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How Space and Place Influence Transportation Trends at Humboldt State University

Sara Matthews
Humboldt State University

Abstract
Focusing on Arcata, California, this study explores the factors that motivate an individual to choose one mode of transportation over another, through an examination of a substantial subset of the town’s population—Humboldt State University (HSU) students. HSU has a significant presence in Arcata as the largest employer in the city, and it occupies 160 acres near the center of the urban area. Over 7,400 students are enrolled, nearing half the city’s population. By investigating this specific population’s trends when commuting to school, this study draws inferences as to their transportation habits in general. This insight provides a better understanding of what drives people in Arcata to walk or bike, rather than drive, around town. Ultimately, the study shows that people’s sense of place and attachment to Arcata, as well as their geographic location in Arcata, has a strong positive relationship to an increase in active transport use.

“Let’s have a moment of silence for all those Americans who are stuck in traffic on their way to the gym to ride the stationary bicycle”
—U.S. Representative Earl Blumenauer

The average American makes hundreds of choices throughout the day—to hit snooze or to get up, drink coffee or drink tea, phone Mom or don’t, eat organic or eat regular, buy local or buy cheap. The list goes on. Some of these choices are given careful consideration—many are made without conscious thought. Certain choices seem logical, and others test the boundaries of reason, yet they are all motivated by something, be it personal experience, the physical environment, or the unseen structures that frame one’s world. One of these daily choices—how to transport oneself from point A to Point B—is of particular interest and worthy of further investigation.

It is a choice with much on the line. The use of motorized transportation affects atmospheric warming more than any other single decision a person could make (NASA 2010). In addition, research
points to evidence that validates claims that greater use of active transport options, including walking and biking, helps alleviate traffic congestion, pollution, feelings of personal and community insecurity, and incidence of some chronic diseases as well as obesity (Frank et al. 2004, NZ Ministry for the Environment 2005, Owen et al. 2004). Despite the mounting evidence that active transport options benefit the environment and society, as well as individual lives, less than one percent of Americans choose to make their daily commute by bicycle (Census 2010). This begs the question, “Why? What motivates a person to choose one mode of transportation over another after waking up in the morning?”

The city of Arcata, California, is an excellent place in which to explore this question. The 2006–2010 American Community Survey estimated that twenty percent of trips in Arcata are done on foot or bike, and although this percentage is high (nearly ten times the average of California), residents and city officials alike think Arcata is capable of raising these active trips to fifty percent (Arcata City Council 2010). Indeed, with a population of about sixteen thousand, short distances between locales, moderate temperatures, relatively navigable topography, and a populace that largely identifies as being environmentally friendly, Arcata seems to be an ideal place to expand into more active, sustainable transport. The structural impediments that might discourage active transport in some cities, such as the absence of bike lanes or insufficient bike racks, have largely been remedied in Arcata. Why, then, do nearly seventy-seven percent (ACS 2010) of these commuters still choose to use automobiles?

To explore this question further at a higher resolution, this paper examines a substantial subset of Arcata’s population—Humboldt State University (HSU) students. HSU has a significant presence in Arcata as the largest employer in the city, and it occupies 160 acres near the central business district. Over 7,400 students are enrolled, comprising nearly half the city’s population (Arcata City Council 2010). By investigating this specific population’s trends when commuting to school, this study draws inferences as to students’ transportation habits in general. This insight will be useful in understanding the motivations of Arcata’s populace at large. In approaching this question, this article first offers a background of transportation trends in America because it is imperative to understand the makings of a system before any true insight can be gleaned. After establishing the topic in relation to history and prior research, the article then provides a description and discussion of the methods used to
provide a snapshot of the study area. From this vantage point, the paper then details the outcomes of the study and, finally, provides an analysis and interpretation of the results.

**Background**

In 2009, 89.9 percent of all commuters in the United States did so by private vehicle (ACS 2009). This was not always the case. The conclusion of World War II marked a turning point in American travel habits, a change that has dramatically shaped the United States. At this point in history, the newly sparked widespread ownership of the personal automobile, in combination with the government-subsidized road- and home-building boom, resulted in an accelerated movement to the suburbs (Putnam 2000) and the onset of the urban sprawl dominating today's American landscape. Since then, society has rapidly evolved to champion the ability to break down what were once formidable barriers in time and space with little thought given to the repercussions. Over the past few decades, driving automobiles has overwhelmingly become the dominant mode of travel for most Americans; the number of people commuting to work by private vehicle nearly tripled from 1960 to 2000. In fact, Americans have become so attached to the idea of personal autonomy and the freedom to travel at large that "by 1990, America had more cars than drivers" (Putnam 2000, 212). The implications of this collective lifestyle, however, are less than ideal—traffic congestion, amplified greenhouse gases, fossil fuel dependence, physical inactivity, increased spending on infrastructure, and decreased social interaction. An important (if often overlooked) insight, as Robert Putnam points out, is that "one inevitable consequence of how we have come to organize our lives spatially is that we spend measurably more of every day shuttling alone in metal boxes among the vertices of our private triangles" (2000, 212). In short, time once spent with families or outside in communities is now is being spent in a car.

As the consequences of this path have become more widely recognized, a growing movement has taken hold in the U.S., one that is interested in redeveloping transportation habits along a more sustainable route. The American Community Survey shows that in 2009, the nationwide share of bicycle commuters was 0.55 percent and the share of people who commuted primarily by walking was 2.86 percent (American League of Cyclists 2011). The share of bicycle commuters has increased by 14 percent from 2007, 36 percent from the 2005 ACS, and 43 percent from the 2000 Census (American
League of Cyclists, 2011). Bike and Pedestrian Plans have become a staple in many city master plans, and biking advocate groups such as the American League of Bicyclists have become prevalent.

In addition to the popularity bicycling enjoys, there has been increased attention to the benefits of walking for transport, as evidenced in the upsurge of related literature (e.g., Cerin 2006, Middleton 2010, Toit 2007, and Wuderlich 2008). A central finding in this literature has been an increased sense of place associated with walking, a topic that is being given consideration in neighborhood and built environment design (Nagel 2008, Sundblad 2011). Cities nationwide are beginning to consider these forms of active transport as valuable components of a healthy and sustainable urban environment. A large portion of the most successful communities leading this movement have been college towns such as Eugene, Oregon; and Davis, California (American League of Cyclists 2011). The city of Arcata is yet another case reflecting the attempt to transition transportation trends.

**Methods**
A survey was conducted at Humboldt State University with three main objectives: first, to capture a portrait of students’ transportation habits; second, to determine the student residents’ spatial distribution in relation to the school; and, third, to provide a degree of insight into factors motivating HSU students to use active or non-active transportation. In this study, active transport includes walking or riding a bicycle to get to school while non-active transport is defined as using an automobile or the bus. The anonymous survey carried a deliberately vague title (“Transportation Trends”), and the explanation given at the onset of each collection was simply “an interest in finding out how students get to school,” in the hopes that students would report honest answers without fear of judgment. The survey was conducted in various classrooms of HSU to ensure a fair distribution of ages and interests. Because weather could play a factor in influencing certain questions, the survey was conducted over a series of days, with conditions noted and taken into account—one of the days was sunny, and the other two were overcast and rainy. The make-up of the survey itself consisted of a variety of questions regarding the following: demographics, community attachment, transportation habits, influential factors, and a map section in which respondents were asked to mark their residence and most likely route to school. Limiting factors such as time
and resources allowed for 132 respondents to complete surveys. Of these respondents, 87 lived off campus and were the subject of the majority of the analysis. Follow-up interviews were then collected from this stratum to further explore motivating factors in transportation decisions, with equal analysis being given to those who were determined to be avid users of active transport, moderate users of active transport, and purely motorists. The results derived from this research were then examined against data from other U.S. cities to draw comparisons and gain insight into this issue.

**Results**

After administering the survey to 132 students the subjects were stratified into those who live on campus and those who live off campus. The surveys of the 87 respondents who were found to reside off campus (and therefore must transport themselves to the HSU campus to attend classes) were then coded and analyzed to compare various attributes to an individual’s method of transportation. The following results were extricated from the surveys of these 87 respondents. About one sixth of the respondents rode their bike to school on the day they took the survey. This finding supports the overall average of reported trips to school in which 20 percent of all trips to school were reported to be by bike, 45 percent by foot, 10 percent by bus, 21 percent by automobile, and 4 percent by other means (Figure 1). Compared with the nationwide portion of only 0.55 percent commuting by bike and 2.86 percent commuting by foot, Arcata was shown to be overwhelmingly conducive to active transport, further promoting the idea that small-town structures and the presence of universities are instrumental in transportation choices. The gender divide was approximately even—47 males and 40 females. Contrary to trends shown in nationwide Census surveys, female respondents at Humboldt State were slightly more likely than male respondents to choose an active transport option over motorized options (Figure 2).
To see if age played a role in transportation choices among students, respondents were then grouped into four brackets using natural breaks: 18 to 20, 21 to 24, 25 to 29, and 30 to 45 (Figure 3). Those in the under-25 age brackets were more likely to choose an active mode of transport for a collective average of 71 percent of their trips to school, while those in the older age brackets chose to walk or ride a bike for a collective average of only 52 percent of their trips to school. Age data were compared against various other survey data such as location of residence; however, no significant correlation was found to explain this decline in active transportation use as the respondents aged.

An investigation of respondents’ previous homes was carried out with the assumption that the majority of the students were not originally from Arcata. The places of origin were categorized and coded by three different criteria: region, city size, and the Bicycle Friendly rating (if any) that the community was given by the American League of Cyclists. Little significant correlation can be
found between a mode of transportation and a city’s size, Bicycle Friendly Community Rating, or geographic regions. However, it should be noted that those respondents originally from the Pacific Northwest (Washington and Oregon) chose active transport options significantly more frequently (96 percent of all trips) than respondents from other regions. Within California, the Bay Area produced respondents with the highest average of active transport trips, making 71 percent of their commutes to HSU by bike or foot. It should be noted that these are areas with relatively high active transportation use. However, no significant correlation was found between transportation mode and those coming from areas most heavily dependent on automobiles, such as southern California. This finding postulates that if one originates from a culture of biking, those habits will most likely carry through when one relocates, while people coming from a “car culture” are equally likely to adopt active transportation upon moving to Arcata.

After considering previous habitation, the amount of time that each respondent has lived in Arcata was taken into account. Respondents were separated into time frames depending on the amount of time lived in Arcata: less than 6 months, 6 months to 1 year, 1 to 2 years, 2 to 4 years, and 4 to 7 years (Figure 4). Results show a general upward trend toward walking and biking more often the longer one lives in Arcata—up to 2 years, at which point the trend slowly declines. The most compelling trend was then uncovered when respondents were asked whether or not they felt at home in Arcata. When these results were measured against transportation mode splits, a strong tendency followed that those who reported to “feel at home” in Arcata (Figure 5) made a much higher percentage of their trips by

Figure 4.—The longer an individual has lived in Arcata, the more trips he/she made by bike or foot—up until the 2-year mark, at which point it begins to decline.

Matthews: How Space and Place Influence Transportation Trends
active transport (71 percent) versus those who reported they did not “feel at home” (Figure 6), who made an average of only 32 percent of their trips by bike or foot. Another question designed with a similar aim had parallel findings. When asked, “Suppose you had to leave Arcata for some reason, how sorry or pleased would you be to move away?” those who reported higher levels of attachment to Arcata also made a significantly higher percentage of their trips to school by bike or foot (Figure 7).

**Figure 5.**—Those who feel “At Home” in Arcata made a collective average of 71% of their trips by active transport.

**Figure 6.**—Those who did not feel “At Home” in Arcata made a collective average of only 32% of their trips by active transport.

**Figure 7.**—Level of Attachment to Arcata versus percentage of trips to school by mode.
With a clearer picture of who bikes and/or walks to school, the next goal was to explore why the respondents make these choices. When asked to rate a list of factors that were influential when deciding to walk or ride a bike, on a scale of 1 (not a factor) to 5 (extremely motivating factor), “I enjoy being outside/community interactions” was found to be the most motivating aspect, with an average of 4.01. It was followed closely by “I like the exercise” (3.94) and “I like to avoid traffic/parking hassles” (3.85). Not having access to an automobile was found to be the least significant, with an average of 2.29 (Figure 8). A similar question with the same scale (1 through 5) was then posed to determine which factors were most discouraging when deciding not to walk or ride a bike (Figure 9). Here, the most (de)motivating factor was reported to be “I don’t like to deal with bad weather,” with an average of 3.55. “I feel that I don’t have enough time” was a close second, averaging 3.47. Although much of the current city planning to increase active transport is concerned with making safer cycling and pedestrian conditions (Arcata City Council 2010), the two least influential factors when choosing not to use active transport were both reported to be safety related: “I’m concerned for my safety— traffic” (1.71) and “I’m concerned for my safety—other” (1.68) (Figure 9). Once again, safety was marginalized when comparing how safe one felt walking or biking alone at night in Arcata to general transport trends (Figure 10). Concern for personal safety was shown to be a non-issue, with very little difference in mode of choice being found between those who felt very comfortable and those who felt unsafe. The final function of the

![Figure 8](image.png)

**Figure 8.**—Respondents rated six factors on a scale of 1 (not motivating) to 5 (extremely motivating), based on how influential they were when deciding whether to ride a bike or walk to school.
survey allows the spatial distribution of respondents’ residences to be compared against type of transportation that they use to get to school. The mapped area was divided into twelve different areas, based on the average amount of time it takes to get to HSU (biking times from various points in the city were collected and tested...
against Google Maps biking times), topography, and substantial physical barriers (such as Highway 101). Respondents who lived outside the mapped area were put into a fourteenth category and treated as one group. As shown in Figure 11, where people lived in relation to HSU played an instrumental part in determining how often they chose an active transport option.

**Discussion**

The picture of HSU students and their transportation choices provides a lens through which to examine personal motivations. The results of the survey showed the most-prominent factors at play when choosing an active transport option to be both space (where the subject’s residence was located geographically) and sense of place (the subject’s feelings about Arcata). This has some thought-provoking implications.

An examination of the map suggests a pattern surrounding those who make higher percentages of trips to school by bike or foot (Figure 12A). Understandably, students residing in areas within the immediate radius of HSU made the highest percentage of their trips using active transport. This could be interpreted to show that shorter distance and shorter biking/walking times lead to higher participation. However, when looking at the areas beyond the immediate vicinity of the school, something noteworthy surfaces. Although the areas 9 (Alliance/Stromberg), 4 (Downtown), and 6 (Uniontown) all take about the same amount of time to get to HSU by bike (the farthest-reaching areas are within a one-minute time difference of one another) (Figure 12B), areas 4 and 6 have higher percentages of active transport users. This pattern is replicated in the next category of biking times, where zone 5 (South-town) has a higher percentage of active transport trips than the other zones of comparable biking times. In the “less than 17 minutes” category, there again is a zone that stands out above the rest: zone 10 (Bottoms, West of K St). The common thread between these highlighted zones is that they are all closer to Arcata’s city center than their corresponding counterparts. Respondents who reside geographically closer to the community’s center choose to bike and walk more often than those who live on the periphery of the town, even when the distance to the destination (HSU) is comparable. One possible reason this pattern might emerge is, as one interviewee claimed, “the more people get used to walking, the more they walk.” This notion points to the possibility that, because of the convenience that living in a centralized area
Figure 11.—Certain areas within Arcata were shown to produce much higher percentages of trips made by active transport.
Figure 12A.—Arcata was divided into regions based on the approximate time it takes to bike to HSU from various locations. The regions were then tested against the mode split for those respondents residing in each area.

brings, people who live there tend to make more trips in general by foot or bike—to work, to eat, to shop, and to socialize. These habits and general comfort with walking and biking carry over to transportation choices when traveling to school as well.
This finding dovetails with the other dominant development revealed by the survey: Both those who felt at home in Arcata and those who had higher levels of attachment to Arcata made a higher percentage of their trips to school by active transport. Though the causations are difficult to pinpoint, the relationship clearly indicates

*Figure 12B.*—Arcata was divided into regions based on the approximate time it takes to bike to HSU from various locations. The regions were then tested against the mode split for those respondents residing in each area.
that those who have a more intimate relationship with the place in which they live, bike and walk more often. This relationship is strengthened on both ends. The more often people choose to walk or bike, the more they get to know their city and the more connected to it they feel. Likewise, the more comfortable people feel in their environment and the more positive reinforcement they obtain through experience, the more likely they are to choose an active transport method in order to enjoy these benefits. In this way, one’s sense of place seems to play an integral role in choice of transportation. It is not a coincidence that the highest-rated factor contributing to respondents’ daily decisions to walk or ride a bike was found to be an enjoyment of being outside and community interactions.

