3-13-2012

The effects of length of stay and family contact on the Hawai'i brain drain phenomenon

Derrinn Y.K. Fukuda

Pacific University

Recommended Citation

This Dissertation is brought to you for free and open access by the College of Health Professions at CommonKnowledge. It has been accepted for inclusion in School of Graduate Psychology by an authorized administrator of CommonKnowledge. For more information, please contact CommonKnowledge@pacificu.edu.
The effects of length of stay and family contact on the Hawai'i brain drain phenomenon

Abstract
The current study has focused on shedding light on the brain drain phenomenon. This notion has been defined as talented and educated individuals leaving their home country to attend school in a more developed country, only to decide to remain abroad. The brain drain phenomenon has been studied extensively with regards to international countries, but the research with Hawai'i-resident and Hawai'i-born individuals has been lacking. In regards to Hawai'i, some Hawai'i-born or Hawai'i resident students choose to attend college in the mainland United States. Some of these students then choose to stay in the mainland after they have completed their degree. Specifically, we sought to determine the relationship between a student’s length of stay in the mainland and amount of family contact with the probability that the student will choose to remain in the mainland after school thus adding to Hawai'i’s Brain Drain. Participants were administered a demographic information form, length of stay questionnaire, family contact questionnaire, and brain drain questionnaire. No significant results were found regarding the hypotheses tested. Although the results from this study add to the dearth of Hawai'i research, the results should be interpreted with caution due to the small sample size.

Degree Type
Dissertation

Degree Name
Doctor of Psychology (PsyD)

Committee Chair
Jane M. Tram, PhD

Second Advisor
Shawn E. Davis, PhD

Third Advisor
James B. Lane, PhD

Subject Categories
Psychiatry and Psychology

Comments
Library Use: LIH

This dissertation is available at CommonKnowledge: https://commons.pacificu.edu/spp/376
THE EFFECTS OF LENGTH OF STAY AND FAMILY CONTACT ON THE HAWAI'I BRAIN DRAIN PHENOMENON

A DISSERTATION

SUBMITTED TO THE FACULTY

OF

SCHOOL OF PROFESSIONAL PSYCHOLOGY

PACIFIC UNIVERSITY

HILLSBORO, OREGON

BY

DERRIN Y.K. FUKUDA, M. S.

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

OF

DOCTOR OF PSYCHOLOGY IN CLINICAL PSYCHOLOGY

March 13, 2012

APPROVED: _________________

JANE M. TRAM, PH.D.

__________________________

SHAWN E. DAVIS, PH.D.

__________________________

PROFESSOR AND DEAN:

JAMES B. LANE, PH.D.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>iv</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>v</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>6</td>
</tr>
<tr>
<td>IMPACT</td>
<td>7</td>
</tr>
<tr>
<td>EXISTING BRAIN DRAIN RESEARCH</td>
<td>8</td>
</tr>
<tr>
<td>SOJOURNERS</td>
<td>8</td>
</tr>
<tr>
<td>INTERNATIONAL</td>
<td>11</td>
</tr>
<tr>
<td>RURAL AMERICA</td>
<td>17</td>
</tr>
<tr>
<td>RATIONALE FOR HAWAI'I</td>
<td>21</td>
</tr>
<tr>
<td>HAWAI'I</td>
<td>21</td>
</tr>
<tr>
<td>CULTURAL FACTORS AND BRAIN DRAIN</td>
<td>21</td>
</tr>
<tr>
<td>COLLECTIVISTIC VS. INDIVIDUALISTIC</td>
<td>22</td>
</tr>
<tr>
<td>ACCULTURATION AND BRAIN DRAIN</td>
<td>23</td>
</tr>
<tr>
<td>HAWAIIAN ETHNIC IDENTITY IN THE MAINLAND</td>
<td>26</td>
</tr>
<tr>
<td>HO'I HOI I KA IWI KUAMO'O: RETURN TO THE BACKBONE</td>
<td>28</td>
</tr>
<tr>
<td>PAST STUDIES ON HAWAI'I BRAIN DRAIN</td>
<td>29</td>
</tr>
<tr>
<td>LIMITATIONS OF PAST STUDIES</td>
<td>31</td>
</tr>
<tr>
<td>RESEARCH QUESTION</td>
<td>32</td>
</tr>
<tr>
<td>HYPOTHESES</td>
<td>33</td>
</tr>
<tr>
<td>METHODOLOGY</td>
<td>33</td>
</tr>
<tr>
<td>RESULTS</td>
<td>39</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>42</td>
</tr>
</tbody>
</table>
REFERENCES................................................................................................................ 49

APPENDICES

APPENDIX A: Demographic Information Form................................................................. 55
APPENDIX B: Length of Stay (LOS)............................................................................. 57
APPENDIX C: Family Contact (FC)............................................................................. 58
APPENDIX D: Probability of Staying in the Mainland (BD)........................................... 61
ABSTRACT

The current study has focused on shedding light on the brain drain phenomenon. This notion has been defined as talented and educated individuals leaving their home country to attend school in a more developed country, only to decide to remain abroad. The brain drain phenomenon has been studied extensively with regards to international countries, but the research with Hawai'i-resident and Hawai'i-born individuals has been lacking. In regards to Hawai'i, some Hawai'i-born or Hawai'i resident students choose to attend college in the mainland United States. Some of these students then choose to stay in the mainland after they have completed their degree. Specifically, we sought to determine the relationship between a student’s length of stay in the mainland and amount of family contact with the probability that the student will choose to remain in the mainland after school thus adding to Hawai‘i’s Brain Drain. Participants were administered a demographic information form, length of stay questionnaire, family contact questionnaire, and brain drain questionnaire. No significant results were found regarding the hypotheses tested. Although the results from this study add to the dearth of Hawai'i research, the results should be interpreted with caution due to the small sample size.

Key terms: Hawai'i, Hawaiian, family, brain drain, college students, graduate students
ACKNOWLEDGMENTS

I would like to thank my Dissertation Committee, Drs. Jane Tram, Alyson Burns-Glover, and Shawn Davis. You all were in my corner from the beginning and I cannot tell you how much that meant to me. To Dr. Holly Hetrick-Weger, you helped keep this dissertation on track by pushing me and supporting me. You always seemed to know when to put on the pressure and when to give me undying support. I would also like to extend thanks to my dissertation group members, with specific thanks to my colleagues Joshua Tabaldo M.S. and James Maxson M.S. You two contributed to my sanity while I was completing this study and I could not have gotten through this without you. I would like to thank my parents for supporting me throughout my academic career, even when I wanted to become a comedian and an architect. Lastly, I would like to thank my wife Nina and my little keiki Caden. Nina, thank you for believing in me and being there for me throughout this endeavor. Without these individuals, none of this would have been possible.

Mahalo nui loa
The Effects of Length of Stay and Family Contact on the Hawai'i Brain Drain Phenomenon

Making the choice to leave home for college in a far off destination is an important decision for any high school graduate to make. They are leaving their family, their hometown, and the way of life that they have become accustomed to. Once they have completed their studies, they have an even more difficult decision to make, whether or not to return home. In some cases, the student will choose to remain in the location from which they received their education. Internationally, researchers have dubbed the student’s choice to not return home after their successful completion of their studies as the “brain drain” phenomenon.

The brain drain phenomenon was coined in the 1960s to describe the frustration that the leaders of many newly independent countries felt about the loss of technical skills to Western countries such as the United States and Great Britain (Nguyen, 2006). This problem can also be described as an emigration of a nation’s highly educated and talented individuals to another more developed nation. However, the brain drain phenomenon is not restricted to an international stage. Malone (2004) mirrored the concerns of other developing nations with regards to the “flood of out-migration” from the islands of Hawai'i towards greater economic opportunities to the mainland United States. Data from the 2000 Census on national migration between 1995 and 2000 (Perry, 2003), show that fewer people moved to Hawai'i in that time period than those who moved away: 125,160 and 201,293 respectively, resulting in a net loss of 76,133 residents. Of those 76,133 residents who left, 2,157 of those individuals were classified as young, single, and educated (Franklin, 2003).
Impact

The impact of the brain drain phenomenon on the student’s home is great. Specifically, this loss of talented and educated individuals is detrimental to the student’s home on an organizational level. Rosenblatt and Sheaffer (2001) conceptualized the brain drain problem in terms of the departure of talented and skilled personnel from organizations. They operationally defined the metaphor ‘brain’ as any skill, competency, or personal attribute that may be considered a marketable organizational asset. The term ‘drain’ refers to a substantial exit of talent from a workplace. Thus, brain drain was defined as the exit of skilled and competent employees who have personal attributes that may be considered a highly needed and valuable organizational asset.

