior Project Proposal Information Sheet

Name _Ellen Kim_   Date _01-08-08_

SOUTHERN
ADVENTIST UNIVERSITY

Major _BS. Psychobiology_

Southern Scholars
southernscholars.southern.edu
wmclarty@southern.edu

A significant scholarly project, involving research, writing, or special
performance, appropriate to the major in question, is ordinarily completed
the senior year. The project is expected to be of sufficiently
high quality to warrant a grade of "A" and to justify public presentation.

Under the guidance of a faculty advisor, the Senior Project should be an original work, should use primary
sources when applicable, should have a table of contents and works cited page, should give convincing
evidence to support a strong thesis, and should use the methods and writing style appropriate to the
discipline.

The completed project, to be turned in in duplicate, must be approved by the Honors Committee in
consultation with the student's supervising professor four weeks prior to the last day of class for the
semester the project is turned in. Please include the advisor's name on the title page. The 2-3 hours of
credit for this project is usually done as directed study or in a research class.

NOTE-Senior Project Proposal Due Date: The senior project proposal is due in the Honors Program
Director's office two weeks after the beginning of the semester the project will be completed. The proposal
should be a detailed description of the Honors Project's purpose and proposed methodology.

Keeping in mind the above senior project description, please describe in as much detail as
you can the project you will undertake. Attach a separate sheet of paper.

Signature of faculty advisor _Kusume on_

Expected date of completion _April 1, 2008, Date extension requested to 4/2/08_

NOTE: An advisor's final project approval does not guarantee that the Honors Faculty Committee will
automatically approve the project. The Honors Faculty Committee has the final vote.

Approval to be signed by faculty advisor when the project is completed:

This project has been completed as planned (date) _April 2, 2008_

This is an "A" project _Yes (See attached sheet)_

This project is worth 2-3 hours of credit _____

Advisor's Final Signature _Kusum_   Date: _April 2, 2008_

Chair, Honors Committee _Mark Peach_   Date Approved: _1 May '08_

Dear Advisor,
    (1) Please write your **final** evaluation on the project on the reverse side of this page.
Comment on the characteristics that make this "A" quality work.
    (2) Please include a paragraph explaining your specific academic credentials for advising
this Senior Project.

To: Honors Committee
FROM: Ruth WilliamsMorris
RE: Ellen Kim's Senior Project

Research reports from independent, empirical inquiry are evaluated according to the format form attached. Ellen's project complies with that format in terms of editorial style (APA), and research content. The work that Ellen produced is definitely A quality.

Specific Academic Credentials for advising Ellen Kim's Project
- 15 years of guiding student (undergraduate and graduate) research
- 17 years of teaching research , statistics, and other quantitative courses
- Measurement representing one area of specialization in my doctorate
- Continuing education in research methodology and statistical analysis
- Continuing research program in area of positive psychology

Ellen Kim

RESEARCH REPORT (FINAL)
FORMAT*

Cover Page
Title Page
Abstract
Title

A

Introduction (no heading)
  Introductory Paragraph
  Literature Review (Level 3 and 4 headings
  in body of review)
  Purpose of study
  Definition of terms, if applicable (Level 3 heading)
  Hypotheses/Research Questions (Level 3 heading)

Method
  Participants
  Materials/Apparatus
  Design and Procedure   *Some vagaries*
  Data Analysis   *more specificity*

Results
  Use Level 3 headings as appropriate
  Describe sample using descriptive statistics
  Repeat Hypotheses and Research Questions; state which statistical test was used
   to test each hypothesis or answer each research question; provide results first in
  statistical terms relevant to the statistical test used and then in lay terms.
  Be sure to refer to tables and graphs within the text of this section
  Describe any unexpected or interesting findings under the subheading of
  Other Interesting Findings
  Summarize briefly all the results using 'words'

Discussion
  Apply the *"Seven-year-old Nephew Test"* to this section: **Use lay terms** as
  much as possible.
  Restate the purpose of your study.
  Summarize the Research Questions and Hypotheses
  State your findings. Why do you think you found what you did or did
  not find what you expected? Discuss.
  State the limitations and weaknesses in your study.
  Relate your current findings to the theoretical/empirical base of your literature
  review.
  State the importance of your study
  Describe an agenda for future research