**Conclusion**

With the ills of motorized transportation mounting and gaining increasing attention, why do people still overwhelming choose this manner of transportation? The question remains open. Although this research is not comprehensive and alone cannot produce a definitive answer, it does bring to light important and underdeveloped considerations: space and place. In particular, this research suggests the need to pay more attention to the role that a positive sense of place plays in transportation choices, as well as the spaces that are conducive to promoting that positive connection. This study shows that students at Humboldt State University are little influenced by concerns over bike lanes; nor was a desire to save the environment a chief motivation. Instead they choose active modes of transportation because of the personal fulfillment cycling and/or walking brings them. People do not make less-sustainable choices because they are “immoral” or because they are “unintelligent”—people make choices within the framework in which they have been conditioned. In this instance, not only have our cities grown in a sprawling manner that geographically encourages automobile use, but the evidence found here also points to a society that has been too long departed from active transport to realize its benefits. Americans’ collective memory fails to recall what it’s like not to have to fight traffic and anxiously seek out a parking spot while the clock is ticking away. We have become estranged from a way of life that doesn’t involve the automobile. Furthermore, we are framed by a society that does not remember all that we are missing by being in a car: unexpected events, joys, and familiarities. In short, we are structured by a society that does not remember the valuable connection to place that
slowing down one’s mode of locomotion allows—and therefore
does not seek it out.

In the words of Ernest Hemingway, “It is by riding a bicycle that
you can learn the contours of a country best since you have to
sweat up hills and coast down them. Thus you remember them as
they actually are, while in a motor car only a high hill impresses
you and you have no such accurate remembrance of country you
have driven through as you gain by riding a bicycle” (1967). In the
case of HSU students in Arcata, those who have been reminded of
the benefits that active transport brings and regained that intimacy
with the place in which they live, intentionally or not, have largely
adopted these more sustainable habits.

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Cultural Clash in the Netherlands? Exploring Dutch College Students’ Attitudes Toward Muslim Immigrants

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Abstract
This paper investigates native Dutch college students’ perceptions of Muslim immigrants in the Netherlands. There is discussion in both scholarly and popular realms alluding to Muslims in the Netherlands as a threat to Dutch identity and culture. To determine the students’ perceptions of Muslim immigrants, I surveyed 163 students at a number of universities across the Netherlands and conducted 20 semi-structured in-depth interviews. Items such as economic threat, safety threat, cultural threat, and endorsement of multiculturalism were measured in the survey, as well as specific attitudes toward Moroccan and Turkish immigrants. Results from my field research indicate that, although discussion of immigration in Western Europe and the Netherlands is prominent in the political arena, Dutch college students do not feel that Muslim immigrants pose a threat to Dutch identity and culture. Dutch college students support the idea of multiculturalism in the Netherlands but want immigrants to integrate as soon as possible.

Introduction
In the 1960s and 1970s, Western Europe experienced an increase in immigrants from Eastern Europe and North Africa. The Netherlands was no exception to this influx of immigrants. In a response to a labor shortage after World War II, the Dutch government sought labor from Eastern European and North African countries, primarily from Morocco and Turkey (Sniderman 2007). Since then, there has been discussion in both scholarly and popular realms alluding to Muslims in the Netherlands as a threat to Dutch identity and culture. Recent newspaper headlines have exclaimed “Islam is now considered a threat to national identity by almost half of French and Germans, according to new poll” (Allen 2011) and “Islamists raise fears of violent ‘clash of cultures’ in Europe” (Johnston 2010). Scholars have said, “Islam and Muslims are typically presented and
perceived as threatening national identity and culture” (Scroggins 2005) and “Many Dutch are concerned that the Muslim religion... will undermine Dutch values” (Staub 2007). Muslim immigrants have also been in the center of political discourse.

Politicians have regarded Islam as a religion that threatens Dutch society, national identity, and culture (Poppe, Van Der Noll, and Verkuyten 2010). Some analysts call this an ongoing “Dutch-Muslim” cultural war (Scroggins 2005). A study conducted by Pew Global Research (2005) found that fifty-one percent of Dutch citizens have negative opinions about Muslims. Within a decade, Muslims will outnumber native Dutch people in the three largest cities in the Netherlands (Sniderman 2007). There has been a response to the growing amount of Muslims immigrants in the Netherlands. The Netherlands has the most ambitious policy of multiculturalism, which is defined as the respect for pluralism of cultures (Sniderman 2007).

Previous literature contends that perceived threats to Dutch culture and identity are responsible for negative attitudes about immigrants. College students are expected to feel that differences in values between Muslims and Dutch culture lead to negative attitudes about Muslims. The purpose of this study is to use Integrated Threat Theory to explore college students’ perceptions of the presence of Muslim immigrants in the Netherlands. College students are being measured because out of a total population they are more tolerant toward political views and diversity in the realms of race and religion (Cheng 2009). In this research, surveys measure a target population that is expected to have the most liberal attitude toward multiculturalism in the Netherlands. There has been much research on relations between native Dutch and Muslim immigrants. Previous research about Muslim immigration in the Netherlands has focused on how children and adolescents perceive Muslim immigrants (Poppe, Van Der Noll, and Verkuyten 2010; Verkuyten 2007). College students in the Netherlands have received minimal attention regarding their perceptions of Muslim immigrants.

**Muslim Migration to the Netherlands and Landscape Change**

In an attempt to obtain a greater understanding of people’s attitudes toward outsider groups, Stephan (1998) developed a method of assessing prejudice called Integrated Threat Theory (ITT). Stephan
tested this theory in several studies to measure perceptions between groups. Some of these studies included attitudes toward immigrants in the U.S., attitudes toward immigrants in Spain and Israel, and women’s attitudes toward men (Stephan 2000).

ITT researchers acknowledge conflict between intergroup relations. The purpose of ITT is to discover the source of prejudice between groups in an attempt to improve intergroup relationships (Stephan 2000). ITT is frequently used to measure perceptions of immigrants. The current ITT model includes four types of threat: realistic threat, symbolic threat, intergroup relations, and negative stereotypes. Realistic threat refers to the perceived threats of safety and economy. Symbolic threat measures threat as it relates to culture, values, identity, and society. Previous research concluded that people are quite concerned with symbolic threat. Scroggins states, “Islam and Muslims are typically presented and perceived as threatening national identity and culture” (2005). This current research questions these conclusions.

The Netherlands is renowned for its tolerance (Sniderman 2007). A tolerant individual is defined as one who “must be ready to accept others, to think well of them, and to be well disposed toward them (minorities)” (Sniderman 2007). During the Golden Age in the 1600s, the Netherlands began to shape into the tolerant country it is today. The Netherlands was one of the most tolerant, wealthy, and powerful countries in the world during the Golden Age (Warda 2007). During this time, people came to the Netherlands to experience freedom from religious and political persecution. In the seventeenth century, Amsterdam was one of the most popular cities in Europe because of its tolerant and liberal environment. As a result, the Netherlands was a popular destination for political and religious refugees, who could practice their beliefs freely there. This included political refugees from England who would later be some of the first Europeans in the United States. Today, the Netherlands is still seen as a tolerant country because of its liberal attitudes toward drugs, prostitution, gay marriage, and euthanasia, to name a few (Sniderman 2007). However, the Netherlands is not so tolerant in the realm of immigration.

In the 1960s and 1970s, the Dutch government recruited labor from North Africa and Eastern Europe in response to a demand for labor after World War II. Refugees from Sri Lanka, Iran, Iraq, Somalia, and other African countries arrived in the Netherlands
the following decade. The Turkish and Moroccan populations were the largest and continued to grow. These two groups compose the largest immigrant groups in the Netherlands. Eighty-seven percent of Turks and ninety-two percent of Moroccans in the Netherlands practice Islam (FORUM 2010). Because these two prevalent immigrant groups are largely Muslim, Turks and Moroccans are the focus of this research.

Dutch people are proud of their culture (Wiarda 2007). The well-known phrase in the Netherlands, “God created the world but the Dutch created the Netherlands,” reflects the attitude the Dutch have about their country. A cultural clash is said to exist between the lifestyles of the Dutch, the Turks, and the Moroccans. Muslim immigrants from Turkey and Morocco bring with them culture that is not easily left behind. These immigrants in the Netherlands come primarily from the rural areas of Anatolia in Turkey and the Rif Mountains in Morocco (Sniderman 2007). Rural areas are typically associated with traditional practices, so these immigrants are bringing conservative Muslim practices into one of the most liberal countries in the world. A “Dutch-Muslim” cultural war has been problematic and is at the forefront of political discussion (Scroggins 2005).

Until the 1960s the Dutch government was divided by Protestants, Catholics, and non-confessionals. This divided everything from schools and political parties to sports clubs (Sniderman 2007). In the 1960s secularism replaced this system of pillarization, making the Netherlands a secular country. In 1994 two opposing parties, the Social Democrats and the Conservatives, joined together to form the Purple Coalition. This group promoted the most determined system of multiculturalism in Western Europe. The government funded Muslim schools, where children were taught in their own language. They funded the importation of imams, who knew much about the Koran but little about Dutch culture (Sniderman 2007). Many services were offered to Muslim immigrants at the expense of Dutch taxpayers. A politician named Pim Fortuyn was a public critic of multiculturalism. He argued that imams should respect the culture of the Dutch and called Islam a backward religion. People supported his stance against multiculturalism and he was elected prime minister. He was shot a week before he was to take office (Sniderman 2007). Since then, multiculturalism has been a subject of heated political debate in the Netherlands.
Statistics Netherlands (2012) distinguishes between people with Western and non-Western backgrounds. In 2009 Turks were the largest non-Western group in the Netherlands, with a population of 378,000, followed by 342,000 Moroccans. Unlike most other immigrant groups, the majority of Turks and Moroccans practice Islam. About 6 percent of the population in the Netherlands is Muslim. For comparison, Germany is 3.5 percent Muslim and France is 8 to 9.6 percent Muslim (BBC 2005). Muslim immigrants live in the three largest cities in the Netherlands, which include Amsterdam, The Hague, and Rotterdam. Sniderman (2007) projects that Muslim immigrants will outnumber Dutch citizens in these three cities within the next decade.

In response to the increasing number of Muslims, there are several examples of landscape change that are occurring in the Netherlands. In Amsterdam, there are neighborhoods that are eighty percent Moroccan. One specific neighborhood is called the Diamantbuurt. Before the increase of immigrants in the 1960s and 1970s, this neighborhood was one that was famous for housing young Dutch writers and artists. There is evidence of gentrification in the Diamantbuurt, as numerous “For Sale” signs are suddenly visible. The Moroccans in this neighborhood are moving out as rent is increasing and native Dutch people are moving in. A strong indicator of minority neighborhoods is the presence of television satellite dishes. There is one satellite dish per household, as Moroccans attempt to reach television stations from Morocco. The ubiquitousness of satellite dishes is such a strong indication of the presence of immigrants that once a year the municipality of Amsterdam comes and takes down the dishes, in an attempt to preserve the “Dutch” aspects of the neighborhood. The Moroccans have responded by placing these satellites in the windows, so they can easily be taken inside.

The cultural landscape of the presence of immigrants is evident not only in the form of satellite dishes but also in the form of mosques. Many mosques are unnoticed because mosques are located in old bathhouses, homes, and empty buildings. There are more than four hundred mosques in the Netherlands. There may be several mosques in close proximity, but typically Moroccans go only to Moroccan mosques and Turks go to Turkish mosques, which leads to frequent mosque construction. The Essalam mosque is the largest in the Netherlands and is one of the largest in Western Europe (see Figure 1). After eleven years of controversy, the Essalam mosque was finally opened in 2010. The construction was delayed for such
a long time because the fifty-meter minarets competed with the skyline of a popular soccer stadium. The mosque completion controversy serves as a physical representation of the clash of cultures.

The coexistence of different cultures is also evident in places such as markets. The Haagse market is one that is especially known for its multiculturalism. Dutch is not spoken at the market, and food is not displayed in a Dutch manner. The Haagse market is a proud icon of multiculturalism in The Hague as it is the center of activity for many different immigrant groups.

Research Design and Survey Results
An online survey designed to assess perceptions of Muslim immigrants was made available to college students in the Netherlands. The survey was composed of nineteen questions. The purpose of the survey was to measure (1) varying types of threat by Muslim immigrants in the Netherlands, (2) national/cultural identity, (3) specific attitudes toward Moroccans and Turks, and (4) endorsement of multiculturalism. All questions were measured on a four-point Likert scale from “strongly disagree” to “strongly agree.” These questions were modeled after studies by Verkuyten (2005), Stephan (1998), and Sniderman (2007).

Individual threat of safety and economy is measured on the questionnaire with two questions. These are “I am concerned about increasing violence and vandalism in my neighborhood by ethnic minorities” and “I am concerned that my economic prospects will

Figure 1.—Essalam Mosque, Rotterdam. (Photo by author, 2012.)
get worse because of ethnic minorities." Collective threat of safety and economy includes three questions. These are "The economic prospects of Dutch society will get worse because of ethnic minorities," "I am concerned about the increasing violence and vandalism in Dutch society by ethnic minorities," and "Because of the presence of Muslim immigrants, Dutch people have more difficulties finding jobs."

There are four questions that measure threat to Dutch culture. These are "The increasing number of ethnic minorities in the Netherlands is threatening the future of Dutch culture," "There are few differences between the values of Dutch citizens and Muslim immigrants in the Netherlands," "My Dutch identity is being threatened by the presence of Muslim immigrants in the Netherlands," and "Dutch norms and values are being threatened by the presence of Muslims."

The endorsement of multiculturalism is measured by four questions. These include "The presence of diverse cultures in the Netherlands benefits the country as a whole," "Immigrants living in the Netherlands should integrate as soon as possible," "Immigrants should be supported in their attempts to preserve their own cultural heritage in the Netherlands," and "Muslims contribute to Dutch culture."

Dutch identity is measured with two questions. These are "My Dutch heritage is an important part of my identity" and "I am proud to be Dutch."

Finally, specific attitudes about the Moroccans and Turks are measured, including Dutch language skills, education, law-abidingness, and contentment with Dutch society. Perceptions of Moroccans and Turks as two different Muslim immigrants groups will become evident.

Surveys were distributed in person to one hundred native Dutch college students at Utrecht University, Leiden University, and University of Amsterdam. Sixty-three of the surveys were issued to college students online using Survey Monkey. Semi-structured, in-depth interviews were conducted with twenty native Dutch college students at Utrecht University, Leiden University, and University of Amsterdam to provide a greater understanding of perceptions of immigrants. Results indicate the differences between perceived threats to culture, economy, and safety.
In the issues concerning safety, twenty-one percent agree or strongly agree with the statement, “I am concerned about increasing violence and vandalism in my neighborhood by ethnic minorities.” Thirty-nine percent agree or strongly agree that “I am concerned with increasing violence and vandalism in Dutch society by ethnic minorities.” These results reflect attitudes about threats to the individual compared to threats to Dutch culture.

Generally, Dutch college students are not concerned about economic threats related to the presence of immigrants. Ninety-one percent disagree or strongly disagree with the statement, “I am concerned that my economic prospects will get worse because of ethnic minorities.” Similarly, ninety-two percent strongly disagree or disagree with the statement, “The economic prospects of Dutch society will get worse because of ethnic minorities.” Ninety-two percent of Dutch college strongly disagree or disagree with the statement, “Because of the presence of Muslim immigrants, Dutch people have more difficulties finding jobs.”

Questions on the survey relating to immigrants and threat to culture were the most relevant to the research question. Seventy-three percent of the students disagree or strongly disagree that “The increasing number of ethnic minorities is threatening the future of Dutch culture.” Fifty-four percent strongly disagree or disagree that “There are very few differences between the values of Dutch citizens and Muslim immigrants in the Netherlands.” Eighty-two percent of college students strongly disagree or disagree that “Dutch norms and values are being threatened by the presence of Muslims.” Ninety-four percent strongly disagree or disagree that “My Dutch identity is being threatened by the presence of Muslim immigrants in the Netherlands.”