The brain drain problem does not only impact current organizational performance. It is also a potential hindrance to organizational prospects of turnaround and recovery (Rosenblatt & Sheaffer, 2001). It is especially damaging to declining, crisis-afflicted organizations that need to retain more capable, talented, and competent employees to survive in the short run and assist with organization turnaround in the foreseeable future (Rosenblatt & Sheaffer, 2001). The effect of the brain drain phenomenon on organizational prosperity can be summed up by the ‘free exiter’ predicament. In 1979, Levine posited the ‘free exiter’ predicament to explain that it is the skilled professionals and the talented managers – the workers most needed to effectively tackle decline or crisis – who tend to leave.

Like organizations, developing countries are faced with this problem. Many of their talented and educated individuals leave their country in search of educational and economic resources that their homeland cannot provide. These individuals leave their
homeland and decide not to return, which leaves the home country’s leaders with the realization of problems that are similar to that of the ‘free-exiter’ predicament (Levine, 1979). These newly graduated students, who have earned their education abroad, could have brought with them the foreign experiences and education necessary to foster economic and educational growth within their home country.

**Existing Brain Drain Research**

Research on the brain drain phenomenon has been done to shed light on the individuals who leave for reasons of business or education and the homeland from which they reside. Researchers Ward, Bochner, and Furnham studied sojourners and how they are faced with difficult decisions when it comes time to re-enter their home country (2001). Regional studies have been conducted with the intent to decipher what is the decision-making process for the individuals who choose to leave their home for schooling and choose to not return home.

**Sojourners**

The term sojourn is defined as a temporary stay in a new place. A sojourner is an individual who chooses to relocate to a new place usually for the purposes of business or international education (Ward et al., 2001). These individuals voluntarily stay for an unspecified, though relatively short period of time. The authors suggest that sojourners are more committed to their new location than tourists, but are less involved than immigrants in that “returning home” is anticipated and planned (Ward et al., 2001). It is when these individuals choose to remain in their new location that they are contributing to the brain drain problem in their homeland.
International students often take on the sojourner title when studying abroad. They choose to leave their home and are immediately faced with behavioral and cognitive consequences of cross-cultural transition (Kagan & Cohen, 1990). Specifically, they are faced with problems such as insufficient linguistic and cultural skills, prejudice, discrimination, homesickness, and loneliness. They are pressured to fill the role of ‘foreign ambassador’ in their interactions with their host country. Additionally, they are faced with similar struggles of the local students such as personal development into adults, academic challenges, and stressors related to becoming accustomed to a new college or university (Ward et al., 2001).

Once these sojourners graduate from their school and become acclimated to the host country with its customs and culture, they are faced with another challenge of choosing to re-enter their homeland or stay. One could suggest that a return to their homeland would not be complicated in that the student will simply be going back home. Such is not necessarily the case. It has been posited that sojourners facing re-entry must readjust to their home culture, which may end up being more difficult than the initial adjustment to their host country (Martin, 1984; Ward et al., 2001). The social and psychological distress involved in re-entry may be too difficult for the student to endure. They experience social difficulties such as communicating with old friends, dealing with stereotypes, uncertainty over cultural identity, social withdrawal, and decreased relationship satisfaction (Enloe & Lewin, 1987; Martin, 1984, 1986; Raschio, 1987; Sahin, 1990; Seiter & Waddell, 1989; Wilson, 1993; Zapf, 1991). They experience psychological distress in the form of anxiety, apathy, loneliness, and feelings of loss.
Cultural factors exert influence on the choice to re-enter. Kidder (1992) suggested that re-entry into a ‘tight’ society may be more difficult than returning to a ‘loose’ society. The term ‘tight’ society represents societies where community and family play a large role in their culture. Such collectivistic cultures such as Japan, China, and even Hawaiian culture fall into this category. Sojourners who come back to Japan often look and behave differently. Their interpersonal styles are different which leads to their peers and even family members imply that they are not portraying the ‘proper Japanese’ individual (Ministry of Education, 1999). The fear of being treated as an outsider may be enough for a student to choose to remain abroad.

**Regional Studies**

Regional studies have been conducted to shed light on the brain drain phenomenon. Many with the intent to decipher what is the decision-making process for individuals who choose to leave their home for schooling and choose to not return home. Some researchers delved into how brain drain affects various international countries (Adir, 1995; Akl et al., 2007; Pedersen & Lee, 2000; Pillay & Kramers, 2003; and Rizvi, 2005). Many of their “best and brightest” were studying abroad in more developed countries such as the United States and Great Britain because they offered a preferable higher education establishment. For fear of losing intellectual resources, the aforementioned researchers sought to target this problem by conducting interviews and administering surveys to the students with the goal of gaining a better understanding of what lures their students to relocate to the United States or Great Britain.
International

During the 1950s and 1960s, The British Royal Society realized that many of their educated citizens were emigrating to the United States (Nguyen, 2006). They coined the term “brain drain” to describe this outflow of scientists, academics, doctors, engineers, and other professionals with university training from one country to another (Myint, 1968; Shinn, 2002). The brain drain phenomenon was defined with the intention to bring awareness to the growing concern of population emigration. Many researchers have sought to find out more information as to the reasoning behind their brightest and most talented individuals.

Israel

It has been hypothesized that perhaps the individual’s personality characteristics distinguish those who return home from those who stay in the United States after attending institutions of higher education (Adir, 1995). Adir utilized the NEO Five-Factor Inventory to measure the five major dimensions or domains of normal adult personality traits: Neuroticism (N), Extroversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C) (Costa & McCrae, 1985, 1989). He wanted to figure out which demographic factors distinguish between returnees and settlers. Adir (1995) also investigated what influenced their decision to stay and if there was a relationship between length of stay in the United States and the decision to return to Israel.

Adir (1995) gathered 134 Israeli participants who came to the United States to attend institutions of higher education, and successfully completed their studies abroad. Of the participants, 70 settled in the United States and 64 returned home to Israel. His
results indicated that only scores on the Conscientiousness scale of the NEO differentiates settlers and returnees (Adir, 1995). Adir suggested that the individual’s goal-directed motivations might explain the reasons the Israeli settlers decided to stay in the United States (Adir, 1995). This finding corresponds well with the participants’ reported influences of career and financial opportunities as their main reason for staying. Adir also reported the finding that a person’s decision to leave Israel is somewhat determined by the influence of family members (Adir, 1995). Some participants had family in the United States, which influenced them to emigrate, while others consider family to be a factor in choosing to leave. This suggests that negative family circumstances and uncomfortable situations at home (i.e., family conflicts, problems, and pressure) caused a few Israelis to study abroad. This negative outlook on family may have also played a part in their decision-making process to settle after completion of their studies. Adir (1995) found that the longer one stayed in the United States, the less he or she desired to return home to Israel. Although the relationship between length of stay and desire to return home is significant, the author suggests that other factors such as income or career opportunities may be noteworthy influences to the relationship between the desire to return and length of stay.

In summation, the results of his study revealed that financial and professional incentives as well as sociocultural factors are generally better predictors and more powerful motivators than are personality factors for the decisions to remain in the United States or return home to Israel (Adir, 1995).
Taiwan

Pedersen and Lee (2000) looked at Taiwan and how their brain drain problem may currently be more of a “reentry” phenomenon. They reported that during the past decades, Taiwan has been a prime example of brain drain with regards to their scientists and engineers leaving to the United States for school and deciding not to return. However, in recent years, Taiwan has become an example of a country where a high percentage of the graduates return home after their studies. In their study, the authors reviewed the historical evolution of the reentry phenomenon over time with attention quality-of-life (familial, social, and political) factors (Pedersen & Lee, 2000).

The authors reviewed two research projects aimed at discovering what influenced students to reenter Taiwan after completion of their studies. The first project was called the National Science Foundation/National Research Council (NSF/NRC) Project and was conducted from 1983-1985. The objectives of this first project were to identify factors contributing to a decision to return home or not after graduation and identify changes that would enhance the likelihood of graduates returning home after graduation (Pedersen & Lee, 2000). They found four patterns of response by students who have already returned home to Taiwan. Firstly, satisfaction with the living and working environment was an important factor in successful reentry for some students, but not for all. Personal and professional satisfaction alone was not good predictors of successful reentry among the graduates. Secondly, returnees expected rewards besides the knowledge that they have gained while studying abroad. They expected an enhanced worth of the degree, a good career, practical experience in a specialized field, and prestige of studying abroad (Pedersen & Lee, 2000). The third pattern of response was the loosely defined “Quality-
of-Life” factor which included feelings of patriotism, obligations to family, potential contributions to their profession or family and feelings of strangeness or discrimination abroad were important factors in choosing to come back to Taiwan. Lastly, the external influence of family, friends, and environment was particularly important (Pedersen & Lee, 2000). This last pattern of responses was highlighted by one Taiwanese graduate returnee stating that this conflicted choice is likened to staying in the “Lonely Heaven” of the United States or returning home to the “Happy Hell” of Taiwan (Pedersen & Lee, 2000). This last statement suggests that Taiwanese graduates are faced with the inevitability of making a choice that will have benefits as well as drawbacks.