Some contradictions arise in questions relating to support of multiculturalism and integration. Seventy percent believe that immigrants should be supported in their attempts to preserve their own cultural heritage in the Netherlands. Eighty-six percent think that the presence of diverse cultures in the Netherlands benefits the country as a whole; however, ninety-one percent ask that immigrants living in the Netherlands integrate as soon as possible.

Other results suggest that college students consider their Dutch heritage an important part of their culture. Seventy-two percent agree or strongly agree that their Dutch heritage is an important part of
their identity. Eighty-eight percent of the respondents stated that they are proud to be Dutch.

Finally, students were asked to assess their perceptions of Moroccans and Turks in the categories of Dutch language skills, education, law abidingness, and content with Dutch society. Results suggest that college students think less of Moroccans than they do of Turks.

**Discussion**

Muslims in the Netherlands are commonly depicted as a threat to Dutch national identity and culture. Verkuyten states that “the ways of life between Muslims and Westerners are supposed to collide” (2008). Prominent Dutch researchers, such as Verkuyten (2008), conclude that native Dutch adolescents have “clear and strong anti-Muslim feelings.” Contrary to previous research that contends that Dutch are concerned about immigrants’ threat to Dutch culture, these survey results indicate that native Dutch college students appear unconcerned about threats to Dutch culture.

Support of multiculturalism is another factor that researchers are concerned with. Several studies have been conducted that make a correlation between support for multiculturalism and prejudice toward Muslims. The result of this research indicates that college students largely support the presence of different cultures in the Netherlands. The results of the survey do not reflect certain patterns as outlined in the Integrated Threat Theory model. Previous ITT research concluded that there are higher correlations between endorsement of multiculturalism and positive attitudes toward immigrants. College students overwhelmingly approve of having different cultures in the Netherlands; therefore college students display similar support toward immigrants. Previous ITT research also stated that people are concerned with the symbolic threat to Dutch values and norms. Most of the students surveyed either disagreed or strongly disagreed with the statement “Dutch norms and values are being threatened by the presence of Muslims” (Figure 2). When asked whether Dutch identity is being threatened by the presence of Muslims, almost all the students answered “disagree” or “strongly disagree” (Figure 3).
Throughout Western Europe and the Netherlands, there exists an attitude that Muslim immigrants pose a threat to European culture. Newspaper headlines such as “Islam is regarded as the biggest threat to Europe for many Europeans” (Cook 2012), “Islam is now considered a threat to national identity by almost half of French and Germans, according to new poll” (Allen 2011) and “Islamists raise fears of violent ‘clash of cultures’ in Europe” (Johnston 2010) are commonly seen. This anti-Islam sentiment is supported by scholarly research. The founder of ITT, Stephan, states, “One of the greatest sources of difficulties in intercultural relations is the belief that other cultures pose a threat to one’s own culture” (2000). Scroggins often refers to the “Dutch-Muslim” cultural war (2005). A Dutch scholar
articulates, “Many Dutch are concerned that the Muslim religion... will undermine Dutch values” (Staub 2007). Contrary to news and the scholarly realm, Dutch college students do not think Muslims pose a threat to Dutch identity and culture.

The fact that college students largely support multiculturalism and are not concerned about perceived threats to Dutch culture and national identity disputes what is widely discussed in the Netherlands in the popular and scholarly realm. These viewpoints are contradicted by other questions regarding integration. This research reveals that the majority of Dutch college students agree that immigrants in the Netherlands should be supported in their attempts to support their own cultural heritage in the Netherlands (Figure 4), but even more agree that immigrants living in the Netherlands should integrate as soon as possible (Figure 5). This is a contradiction that needs to be further explored. However, it should be mentioned that the “popular” way of thought among Dutch students interviewed involves supporting the presence of different cultures.

![Support of Multiculturalism](image)

*Figure 4.—Do the presence of diverse cultures in the Netherlands benefit the country as a whole?*

The contraction between support for multiculturalism and desire for integration is evident in the comments in the survey. One student expressed, “The government is trying to interfere with religion. They shouldn’t, it’s too personal. But they need to learn Dutch.” About fifty percent of Dutch college students believe that there are differences between the values of Dutch citizens and Muslim im-
migrants in the Netherlands. Many of the students had a difficult time answering this question regarding differences in values and stated that some of the cultural practices of Muslim immigrants were inferior to Dutch culture. One student shared, “It depends on the values of the immigrants. If they want to kill a goat with a dull knife, then yes, I think that they should integrate as soon as possible. If they want to mistreat their wives, I think they need to integrate as soon as possible. It depends on their culture.” Quotes such as these highlight the complexity of the perceptions of integration of Muslim immigrants.

Another key finding was the difference in perceptions toward Moroccans and Turks. Table 1 illustrates results of the survey that indicate college students’ perceptions of Moroccans and Turks in the areas of Dutch language skills, education, law abidingness, and contentment with Dutch society. The overwhelming majority of the participants had more negative attitudes toward Moroccans than they had toward Turks. One student remarked, “We are Christian and atheist and Islam is so different. The way women dress is so different.” Her friend replied, “Yes, but I saw some Turkish women in Amsterdam yesterday, and they looked so modern, like us.” She continued, “We don’t like them, and they don’t like us, but we don’t talk about it.” Perceptions of Moroccans and Turks are discussed in the following sections.
Unlike Moroccan immigrants, Turkish immigrants are not viewed negatively. The Turks are more Western than Moroccans, allowing for a more obvious distinction in physical appearance. The way the hijab is worn also illustrates the difference between Moroccan and Turkish women. Turkish women wear more loose-fitting and colorful hijabs than Moroccan women do. Generally, Turks are more modern and young Turkish people dress like young Dutch people. Another reason that Turks are better received among the Dutch is that Turkey is a popular vacation destination for Dutch people.

Many college students have more negative attitudes toward Moroccans than they do toward Turks—a common viewpoint among Dutch people. For example, Wilders stated, “We have Moroccan youth really behaving like barbarians: killing people, attacking people, doing the most horrible things” (CNN 2008). While this is an extremist perception of Moroccans, there does seem to be a problem with Moroccans in the Netherlands. Forty percent of Moroccan immigrants between twelve and twenty-four have been charged with a crime or have been arrested. This number rises to fifty percent in Moroccan neighborhoods. Forty percent of Moroccan youth are unemployed; sixty percent of Moroccan men between forty and sixty-four are on social welfare; and sixty percent of Moroccan youth drop out of school by age twenty-three (Gatestone Institute 2011). These facts allow Moroccans to be scapegoats and force them into the center of political discussion.

The conducted interviews reveal several explanations for this anti-Moroccan sentiment. Moroccans who immigrated to the Netherlands come primarily from the Rif Mountains in northern Morocco. This is a conservative region in Morocco, and the immigrants bring their traditions with them to the Netherlands—which, unlike the

<table>
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<th></th>
<th>Moroccans</th>
<th>Turks</th>
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<td>Dutch language skills</td>
<td>6.7*</td>
<td>7.2</td>
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<tr>
<td>Educated</td>
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<td>Law-abiding</td>
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<td>Content with Dutch society</td>
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*The survey read: “Based on your current knowledge, please estimate the percentage of Moroccans/Turks who possess each trait.” The numbers above represent averages from 0 to 10.
mountainous regions of Morocco, is not a conservative environment. Moroccans in the Rif Mountains have different parenting techniques than they do in the Netherlands. In Morocco, young boys are often sent outside by their mothers to play because they cause too much trouble in the home. The grandfathers sit on the front porches and correct the boys when they misbehave. In the Rif Mountains, the grandfathers do all the parenting. In the Netherlands there are no grandfathers sitting on porches. The mothers tell the boys to go outside and play, and they find themselves in trouble. In the same interview it was revealed that Moroccans are “at the bottom of the totem pole of Muslim countries” (Mustafa 2012). A Turkish person in the Netherlands would not marry a Moroccan, because according to the interviewee, Moroccans are the least respected group in the Muslim world. Historically, Moroccans were the last people to receive news because geographically, they are far from Saudi Arabia (Mustafa 2012). With the Dutch and Turkish both expressing these attitudes about Moroccans, it is clear that they are the least popular immigrant group in the Netherlands. According to another interviewee, “There always has to be a problem group in the Netherlands. Moroccans will find their place in Dutch society.” Perhaps this is true. Attention is moving away from Moroccans and is moving toward immigrants from Eastern Europe.

Muslim immigrants in the Netherlands have been a topic of discussion in the Netherlands for several years. However, the focus is moving away from Moroccans and Turks as Eastern Europeans are becoming scrutinized. It has been stated that the Muslims are blamed for the economic turmoil that is occurring in the Netherlands. However, it can be argued that the presence of Muslim immigrants is considered threatening not because they are Muslim, but because they are not Dutch. Recently, Wilders launched a new website that allows Dutch people to submit formal complaints about Eastern Europeans in the Netherlands. He accuses Romanian, Bulgarian, Slovakian, and especially Polish people of stealing jobs, creating pollution, and causing problems and nuisance (Saunders 2012). He attempts to portray Eastern Europeans as criminals, similarly to how he portrayed Moroccans. He is transitioning from blaming Muslims for Holland’s problems to blaming Poles. This suggests that the discussion of “Islam in The Netherlands” is actually more about differences in culture than it is about Islam. In times of economic crisis, the vocal minority has created an illusion that the Netherlands is strongly anti-immigrant.
Conclusion
Immigration in Western Europe is at the forefront of political discussion. The dialogue surrounding immigration in the Netherlands is reminiscent of similar debate in the rest of Western Europe. The results of this research indicate that the so-called “cultural war” is overexaggerated. The majority of native Dutch college students surveyed indicate that they support the presence of different cultures in the Netherlands, although they want immigrants to integrate as soon as possible. This is a contradiction that needs to be further explored. There was a clear difference in perceptions toward Moroccans and Turks, the two largest immigrant groups. Survey results revealed that Dutch college students think less favorably of Moroccans than they do of Turks. Immigration in the Netherlands and in Western Europe will continue to be subject to debate in the coming years, but the reasons for anti-immigrant sentiment must be further scrutinized. The fact that college students perceive minimal threat from immigrants is a positive indication of the future of Dutch society. Contrary to newspaper headlines and scholarly research alluding to a “Muslim-Dutch” cultural war, native Dutch college students overwhelmingly disagree that Muslim immigrants in the Netherlands pose a threat to Dutch culture and identity.

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Fish Sauce to French Fries: Changing Foodways of the Vietnamese Diaspora in Orange County, California

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Abstract
Foodways constitute salient symbols of cultural identity and sense of place. This is particularly true in the case of immigrants as they struggle to strike a balance between cultural retention and assimilation. In this study, we investigate changing foods and foodways among Vietnamese Americans residing in and around southern Orange County, California’s, Little Saigon, the primary cultural hub of ethnic Vietnamese outside of Vietnam. Vietnamese refugees and immigrants began entering the United States in considerable numbers after the fall of Saigon in 1975. Since arriving, they have experienced myriad socio-cultural changes as they adjust to life in the United States. We employ qualitative and quantitative methods, including questionnaires, participant observation, and formal and informal interviews, to explore food preparation and consumption habits among different waves and ages of immigrants. Results reveal that degree of change in Vietnamese foodways is time and space contingent. Significant changes are associated with generational differences of immigrants as well as distance of residence from Little Saigon. Although age of immigrants was not associated with degree of foodway retention, qualitative data suggest a rescue effect of traditional foodways as Vietnamese Americans associate with peers during their college years.

Keywords: foodways; Vietnam; Vietnamese Americans; diaspora; cultural geography; culture change

Introduction
What we choose to eat and drink—linguini or larvae, gumbo or goulash, anchovies or ants, beer or blood—constitute fundamental components of our geographical identity. As Jean Anthelme Brillat-Savarin famously commented, “Tell me what you eat, and I’ll tell you who you are.” Foodways reinforce who we are and, for outsiders,
who we are not. They play a crucial role in religious ceremonies, traditions, and customs, and serve as a material basis for the rituals through which the passage of life stages are celebrated (Heine 2004). Foods are the center point of religious and secular feasts, symbolizing for participants culture-bound values and meanings (Murphy 1986). The true nature of people, according to Jean Jacques Rousseau, could be found in the food they prefer. Indeed, iconic foods in some cases become inseparable for outside observers from the people who eat them. Obvious examples include the Irish being identified as “potato people” by the English, and Sicilians as “macaroni eaters” by northern Italians (Scholliers 2001).

Food is pivotal to our sense of identity and spirituality (Fischler 1988). For example, the Jewish religious year begins on Rosh Hashanah (Head of the Year); on this occasion, Challah, a braided bread, is baked into a round shape to symbolize a year of continuous health and happiness. Apples dipped in honey and other special sweets are served to reflect the prayers that are said for a sweet and pleasant year. In Islam, it is customary to sacrifice a sheep and share its meat with friends and relatives on Eid al-Adha (Festival of Sacrifice) in commemoration of Abraham’s willingness to sacrifice his son to God (Kittler and Sucher 2001). For Dominican immigrants in New York City, traditional food “is a place to hide and save yourself, to adapt to a new society without going crazy” (Marte 2011, 185). Among Brazil’s African diaspora, foods originating from their homeland—okra, black-eyed peas, sesame, and others—have attained sacred status for the followers of syncretic Afro-Brazilian religions. Some are sold on the streets to passersby as a form of offering to guardian deities (Voeks 2012). Many religions view certain foods as “unclean” and members abstain from eating tabooed animals, such as pork among Muslims and cows among Hindus, beverages containing caffeine among Mormons, and dishes containing blood among Muslims and Jehovah’s Witnesses (Bell and Valentine 1997, Kittler and Sucher 2001, Heine 2004). So strong are these connections with foods that they are often the only cultural element that is preserved after other ethnic traditions have faded away (Han 2008).

Foods and foodways are often mobile, traveling and settling as they serve to renegotiate a sense of place for migrants, forced and voluntary, in their newfound homes. Because we live in the age of human migration, the significance of foodways as cultural markers and symbols of identity has never been stronger. In 2010, roughly 214 million people migrated to international destinations, more
than at any time in human history. And with over forty-million immigrants, the United States is home to far more migrants than any other country (United Nations 2011); it is truly a landscape of diasporas. Although the term *diaspora* referred originally to scattered Jewish groups that lived among minorities, in recent years it has been generalized to include all voluntary and forced migrants, regardless of race, religion, profession, or economic standing (Dufoix 2008). The concept of diaspora encompasses “the material and imaginative connections between a people and a territorial identity” (Blunt 2007, 689). Importantly, it also involves a sense of being at home in a new place, but still retaining significant connections with a distant locale, often considered a homeland. Nowhere is this attachment with homeland more evident than in the case of diaspora foodways.

The traditional foods of diasporic people represent a connection to the past and assist in reducing the negative effects of acculturation. Immigrant communities that feel more comfortable with the host culture and that identify with the cultural environment around them are more likely to adopt local food habits. And children who are raised in a culture where culinary practices are different from those of their parents quickly alter their food habits because of their ease in identifying with and assimilating to the new culture (Rao 1986). Among Italian immigrants in Canada, for example, the consumption of traditional foods, such as pasta and lamb, coincides with a stronger sense of Italian ethnic identity, whereas the eating of convenience foods or nontraditional Italian dishes has the opposite effect (Laroche, Kim, and Tomiuk 1999). And among Chinese communities in Vietnam celebrating the annual *Phuoc Kien* festival, the menus depict principally aspects of the greater-Chinese domain, but also allow “for the expression of...Vietnamese culinary” elements (Avieli 2005, 290)

**The Vietnamese American Diaspora**

The objective of this study is to explore the “Americanization” process among the Vietnamese diaspora, based on the degree to which their cuisine has evolved and their food consumptive patterns have changed since their arrival in the United States. We hypothesize that individual migrants experienced a different rate of foodway assimilation based on their age at arrival in the United States, their current age, and where they live in relation to other Vietnamese Americans. Cuisine evolution in this context refers to changes of ingredients in traditional Vietnamese dishes due to the deliberate alteration of
the flavors and colors of dishes to accommodate altered consumer preferences and/or lack of availability of necessary foods or spices. Lack of accessibility can occur because the items are not sold or are difficult to grow in the United States, or because of the distance (drive time) required to obtain them from a market. This concept applies to immigrants who have lost interest in their traditional dishes or who have integrated novel local foods and flavors into their cuisine, in effect Americanizing or “watering down” the “Vietnameseness” of their native dishes. Because contact with American cultures has resulted in exposure to novel types of foods and spices as well as new values associated with foods, understanding which traditional foodways have resisted change will help one understand the process of acculturation among Vietnamese Americans.