The second project by the NSF/NRC (conducted from 1985-1990) differed from the previous project in that the researchers chose to adopt a more qualitative study methodology. Researchers found that both demographic variables and professional incentives may influence a student’s decision to return home to Taiwan. Three demographic variables were identified. First, students who do not express a sense of “belonging” to the United States are much more likely to return home (Pedersen & Lee, 2000). Second, students who do not express a high level of “well-being” while abroad are likely to return home. Third, students who express a high level of responsibility and loyalty to their family and Taiwan are more likely to return. The professional incentives that were identified as influential in the decision whether to return are as follows: (1) Students with a job waiting for them are more likely to return; (2) students who have indicated “the promise of a career” back home are more likely to return. However, if that promise is not fulfilled, they are more likely to choose to immigrate to the United States.
in hopes of a stable career; and (3) the availability of an infrastructure to support their research and continued professional growth is an incentive to return home.

**Lebanon**

Lebanon has the highest emigration factor in the Middle East and North Africa (Akl et al., 2007). They also have the 7th highest physician emigration factor in the world (Mullan, 2005). To manage their brain drain phenomenon and minimize its consequences, the authors aimed to qualitatively explore the factors affecting the physician’s decisions to migrate. They agreed with Stilwell and colleagues (2004) by suggesting that policy makers need better evidence for speculated factors. Akl and colleagues focused on discovering the factors underlying the decisions of graduating Lebanese medical students to train abroad and developed a conceptual framework to better explain the relationship between these factors.

They conducted two focus groups and seven semi-structured individual interviews with 23 students. They utilized Lee’s push-pull theory (1966) to identify “push” factors in home country and “pull” factors in the recipient country. Through a deductive analysis they discovered that the push factors in Lebanon and pull factors abroad represent both negative and positive attributes in the source and recipient country respectively, in the following five dimensions: Residency training, professional career, financial, political, and social. The most discussed push factor was the oversaturation of the local job market, which often led to a competitive market. Conversely, some of the students believed that studying abroad provided them with a competitive advantage over their peers who did not travel for school (Akl et al., 2007).
The authors also conducted an inductive analysis through which they discovered two additional factors: repel factors abroad and retain factors in Lebanon. Repel and retain factors were deemed as parallel to the push-pull factors in that they represent negative and positive attributes of the same dimension, but in the recipient and source country, respectively (Akl et al., 2007). Repel factors are recipient factors that drive away individuals from staying abroad after school. Some personal repel factors were that individuals were worried of partnering with an individual of different cultural background. In addition, they were worried about raising children in a different culture. Social repel factors included a lack of social support, unappealing lifestyle, worry about making friends, and cultural differences. Political repel factors included negative perceptions of western societies of Middle Easterners (Muslims in particular), fear of social exclusion and rejection, worry about always feeling as a foreigner, and dissatisfaction with policies of certain recipient countries.

Retain factors are source country factors that influence an individual to return home after school. Some individuals perceive an inability or unwillingness of partner to travel as a personal retain factor. Some individuals cited the following as social retain factors: Being the family head, desire to stay close to family, family and society pressure not to travel, and a preference for social life and lifestyle in Lebanon. Some mentioned that a professional retain factor would be the chance to start building clientele in Lebanon while still in training. A political retain factor included some Lebanese students experiencing feelings of patriotism by staying in Lebanon.

Akl and colleagues put forth a different idea of the decision-making process of students contemplating a return home after completion of their studies. The authors of
this article focused on which factors influence individuals to want to stay in their home country rather than influencing them to leave. Perhaps it is necessary to conceptualize the brain drain phenomenon along the mentality of repel and retain factors rather than push and pull factors. Conceptualizing the decision-making process in a push-pull model places the value on the migration to another country. Whereas, conceptualizing the decision-making process with a repel-retain model places the value on the home country.

**Rural America**

The brain drain phenomenon was originally theorized as an emigration problem, with which countries outside of the United States struggle. However, research has shown that this phenomenon is not restricted to other nations. The United States struggles with this problem as well. It has been suggested that brain drain exists within the United States as evidenced by the tendency of talented students to leave rural America with aspirations of academic and economic achievement. Authors Carr and Kefalas (2009) sought to shed some light on the similarities between rural America’s brain drain problems and developing countries. They stated that this phenomenon is happening to small towns all across the Midwest region. They decided to conduct an ethnographic study on the inhabitants of a small rural Iowa town to determine why small towns are not regenerating and why its educated young people are leaving in droves.

Carr and Kefalas surveyed 275 former high school students, who had attended the local high school in the late 1980s and 1990s, about their transition to adulthood and to see how it compared with that of their peers on the coasts and in the cities and suburbs of the Midwest (2009, p. xiii). Through their interviews, they discovered four distinctive paths (achievers, stayers, seekers, and returners) that students take after high school.
Achievers

These students are the best and the brightest and their futures extend far from the countryside from which they came (Harmon, 2010). They often take the role of teacher’s pets or at the very least, teachers’ pet projects. Achievers consistently escape punishments like letters home to parents or detention when they had missed class or assignments. Most, but not all of these students had parents who had attended college themselves, and those who did not have college educated parents had direct encouragement from assorted interested adults outside of the family (Carr & Kefalas, 2009, p. 20). Being treated differently by teachers and staff (e.g., being the recipient of positive attention) empowers the student to change his or her future. Achievers are placed on a different trajectory because the entire town was behind their impeding success. They are cheered on, supported, and encouraged in concrete ways. They have the sense that all the hopes, expectations, and wishes of the town are instilled in their future. Achievers want to break free of small town life. These individuals are the most likely to leave their hometown for school and decide not to return after earning their degree. The majority of achievers decide not to return to their Midwestern state after earning their degree, which contributes to the rural brain drain problem.

Stayers

The Stayers most unique characteristic is that they are quick to start looking and acting like adults. (Carr & Kefalas, 2009, p. 20). They transition to adulthood and families in a seamless fashion when compared to their Achiever counterparts. They do not leave their hometown to go to college; rather they find jobs in blue-collar occupations such as factory work, auto repair, and construction. Through their research, Carr and
Kefalas found that one-fifth of the young people who were Stayers, had stopped their education and had never left their town or county (2009, p.21). They come to realize that forgoing achieving a college degree has left them with little choices in a languishing economy. They are left out of policy discussions about how to save rural America. They are the ones who face the hardships of a dying small town, but the policies are aimed at attracting those Achievers who left in the first place (Carr & Kefalas, 2009, p. 21).

**Seekers**

Unlike their Achiever counterparts who leave because everyone expects them to, Seekers leave because they are compelled to leave (Carr & Kefalas, 2009, p. 21). Leaving their rural town is seen as a new beginning. The majority of Seekers leave via the military. Their data show that out of the forty graduating students from the local high school, at least 10 percent of every graduating class enlists in the military (Carr & Kefalas, 2009, p. 21). Many of those who end up enlisting do not attend college. This is not because they do not want a degree. Their parents are unable to afford a college education for their child. They are not the best or worst students nor are they from the most affluent or poor families. They are not the best athlete on the team but are valued teammates. They may lack the grades and money to attend college, but are in no hurry to settle down or get a dead-end job (Carr & Kefalas, 2009, p. 22). Seekers have an eagerness for the unknown and do not want to have any regrets when they settle down.

**Returners: High flyers and boomerangs**

High Flyers are those who have succeeded in their endeavors in post-secondary education and come back, thus abandoning a promising lucrative life for self-reinvention and home in the countryside (Harmon, 2010). High Flyers are those who are on track to
be the quintessential Achiever and use the college years to figure out that big-city life is not what he or she wanted or needed and ultimately decides to return home to the town he or she left behind (Carr & Kefalas, 2009, p. 22). They often describe college as a time when they could not “find their footing” and became increasingly disillusioned with a world that had seemed so appealing before they left to further their education (Carr & Kefalas, 2009, p. 23). High Flyers tend to earn their degree and finish their schooling, but not without an emotional and psychic toll. Achievers and Seekers enjoy and value their experiences with diversity and see small towns as closed and limited. High Flyers say that those same diverse experiences frustrate them. The fast-paced life filled with strangers does not appeal to them; in fact, they are disturbed by them and long for their quiet, familiar upbringing.

The authors discovered that the majority of the returnees are not High Flyers. They coined the term Boomerangs to describe the individuals that include the men and women who return after leaving the armed forces or after community college. For Boomerangs who attended community college, leaving their rural small town was a temporary situation (Carr & Kefalas, 2009, p. 23). These individuals earned their 2-year degrees and are eager to start their adult lives filled with families and mortgages. They desire the safety and familiarity that is their small-town life and have aspirations of pursuing more traditional goals like marriage and family.

The four paths that students take after high school are directly related to the brain drain phenomenon. Depending on what type of individual they are, they are more likely to either return home or stay abroad. Carr and Kefalas (2009) went on to attempt to brainstorm ideas as to how to address the outmigration of the Achievers while also
paying attention to those who are left behind to struggle to keep their small town from
dying. The authors suggested that there is an urgent need to revamp the rural education
system; most importantly the need to address the underinvestment in the non-college
bound students. Carr and Kefalas posited that these small towns need to offer
opportunities for people to acquire new skills, along the lines of the equalizing of
opportunities of faring in a more global economy (2009, p. 146-147).

**Rationale for Hawai‘i**

The state of Hawai‘i offers a unique construct when considering the brain drain
problem. As stated previously, the statistics provided by the Census indicate that Hawai‘i
suffers from a loss of educated individuals (Franklin, 2003). Hawai‘i also possess a
diverse and collectivistic culture that is different from all of the states on the mainland
continent. The Hawaiian culture is probably more in line with Asian cultures than it is
with the mainstream society. This is why it is necessary to take into account other reasons
for choosing to stay or return when discussing the brain drain phenomenon and how it
relates to Hawai‘i-born students.

**Hawai‘i**

**Cultural Factors and Brain Drain**

When describing the Hawaiian culture to someone who is not familiar with the
culture, one might state that it is the epitome of multiculturalism. It is the *Aloha* spirit.
According to Halualani, “The State of Hawai‘i codifies the *Aloha* spirit into the civil
discourse and ideology of multiculturalism” (2002, p. xiv). She went on to state that the
*Aloha* spirit is the shared tradition of tolerance and peaceful coexistence. Other
definitions of this Hawaiian multiculturalism include the notion that Hawaiian culture is
unique when compared to the mainland United States in that there is an established tradition of harmonious race and ethnic relations which are evident in cordial and low keyed social relationships and in relatively high rates of intermarriage (Okamura, 1996). The equalization of opportunity and status’ in the ethnic stratification order are also part of Hawai‘i culture. Multiculturalism is the spirit that creates a shared “local” culture and identity evident in multicultural lifestyles and based on points of commonality (Grant & Ogawa, 1993). Multiculturalism in the Hawaiian Islands seems to stand as both an exemplar of productive, positive social relations and, on a closer level, an illustration of what it is to be Hawaiian (Halualani, 2002).

**Collectivistic vs. Individualistic.**

The idea of Hawai‘i as a collectivistic society and not an individualistic society such as the mainland United States makes sense when taking into account the influences that multiculturalism (Grant & Ogawa, 1993; Halualani, 2002; & Okamura, 1996) and Aloha spirit (Halualani, 2002) have on the societal structure. Hofstede (1991) defines individualism and collectivism as follows:

*Individualism* pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. *Collectivism* as its opposite pertains to societies in which people from birth onwards are integrated into strong, cohesive in-groups, which throughout people’s lifetime continue to protect them in exchange for unquestioning loyalty. (p. 51)

Individualistic societies emphasize “I” consciousness, autonomy, emotional independence, individual initiative, right to privacy, pleasure seeking, financial security,
need for specific friendship, and universalism (Hofstede, 1980; as cited by Kim, Triandis, Kagitcibasi, Choi, & Yoon, 1994). Contrary to individualistic societies, collectivistic societies stress the “we” consciousness, collective identity, emotional dependence, group solidarity, sharing, duties and obligations, need for stable and predetermined friendship, group decision, and particularism (Hofstede, 1980; as cited by Kim et al., 1994).

**Acculturation and Brain Drain.**

In 1989, John W. Berry and Uichol Kim developed a two-dimensional model based on two issues they found critical to determining acculturation: 1) the extent to which individuals consider it of value to identify with and maintain the cultural characteristics of their own ethnic group, and 2) The importance individuals attribute to maintaining positive relationships with the mainstream society and other ethnic groups. They hypothesized that there are four acculturation patterns (*integration*, *assimilation*, *separation*, and *marginalization*) that describe the ways in which members of various ethnic groups can participate in an ethnically diverse society. This theoretical model is founded upon the notion that one’s acculturation development is dynamic. An individual could exist in one of the four theorized patterns of acculturation and shift to another pattern depending on their experiences. Table 1 below is a representation of the acculturation model created by Berry and Kim (1989). It depicts the four patterns as they relate to acculturation.
Table 1

*Berry and Kim’s (1989) Acculturation Model*

<table>
<thead>
<tr>
<th>Positive Relationship with Dominant Society</th>
<th>Retention of Cultural Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>High Integration, Low Separation</td>
</tr>
<tr>
<td>Low</td>
<td>Low Assimilation, High Integration</td>
</tr>
</tbody>
</table>

Rezentes (1996) applied Berry and Kim’s acculturation model to Hawaiians with the caveat that his conclusions pertain to contemporary Hawaiians who have been entrenched in the “mainstream” or “dominant” United States culture.

**Integration: biculturalism/multiculturalism.**

Those who fit this acculturation pattern strive to balance and take the best from both or multiple worlds. This is not an easy task to accomplish as conflicting beliefs, cultural values, and customs cause stress and confusion. They fragment their cultural expressions of themselves depending on the individuals and situations to which they are responding.

**Assimilation.**

The author suggested that most Hawaiians continue to assimilate to American “mainstream” culture. Total assimilation is often seen as losing one’s true self and becoming “haole.” The word *haole*, formerly defined as a foreigner; now, defined as a White person, American, Englishman, and Caucasian (Pukui & Elbert, 1986; as cited by Halualani, 2002). When a Hawaiian fully assimilates him or herself into the “mainstream” culture they are seen as being untrue to and abandoning one’s Hawaiian
heritage and culture (Rezentes, 1996). These individuals are often labeled as “Haolified,” but do well in the Western/American world.

**Separation.**

Many of these individuals oppose haole ways and are traditionally raised Hawaiian. They reject immigrant cultures and are motivated by anger at injustices committed by Americans and other ethnic groups against Hawaiians.

**Marginalization.**

Very few individuals reject Hawaiian, Western, and all other cultures. It is difficult to reject said cultures in such a diverse and ethnic place.

With regards to the brain drain phenomenon, assimilation to the more “mainstream” culture can be seen as a reason why Hawai’i students decide to stay in the mainland after completion of their studies. Two issues come up when discussing how assimilation to the more “mainstream” culture affects the brain drain problem in Hawai’i. First, Rezentes (1996) brought up an interesting point about how Hawaiians are viewed as being untrue and abandoning their heritage when they have fully assimilated to the haole culture. When students leave to the mainland for school, they are introduced to many experiences they would have never had if they had stayed in Hawai’i for their schooling. Many enjoy the experienced gained from a mainland education and find themselves to be fully acculturated to the “mainstream” culture. They come to realize that their priorities have changed since leaving for school and have chosen to stay rather than return home. Secondly, students who assimilate to the “mainstream” culture may experience feelings of rejection from their families. To many, family or ‘ohana is the central social institution in Hawaiian culture (Halualani, 2002; Malone, 2004; Rezentes,
1996). Everything begins and ends with 'ohana and it is often that the commitment and longing for that social support is reason enough to resist migration to another destination (Malone, 2004). However, the situation is different when the student has left and has assimilated to the “mainstream” culture. Coming home to a family who does not support one’s new values and higher academic status can be demoralizing to a newly graduated individual attempting to come back home. These feelings of rejection may be enough to push the individual to settle in the mainland.

**Hawaiian ethnic identity in the mainland.**

Like acculturative development, ethnic identity is a dynamic construct that is subject to change because of social environmental forces (Ichiyama, McQuarrie, & Ching, 1996; Okamura, 1981). Others go on to suggest that ethnic identity changes as a function of the acculturative processes (Berry & Annis, 1974; Berry & Kim, 1989; Berry, Trimble, & Olmeda, 1986). Okamura (1981) posits that ethnicity is situational, meaning that ethnic identity is affected by different, and often changing, social situations and contexts. This concept of situational ethnicity is important to consider when many Hawaiian students choose to attend college in the mainland. When these students relocate to the mainland, they are immersed in an entirely different social environmental context where they in effect experience the role transition from majority to minority status. In Hawai‘i, ethnic minority groups do not think of themselves as minorities, but rather they are the numerical majority (Samuels, 1970).

Understanding an individual’s ethnic identity may require determining their relationship to the majority group (Phinney, 1990). To do this, individuals take part in a reflected appraisal process where the self-concept is developed and maintained through
the perceived appraisals of significant others. Essentially, our self-concepts are influenced by our perceptions of others’ appraisals of us (Ichiyama et al., 1996).

Ichiyama and colleagues surveyed 119 residents of Hawai‘i after their social context changed from majority group to minority group status as a result of relocation to the mainland for college (1996). They found that there was a decline in Hawaiian identification the more years a student spent in the mainland. The authors suggested that this decline could be explained by the natural process of adapting to and incorporating aspects of the majority group culture as a result of increased exposure over time (Ichiyama et al., 1996). It may also indicate that Hawaiian students succumbed to social pressures to assimilate and conform to the host society norms.