From the fall of Saigon on 29 April 1975 until the end of 1977, approximately 132,000 Vietnamese refugees fled South Vietnam (Rutledge 1992). The first wave of immigrants came to the United States via refugee camps in Guam, Thailand, or the Philippines (Houle 2006). Upon entry into the United States, they were placed in one of four military base reception centers in California, Arkansas, Pennsylvania, or Florida. The government was careful not to encourage concentrations of Vietnamese in any area, to avoid “ghettoization” (Do 1999). This ethnic dispersion was also a result of economic considerations as well as anti-Asian sentiments that existed among some Americans (Lindsey 2006). Refugee camps provided English lessons and job training to assist newly arrived Vietnamese in their adjustment to American culture. From the camps, the refugees were dispersed throughout the United States (Houle 2006). Areas of relocation included parts of California, Texas, Washington, Pennsylvania, Minnesota, Massachusetts, New York, Illinois, and the suburbs of Washington D.C. (Do 1999). The 1975 Indochinese Resettlement Assistance Act provided funding for this endeavor. However, the reception centers closed on 20 December of that year, and in 1977 the Resettlement Act expired (Desbarats 2000, Fong 2002).

From late 1978 to the early 1980s, a second wave of Vietnamese refugees entered the United States (Do 1999, Zhou and Bankston 2000, Smith and Tarallo 2006). This group differed in many ways from the first arrivals. Whereas the first wave of refugees was mostly urban and, in addition to receiving government assistance, were generally better educated, relatively more Westernized, and a significant portion already spoke English, the second wave of refugees traced their origin to rural areas in Vietnam. They also did not benefit from
government assistance. The relocation experience was consequently much more of a shock for the second group of refugees (Smith and Tarallo 2006).

A third wave of immigrants began arriving after 1980 and continues to this day (Fong 2002). Like the second generation, this group did not receive government assistance and many lacked a basic knowledge of English. However, their transition into the United States was not as challenging as it had been for the second generation because of the presence of Vietnamese communities that had been established by earlier immigrants and refugees. Newcomers with little or no knowledge of the English language and American customs were able to secure jobs within communities where businesses catered specifically to the Vietnamese population. The third wave also had another advantage—a support system of friends and family that had already established themselves in the United States. These support groups helped recent arrivals with housing and food, and assisted with finding jobs, much like the government had done for the first wave of immigrants (Karnow 2006).

Finally, within the Vietnamese American population, individuals self-identify by their degree of generational-connection with Vietnam. Thus, “first generation” includes those who were Vietnamese adults when they migrated, “1.5 generation” were adolescents or teens in Vietnam when they migrated, and “second generation” are the children of Vietnamese immigrants who were born and raised in the United States.

**Vietnamese Cuisine**

During its long history, traditional Vietnamese cuisine has been influenced significantly by outsiders. Indeed, the very concept of traditional cuisine is brought into question by the global exchange of crops and fruits and spices following the Columbian landfall (Crosby 1993). Prior to this period, many of the culinary mainstays of the present day were absent from the Vietnamese cuisine. The French later introduced items that are now mainstream Vietnamese fare—*ca phe sua da* (Vietnamese iced coffee), *banh mi thit* (baguette sandwiches), pastries, meat pates, and asparagus. The Chinese introduced the use of chopsticks, stir-fry, and serving rice on the side (instead of mixed in with other ingredients). And curry is now commonly encountered on the Vietnamese table due to Cambodian, Asian Indian, and Malaysian influences (Kittler and Sucher 2001).
Because homes in Vietnam historically lacked refrigeration, fresh fruit, herbs, vegetables, meats, and fish were either quickly consumed or were pickled (Carlson et al. 1982). The latter tradition is evident in Vietnamese cuisine in the United States, as dishes such as nuoc mam (fish sauce), cha gio (egg rolls), and goi cuon (spring rolls) often contain pickled vegetables. Although pickled vegetables are also served as a side dish on numerous other plates, raw vegetables, with the exception of lettuce and sprouts, are not consumed in Vietnamese fare. Vietnamese beef jerky (kho bo) specialty shops in Little Saigon offer dozens of varieties of dried beef, reflecting long-held practices in Vietnam. Milk and milk products are not common ingredients in Vietnamese cuisine (Carlson, Kipps, and Thomson 1982), and cheese is not traditionally used in any Vietnamese dish. The principal ingredients found in current Vietnamese cuisine include: rice, chilies, cinnamon, coconut, garlic, lemon grass, lime, mushrooms, noodles, fish sauce, peanuts, scallions, sesame seeds, soy sauce, star anise, and tamarind (Jackson 1999).

**Study Area**

We focus on the Vietnamese population in Orange County, which arose out of the refugees arriving from Camp Pendleton. Immediately following their stay at the Marine Corps installation, many first-wave refugees were channeled into predominantly white Orange County after resettlement agencies in San Diego, Los Angeles, and San Francisco complained that their cities were already coping with too many other immigrant groups. By the late 1970s, Vietnamese families had already established a handful of Vietnamese restaurants and grocery stores in addition to a Vietnamese newspaper, which publishes to this day. Thus, in spite of the intentions of the government, Vietnamese immigrants were well on the way to establishing a sense of community as well as an inchoate sense of place (Aguilar-San Juan 2005). Chain migration of later immigrants also occurred, as many of the Vietnamese who had originally settled elsewhere journeyed to California to join the existing Vietnamese communities in San Jose, Orange County, or San Diego (Do 1999). Today, Orange County houses roughly 135,000 people of Vietnamese descent, the largest concentration outside of Vietnam (Karnow 2006). According to Aguilar-San Juan (2005), seventy-five percent of the Vietnamese population in southern California resides in and around Little Saigon (Figure 1). As the most culturally Vietnamese point in North America, Little Saigon continues to draw the Vietnamese population as both a destination for migration and for tourism. It is the com-
mercial and emotional center of Vietnamese culture in the United States (Mazumdar et al. 2000), and those who reside there have the best access to Vietnamese goods and services, including restaurants and supermarkets.

Methods
Data were collected by means of open-ended questionnaires, participant observation, and interviews. The questionnaire included demographic data, participants’ perceived level of “Vietnameseness,” food practices, and a seven-day food log. In order to reach multiple age groups, surveys were distributed at community centers that catered to older members of the Vietnamese community as well as at Vietnamese Student Association meetings and student-hosted special events, such as Vietnamese Culture Night (VCN), on various college campuses in Orange County.

This encouraged snowball sampling (Patton 1990), as visits to VCN resulted in meeting university professors who took the questionnaires back to their classrooms. Other professors heard about the project and encouraged their Vietnamese students to complete the

Figure 1.—The boundaries representing the three-square-mile area of Little Saigon, California.
surveys. Other special-event opportunities included the Tet (Vietnamese New Year) Festival, where surveys were dispersed to vendors and guests. This process opened the door for questionnaires to reach families whose members covered a full range of ages.

Questionnaires were also distributed via mail. Approximately 150 addresses for Vietnamese households were obtained using the residential white pages from a recent Orange County Yellow Pages directory. Persons of Vietnamese ancestry were identified by the following surnames: Do, Huynh, Nguyen, Liem, Pham, Tran, and Vuong. After sorting recipients by surname, the city of residence was taken into consideration. Because we wanted the questionnaires to reach Vietnamese Americans in other parts of Orange County, a large percentage of the mailed questionnaires was sent to residents living in cities outside of Little Saigon. Of the 500 total questionnaires distributed, approximately 60 were returned, of which 47 were usable.

Questionnaires contained a day-to-day food log in which participants were asked to list each dish consumed during a period of one week. Each dish was counted for every individual surveyed. Foods were divided into three categories: (1) Vietnamese, (2) non-Vietnamese, and (3) universal or indistinguishable. The items categorized as universal or indistinguishable are found in the cuisine of many different cultures such as fruit, bread, cereal, sandwiches, and noodles. If the participant specifically identified the name of the noodle dish, it then became distinguishable and was placed in one of the other two categories. The same applied to some of the other items in the universal or indistinguishable category.

After tallying the food count for each questionnaire, we eliminated the third category. The percentage of Vietnamese versus non-Vietnamese food was then calculated using the data from the first two categories. Those who had a higher consumption of Vietnamese food were given a positive score, with “1.0” being the highest value. Those who consumed more non-Vietnamese food were given a negative score, “-1.0” being the lowest possible value. Thus, in effect, “1.0” represents 100 percent Vietnamese food consumption, whereas “-1.0” represents 100 percent non-Vietnamese food consumption. Individuals who score between +0.2 and -0.2 represent the population whose variation in food consumption is least significant. In other words, their consumption of Vietnamese and non-Vietnamese food is almost equal. Those who score ≥ +0.2 or ≤ -0.2 represent those who eat significantly more (60 percent or greater) from one food
category than from the other. The results of these calculations are used to compare the consumption habits of varying categories of Vietnamese Americans. Statistical analyses were then employed to assess the nature and strength of the relationships between relevant variables and food consumption.

Participant observation was undertaken as a key part of collecting information on food habits (Hubert 2004). Homes and other venues were visited during festival events and special occasions such as Tet, Thanksgiving, Christmas, and birthdays, to observe the fare being served and the foods being eaten by the various age groups. These were also excellent opportunities to identify how foods were prepared and served, as well as whether alteration of traditional fare was taking place. If the preparer of the dishes was present, she/he was asked why the particular meal was served, and how it was prepared. Semi-structured interviews were conducted with individuals of varying ages and belonging to different immigrant generations. Participants were ascertained from those who volunteered via the questionnaire and also from those who had heard about the research by word-of-mouth. The purpose of these interviews was to obtain greater in-depth understanding of consumption habits and the history or background that contributed to past and present foodways.

The project was approved by California State University, Fullerton’s, Institutional Review Board (Approval no. HSR#07-0297).

Quantitative Results
The mean values from the food-scoring calculation exhibit a trend in the proportion of Vietnamese versus non-Vietnamese dishes consumed by the first, 1.5, and second generations (Table 1). As noted, a score of +1.0 denotes 100 percent consumption of Vietnamese food; a score of -1.0 denotes 100 percent consumption of non-Vietnamese food; and a score of 0 signifies that there is an equal consumption of Vietnamese and non-Vietnamese food. Mean food scores were analyzed using single-factor ANOVA. The results were highly significant (F=11.72765; p< 0.001), indicating that the respondents from the first generation exhibited significantly higher average food scores than the respondents from the 1.5 generation, who in turn had higher average food scores than the respondents from the second generation.
Table 1. Mean values for food scores based on generation of respondent. Highly-significant scores (p< 0.001) are indicated by an asterisk.

<table>
<thead>
<tr>
<th>Generation</th>
<th>Count</th>
<th>Mean</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st generation</td>
<td>32</td>
<td>0.50*</td>
<td>0.20</td>
</tr>
<tr>
<td>1.5 generation</td>
<td>10</td>
<td>0.02*</td>
<td>0.20</td>
</tr>
<tr>
<td>2nd generation</td>
<td>6</td>
<td>-0.31*</td>
<td>0.03</td>
</tr>
</tbody>
</table>

The age at which respondents arrived in the United States ranged from three to seventy-seven years, and the qualitative data suggest that a person’s age at the time she/he arrived in the United States would be a factor in the degree to which she/he assimilated American foodways. However, the regression value for age versus food score (P=0.17) suggests at best a non-significant trend between age at arrival and category of food consumed (Figure 2).

![Figure 2.—Relationship between age at arrival of Vietnamese immigrants and food consumption patterns.](image-url)
Google Maps (GM) was used to calculate the approximate travel times to Little Saigon from zip codes provided in each questionnaire. The exact addresses of respondents were unknown. The starting point in calculating travel time was the Google pinpoint for each ZIP Code. The destination was the address of the Asia Garden Mall in Little Saigon, which is considered the geographic heart of Little Saigon (Mazumdar et al. 2000). GM provided the approximate drive time from each ZIP Code and, in some cases, indicated the approximate drive time, both with and without traffic. When both estimates were given, the average time was recorded. During formal and informal interviews, participants mentioned that the drive time required to obtain Vietnamese foodstuff can be as long as twenty minutes. Based on this information, ZIP Codes were divided into two groups, based on travel time. Participants who could arrive at the Asia Garden Mall within twenty minutes from their ZIP Code were considered to be within reasonable travel distance. Those who needed to spend longer than twenty minutes on the road were deemed to be outside of the accessibility zone.

Mean food scores for respondents inside and outside the twenty-minute accessibility zone were analyzed using a one-tailed t-test (Table 2). The results were significant ($t=2.0312$, $P=0.027$), showing that respondents who lived twenty minutes or less from Little Saigon were less Americanized in terms of food use than respondents who resided more than twenty minutes from Little Saigon. These results should be considered with caution, however, because although the Asia Garden Mall is the focal point for this research, it is not the only area where Vietnamese foodstuffs are available. Because other markets that specialize in Asian fare exist in other parts of Orange County where significant non-Vietnamese Asian populations exist, Vietnamese Americans who live a considerable distance from Little Saigon may well have access to other reasonably-close Asian markets.

Table 2. Mean values for food scores based on distance of respondent from Little Saigon.

<table>
<thead>
<tr>
<th>Distance</th>
<th>Count</th>
<th>Sum</th>
<th>Average</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 min or less</td>
<td>35</td>
<td>13.37</td>
<td>0.382</td>
<td>0.2549</td>
</tr>
<tr>
<td>More than 20 min</td>
<td>13</td>
<td>0.8</td>
<td>0.061</td>
<td>0.2289</td>
</tr>
</tbody>
</table>
Descriptive Results
Participant observations and informal interviews afforded compelling insights into the process of foodway acceptance and rejection among Vietnamese Americans. For example, several participants commented on early negative experiences regarding exposure to American foods in school. A twenty-three-year-old woman, who arrived in the United States when she was five, recalls her encounter with cafeteria food in the California public school system.

“My sister and I used to go to elementary (school) when we first moved to America, and we used to be afraid of the school lunches because we thought they were trying to poison us because it was so weird looking, like mashed potatoes. They had like Mexican food, but it was really nasty Mexican food, it was like just beans and cheese, and when you ate it you felt really horrible, you felt really full or thick, so we really thought they were…it was a conspiracy or something.”

Thirteen-year old Tamarrah, who belongs to the second generation, provides a similar narrative. Most of her classmates are white, and she considers herself to be American. At home, she enjoys the traditional Vietnamese dishes her mother prepares. She dislikes the cafeteria food at school, so she usually eats the sandwiches her mother packs for her. On occasion her mother will include Vietnamese items in her lunch bag. It is during these times that she feels the conflict between her ethnic background and that of her white friends.

“Whenever I take Vietnamese food to school, everybody thinks it’s weird and gross because they’ve never seen it. And one time in elementary school I brought (Vietnamese) beef jerky, and it looked like beef jerky, it looked fine, but it smelled different and I guess it tasted different, so it seemed kinda odd. ... It makes me not want to bring any more (Vietnamese food) because it makes me feel like an outsider.”

Renewed interest in the culture of their homelands, including foods and foodways, was revealed during interviews with Vietnamese American college students. Several 1.5 and second-generation participants reported that they grew up in environments in which they associated only minimally with other Vietnamese of their own age. Their foodways had become overwhelmingly Americanized, and their only exposure to Vietnamese cuisine was at home. In some cases, they experienced almost no exposure whatsoever to Vietnamese foods. But this situation changed during their college years. Nick,
for example, is a member of the 1.5 generation who arrived in the United States when he was one year old, and rejected Vietnamese foods during his youth, even in his home. In his own words:

“At a young age, I wasn’t as conscious about that [Vietnamese culture]. But I didn’t really have any Vietnamese around to compare myself to. I did obviously understand that I was different, that I had my own culture, that we spoke Vietnamese at home. At least my parents did, I really fought that as much as I could. But I really wasn’t aware of my own culture until kind of late high school I became a lot more conscious about it, and definitely during college when I was surrounded by a lot more Vietnamese speaking people and I began to appreciate my own culture more.”