They also found that the Hawaiian students appeared to become aware early on in their college careers that their social status was diminished as indicated by the reduced favorability of their perceptions of how the majority group mainland students viewed them (Ichiyama et al., 1996). As they realized that their social status on the mainland did not match that of their home in Hawai‘i, they began to internalize the perceived appraisals of their mainland counterparts. Their ethnic identity, which was fractured as a result of the role change from majority to minority, can be explained in terms of the attitudes and behaviors exhibited towards one’s own group. Thus, when taking Ichiyama and colleagues’ (1996) results of the internalized appraisals of the mainland students into account, one could suppose that the Hawaiian students began to view their own group through the lens of their perceived mainland appraisals.

Ichiyama et al. (1996) brought forth the notions that the longer the Hawaiian students stayed in the mainland, the more they were relegated to a minority ethnic
identity and the less they identified with their Hawaiian culture. One could suggest that Hawaiian students are less likely to return home after successful completion of their college degree because of those factors.

**Ho‘i hou i ka iwi kuamo‘o: Return to the Backbone.**

For Hawaiians, there are many cultural and spiritual implications of migration. These implications can be uniquely conveyed by the expression *Ho‘i hou i ka iwi kuamo‘o*, which translates to “return to the backbone,” meaning to return to one’s roots, homeland, and family (Malone, 2004). Specifically, Hawaiian cultural values place a great significance on *‘ohana* (family), *‘aina* (land), *mo‘oku‘auhau* (genealogy).

**‘Ohana.**

Hawaiians are fully committed to family whether it is families-of-origin, extended families, or families of choice (Malone, 2004). According to Malone, family “permeates many facets of life on the islands” (Malone, 2004, p. 151). These strong familial ties, if greater than those other cultural groups, can significantly influence the probability of migration among Hawaiians with relation to other cultural groups. Geographic separation (i.e., away at college) from loved ones poses emotional burdens for those who may choose to leave. This separation from family also represents an absence of social support, often resulting in an individual to resist leaving the islands.

**‘Aina.**

Many Hawaiians are also tied to feelings toward the *‘aina* (land). There are many Hawaiian proverbs and sayings that refer to feelings of reverence for the islands, their resources, their beauty, and the balance shared between the people and land (Malone, 2004). Respecting the importance of the land, sea, and air in the Hawaiian island chain is
an important facet of life for many Hawaiian individuals. Often, the connection to one’s homeland is significant and can greatly influence decisions to stay in the mainland or return home to Hawai‘i (Malone, 2004).

*Mo'oku‘auhau.*

Paying homage and having a strong affiliation to one’s Hawaiian ancestors through genealogy is another reason why Hawaiian individuals have strong ties to their homeland. Malone posits that Hawaiians express their familial lineage via an ongoing tradition of reciting portions of their genealogy during formal introductions (2004). This traditional practice is reinforced and supported by accessing Hawaiian language speakers, knowledgeable *Kupuna* (elders), and extended family exchanges of family history (Malone, 2004).

**Past Studies on Hawai‘i Brain Drain**

The brain drain phenomenon is a recurring concern in the state of Hawai‘i. The state’s academically gifted students often leave the state to attend college in the mainland and often do not return (Ishibashi, 2005; Malone, 2004; University of Hawai‘i, 2008). Economic and social forces influence these individuals to stay in the mainland. The constricted labor market within the state suppresses wages, limits the number of job opportunities, and reduces the potential for job growth (Malone, 2004). In addition, the tight financial market, limited housing stock, and high construction costs impede the establishment of homes (Malone, 2004). Social factors such as broader education opportunities and marriage markets can lure an individual to the mainland. The following research on Hawai‘i’s brain drain phenomenon has been conducted using alumni data gathered by their respective alumni associations.
Punahou alumni association.

In 2008, the University of Hawai'i reported on an alumni survey of Punahou graduates. Punahou is the one of the most prestigious private institutions on the island of Oahu. The Punahou alumni association compiled data gathered from approximately 22,000 living alumni. They reported that 45% of the living alumni live in Hawai'i. The alumni association then went on to estimate the exodus of top Hawai'i academic talent to the mainland by using the Punahou’s ratio. They suggested that if 45% live in Hawai'i, then 55% of Punahou graduates live outside of the Hawai'i, most of which in the United States mainland.

Kamehameha schools alumni survey.

The Kamehameha Schools Alumni Association conducted a survey (2002) to report the residential migration patterns of their alumni and examine the reasons why some choose to leave Hawai'i. Their rates of emigration were not as high as the Punahou alumni survey. They learned that more than 70% of Kamehameha alumni live in Hawai'i. Of those who decided to stay after high school, 84% reported that they are unlikely to ever leave (Ishibashi, 2005). About half (49%) of Kamehameha alumni who expect to leave Hawai'i cite economic reasons such as jobs or difficulty finding affordable housing. Nearly half (47.5%) of Kamehameha alumni who currently live or previously lived outside of the state left to attend college in the mainland. More than two-thirds (67.4%) or returnees cited family as the primary reason for coming home (Ishibashi, 2005). The alumni association also found that Kamehameha alumni who leave Hawai'i and later return are more likely to hold professional or management positions than are alumni who have never relocated outside of the state. They reported an interesting and discouraging
finding that those who currently reside outside of the state have higher incomes than do alumni living in Hawai’i (Ishibashi, 2005).

Ishibashi posited that migration to the mainland is an effective way for Kamehameha alumni to increase their human capital and bolster their earnings potential (2005). He went on to suggest that expanded economic opportunities are needed in Hawai’i so that Native Hawaiians will have more options to remain on their island home and increase their occupational and socioeconomic status (Ishibashi, 2005). The data from the Kamehameha Schools Alumni Survey indicate that former students demonstrate strong social ties to Hawai’i (Kamehameha Schools, 2002). Most of the graduates from the school prefer to stay in Hawai’i rather than leave to the mainland to attend college.

**Limitations of Past Studies**

There has not been a large amount of research geared towards gaining a better understanding of the brain drain phenomenon and how it affects the state of Hawai’i. Much of the past research that was conducted regarding the Hawai’i brain drain phenomenon has been conducted with alumni populations from Kamehameha schools (Ishibashi, 2005), University of Hawai’i (Malone, 2004), and Punahou (University of Hawai’i, 2008). In addition, there has not been data gathered from current Hawai’i-born or Hawai’i-resident students attending college in the mainland with regards to the brain drain problem. Also, Ichiyama and colleagues proposed that these students are inclined to lose their Hawaiian identity as they attend college in the mainland, the longer they are in the mainland (1996). However, they did not connect length of stay in the mainland with the likelihood of staying in the mainland or going home after finishing college. This is
important in that the length of stay in the mainland might influence whether an individual chooses to stay or return home.

To expand on previous research, this study is an examination of the brain drain phenomenon in current Hawai‘i-born and Hawai‘i-resident students as opposed to Hawai‘i-born alumni. This study will attend to the lack of current Hawaiian student research in regards to their tendency to remain in the mainland after college. It is suggested that Ichiyama and colleagues’ (1996) proposed loss of Hawaiian identity the longer time is spent in the mainland, is a strong antecedent in choosing to return home after college.

**Research Question**

According to the previously mentioned research, the notion of family is very important to individuals from Hawai‘i. We sought to determine if the amount of family contact while going to school in the mainland can predict the probability of a student staying in the mainland after school is finished. We also addressed this phenomenon by determining if there is a relationship between the length of time spent going to school in the mainland and the probability of staying in the mainland after the completion of their studies. Study participants were asked to provide three types of information. First, they reported how many times they have had contact with their family since coming to the mainland. Second, they reported how long they have lived in the mainland while attending school. Third, they designated the probability that they will remain in the mainland after completion of their studies.
Hypotheses

The following three hypotheses were tested in this study:

(1) The first hypothesis is that students who reported more family contact (FC) during their stay in the mainland would evidence a lower probability of staying in the mainland after school (BD). In other words, FC will be found to a significant predictor of BD.

\[ \beta_{BD} = \beta_0 + \beta_{FC} \]

(2) The second hypothesis is that the addition of length of stay in the mainland (LOS) will improve upon the prediction of BD.

\[ \beta_{BD} = \beta_0 + \beta_{FC} + \beta_{LOS} \]

(3) The third hypothesis is that the LOS would moderate the relation between FC and BD. In other words, students with higher LOS would strengthen the relation between FC and BD; whereas students with lower LOS would weaken the relation between FC and BD.

\[ \beta_{BD} = \beta_0 + \beta_{FC} + \beta_{LOS} + \beta_{FC/LOS} \]

Power Analysis

Prior to data collection, an a priori power analysis was conducted to estimate the ideal number of participants given a moderate effect size. Using a power level of .80 and looking for a medium effect size \( R^2 = .09 \), the power analysis resulted in an ideal sample size of 76 participants to detect a significant effect \( (p = .05) \).