Annie is a second-generation Vietnamese American. She grew up in Orange County and was exposed to a diverse group of people and foods. In her words, her attitudes changed in college:

“I think in college in undergrad when I went to San Diego I started to associate more with like Vietnamese people and I guess I kind of—that might have been the transition period where I started to feel maybe a little more Vietnamese and feel more welcome and accepted with the Vietnamese community, as opposed to before that time.”

In both examples, maturity, combined with increased exposure to Vietnamese American peers as well as more active involvement in traditional cultural practices, contributed to a resurgence of their degree of Vietnameseness as adults.

The subtleties of foodway resistance and accommodation are often revealed during holiday feasts and special events. In addition to offering up a wide array of culturally meaningful cuisines, these events frequently combine a range of generations among the hosts and the guests. During a family gathering for Thanksgiving, for example, the attendees included the hostess, her six sisters, parents, aunts, and sister’s friends. The hostess is a member of the 1.5 generation, arriving in the United States at the age of six. Being the oldest of the seven, she is one of only two siblings who speak Vietnamese fluently and remember living in Vietnam. The five youngest sisters either were born in the United States or arrived at age two or younger. The foods laid out on her dinner table seemed to be typical of a traditional American Thanksgiving—salad, rolls, mashed potatoes and gravy, stuffing, turkey, and a few other non-
Vietnamese dishes (Figure 3). The only plate that stood out as being traditionally Vietnamese was rice with a distinctly red hue, *xoi gac*, often seen at Vietnamese wedding engagements. This was the only item prepared by the hostess’s mother, a first-generation immigrant. The hostess and her younger sister prepared the most-important dish, the turkey, and made one of the vegetable side dishes. At first glance, the turkey and the vegetables seemed typically American. However, closer inspection revealed that the turkey was marinated with *nuoc mam* (fish sauce) and the vegetables were seasoned with soy sauce, also typically found in Vietnamese and other Asian kitchens. The remainder of the food was prepared by the five youngest sisters, who had the least connection with Vietnam, and none exhibited any Vietnamese influences. Thus, generational divisions in this case were distinctly reflected by their food choices. The first-generation mother made the only truly Vietnamese dish, the 1.5-generation sisters used Vietnamese ingredients on traditional Thanksgiving fare, and the second generation sisters did not include any Vietnamese ingredients at all.

The fare at a second Thanksgiving dinner differed markedly. One side of the dinner table included Vietnamese spring rolls, fried rice, roasted duck, and egg rolls, while the other had ceviche, deviled eggs, crackers with seafood dip, vegetables with ranch dip, and salad. In the center, dividing the Vietnamese and non-Vietnamese food, was a baked turkey. Unlike the previous holiday feast, these dishes were all store-bought. The mother of the house discussed the
culturally mixed cuisine, noting that her children, who belong to the 1.5 generation, wanted turkey and other American food during Thanksgiving because it was an American holiday. She, on the other hand, preferred to serve Vietnamese food, and thought that every guest, regardless of their age, would enjoy it. After some thought, she reconsidered her statement, noting that she serves American and Vietnamese cuisine because “some like Vietnamese food [and] some like American food.” Her food selections were thus based on the preferences of her extended family members as well as what she believed her guests would enjoy.

Several birthday parties were also attended, including the celebration for a two-year-old girl whose parents were both born in Vietnam and arrived in the United States when they were less than one year old. There was a diverse assortment of dishes being served, including American foods, such as steak, barbeque beef, and lasagna, as well as Vietnamese fare, including spring rolls, fried rice, and Vietnamese noodles. The father of the girl explained that the demographics of their guests played a central part in the dishes they provided. He noted:

“We order the Vietnamese style food. It’s not because we want it, it’s more because we think our guests want it when we have Vietnamese guests. If it was up to us, we would probably not really order Vietnamese food. But we figure a lot of our guests probably want it. So we’re thinking more of our guests, not more of what we want.”

**Discussion and Conclusion**

The process of human migration and consequent separation from homeland introduces significant ambiguity to people’s sense of place and identity. Exposed to new cultural values and traditions—religion, language, foods, and many others—immigrants will inevitably experience conflicting impulses toward both cultural resistance and assimilation. All are subject to the process of acculturation, whether unidimensional, bidimensional, or some intermediate step. Under unidimensional acculturation, an immigrant’s identification drifts toward that of the host culture, resulting in near disappearance of ethnicity. Under the bi-dimensional model, people adopt some cultural aspects of the host community while maintaining a significant level of original ethnicity (Nguyen et al. 1999, Ryder et al. 2000). Which direction this process navigates toward depends frequently on the immigrant’s age, level of formal education, geographical
location, and social status. The elderly, those with limited formal education, and those with lower social status, for example, often adhere tenaciously to their traditions, whereas those with more education and higher social status, or who who reside in regions that are exposed to a variety of ethnic groups, are often more willing to experiment with the cultural attributes of the host culture (Spiro 1955, Verbeke and Lopez 2005).

Traditional foods and foodways represent the cultural beliefs and practices most tenaciously conserved by diaspora peoples (Spindler and Schultz 1996). The children of Jewish immigrants in Minneapolis, for instance, retain the dishes that were prepared in their parents’ homes even though they no longer observe kosher food taboos. Likewise, among Japanese immigrants in California the celebration of Japanese New Year is declining, but the special foods and drinks associated with the event are still consumed (Spiro 1955). And the Taiwanese diaspora in Japan have retained numerous foodways from their homelands, including the celebration of Weiroo, a family feast that involves the consumption of a communal dinner to celebrate the coming of a new year (Han 2008).

Conservation of foodways in other contexts yields to assimilation, as migrants abandon the traditional cultural uses and meanings associated with foods, and adopt those of their host country (Heine 2004). Bengali-Americans in the United States, for example, report several causes of these food habit changes, including the inability to obtain ingredients used in West Bengal, exposure to new ethnic foods, and the incorporation of American holidays and associated dishes. The generational dimension of these changes is clearly evident at family gatherings, where adult Bengali-Americans are seen to consume Indian foods whereas children opt for macaroni and cheese and pizza (Ray 2004). Similarly in Vietnam, Chinese immigrants have assimilated much of the cuisine of their host country, but they have discovered how to integrate traditional Chinese flavors into these new dishes (Avieli 2005).

The results of the present study on diaspora foodways in Little Saigon support the first hypothesis that degree of resistance vs. assimilation depends especially on circumstances of arrival and ultimate geographical location. Members of the first generation of Vietnamese migrants retained their food culture more than those of subsequent generations. In several instances, members of the first generation prepare separate, non-Vietnamese meals for their
1.5- or second-generation children in addition to the ethnic meals they prepare for themselves. This parallels the findings of Ray (2004) for the Bengali-American diaspora and for Indian and Pakistani parents in Canada, who prepare Canadian dishes for their children and ethnic homeland dishes for themselves (Wakil et al. 1981). The second hypothesis, however, that the age at which respondents arrived in the United States would help determine the degree to which they retained their traditional foodways, was not supported by the data analysis. Those arriving early in life were just as prone to accept or reject the foodways of their host culture as those who arrived later in life.

The third hypothesis, that geographical proximity to other Vietnamese Americans would be related to relative foodway conservation, was supported by the results. We discovered a significant inverse relationship between distance from the center of Little Saigon and the preservation of traditional foodways. The farther from the cultural center participants live, the less likely they are to continue using Vietnamese foods and foodways. Distance decay of cultural retention (cf. Wheeler and Stutz 1971) in this case was based on relative access to Vietnamese goods as well as proximity to Little Saigon’s culture center. While some studies have shown similar distance-dependent decay of cultural practices (Timmermans 1981, Lundberg 2007), others note the extremes to which individuals will go to acquire the foods and spices of their homelands, regardless of distance and inconvenience (Marte 2011). Clearly the question of cultural decay of foodways as a general feature of the diaspora experience requires further investigation.

Foodways of the Vietnamese diaspora represent a dynamic and negotiated relationship between immigrants and their culinary choices, one in which individuals experience different rates of assimilation based on how long they have resided in the United States—the immigrant generation—and where they live in relation to other Vietnamese Americans. These broad trends, in turn, are nuanced by day-to-day, family-scale negotiations and renegotiations with relatives and the host culture. Qualitative research during special events, such as holidays and feasts, reveals some of these subtleties, as family cooks weigh the demographics and preferences of guests when crafting the components of the meal. As a result, the dishes served in the homes of the diaspora reflect the various levels of assimilation of individual Vietnamese Americans. Where these negotiations with the host culture will travel in the future is unclear.
The observation that college-age Vietnamese Americans are actively rediscovering and reinventing their foodways suggests that this great cross-cultural experiment is still in process.

**Acknowledgments**

We thank the Vietnamese community for their gracious hospitality during the project and the individuals who took the time to participate in the research. Thanks to Irene Naesse and Jodi Titus for inspiring the research topic and to Zia Salim for providing support and assistance throughout the process. Funding for this project was provided by California State University, Fullerton ASI.

**References**


Geographic Education
Experiential Learning in World Regional Geography: A Case Study

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Abstract
Geography instructors often find it difficult to implement experiential learning in large lecture classes, especially when field trips are not an option. This article outlines a Global Expeditions activity that integrates problem-based learning into a lower-division university World Regional Geography class. In the Global Expeditions activity, students watch travel documentaries, read a travel book, and develop a thematic travel itinerary. This activity supplements traditional World Regional instruction, and it provides an alternative to essays, PowerPoint lectures, textbook readings, and textbook-based videos.

Keywords: World Regional Geography, Experiential Learning, Travel Itinerary

Introduction
The geographer and the geographer-to-be are travellers, vicarious when they must, actual when they may.
—Carl O. Sauer, The Education of a Geographer

Geography instruction is often rooted in experiential learning. Field trips, group work, and lab projects tend to be significant parts of many geography classes. Day reviews three theoretical levels of experiential learning: active, inquiry-based, and problem-based (2012). Active learning engages students in the learning processes. There are many types of active learning, including classroom discussions and student debates (Zorn and Kumler 2003). Inquiry-based learning is active learning centered on questions posed by the instructor. For example, a Geographic Information Systems (GIS) exercise in which the students create a habitat model based on given criteria is an inquiry-based exercise (Ormsby et al. 2008). When the problem is presented first through a research model and the learning is student-driven, this is a subcategory of inquiry-based learning termed problem-based learning (Spronken-Smith 2005, Resler and Kolivras 2009). Instructors tend to structure inquiry and problem-based learning around group projects. Student engagement should
increase as the learning processes move from active to inquiry to problem-based.

Fieldwork is a hallmark of geographic instruction (Hope 2009, Day 2012). In geography it is probably the most favored type of active learning. It is important across the discipline, in both physical and cultural geography (Stokes, Magnier, and Weaver 2011). Fieldwork provides instruction in not just research design and methodology, but also in geographic content and theory (Hupy 2011). Fieldwork is especially important for students who have fewer resources and less access to extracurricular, experiential activities, such as international vacation travel. At my institution, numerous upper-division classes have a fieldwork component including Geomorphology, Agricultural Geography, Wine Geography, and Urban Geography. However, field trips are rare in the lower-division classes.

Instructors often integrate experiential learning into upper-division geography classes through service-learning projects, GIS and other computer exercises, and field activities (Abbott 2006, Helzer 2010, and Hauselt and Helzer 2012). Experiential learning is also common in lower-division geography classes that have accompanying lab requirements, such as some Introduction to Physical Geography classes. Without extra resources, it is challenging to create experiential learning lessons in large, lower-division classes that do not have these lab opportunities, such as Introduction to Cultural Geography (Zorn and Kumler 2003). It is especially difficult to create significant experiential learning activities for large, lower-division World Regional Geography classes. In World Regional Geography, international field work is rarely an option. Even sending students to international markets or ethnic festivals is couched through the American experience. World Regional Geography instructors often assign exercises where students produce travel journals or itineraries (Russell 2009). In this case study, I describe a Global Expedition activity, where students read published travel literature, watch segments of a television travel show, and then create a thematic travel itinerary. The activity provides a problem-based experiential learning experience for World Regional Geography students.

**Global Expedition Activity**

My World Regional Geography learning objectives are similar to the draft learning objectives of California’s statewide curriculum (Jennifer Helzer, 17 August 2012, e-mail communication). The purpose of the Global Expedition activity is to engage the students in a prob-
lem-based activity that explores these learning objectives of World Regional Geography. I developed activity goals accordingly (Table 1). The activity provides an active experiential learning experience based on the material presented during the more traditional World Regional Geography lectures and textbook readings. To prepare themselves for developing a thematic travel itinerary, students read a travel book, participate in small-group discussions of the travel book, and view a travel documentary. I then assign students an overland route across at least two regions and countries. By traveling across two regions, students compare and contrast differences in people and environments. They must develop a theme and plan a trip along that route.

Table 1. Class Learning Objectives and Global Expedition Goals

<table>
<thead>
<tr>
<th>Selected Statewide Learning Objective (Draft)</th>
<th>Activity Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpret information about spatial features and relationships revealed through maps.</td>
<td>Use maps to develop a theme, identify cultural and environmental features, and communicate the final route.</td>
</tr>
<tr>
<td>Compare and contrast the major regions of the world with respect to their relative locations, natural environments, peoples, resources, economies, and contemporary problems.</td>
<td>Develop theme-based trip that crosses multiple regions.</td>
</tr>
<tr>
<td>Describe and analyze the relationships between cultures and the environment in creating landscapes and changing our environment.</td>
<td>Develop a cultural or environmental theme-based trip across multiple regions.</td>
</tr>
</tbody>
</table>

The *Global Expedition* exercise emphasizes material initially introduced in more passive presentations and readings. I use PowerPoint lectures and assign reading from a standard textbook, *The World Today: Concepts and Regions in Geography*, to present an introduction on each region and basic geographic concepts (De Blij, Muller, and WinklerPrins 2008). I assess student learning of this material through traditional map quizzes and exams. Similar to most other World Regional Geography courses, this is the core of the class. Without this background information, most students do not have the tools to develop a thoughtful trip theme or itinerary.

To move beyond the traditional presentation of material through lectures and a textbook, I assign a travel book, such as Thubron’s *Shadow of the Silk Road* for Eurasia (Thubron 2007). Thubron chronicles his
overland journey from China, through Central Asia, to Turkey in the early 2000s. He reflects on the ancient history of the Silk Road, the lasting impact of the Soviet Union, and modern globalization. Students read the book throughout the semester. The travel book provides a first-person example of a journey across several regions: East Asia, Central Asia, and Southwest Asia. I do not assign a travel guide, such as a Lonely Planet guidebook, as these provide logistical details, such as hotel costs, but even less regional context and contemplation than a traditional World Regional Geography textbook. Every other week, I devote a Friday class to small group discussions of the travel book. To evaluate whether students thoroughly read the Shadow of the Silk Road, I give short multiple-choice reading quizzes. As they read, students occasionally are frustrated with references to unfamiliar people, places, and events in Shadow of the Silk Road. However, I encourage them to refer to their textbook and online sources while reading. Other travel books, such as Paul Theroux’s Dark Star Safari, might be appropriate for some classes (2003). The Dolman Travel Book Award recognizes several books each year and is a helpful source for finding potential texts (Authors’ Club 1891-2012).

Throughout the course, I show clips from the televised travel series Long Way Down and Long Way Round (Alexanian and Malkin 2004, 2007). These television series document the motorcycle journeys across Eurasia and Africa of a movie star and his friend. Along the journey, the hosts occasionally participate in charity projects. Having a familiar film actor host the show may increase the interest of the students. I present the travel show clips at the end of each regional section. As the students watch the video, they answer questions on the cultural and environmental characteristics of the regions and the experiences of the hosts. To ensure that students are attentive, exams include questions based on the travel show clips. Other travel documentaries, such as Globe Trekkers, might be appropriate for some classes (Cross 2007).

The course lectures, regional textbook readings, travel book, and travel documentary provide the background material for students planning their thematic travel itinerary. Near the end of the semester, after I present much of the preparatory information, I start the itinerary activity by assigning travel routes to pairs of students (Appendix 1). As is common in active learning assignments, the students must work in pairs, obliging them to interact with each other and the material. The partners must work together to plan an
overland journey similar to the trips described in *Long Way Round* and *Shadow of the Silk Road*. Unlike a simple travel log, the students must plan the journey based upon a historical, cultural, or environmental theme. The students select their own theme. Based on their theme, students determine the logistics of their itinerary along the assigned route. The route traverses multiple countries and at least two regions, compelling the students to include regional comparisons of their theme.

Students develop a portfolio describing the thematic itinerary and give a class presentation. The portfolio needs to include a description of the theme, a travel summary highlighting the thematic itinerary, thematic maps describing the environmental and cultural landscapes of the route, descriptions of at least three locations that support the theme, road maps delineating the route, and other necessary forms. One class session was devoted to working with the university map librarian to find material. The portfolio should describe visa requirements, travel warnings, vaccination recommendations, weather, road conditions, languages, religious restrictions, supplies, etc. In classes with fewer students, during one of the final class meetings the students give five-minute PowerPoint presentations on their itineraries. I grade the oral presentations based on the goal activities. In classes with more students, students can create posters describing their itineraries. The students can then judge each other’s posters based on the goal activities. Through the planning of their journey, students should vicariously travel through the regions (Sauer 1956). It is hoped that this activity will inspire students to explore the world and reduce barriers for students who have never traveled internationally.

Although I assign the initial route, the learning is student-driven as they choose the theme of the journey. I attempt to assign routes that are not associated with a perfunctory theme such as the Trans-Siberian Railroad. Their themes determine the logistics of their itinerary, such as where to eat, when to travel, and modes of transportation. Students could be instructed to identify what they would see and where they would go. Through researching the thematically appropriate logistics, the students engage the World Regional Geography material in an applied manner. Because I present the thematic itinerary problem through a research model and the learning is student driven, the *Global Expedition* activity may be considered problem-based learning.
Outcomes and Conclusions
Through their portfolios students demonstrate that they can develop a trans-regional route that explores a cultural and/or environmental theme. This supports the learning objective of comparing and contrasting regions. Depending on their theme, students may also explore the human-environmental interactions shaping landscapes. Finally, they use maps to document their logistical routes and identify features that support their themes.

The first goal of the activity was to use maps to develop a theme, identify cultural and environmental features, and communicate the final route. Students worked with the university map librarian to find appropriate road and thematic maps. One group created a road map using a Geographic Information System. Most students made the maps the focus of their PowerPoint Presentation. The presentation of these maps often resembled the maps shown in the travel documentary and the travel book, indicating the students had internalized the background material. Interpreting maps is an important learning objective in World Regional classes. By using maps to illustrate their travel routes, students demonstrated that they actively engaged with the cartographic material.

The second and third goals of the activity were to develop a cultural or environmental theme-based trip that crossed multiple regions. Students explored a variety of themes and successfully compared and contrasted changes in cultural geographies across at least two regions. One group examined the shifts in languages as they “traveled” across east and central Asia. They compared the historical and geopolitical process that created the linguistic patterns of Asia. Another group examined fast-food restaurants along their route. Their presentation addressed how different countries and regions are affected by globalization. No project examined a classic physical geography theme, although one group focused on the environmental hazards encountered when traveling through unfamiliar and undeveloped countries. Most groups successfully compared and contrasted the major regions of the world with respect to their relative locations, peoples, resources, economies, or contemporary problems. However, because most students gravitated toward cultural-geography themes, most groups did not describe and analyze the relationships between cultures and the environment. To improve the activity in the future, I will encourage students to develop themes that address the cultural-environmental interactions.
To indirectly assess the student opinions of the class and the activity, I compared the student evaluations of a fall 2010 class and a spring 2011 class. I structured the fall 2010 class around lectures and textbook readings, and it did not include the Global Expedition exercise. I structured the spring 2011 class around abbreviated versions of the fall 2010 lectures and the same textbook reading, but I also supplemented the spring class with the Global Expedition exercise. The spring 2011 students evaluated the class more favorably. On a five-point scale, students in fall 2010 ranked their gain of factual knowledge a 4.3 and their learning of fundamental principles and generalizations a 4.0. Students in spring 2011 ranked their gain of factual knowledge a 4.8 and their learning of fundamental principles and generalizations a 4.4. On a five-point scale, students in the fall 2010 course ranked its quality a 4.1. Students in the spring 2011 course ranked its quality a 4.3.

Students generally favor active learning modes of education, so it is not surprising that the student evaluations improved with the integration of the Global Expeditions activity (Hope 2009). It is more difficult to assess whether student learning improved due to its addition. One measure is the exams that assess the lecture material and textbook readings. I posed similar question on fall 2010 and spring 2011 exams. On the last exam of the fall 2010 semester students scored an average of 78 percent. On the last exam of the spring 2011 semester, taken after the completion of the Global Expedition exercise, students scored an average of 81 percent. Thus the exercise did not have a substantial effect on the test scores of the World Regional students.

As the Global Expedition activity is structured, students do not write a traditional essay. At my university, many freshman college students lack basic writing skills. Writing traditional essays in World Regional Geography can help students improve their writing competency and supplement the instruction they receive in required English classes. If an instructor wanted to increase the writing requirements, s/he might have students include a final essay describing how locations along the itinerary support their thematic thesis.

Travel itineraries are ideal active learning modules for lower-division World Regional Geography classes. This article describes how I developed a travel itinerary project into a problem-based experiential learning exercise. Through these projects, students engaged with the material presented during passive lectures and textbook read-
Background material, such as travel books and documentaries, provided contextual and reflective examples of regional journeys. Students then produced a research-based itinerary that supports a thematic journey. The activity supported the course learning goals and increased student evaluations of the class.

References


### Appendix A—Directions to Students

With a partner you will develop a thematic itinerary describing the necessary information needed to travel between cities in Eurasia (Table 2). The trip must be overland—using cars, motorcycles, buses, trains, etc. You may not buy an airline ticket. If need be, you may take a ferry. Your trip should be similar to the trips described in *Long Way Round* and in *Shadow of the Silk Road*. However, it must clearly have a cultural or physical theme. For example, a route extending through the former Soviet Union could examine the lasting environmental destruction of previous central planning policies.

You will develop a portfolio describing your thematic itinerary and give a class presentation. By the end of planning, you should be ready to travel along your route. For this project we will assume you are an American citizen, traveling on an American passport. If you would like to plan a trip under a different citizenship, please discuss this with your instructor. The portfolio needs to include a description of the theme, a travel summary highlighting the thematic elements of your itinerary, descriptions of at least three locations that support the theme, thematic maps describing the environmental and cultural landscapes of the route, road maps delineating the route, a projected budget, lodging and food plans, and other necessary forms. It should describe visa requirements, weather, road conditions, languages, supplies you need to take, etc. It should answer the following questions:

**Where will you go?** Be specific—describe your route through the regions, countries, and/or areas within a country that you will visit. Specify the road and attach a photocopy of a map...
that details the journey. How does the route explore your theme?

When would you take the trip? Why would you pick that time of the year? How long would it take to complete you itinerary? How does the timing relate to your theme?

Does the U.S. State Department have any travel warnings/alerts for the regions/countries you will be traveling through? What vaccinations should you have before you travel?

What type of weather and hazards will you encounter? What are the road conditions? How would you prepare for environmental difficulties?

What cultural training would you need to have (languages, religious practices, etc.)?

Although they are a good starting point, your final maps may not be from Google Maps, Virtual Earth, etc. The library has a collection of regional roadmaps and atlases. Travel books, such as the ones published by Lonely Planet, can belogistically very helpful. If the university library does not have the books you need you can request them from interlibrary loan.

Some useful websites:
   http://www.cdc.gov/travel/
   http://www.state.gov/travel/
   http://www.nationalgeographic.com/

Table 2. Potential Eurasian Routes

<table>
<thead>
<tr>
<th>Team</th>
<th>Starting Location</th>
<th>Ending Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seoul, South Korea</td>
<td>Kolkata, India</td>
</tr>
<tr>
<td>2</td>
<td>Irkutsk, Russia</td>
<td>Shiraz, Iran</td>
</tr>
<tr>
<td>3</td>
<td>Ulaanbaatar, Mongolia</td>
<td>Baku, Azerbaijan</td>
</tr>
<tr>
<td>4</td>
<td>Bucuresti, Romania</td>
<td>Dhaka, Bangladesh</td>
</tr>
<tr>
<td>5</td>
<td>Manila, Philippines</td>
<td>Islamabad, Pakistan</td>
</tr>
<tr>
<td>6</td>
<td>Tehran, Iran</td>
<td>Helsinki, Finland</td>
</tr>
<tr>
<td>8</td>
<td>Lhasa, China</td>
<td>Ankara, Turkey</td>
</tr>
</tbody>
</table>
Acknowledgments
I initially based this activity on a project and materials created by Jennifer Helzer for her European Geography class. I am grateful for her assistance and advice in teaching World Regional Geography.
Virtual Field Trips for Introductory Geoscience Classes

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Abstract
Field trips are a core component of geoscience education. Multiple factors have made taking field trips difficult, and many schools no longer take introductory-level classes on field trips. The Virtual Field Trip of California Geomorphology was developed as a solution to provide an alternative to real field trips. The Virtual Field Trip of California Geomorphology brings some of the most dynamic elements of technology, including Google Earth, Google Maps, and annotated photographs from field sites around the state to the student’s computer or smart phone. The field trip is based on a series of real field trips to the eastern Sierra, the Carrizo Plain, and the central Coast Ranges in California. The Virtual Field Trip is modular, and it employs detailed, module-level learning outcomes with guided inquiry worksheets. Applications of technology, learning design, and cognitive and affective learning outcomes are discussed.

Introduction
Field trips have a long tradition as a core component of geoscience education. Upper-division level field trips that last days to weeks and involve problem-oriented learning are an essential component of the geosciences major (Whitmeyer, Mogk, and Pyle 2009). In introductory geoscience classes, field trips reinforce classroom concepts, instill an appreciation for the natural world, and recruit majors.

Taking classes on field trips has become increasingly difficult. It is challenging for an instructor to organize a field trip due to limited budgets, large classes, and an institutional wariness of potential legal liabilities. In addition, the field is not always accessible to students with disabilities, and students’ work, sports, and class schedules often conflict with field trips. These concerns have caused many geography departments to eliminate field trips for introductory-level classes.
Virtual field trips provide an alternative to “real” field trips. Virtual field trips can be made fully accessible to persons with disabilities, and they are available anytime, from almost anywhere. The Virtual Field Trip of California Geomorphology was developed to provide a field-trip experience for students in introductory physical geography classes.

The Virtual Field Trip of California Geomorphology provides an observation-based, problem-solving field experience. The project is based on two five-day field trips (one to the eastern Sierra and a second to the Carrizo Plain and central Coast Ranges) in the fall of 2011, led by Kurt Cuffey, professor of geography at UC Berkeley. The Virtual Field Trip is licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 Unported License and is posted on the Web at www.foothill.edu/fac/klenkeit/virtual/

![Figure 1.—Virtual Field Trip Home page.](image)

The Virtual Field Trip is organized thematically around tectonic and surface processes typically covered in an introductory-level physical geography class. It visits twenty-five field sites around California and uses guided inquiry to meet specific learning outcomes. The Virtual Field Trip integrates annotated photographs, models, and interactive Google Maps and Google Earth interfaces with Keyhole Markup Language (KML) overlays to provide students with an immersive, guided field experience.
**Background**

Pedagogy on field trips varies greatly (Kent et al. 1997). Field trip styles range from the observation-based “Cooks tour” to problem-oriented, project-based field trips. Observation-based field trips cover a greater breadth of topics, while project-based participatory field trips go into great depth on a few narrow subjects.

Observation-based field trips provide a broad overview of an unfamiliar landscape. Learning in this type of field trip is more effective when conducted in an interactive tutorial style with observation and discussion of landscape features (Couch 1985, Gold 1991). However, students generally miss key features, and when prompted will more readily reproduce the instructor’s observations rather than constructing their own theories (Haigh and Gold 1993).

The Socratic method of teaching with observation-based field trips is effective, but is dependent on a low instructor-to-student ratio, and it quickly loses effectiveness in large group settings. Observation-based field trips can be made most effective when student learning is focused with carefully crafted worksheets. These are filled out based on student observations over the course of the trip (Keene 1982, Slater 1993, Jenkins and Daniel 1993).

A second mode of pedagogy in the field is participatory field trips. Participatory field trips encourage deep learning through “learning by doing” (Wiley and Humphries 1985, Wheater 1989). There are many logistic considerations to engaging in participatory field trips with large groups (Kent et al. 1997). In order to be most effective, participatory field trips require significant instructor supervision. Participatory field trips also require more time in the field and tend to go into great depth on a few narrow subjects. At the introductory level, most field trips are observation-based with the goal of reinforcing a broad range of concepts introduced in the classroom.

Computer-aided learning in geoscience classes has been explored for over three decades. Initially, computers were used as a tool to aid in the analysis of data. Shepherd (1985) suggested that computers should be used to teach geography concepts, an idea that has been explored by many authors since (Unwin 1991, Wentz 1999, Stumpf et al. 2008, DePaor and Whitmeyer 2009, Whitmeyer et al. 2009, Stokes et al. 2012, and Kolivras et al. 2012).
Geoscientists have been slow to embrace virtual field trips as an alternative to actual field trips (Stumpf et al. 2008). The immersive experience of the field is of cardinal importance to most geoscientists. Hiking through landscapes allows students to appreciate the scale, complexity, and frequency of geomorphic features. The fun, excitement, and camaraderie of the field are also a significant recruiting tool for majors. However, the need to make field trips accessible to persons with disabilities or schedule conflicts, and the need to make the field accessible to large classes, has prompted an interest in developing virtual field trips for introductory-level instruction (Spicer and Stratford 2001, Stumpf et al. 2008, Stokes et al. 2012, and Kolivras et al. 2012).

Wentz et al. (1999) found that using computer tools such as visualization based CD ROMs and a simplified Geographic Information System in conjunction with the regular course materials in an introductory Geomorphology class enhanced student learning and engagement compared with offering the course without the technological enhancements. Spicer and Stratford (2001) used virtual field work in an undergraduate biology class and found that it reinforced the thought processes underpinning field work, but the overall experience of “real” field work was far superior to virtual field work and they concluded that the virtual experience should not replace a real field experience.

These early forays into virtual field trips all echo the criticism that virtual field work is not the same as ‘being there’. Indeed, early computer graphics provided little more than simple choropleth maps on the computer screen. However, advances in computer graphics technology have greatly improved the visual component of virtual field work and create a significantly improved immersive experience compared to computer graphics a decade ago.

The immersive sensory experience associated with field trips reinforces learning because it stimulates the affective domain (Stokes and Boyle 2009). Sensory input from sights, smells, and sounds prompts responses in the affective domain that interact with the cognitive and psychomotor domains to produce deep learning (Eiss and Harbeck 1969). The early virtual field trips were perhaps less successful at producing the same excitement for the field as actually being there because the limitations of computer graphics, computer animation, digital photography, and Web technology limited the stimulation of the affective learning domain.
Learning is composed of three interactive processes: cognitive, affective, and psychomotor (Eiss and Harbeck 1969). The cognitive domain (knowledge, understanding, and conceptualization) is what is traditionally emphasized in the classroom. The cognitive domain and the psychomotor domain (practical skills such as operating field instruments) are commonly assessed in field trips. The affective domain includes representations of value and includes emotions, attitudes, and feelings, which can reflect positive or negative value or feelings (Clore et al. 2001). Affective outcomes influence cognitive outcomes (Ashby et al. 1999, Isen 2000); however, affective outcomes are rarely assessed (Stokes and Boyle 2009).

While early virtual field trips produced mixed success in equaling the cognitive learning outcomes of real field work, more-recent virtual field trips have had better results (Stumpf et al. 2008, Kolivras et al. 2012, and Stokes et al. 2012). In each case, a post-test assessment found no difference in the basic knowledge or cognitive learning outcomes of students who had taken the virtual field trip compared to those who had taken the real field trip. However, they found that the students who had taken the real field trip had a greater qualitative appreciation and positive attitude about the natural environment, or more-successful affective learning outcomes. The authors concluded that virtual field trips were a cost-effective alternative to real field trips and provided access to the field for students who otherwise could not participate in a field trip at an introductory level.