Methodology

Participants and Setting

This study took place in an undergraduate university and graduate health professions program located in the Pacific Northwest. The undergraduate and graduate
programs were sampled due to the large number of students from Hawai‘i. The sample consisted of both undergraduate and graduate students who were either born in Hawai‘i or a resident of Hawai‘i prior to coming to the mainland United States for school. Prior to recruiting the student participants, the advisor of the undergraduate’s Hawai‘i club was contacted as well as the director of the university’s psychology department in order to determine the most effective way to recruit the Hawai‘i resident and Hawai‘i-born students. It was determined that an email from the Hawai‘i club advisor to the Hawai‘i club undergraduate list serve and snowball sampling through “word-of-mouth” (Patton, 2002, p. 237) would be the most effective way to obtain responses from the undergraduates.

The email sent to the undergraduate students included a link to an online survey. Within this online survey, the respondents were presented with and provided informed consent, and completed all study measures. Snowball sampling was also utilized to obtain responses from students in the graduate program. Specifically, potential respondents who met criteria for this study were contacted via email and were asked to forward the email to other potential respondents who also met criteria for inclusion in the study. This sampling method was also utilized to garner more responses two weeks after initial recruitment.

Participants in this study included both males (N=11) and females (N=23) whose age ranged from 18 to 26 years old with a mean of 21.18. The respondents were given the opportunity to describe their ethnic background. Table 2 below depicts the reported ethnic backgrounds of the participants.
Table 2

*Reported Ethnic Background*

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiethnic/3 or more stated ethnicities</td>
<td>14</td>
<td>41.2</td>
</tr>
<tr>
<td>Bi-ethnic</td>
<td>6</td>
<td>17.6</td>
</tr>
<tr>
<td>Japanese</td>
<td>5</td>
<td>14.7</td>
</tr>
<tr>
<td>Caucasian</td>
<td>4</td>
<td>11.8</td>
</tr>
<tr>
<td>Filipino</td>
<td>3</td>
<td>8.8</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Japanese-American</td>
<td>1</td>
<td>2.9</td>
</tr>
</tbody>
</table>

The sample also comprised of 9 (26.5%) graduate students and 25 (73.5%) undergraduate students. Table 3 depicts the reported class standing of the participants.

Table 3

*Class Standing*

<table>
<thead>
<tr>
<th>Class Standing</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; year</td>
<td>7</td>
<td>8.8</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; year</td>
<td>6</td>
<td>17.6</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; year</td>
<td>10</td>
<td>29.4</td>
</tr>
<tr>
<td>4&lt;sup&gt;th&lt;/sup&gt; year</td>
<td>9</td>
<td>26.5</td>
</tr>
<tr>
<td>5&lt;sup&gt;th&lt;/sup&gt; year</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>7&lt;sup&gt;th&lt;/sup&gt; year</td>
<td>1</td>
<td>2.9</td>
</tr>
</tbody>
</table>
Thirty-one students (91.2%) were born in Hawai‘i. Each participant was asked to endorse which island they have lived on for the longest period of time. Table 4 depicts the results of the students’ primary island of residence.

### Table 4

**Primary Island of Residence**

<table>
<thead>
<tr>
<th>Island</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oahu</td>
<td>22</td>
<td>64.7</td>
</tr>
<tr>
<td>Hawai‘i</td>
<td>6</td>
<td>17.6</td>
</tr>
<tr>
<td>Maui</td>
<td>4</td>
<td>11.8</td>
</tr>
<tr>
<td>Kauai</td>
<td>2</td>
<td>5.9</td>
</tr>
</tbody>
</table>

**Measures**

The respondents were asked to complete a demographic information form (Appendix A), and questionnaires designed to assess length of stay (LOS) at the mainland school (Appendix B), amount of family contact (FC) since leaving for school (Appendix C), and probability of staying in the mainland (BD) after the successful completion of their schooling (Appendix D).

The demographic information form consisted of basic demographic information including gender, ethnicity, and age. The demographic questionnaire also included questions regarding whether the student was born in Hawai‘i, primary language spoken at home, what island they have spent the most time on, marital status, whether partner is from Hawai‘i, whether they were undergraduate or graduate students, and what year they were in their schooling.
LOS on the mainland was assessed by asking the respondents to respond to up to 4 questions aimed at estimating the amount of time, in months, that they have spent in the mainland. As this study included both Hawai‘i born and Hawai‘i residents, all students were first asked to (1) provide the year they began living in Hawai‘i (this could have been the year they were born). Then they were all asked to (2) provide the month and year that the student FIRST moved to the mainland. This could have been when the student moved to the mainland for school. Participants who were Hawai‘i resident students, but were not born in Hawai‘i were asked to (3) provide the actual months and years lived in the mainland before moving to Hawai‘i. The students that moved during their childhood were asked to (4) provide any and every additional lengths of time lived in the mainland. Participants who did not meet criteria for questions (3) and (4) were only asked to provide information for questions (1) and (2). From this information, an estimated LOS on the mainland was computed for each student.

Family Contact was assessed by asking the respondents 11 questions aimed at gaining an understanding of the amount of contact they have with their family. They were asked to provide, on average, how many times a week the student contacts members via email, phone, text messages, social networking pages (e.g., Facebook, MySpace, Twitter), and video conferencing (e.g., Skype, webcam). In addition, they were asked to provide the average time spent contacting family through the aforementioned means of communication. The students were also asked to report how many times they have had face-to-face contacts with their family since residing in the mainland and the average duration of said contact. Students were also asked to report on average, how many times they have had face-to-face contacts with their family when the family visits the mainland.
Each FC question was recoded to an ordinal scale format in order to align each question in the same way. For example:

1. On average, how many times a week do you have contact with any family members through email?

<table>
<thead>
<tr>
<th></th>
<th>Recoded to</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1-5 times</td>
<td>2</td>
</tr>
<tr>
<td>6-10 times</td>
<td>3</td>
</tr>
<tr>
<td>11-15 times</td>
<td>4</td>
</tr>
<tr>
<td>16 or more times</td>
<td>5</td>
</tr>
</tbody>
</table>

After recoding each question, the ordinal scaled FC numbers were added together to create a number representing FC. The higher the number, the more the student has contact with his or her family members. Please refer to Appendix C for a detailed account of each FC question and ordinal scoring.

The probability of staying in the mainland after school was assessed by asking the students to complete a Likert-type scale to assess their probability of staying in the mainland after completing their schooling. BD was measured on a scale of 0-100 (0 = no probability of staying in the mainland, 100 = 100% probability of staying in the mainland).

Procedure

Participants were provided with a web link to an online questionnaire. Before providing any responses, participants were required to have read through and agreed to an informed consent agreement which detailed their rights as a study participant. Once they agreed to the conditions of the informed consent document, the participants completed the demographic information form, the LOS questionnaire, the FC questionnaire, and finally the BD questionnaire. As an incentive, respondents were informed that they would have the option of participating in a drawing for a gift card. Each student was
informed that they could send their contact information in order to participate in the
drawing regardless of whether or not they participate in the study. The data was collected
during the spring term of 2011. SPSS was used to analyze the data collected.

**Results**

**Hypotheses 1 and 2**

The first hypothesis stated that students who reported more family contact (FC)
during their schooling on the mainland would evidence a lower probability of staying in
the mainland after school (BD). The regression equation, as depicted in Equation 1 ($\beta_{BD} =$
\beta_0 + \beta_{FC}$) with FC as a predictor of BD, was not found to be significant ($R = .097; F(1,$
32) = .303, n.s.). Therefore, contrary to the first hypothesis, FC was not found to be a
predictor of BD.

The second hypothesis stated that the addition of length of stay in the mainland
(LOS) will improve upon the prediction of BD. The regression equation, as depicted in
Equation 2 ($\beta_{BD} = \beta_0 + \beta_{FC} + \beta_{LOS}$) with both FC and LOS as predictors of BD, was not
found to be significant ($R^2\Delta = .000; F(2, 31) = .153, n.s.$). Therefore, contrary to the
second hypothesis, the addition of LOS was not found to improve upon the prediction of
BD.

**Moderator Model**

A moderator variable interacts with an independent variable to partition the
effects of the independent variable (Baron & Kenny, 1986). A series of hierarchical
regression analyses were used to determine whether a moderator model fits for the third
hypothesis, which included the relation between FC and LOS with BD. Multiplicative
models were used to test the moderator model for each variable. To conclude that there
was indeed moderation, the interaction between FC and LOS (β_{FC} + β_{LOS}) would need to have been found to be a statistically significant predictor of BD in the student sample. In the analysis, FC was entered as step 1. Length of Stay (LOS) was entered as Step 2. The results of the analysis are reported in Table 5.

**Hypothesis 3**

The third hypothesis stated that the student’s length of stay (LOS) would moderate the relation between the amount of family contact (FC) and probability of staying in the mainland (BD). In other words, it was anticipated that students with higher LOS would strengthen the relation between FC and BD; whereas students with lower LOS would weaken the relation between FC and BD. Length of Stay (LOS) was examined as a moderator, as depicted in Equation 3 (β_{BD} = β_0 + β_{FC} + β_{LOS} + β_{FC/LOS}).