**Virtual Field Trip of California Geomorphology**

The Virtual Field Trip was created as part of a sabbatical leave project that Professor Lenkeit Meezan undertook in the fall of 2011. Professor Lenkeit Meezan teaches geography at Foothill College, a California community college in the San Francisco Bay Area. Foothill College is an urban community college with approximately 16,500 full-time-equivalent students. The Geography Department, with an annual enrollment of 1,050 students, offers an associate’s degree as well as a transfer degree to the California State University system. The Geography Department has one full-time and six adjunct instructors. Physical Geography satisfies the California State University (CSU) and University of California (UC) lab science general education transfer requirement, and is the most popular class in the department, with around seven hundred students enrolled annually.

Foothill geography classes lack an actual field-trip component for three reasons. First, the college provides no financial support for
field trips. Second, concerns about liability have made field-trip paperwork for students and instructors extremely onerous. Finally, because a community college is a nonresidential campus and many students are “nontraditional,” the logistics of organizing an all-day field trip are very challenging.

The Virtual Field Trip of California Geomorphology is widely applicable to any introductory physical geography or geomorphology class. The Virtual Field Trip allows students to visit twenty-five sites of geographic interest around California. Its modular nature means that it can be completed over several days in classroom laboratory time, or as a self-guided component external to scheduled class time. The field trip has worksheets that are linked to each module and guide the student’s observation and inquiry.

All of the pages of the Virtual Field Trip of California Geomorphology have a clean, easily navigable design. Key terms are defined in boxes on each screen. Users navigate through the Virtual Field Trip using a navigation bar on the left side of the screen. Breadcrumbs-style navigation guides users through each module. The page meets ADA accessibility standards for screen readers and is built with XHTML and linked CSS style sheets.

![Virtual Field Trip of California Geomorphology](image)

Figure 2.—Master navigation bar for the Virtual Field Trip is on the left side of the screen. Breadcrumbs (numbered) navigation for the Debris Flows & Slides module on the top.
Each section contains a series of self-contained modules. Each module (such as *Fluvial Processes*) is defined by a unified color scheme which provides the user with a visual cue to identify and define the process.

**I. Overview**—Provides a short summary of the process or landscape being visited.

**II. Observations**—Three to six sites are visited and the student is prompted to make observations about the site, based on interactive Google Maps (map, terrain, or satellite), Google Earth, and annotated photographs.

**III. Processes**—Sites are revisited, this time with additional discussion and description of the processes that underlie the formation of the features. Students are prompted to make additional observations.

**IV. Application**—Students visit a new site and are asked to apply the knowledge they have gained to the new landscape.

**V. Further study**—Key academic papers relevant to the features visited are summarized.

**Figure 3.**—Close up of the navigation bar with the Fluvial Processes module expanded to quick link to each module section.
The Virtual Field Trip of California Geomorphology was integrated into the laboratory section of two Introductory Physical Geography classes at Foothill College with a total of sixty-eight students enrolled. Modules of the field trip were required throughout the quarter, timed to coincide with the different subjects being covered in class. Student response to the Virtual Field Trip was overall positive, based on anonymous evaluations submitted after completing the field trip and informal conversations with students. Most students had little trouble navigating the field-trip interface and using the Google Maps and Google Earth interfaces embedded in the Web pages. However, the instructor observed that unless the lab worksheet had specific questions prompting students to interact with the landscape visualization interfaces, many students would make only a cursory exploration of the interactive landscape visualization.

**Learning Outcomes**

There is a void in published literature on learning outcomes for field trips in introductory-level courses. On the other hand, numerous papers have been written about learning outcomes and teaching techniques for upper-division field trips in the earth sciences. The Geological Society of America has published a special paper on Field Geology Education (no. 461) that focuses on upper-division level “field camps.” However, students in upper-division field classes have already successfully achieved the basic learning outcomes expected from introductory coursework. Because of this lack of precedent in the academic literature for introductory-level courses, the first author on this paper has built the learning outcomes for this project based on her own experience and on informal discussions with other instructors of introductory-level geography courses.

In an introductory-level course, the objectives of field trips are threefold. First, students hone observation skills and learn to visually identify features in the field. Second, students appraise the integrated elements that contribute to the formation and structure of a landscape. Finally, they construct hypotheses for how landscapes change over time. In other words, field trips have both very low-order (knowledge and comprehension) and very high-order (synthesis) learning outcomes. The measured learning outcomes are almost entirely cognitive, for field trips at the introductory-course level. In upper-division field trips, assessed learning outcomes tend to be higher order, and more of an emphasis is placed on psychomotor outcomes such as operating instruments.
Affective learning outcomes are rarely assessed at any level, in large part because they are usually qualitative in nature and therefore more difficult to assess. While the affective learning domain is not generally assessed, the positive learning outcomes from this domain can increase the number of students who choose geography as a major, or simply stimulate greater interest in class material and contribute to positive cognitive outcomes.

The digital medium has some advantages and some disadvantages over the traditional field trip in achieving student learning outcomes. In addition to the advantages of increased accessibility for students with physical limitations or busy schedules, students taking a virtual field trip can visit the field sites in short doses, making it more likely that they will maintain focus. Students in a climate-controlled room are also more able to focus on learning objectives than students trying to make observations and draw conclusions in extremely hot, cold, windy, or rainy weather.

Virtual field trips are limited by current computer technology. Observations of the complexity and scale of elements are mostly lost in translation to the twelve-by-eighteen-inch computer monitor, and students who visit several thematic field sites in a laboratory period are less likely to make landscape-scale connections between geomorphic features. In addition, the same harsh environmental factors that can hinder learning in the field also help to build a sense of camaraderie among field-trip participants, which has been shown to enhance learning (Stokes and Boyle 2009). Field trips that include pleasant weather and beautiful scenery create a great deal of positive learning in the affective domain. This can lead to enhanced learning in the cognitive domain.

Advances in computer graphics and user-interface design have improved the user experience for students taking a virtual field trip. It is possible that in the near future, affective learning outcomes for virtual field trips will approach those for real field trips.

Table 1 describes the module-level learning outcomes for the Virtual Field Trip of California Geomorphology. About half of the learning outcomes are knowledge- and comprehension-based, with the remainder divided between application, analysis, and synthesis. The Virtual Field Trip is intended to supplement an introductory Physical Geography class. To achieve the field-trip learning outcomes, it
Table 1: Learning outcomes for the Virtual Field Trip of California Geomorphology.

<table>
<thead>
<tr>
<th><strong>Tectonic Processes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Orogenic Processes</strong></td>
</tr>
<tr>
<td>Diagram relative ages of analogous rock units based on weathering</td>
</tr>
<tr>
<td>Relate features such as roof pendants to the volcanic and tectonic processes that formed them</td>
</tr>
<tr>
<td>Interpret the relationship between volcanic features and their regional tectonic setting</td>
</tr>
<tr>
<td>Identify erosion platform features</td>
</tr>
<tr>
<td>Describe the processes that formed erosion platforms</td>
</tr>
</tbody>
</table>

| **Folds and Faults** |
| Identify evidence of fault movement |
| Calculate the rate of fault movement |
| Identify examples of tectonic deformation such as anticlines and synclines |

<table>
<thead>
<tr>
<th><strong>Surface Processes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fluvial Landscapes</strong></td>
</tr>
<tr>
<td>Describe the stages of channel development</td>
</tr>
<tr>
<td>Compare areas that exhibit high drainage density with areas that exhibit low drainage density</td>
</tr>
<tr>
<td>Discuss the physical factors and climate that produce badlands</td>
</tr>
<tr>
<td>Identify evidence of a stream formed valley (as compared to a glacial valley)</td>
</tr>
<tr>
<td>Compare straight, meandering, and braided channels in terms of their channel form and patterns of erosion and deposition</td>
</tr>
</tbody>
</table>

| **Debris Flows andSlides** |
| Identify clast-supported deposits and matrix-supported deposits |
| Identify sorted and unsorted deposits |
| Describe topographic evidence of landslide deposits |
| Examine the factors that contribute to a debris flow or slide |
| Assess the impacts of debris flow and landslide deposits on communities, and what people can do to mitigate these hazards |

| **Aeolian Processes** |
| Relate dune formation and movement to wind strength and direction |
| Describe how wind moves particles |
| Discuss how lag deposits are formed and why they are important |

| **Glacial Landscapes** |
| Identify evidence of a glacially formed valley (as opposed to a stream-cut valley) |
| Identify features including moraines, cirques, and arêtes |
| Identify glacial polish and glacial erratics |
| Describe how glaciers formed moraines, cirques, arêtes, polish, and erratics |
is assumed that students also attend the quarter-long introductory Physical Geography class and complete the associated readings.

The learning outcomes associated with the virtual field trip were assessed with post-tests only. Students were largely successful in achieving the knowledge-based outcomes in the field-trip modules, but many struggled with the analysis and evaluation elements.

For example, students were highly successful in identifying features such as landslide profiles, stream-cut versus glacial valleys, moraines, and stream types such as meandering versus braided. However, success levels dropped when students were given such tasks as “Discuss the physical factors and climate that produces badlands” or “Relate features such as roof pendants to the volcanic and tectonic processes that formed them.”

The Virtual Field Trip of California Geomorphology attempts to stimulate the affective domain of learning by creating a visually unified and pleasing interface populated with many on-the-ground photographs of features. In addition, it includes many photographs of students participating in the fall 2011 field trip. Photographs that included the professor and students engaged in academic discourse, packing up camp, or simply goofing off during down time help to create the feeling of “being there,” and are one of the elements that

![Figure 4.—On-the-ground photographs of students engaged in discussion with the professor in the field and annotated photographs received a positive response from students who took the Virtual Field Trip.](image-url)
received the most positive responses from students who participated in the virtual field trip.

**Technology, Learning Design, and the Virtual Field Trip**

This project uniquely utilizes technology to access the virtual field experience in four ways. First, it engages the students with numerous on-the-ground photographs from real field trips with college students, creating the feel of a student looking at pictures of his or her own field trip. This is the aspect of the Virtual Field Trip project that has received the most enthusiastic feedback from students who have tested Version 1.0. The pictures of students listening to descriptions of the field site, taking notes, or packing up camp help to stimulate the affective element of the learning process and promote student engagement.

“It is a vicarious field trip!” a student commented during a virtual field trip session in the computer lab. Students have been conditioned by popular culture to have vicarious experiences. Reality TV shows allow people to vicariously travel the world and compete in feats of athletic stamina (*The Amazing Race*), starve and snipe at each other on a deserted island (*Survivor*), or date twenty beautiful people at one time (*The Bachelor*). Showing pictures of students participating in all aspects of a real field trip allows the student in front of his or her computer screen to place him/herself in the picture, and get a small taste of the “being there” that is held up by many earth scientists as one of the key elements of field trips.

The second way in which this project uniquely utilizes technology to access the field is through the use of mashup maps embedded in the project Web pages. The Virtual Field Trip uses mashup geospatial mapping technology to allow students to view and interact with thematic maps and annotated overlays of the field sites. Mashup maps use raster and/or vector map elements that are georeferenced and overlain on interactive Web mapping technology such as Google Maps or Open Street Map. In this case, Keyhole Markup Language (KML) files were generated using ArcGIS and then overlain on a Google Maps interface using simple Javascript. Version 1.0 of the Virtual Field Trip makes extensive use of the Google Maps or Google Earth embedded interface.
The Google Maps interface is especially useful because it allows the embedded map to display standard choropleth maps, satellite images, or shaded relief topographic maps. The Google Earth embedded map interface allows the student to “fly” through a three-dimensional landscape, view structural features from many different angles, and view features at both small and large scale. In this way, the virtual field trip is superior to actual field trips because students are not limited by roads or trails to get the perfect view of a geographic feature.

The Web pages in this project were built by the first author. They use basic XHTML with CSS. The embedded Google Earth and Google Maps interfaces were customized and embedded using the Google Maps interface under “embed or email map” and then “customize and preview embedded map.” The KML overlays were generated using ArcGIS and the Google Maps editor tools.

The technology to build Web pages and customize and embed mash-up maps is accessible to mainstream computer users who have strong basic computer skills. This author has taken one class in XHTML and considers herself comfortable using and learning computer technology, but is not a computer programmer. The broader implication of the ease of access of this technology is that all earth science educators can, with some very basic training, create customized learning materials for their classes that can stimulate the affective element of student learning and engage tech-savvy students.

Geospatial technologies such as digital maps, three-dimensional topographic visualizations, pseudo-GIS overlays, and aerial photography/satellite imagery are fundamental to a modern geoscientist. While the technology underlying the geospatial technology interfaces in the Virtual Field Trip are complex, the level of technical knowledge required to build these pages is relatively low, and the level of technical expertise required for students to use them is lower still. The Virtual Field Trip allows students to gain experience using geospatial technologies within the context of their visits to field sites.

The third way that this project uniquely utilizes technology is through its thematic organization that takes advantage of hyper-linked pages to allow users to quickly access and navigate through many different geographic locations. “Real” field trips in California are, through necessity, usually organized geographically. However, by grouping the field sites thematically, students can more readily
link material they have learned in textbooks or lectures to their observations in the field. In the course of one Virtual Field Trip module on fluvial processes, students visit six different sites across the state. These locations would take two days to cover on the ground, yet a student in the virtual field trip can examine and compare all six in the span of a few hours. Therefore, in the course of the lab field trip session, the student can focus on the one process and more readily make comparisons between the different field sites.

Finally, each module is supported with guided inquiry worksheets. As noted in the Background section of this paper, observational-type field trips are most effective with large groups when student attention is focused through carefully constructed worksheets. The worksheets used in the Virtual Field Trip can be printed out and filled in by hand, or completed using Acrobat PDF forms and simple computer sketching tools such as Paint. The questions on the worksheets ask students a range of comprehension-based questions as well as questions requiring some analytical thinking (Table 2).

Table 2: Sample worksheet questions.

<table>
<thead>
<tr>
<th>Comprehension question</th>
<th>Analytical thinking question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on your observations of the meandering channel (Owens River), does deposition occur on the inside or outside of channel bends? List two pieces of evidence from your observations that support this.</td>
<td>Compare and contrast the factors contributing to flow rate, deposition, and erosion differences in straight and meandering channels.</td>
</tr>
</tbody>
</table>

**Future Work**

The Virtual Field Trip of California Geomorphology is a work in progress. Future work will focus on several elements. First, the guided learning worksheets need to be refined and more closely tied to the module learning outcomes. Along with this goal, the learning outcomes themselves should be revisited and refined. Additional compilations of learning outcomes from freshman-level earth science field trips are needed and the Virtual Field Trip learning outcomes need to be better aligned with these.

Second, additional photos should be added. Detailed photography needs to be added from each field site to provide better visualization of large-scale elements such as sorting of deposits. Also, based on
the feedback that students taking the virtual field trip gave, more photos of students on actual field trips should be added.

Finally, additional sensory elements need to be added to better stimulate the affective component of learning that takes place in the field. The computer medium is limited to two of the five senses (sight and sound). However, descriptive language coupled with visual images can evoke smells, textures, and even tastes, creating a sense of place. A link to an audio file on every field site visited in the Observations section of each module would provide narration dubbed over background sounds recorded in the specific place (birds singing, insects buzzing, water rushing, wind).

Overall, the first draft of the Virtual Field Trip of California Geomorphology has made progress in the domain of virtual field trips. The rapid development of computer visualization technology has allowed for a significantly more “real” virtual field experience than was possible even five years ago. While the ideal continues to be field trips in introductory classes with student instructor ratios of less than ten to one, this is not possible in most colleges. As technology continues to advance, the option of taking introductory earth science students on virtual field trips should continue to be vigorously pursued.

References


The *Field Guide to California Agriculture* is a window to the most diverse agricultural region in the world. It is also an attempt to educate those unfamiliar with agriculture’s importance and complexity as an economic sector, and to reduce the social and economic strains between agricultural production and environmental protection by presenting the merits of both sides. This “primer in California agriculture” (17) is based upon exhaustive field work, public data, and extensive reading. The book’s four sections include a seventy-page introduction, a photo gallery, a crops and products section, and a discussion of farming regions. It is a combination field guide, agricultural geography book, and abbreviated historical geography.

California’s 75,000 farms and ranches produce more than $37 billion worth of farm products while providing food for virtually all Americans. Supporting businesses and ancillary products contribute an additional $100 billion. A California Cornucopia, the first section of the book, provides a lengthy introduction to the nature of California’s distinctive agriculture. It focuses upon climate and the central role of manipulated water, the importance of highly fertile areas, the history of California, and the major driving forces that have shaped the state’s agriculture. Starrs and Goin devote significant space to discussions of the agricultural infrastructure that has made California farming the most advanced in the world, and they wisely include public and private research and marketing organizations as part of the agricultural infrastructure.