As shown in Table 5, Results of the hierarchical regression analysis did not support the moderator model for the interaction of FC and LOS. Regression results indicated that FC combined with LOS did not predict BD (R^2Δ = .016; F(3, 30) = .263, n.s.). Family Contact (FC) scores were entered into the model first and were not a significant predictor of BD, accounting for only 0.9% of the variance in the score. Length of Stay (LOS), the second factor added to the model, also did not contribute to any unique explanation, accounting for only 1.0% of the variance.
Table 5

*Results of Hierarchical Regression Analysis of Family Contact (FC) and Length of Stay on the Mainland (LOS) on the Probability of Staying in the Mainland (BD)*

<table>
<thead>
<tr>
<th>Step</th>
<th>b</th>
<th>SE</th>
<th>B</th>
<th>R²</th>
<th>R²Δ</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1: FC</td>
<td>-.094</td>
<td>.171</td>
<td>-.097</td>
<td>.009</td>
<td>.009</td>
<td>.586</td>
</tr>
<tr>
<td>Step 2: LOS</td>
<td>-.019</td>
<td>.174</td>
<td>-.020</td>
<td>.010</td>
<td>.000</td>
<td>.913</td>
</tr>
</tbody>
</table>

**Descriptives**

Although there were no significant findings regarding the results from the tested hypotheses, statements can be made regarding the descriptive information provided by participants. The mean amount of FC was 15.46 (SD = 6.42; scores on this measure had a maximum possible FC score of 55 and a minimum possible score of 9). The highest FC reported was 34 and the lowest FC reported was 3. A mean FC of 15.46 may indicate that this sample of students endorsed the lower end of the spectrum with regards to the amount of family contact, and average times spent contacting family via face-to-face contacts, social media, email, phone, video conferencing, and text messaging during their schooling. The mean LOS for each student was 44.17 months (SD = 40.64). The highest LOS reported was 248 months (20.67 years) and the lowest LOS reported was 9 months. A LOS mean of 44.17 months indicated that the students reported an average of about 3.68 years on the mainland attending school. The mean rating of BD was 46.63 (SD = 35.47; scores on this measure ranged from 0 to 100 with higher numbers indicating higher probability of staying on the mainland). The highest BD reported was 100 and the lowest reported was 0. A mean of 46.63 may indicate that there is no clear pattern of BD
when examined as a group. Means and standard deviations of variables are presented in Table 6 below.

Table 6

Descriptive Statistics for Family Contact (FC), Length of Stay on the Mainland (LOS), and Probability of Staying in the Mainland (BD).

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC</td>
<td>15.46</td>
<td>6.42</td>
</tr>
<tr>
<td>LOS</td>
<td>44.17</td>
<td>40.64</td>
</tr>
<tr>
<td>BD</td>
<td>46.63</td>
<td>35.47</td>
</tr>
</tbody>
</table>

Discussion

Contrary to the first hypothesis, a relationship between FC and BD was not found. This differs from past research that indicated that family contact can significantly decrease the probability of migration (Malone, 2004). It is possible that we did not find support the first hypothesis because the current study did not contain enough power to detect an effect if one existed.

The second hypothesis aimed to include a student’s probability of staying in the mainland after successful completion of studies (BD). Previous research indicates that Hawaiian students are inclined to lose their Hawaiian identity as they attend college in the mainland, the longer they are in the mainland (Ichiyama et al., 1996). The lack of support for this hypothesis may indicate that there is no relationship between the student’s length of stay in the mainland (LOS) with BD. However, again, as this study did not meet the minimum sample size to detect an effect, results must be taken with caution and no definitive statements should be made regarding the second hypothesis.
Although there were no identified studies to date that have looked at a moderator model between these variables, the importance of family and time spent on the mainland were generally found to be associated with migrating to the mainland (Ichiyama et al., 1996; Ishibashi, 2005; Kamehameha Schools, 2002; Malone, 2004; University of Hawai'i, 2008).

**Findings: FC, LOS, and BD**

There were three findings from the scores obtained by the participants on the FC, LOS, and BD questionnaires. The first finding refers to the results for FC. The mean amount of FC was 15.46 (SD = 6.42). As mentioned, a higher number here suggests that the student endorsed a higher amount of family contact during their studies in the mainland. The maximum sum of FC that they could have endorsed was 55 and the lowest sum of FC that they could have endorsed was 9. A mean FC of 15.46 may indicate that this sample of students experience the lower end of FC during their schooling. These results are seemingly contrary to the research that indicated the importance of family or 'ohana (Halualani, 2002; Malone, 2004; Rezentes, 1996) as one would suppose that the student participants would have endorsed more family contact while they were attending school in the mainland.

The second finding refers to the LOS scores. The mean LOS for the students were 44.17 months (SD = 40.64). This indicates that the average time spent residing on the mainland was 44.17 months or approximately 3.68 years. A consultation with the undergraduate program’s Hawai'i club advisor (Mrs. G., personal communication, September 9, 2010) could shed light on the LOS scores. Mrs. G reported that many changes have been made to decrease the attrition rate for Hawaiian students. Students
from Hawai‘i have historically struggled with homesickness and often did not remain a student at the sampled undergraduate program after their first year. Mrs. G cited culture shock, shifting from a majority to a minority, and distance from ‘ohana as the primary reasons for returning home after a year of school in the mainland.

Mrs. G explained that since about 25-30% of the undergraduate student body hailed from Hawai‘i, the large student attrition rate was detrimental to the University. Changes were made to meet the unique needs of the Hawai‘i students. For example, Mrs. G reported that these students arrived at the school a week earlier than the other students to help them form a social circle in place of their ‘ohana back in Hawai‘i. In addition, the program’s Hawai‘i Club was formed in order to maintain a semblance of their home culture and practices. An optional winter semester was strongly recommended for Hawai‘i students in response to the majority of Hawai‘i students making the decision to stay home after choosing to go home for the entire winter semester. Mrs. G reported that the University understood the specialized need of the Hawai‘i students to the extent where the University cafeteria offered several options for Asian and Hawaiian influenced meals.

These institutional changes resulted in a lower attrition rate for the students from Hawai‘i. The results from the current study suggest that the changes that were made to better serve these students have been relatively successful because the students have resided in the mainland for an average of 3.68 years.

The probability of staying in the mainland after school (BD) was measured on a range of 0 to 100 with higher numbers indicating higher probability of staying on the mainland. It is important to note the similarities between the results of this study and Ishibashi’s study in 2005 with Kamehameha alumni. A mean of 46.63 or 46.63% chance
of staying in the mainland is close to Ishibashi’s (2005) finding that 47.5% of Kamehameha alumni who currently live or previously lived outside of the state left to attend college in the mainland. Conversely, this finding is dissimilar from the Census results as reported by Franklin (2003). She reported census findings that there was a 69.8% outmigration of “young, single, and college educated” individuals from Hawai‘i from 1995 to 2000.

**Implications**

The current study was unique compared to previous research for several reasons. First, prior research of the Hawai‘i Brain Drain Phenomenon consisted mainly of a sample of alumni populations from Hawai‘i (Ishibashi, 2005; Malone, 2004; University of Hawai‘i, 2008). Prior to this study there had not been data gathered from current Hawai‘i-born or Hawai‘i-resident students attending school in the mainland with regards to the brain drain phenomenon. The data from this study was gathered from students whom are still in school and still have to make that important choice of staying in the mainland after school is over or going back home. Sampling from a population of current students can help differentiate between the decision-making processes of alumni and current students. Although it is likely that the two populations differ with regards to what notions go into their decision-making processes, until the current study, there have not been data collected to determine those notions of the current Hawai‘i students.

Second, although there is a dearth of research of the Hawaiian people and culture in comparison to the multitude of research on other people and cultures, much of the research regarding this culture seemed to be in relation to family or ‘ohana (Halualani, 2002; Ishibashi, 2005; Malone, 2004; Rezentes, 1996). Specifically, Ishibashi found that
more than two-thirds (67.4%) of returnees cited family as the primary reason for coming home. With that in mind, it seemed imperative to improve upon past research by including amount of family contact within the methodology to gain a better understanding of how family contact is related to the Hawai‘i Brain Drain Phenomenon.

Third, this study also attempted to incorporate the idea put forth by Ichiyama and colleagues (1996). They proposed that Hawaiian students are inclined to lose their Hawaiian identity as they attend college in the mainland, the longer they are in the mainland. Although the current study did not incorporate the notion of Hawaiian identity, the current study did aim to build on their research by connecting a Hawai‘i student’s length of stay in the mainland with the likelihood of staying in the mainland or going home after finishing school.

Limitations and Future Directions

As mentioned, the ideal number of students was not obtained through recruitment. An a priori power analysis was conducted to determine the number of participants that would be needed to have sufficient power to detect a significant effect. It is also important that the results are not assumed able to be generalized to larger population of students from Hawai‘i. With the current sample size (N = 34) it is not possible to determine whether the findings were due to lack of power or to the lack of an effect. It is important that future studies are conducted with a larger sample size to address this problem.

Future research may also benefit from a more rigorous method of participant recruitment. The current sample size was obtained via Snowball Sampling through “word-of-mouth.” It may have been beneficial to recruit from the undergraduate
program’s Hawai‘i club personally rather than by proxy through the Hawai‘i club advisor. The Hawaiian population at the undergraduate program, not unlike the Islands of Hawai‘i, is a close community whose relationships are built through immersing oneself in the community and culture of the population.

Lastly, a possible limitation to the current study was personal bias regarding the personal attachment of the primary researcher to this research. Like the student participants in this study, the primary researcher is a Hawai‘i-born student who left Hawai‘i for college and decided to continue through graduate school. While completing the final requirements for a graduate degree, the researcher came face-to-face with the question of “Mainland or home?” The question of family versus professional prosperity came to the researcher’s mind. There may have been a bias with regards to recruitment modality, measure creation, or other unseen biases. To build upon the current study, it may be beneficial to consult with other colleagues and discuss possible pitfalls of conducting such personal research.

**Conclusion**

This study aimed at shedding light on the Brain Drain Phenomenon as it relates to Hawai‘i, its culture, and its people. Although the results from this study were not significant, we still made much progress in this area of study. As mentioned, there is a lack of Hawai‘i related research in general and this study brought forth new data regarding the variables that go into the Hawai‘i Brain Drain Phenomenon. It is the hope that future researchers utilize this study as a platform to further the research and gain a better sense of how ‘ohana and a student’s length of stay in the mainland have an impact
on those student’s decision making process of whether to return home after successful completion of their studies.
References


presented at the annual meeting of the Western Speech Communication Association, Spokane, WA.


APPENDIX A
Demographic Information Form

Age at last birthday (years)
☐ _____

Gender:
☐ Male
☐ Female
☐ Other (please specify)

Are you a graduate student or an undergraduate student at (school name)?
☐ Graduate student
☐ Undergraduate student

What is your year in school?
☐ 1st
☐ 2nd
☐ 3rd
☐ 4th
☐ 5th
☐ 6th
☐ 7th

What language do you speak at home?
☐ _____

What is your marital status?
☐ Partnered
☐ Married
☐ Single
☐ Divorced

If you have a partner, is your partner from Hawai'i?
☐ No
☐ Yes

Were you born in Hawai'i?
☐ No
☐ Yes

Which island have you lived on for the longest period of time?
☐ Hawai'i
☐ Maui
☐ Lana'i
Ethnicity:
What is your ethnicity? Feel free to put in any and all ethnicities, nationalities, or ancestries that you think best describe you.

I consider my ethnicity to be:
APPENDIX B
Length of Stay (LOS)

If you were a resident of Hawai‘i before coming to _____ University, please indicate the year you began living in Hawai‘i (e.g., 1982). This can be the year you were born.
   □ ______

Please provide the month and year that you FIRST moved to the mainland. Please provide the date in this format (e.g., 09/2004, 10/1994, 02/2010). This can be when you moved to the mainland for school.
   □ ______

Please provide the actual months and years you lived on the mainland before you moved to Hawai‘i if you lived in Hawai‘i before coming to _____ University. Please provide the length of time in the MAINLAND in this format (e.g. 10/1985-11/1994).
   □ ______

If you moved back and forth from Hawai‘i to the mainland, please provide additional lengths of time lived in the MAINLAND in this format (e.g., 01/1997-02/2001 and 07/2003-01/2005).
   □ ______
## APPENDIX C

### Family Contact (FC)

1. On average, how many times a week do you have contact with any family members through email?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Recoded to</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1-5 times</td>
<td>2</td>
</tr>
<tr>
<td>6-10 times</td>
<td>3</td>
</tr>
<tr>
<td>11-15 times</td>
<td>4</td>
</tr>
<tr>
<td>16 or more times</td>
<td>5</td>
</tr>
</tbody>
</table>

2. On average, how many times a week do you have contact with any family members by phone?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Recoded to</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1-5 times</td>
<td>2</td>
</tr>
<tr>
<td>6-10 times</td>
<td>3</td>
</tr>
<tr>
<td>11-15 times</td>
<td>4</td>
</tr>
<tr>
<td>16 or more times</td>
<td>5</td>
</tr>
</tbody>
</table>

3. What is the average time that you spend a week contacting family by the phone?

<table>
<thead>
<tr>
<th>Time</th>
<th>Recoded to</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 mins</td>
<td>1</td>
</tr>
<tr>
<td>1-5 mins</td>
<td>2</td>
</tr>
<tr>
<td>6-10 mins</td>
<td>3</td>
</tr>
<tr>
<td>11-15 mins</td>
<td>4</td>
</tr>
<tr>
<td>16 or more mins</td>
<td>5</td>
</tr>
</tbody>
</table>

4. On average, how many times a week do you have contact with any family members through text message?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Recoded to</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1-5 times</td>
<td>2</td>
</tr>
<tr>
<td>6-10 times</td>
<td>3</td>
</tr>
<tr>
<td>11-15 times</td>
<td>4</td>
</tr>
<tr>
<td>16 or more times</td>
<td>5</td>
</tr>
</tbody>
</table>

5. What is the average time that you spend a week contacting family by text message?

<table>
<thead>
<tr>
<th>Time</th>
<th>Recoded to</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 mins</td>
<td>1</td>
</tr>
<tr>
<td>1-5 mins</td>
<td>2</td>
</tr>
<tr>
<td>6-10 mins</td>
<td>3</td>
</tr>
<tr>
<td>11-15 mins</td>
<td>4</td>
</tr>
<tr>
<td>16 or more mins</td>
<td>5</td>
</tr>
</tbody>
</table>
6. On average, how many times a week do you have contact with any family members through social networking pages (e.g., Facebook, MySpace, Twitter)?

<table>
<thead>
<tr>
<th></th>
<th>Recoded to</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1-5 times</td>
<td>2</td>
</tr>
<tr>
<td>6-10 times</td>
<td>3</td>
</tr>
<tr>
<td>11-15 times</td>
<td>4</td>
</tr>
<tr>
<td>16 or more times</td>
<td>5</td>
</tr>
</tbody>
</table>

7. What is the average time that you spend a week contacting family through social networking pages?

<table>
<thead>
<tr>
<th></th>
<th>Recoded to</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 mins</td>
<td>1</td>
</tr>
<tr>
<td>1-5 mins</td>
<td>2</td>
</tr>
<tr>
<td>6-10 mins</td>
<td>3</td>
</tr>
<tr>
<td>11-15 mins</td>
<td>4</td>
</tr>
<tr>
<td>16 or more mins</td>
<td>5</td>
</tr>
</tbody>
</table>

8. On average, how many times a week do you have contact with any family members through video conferencing (e.g., Skype, webcam)?

<table>
<thead>
<tr>
<th></th>
<th>Recoded to</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1-5 times</td>
<td>2</td>
</tr>
<tr>
<td>6-10 times</td>
<td>3</td>
</tr>
<tr>
<td>11-15 times</td>
<td>4</td>
</tr>
<tr>
<td>16 or more times</td>
<td>5</td>
</tr>
</tbody>
</table>

9. What is the average time that you spend a week contacting family through video conferencing?

<table>
<thead>
<tr>
<th></th>
<th>Recoded to</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 mins</td>
<td>1</td>
</tr>
<tr>
<td>1-5 mins</td>
<td>2</td>
</tr>
<tr>
<td>6-10 mins</td>
<td>3</td>
</tr>
<tr>
<td>11-15 mins</td>
<td>4</td>
</tr>
<tr>
<td>16 or more mins</td>
<td>5</td>
</tr>
</tbody>
</table>

10. Since residing on the mainland, on average how many times have you had face-to-face contacts with family who live on the mainland?

<table>
<thead>
<tr>
<th></th>
<th>Recoded to</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 times</td>
<td>1</td>
</tr>
<tr>
<td>1-5 times</td>
<td>2</td>
</tr>
<tr>
<td>6-10 times</td>
<td>3</td>
</tr>
<tr>
<td>11-15 times</td>
<td>4</td>
</tr>
<tr>
<td>16 or more times</td>
<td>5</td>
</tr>
<tr>
<td>I don’t have anyone who lives on the mainland</td>
<td>0</td>
</tr>
</tbody>
</table>
11. Since residing on the mainland, on average how many times have you had face-to-face contacts with family when they visit on the mainland?

<table>
<thead>
<tr>
<th>0</th>
<th>1-5 times</th>
<th>6-10 times</th>
<th>11-15 times</th>
<th>16 or more times</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Recoded to 1</td>
<td>Recoded to 2</td>
<td>Recoded to 3</td>
<td>Recoded to 4</td>
</tr>
</tbody>
</table>
APPENDIX D

Probability of Staying in the Mainland (BD)

Rate the probability of you staying in the mainland after completing your degree.

0 = definitely returning home
100 = definitely staying in the mainland

☐ 0-100 (%)