Starrs and Goin discuss Native American and Spanish-Mexican farming that occurred before the emergence of commercial agriculture in California when farmers provided food for Gold Rush miners. Later in the nineteenth century large-scale agriculture emerged, followed by the rise of the distinctive, hydraulic-industrial agriculture
that continues to dominate the state’s food and fiber production. One distinctive feature of California agriculture has been the steady increase in productivity that has been driven by both innovation and aggressive marketing of high-value specialty products. Today, much of the agricultural landscape is dominated by large agribusiness that co-exists with small farmers.

Agriculture and its role in California continue to change in response to market demands or other forces. These changes range from the conversion of highly productive farmland to urban uses and responses that growers must make to public concerns about the ethics of various types of food production, to an increase in the popularity of locally grown and boutique crops and the relationship between growers and the immigrant laborers upon which much of California’s agriculture rests.

The 250-page core of Field Guide to California Agriculture consists of descriptions of specific animal products, specialty crops, and commodities produced by California growers. The space devoted to each is roughly proportional to its economic importance. A typical vignette covers the historical geography of the crop both within California and globally, and discusses the significance of California production to the state and nation. Most of the crops have accompanying photographs, and the most important crops have maps. The descriptions include a summary of where the crop is grown and why it is grown there. For example, peaches and nectarines thrive in well-drained soils and require significant applications of water and nitrogen (200), while pears like wet soils and are most commonly located in the Delta (202). Some crops are associated with particular ethnic groups, such as the Sikh producers of clingstone peaches in Yuba and Sutter counties. Probably the most-valuable crop grown in California is marijuana, and the authors provide a lengthy discussion of the crop and the Emerald Triangle where most of it is grown.

It was a treat to read the forty-page Regions and Districts section that provides a synthesis of each of the state’s eleven agricultural regions and multiple local districts. Many of these areas are nationally significant; some are famous.

This book has 140 photos taken by Peter Goin, including a short gallery on the poetics of agriculture. Most of Goin’s other exhibition-quality photos are keyed to the book and provide examples of
individual crops. Additionally, the book includes eleven pages of references and nineteen maps.

The *Field Guide to California Agriculture* is a labor of love and a tribute to the late Berkeley geographer James J. Parsons by geographer Paul Starrs and photographer Peter Goin. Ostensibly written for drivers who are curious about the rural California landscape, the book will be interesting to a wider audience whether they are driving the fields of California or sitting in their reading chairs. Starrs and Goin discuss California agriculture within the context of fundamental geographic concepts, and throughout the book they mention works of specific geographers who have contributed to understanding it.

Any book written about a topic as large and complex as California agriculture will have omissions and shortcomings, and no field guide could be small enough to be portable and still offer a relevant discussion of the livestock and each of the 400 crops grown in the state. The authors discuss some of the planned omissions (95–96), but two additional omissions mar this fine book: discussions without accompanying sources or maps, and the lack of keys to noncrop landscape features. The eleven pages of sources would have been stronger if each author mentioned in the book had been cited. For example, on page 27, works by Ellen Liebman, Rodman Paul, and Andrew Isenberg are discussed, but only Isenberg’s work is cited. On page 32, Starrs and Goin discuss a satellite image but do not provide it, and they often discussed various specific data without providing either the map or source. Significantly, while the *Field Guide* focuses upon livestock and crops, it does not provide a guide to many of the landscape features that arouse one’s curiosity and support agriculture, such as tilling and harvesting equipment, irrigation methods, farm buildings, or processing facilities. For example, the book has a photo of a grocery-store chicken because Starrs and Goin were not permitted to visit poultry facilities (97), but the buildings where poultry are raised are a substantial part of the agricultural landscape, and a view of poultry buildings from the road may provoke the same curiosity from passing drivers as an artichoke field.

The *Field Guide to California Agriculture* is a wonderful and refreshing geography book based primarily upon field work written for curious passersby. The writing is straightforward and clear. Starrs and Goin have deftly woven a book on California agricultural geography into the field guide so that readers will not only develop a knowledge and appreciation for California agriculture, but will also develop
an understanding of geography and basic geographical principles. Starrs and Goin provide a generally sympathetic view that sometimes borders on apologetic but at other times becomes critical of California agriculture. In other words, they help the reader see all facets of the system from various viewpoints. The breadth and depth of the book will make it useful outside of California for students in agricultural, economic, rural, or U.S. regional geography classes. The Field Guide to California Agriculture should be read by anyone interested in agricultural geography, anyone who has wondered about where his/her food comes from, and anyone who is curious and has asked, “What is that crop?”
Geographic Chronicles
Over 500 participants (and their families and friends) got a good “Taste of Geography” at the 66th annual conference held at UC Davis, April 27–29, 2012. The conference was hosted by the Geography Group in Geography (GGG) of UC Davis and the Departments of Geography and Recreation, Parks & Tourism Administration of CSU-Sacramento. Faculty, students, and staff from the two campuses served on the steering committee for the conference, as well as Past President of the CGS, John Aubert, from American River College, with Debbie Elliott-Fisk and Greg Shaw as co-chairs of the conference. The conference was produced by Debbie Elliott-Fisk and Carrie Armstrong-Ruport of UC Davis, working closely with CGS President Steve Graves, with a fabulous set of field trips, presentations, meals, and special events developed by the steering committee. A huge number of volunteers contributed to the success of the meeting, and we thank them all, but especially Libby O’Sullivan (who coordinated the student volunteers) and Alison McNally (who was Carrie and Debbie’s back-up person). And after thunderstorms on the Thursday before the conference, the “weather gods” shone down upon the Sacramento Valley on Friday, creating a fabulous environment for the meeting.

It appears that the conference had the largest attendance on record, with 439 paid registrations, with quite a few more people than that on campus and participating in some aspect of the three-day conference. Friday saw the much-welcomed “invasion” of the UC Davis campus by geographers, participating in four field trips to the Delta (led by Jay Lund and Amber Manfree); the agricultural landscapes of Yolo County (led by Ryan Galt, Libby O’Sullivan, and Tom Krabacher); to sustainable developments in Davis via a bike tour (led by Dennis Dingemans and Charlie Thomsen); and, after we lost our driver for the infamous Aggie elephant tram, a walking tour “taste of campus” (led by Rich Engel, Debbie Elliott-Fisk, and Greg Shaw), including an exclusive visit to the campus winery. However, the crowd REALLY arrived Friday at about 5 pm for registration and the reception and barbeque dinner at the Putah Creek Lodge in the University Arboretum. We served about 275 people at the sold-out BBQ catered by Cracchiolos from Woodland, with
abundant food and drink for all, such that some hungry students who were unable to get BBQ tickets were also fed. With almost 400 people in attendance by mid-evening, noted butterfly expert and biogeography colleague Art Shapiro gave a wonderful opening lecture on the history of Sacramento Valley butterfly fauna as an early glimpse at the Anthropocene. Students continued to mingle at a local watering-hole in downtown Davis, while the CGS board met later that evening.

Saturday started off with a bang early in the morning with registration continuing at the conference headquarters at Hunt Hall, where the GGG is housed. This location at the north entrance to campus, with the north-entry parking garage, bus terminal, and Memorial Union student center (with the CoHo eatery and bookstore), proved perfect. Six concurrent lecture sessions were held throughout the day in Hunt Hall and nearby Wickson Hall and Hart Hall, with the paper or analogue cartography, digital cartography, and poster sessions in Hunt Hall. The sessions and hallways were packed with enthusiastic participants, including all of the 110 student presenters, about 50 faculty and professional presenters, and hundreds more geography students, faculty, professionals, and family members all enjoying visiting with colleagues, former students, and friends. Several vendors were also in attendance and set-up in Hunt Hall, helping make this a truly professional conference, and we thank them for their participation. We also used the beautiful center courtyard all day for general visiting and lunch. More than 110 people purchased the campus-catered box lunches; others walked the few blocks downtown to the Davis Farmer’s Market or went to the CoHo or nearby restaurants for lunch. A real highlight of the conference was the 66 undergraduate presentations; along with the 44 graduate presentations, this kept the panels of judges for the student presentations very busy all day, from 8 am to 5 pm, attending the presentations and asking questions—and of course selecting the recipients of the student paper, poster, and map awards!

On Saturday morning in our large Hunt 100 lecture hall, Presidential Plenary Speaker and “wine-master” Zelma Long (of Vilafonte Wine Estate in South Africa) gave an outstanding lecture on terroir and the importance of geography in wine-growing and wine-making, providing many interesting examples from her work around the world. Although Zelma lives in the Alexander Valley, she travels around the world making wine much of the year. We were lucky that she was back on campus for spring quarter, where she is also completing a
Ph.D in performance studies. As Zelma was one of the first women to go through our graduate program in wine-making at UC Davis, and then one of the few individuals later honored with a UC Davis Alumni Association Award for Outstanding Achievement (along with many other professional awards over the years), it was a true honor and privilege to have her as our Presidential Plenary Speaker as the top woman internationally in the world of wine. She truly gave us a “taste of geography” from the wine-maker's perspective.

The Saturday evening banquet and awards ceremony (also with a sold-out 265 dinners catered by campus Sodexho) at the new campus Conference Center ballroom at the south entrance to UC Davis, across from the host hotel Hyatt Place at UC Davis, was a fantastic event in a gorgeous setting with a great group of participants. After a wonderful dinner and open bar, President Steve Graves and the CGS Board of Directors did a beautiful job running the awards ceremony. We want to thank Bill and Marilyn Bowen for sponsoring the student presenters at the dinner banquet. Their generosity is very much appreciated, and it is always great just to be with them! We would also like to thank the many donors for the student presentation, travel, and scholarship awards, including Robert and Bobbe Christopherson for their endowed Geosystems Award. The winners of these wonderful student awards are listed elsewhere in the bulletin, but we would like to congratulate them again here.

President Graves next presented the CGS professional award, Friend of Geography, to Robert and Bobbe Christopherson, whose dedication to the discipline is unmatched. The second professional award then became a bit confusing for both the presenters and nominees and was a scene that could not have been crafted beforehand: CGS Past Presidents John Aubert (American River College) and Debra Sharkey (Cosumnes River College) had nominated each other for the Distinguished Service Award, and the CGS selected them both as recipients. They are both so deserving of this award, having served CGS for well over fifteen years in many active capacities.

The Distinguished Teaching Award was then presented by President Graves and Past President Aubert (who spearheaded the nomination) to Barbara Boyd of Rosemont High School (Sacramento City Unified School District). Boyd is also a UC Davis History Project Fellow. As noted in the nomination letters, Barbara uses her classroom as a “geography laboratory,” in which key concepts in geography are combined with essential lifelong skills such as teamwork and literacy.
to convey a global awareness as she teaches her students about their community’s place in a global society. She is a strong and effective proponent of geographic education at all levels and an international educator, and we are thrilled that Barbara received this award.

The Outstanding Educator Award was given to Debbie Elliott-Fisk of UC Davis. The rumor is that John Aubert also was the force behind this nomination and in seeking letters of support from others. Debbie was recognized for her thirty-one years as a professor of geography at UC Davis, past chair of the GGG, her mentorship of many students, and other activities. As I (Debbie) am writing this article, I will add that I was both touched and tremendously honored to be nominated for and receive this award. I have been so proud of my former graduate students who have received this award (Stephen Cunha, Debra Sharkey, and Peggy Hauselt), served on the CGS board (many!), and thrive in their careers as geography faculty, inspiring and mentoring students as I have worked so hard to do. To follow in their footsteps is a true honor.

President Graves thanked the CGS Board and the Davis and Sacramento-based steering committee for their hard work on the conference, with special thanks to Carrie Armstrong-Ruport, who is about the most amazing professional staff member anyone could ever want to work with. As both Steve Graves and Debbie say, “Carrie ROCKS!” And yes, Carrie got a chance to sleep after the conference ended on Sunday, but on to Sunday next.

Sunday morning came early, with many people arriving back at Hunt Hall about 8 am for four more field trips in UC Davis vans or charter buses, to the Cache Creek Natural Area for a wildland hike (led by David Rolloff); to the Lodi winescape (led by Greg Shaw, Debbie Elliott-Fisk, and Matthew Hoffman); to the Sacramento Floodscapes (led by John Aubert); and to the tasty Sacramento City and Foodscapes (led by Robin Datel, Michael Schmandt, and Libby O’Sullivan). The field trips were really educational, fun—yes, tasty—and well attended, with about five hundred registered participants and a few others, with five of the eight trips sold out. This was a tremendous turnout, and we felt fortunate to have our UC Davis Fleet Service and Charter Buses available to make it all happen. We really want to thank the field trip leaders, student assistants, people who gave us their time and resources on-site during the educational tours, and Carrie for setting up the box lunches for the trips and
helping us get the field trips off the ground smoothly with the right “legal” paperwork as well as the food!

It was sure great to see everyone at the conference! Wow, what a wonderful group the CGS is. And I must say that Steve Graves is one of the most super people I have ever had the pleasure of working with. And our Carrie Armstrong-Ruport, the Student Affairs Officer for the GGG, is phenomenal in many, many ways—smart, fast, funny, efficient, and full of energy and patience. Thank you, Steve and Carrie!

We look forward to seeing everyone at the April 2013 conference at Cal Poly, San Luis Obispo, with its wonderful geographic setting, local food (clam chowder, anyone?), and wine!
California Geographical Society
Student Award Winners 2012

TOM MCKNIGHT STUDENT PAPER AWARDS

**Undergraduate Papers**

**First Place** ($150):
Samantha Felice, CSU Stanislaus
* Spatial Fluctuations in Crime by Season and the Green Crime Paradigm*

**Second Place** ($125):
Kristen Ray, CSU Humboldt
* Native Dutch College Students’ Perceptions of Muslim Immigration in the Netherlands*

**Third Place** ($100):
Sara Matthews, CSU Humboldt
* To Drive or Bike: Examining Transportation Choices at Humboldt State University*

**Graduate Papers**

**First Place** ($150):
Omar Mere, CSU Northridge
* California’s Virtual Water*

**Second Place** ($125):
Colleen Hiner, UC Davis
* Re-conceptualizing the Rural-Urban Interface: ‘Meaning, Model and Metaphor’ and the Polarization of Ideals and Preferences for Rural Space*

**Third Place** ($100):
Adam Aaron, CSU Fullerton
* Building and Delivering Digital Infrastructure*

JOE BEATON STUDENT POSTER AWARDS

**First Place** ($125):
Veronica Roach, CSU Fullerton
* Southern California’s Coastal Sage Scrub Ecosystem*

**Second Place** ($100):
Kirstyn Pittman, CSU Chico
* Impacts of Changes in Precipitation and Temperature Due to Climate Change in Chicago, IL*

**Third Place** ($75):
Jeffrey J. Erwin, University of Nevada, Reno
* Examining the Importance of Using Agricultural Weather Networks to Estimate Crop Water Demand*
BOBBE AND ROBERT CHRISTOPHERSON GEOSYSTEMS AWARD

**Undergraduate Award ($500):**
Timothy Scott, CSU Sonoma
*Optimal Fire Station Siting Using GIS*

**Graduate Award ($500):**
Deborah Giles, UC Davis
*Killer Whale Biogeography: Using Non-invasive Remote Sensing Equipment and GIS to Assess Potential Effects of Vessels on Killer Whale Groups Behavior in the Salish Sea*

STUDENT MAP AWARDS

**First Place ($125):**
Aaron Taveras, CSU Humboldt
Exploring Place: Humboldt State University’s China/Tibet Field Studies Program, 2010

**Second Place ($100):**
Ryland Karlovich, CSU Humboldt
*The Irish Landscape*

**Third Place ($75):**
Alicia Iverson, CSU Humboldt
*Mapping of ‘Insecure at Last: A Political Memoir’ A Memoir by Eve Ensler*

DIGITAL CARTOGRAPHY AWARDS

**First Place ($125):**
Nick Burkhart, UCLA
*Visualizing the Geography of Internet Censorship Circumvention*

**Second Place ($100):**
Amy Lippus, CSU Chico
*A California Tragedy: The Shocking Story of the Donner-Reed Party*

**Third Place ($75):**
Melissah Ball, CSU Stanislaus
CSU Stanislaus Online and Interactive