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## **Factors Contributing to College Retention in the Native Hawaiian Population**

### **Abstract**

Only a few rare educational studies have focused on the indigenous population of Hawaii; making Native Hawaiians one of the most understudied populations in the educational literature. Usually when Hawaiians are included in a study they are bundled under the heading of “Asian Americans”. This study uses data from a unique project that focuses on alumni and a set of students who received a special financial aid from a private school dedicated to the education of Native Hawaiians. The study proceeds to identify the factors leading to the acquisition of a bachelor’s degree of Native Hawaiians from the high school graduating classes of 1993, 1994, and 1995. Major findings include: financial aid is an important contributor to college completion; students attending college on the mainland tend to complete their degree in higher proportion than those who remain in Hawaii; and students who begin their postsecondary experiences at a community college are much less likely to attain a bachelor’s degree.

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## **Introduction**

Recently adding “Hawaiian/Part-Hawaiian” as a choice for the question of ethnicity, the U.S. Census recently learned that there are over 400,000 Native Hawaiians living in the United States (Census, 2002). Although the Census has acknowledged Native Hawaiians as a separate ethnic group, they remain among the least studied and most misunderstood of all groups (Makuakane-Drechsel & Hagedorn, 2000). It is therefore not surprising that the national proportion of Native Hawaiians that persist to college graduation is a mystery statistic not currently posted anywhere. The only university system that maintains records and statistics specifically for Native Hawaiians is the University of Hawaii system. The university reports that 13.8 percent of the students in the system are Native Hawaiian. Unfortunately, the statistics from the University’s tracking system reveals less than positive news with respect to student degree acquisition. Specifically, six years after matriculation, the University of Hawaii system reported that while 73 percent of Chinese students and 64.2 percent of the Japanese students had graduated, only 41.3 percent of the Native Hawaiian students had similarly earned a college degree (Hawaii, 1997).

The current study provides results of analyses of a database of Native Hawaiians who graduated from a large, private high school between 1993 and 1995 and who reported attending college. Some participants completed a bachelor’s degree while others did not. The purpose of these analyses is to identify the factors leading to the acquisition of a bachelor’s degree.

## **Review of the Literature**

### Native Hawaiians and other Indigenous Groups

Native Hawaiians are the indigenous people of Hawaii and thus can be compared to the Native American and Alaskan Native populations. Although there are many differences in the

groups of indigenous peoples, they share similar struggles to maintain their respective cultures. For that reason, the literature pertaining to Native Americans and other indigenous peoples is instructive to understand the retention issues of Native Hawaiians.

Generally, indigenous people are less likely to attend college than other ethnic groups partly due to low levels of preparation (Pavel, 1999). For those indigenous students who do attend college, graduation and retention rates are consistently lower than the general student population. There is reason to believe that low retention rates of indigenous peoples may be due in part to specific reasons that may be culturally related. A recent survey conducted at Northern Arizona University, reported that Native American students cited cultural, financial, and poor academic preparation as the primary reasons for leaving school (Minner & et al., 1995). Students also identified a strong desire to live close to family, obligations to participate in religious activities, and cultural pressures.

Addressing the need for more Native Americans in the fields of psychology and rehabilitation, Thomason and Thurber (1999) developed strategies and programs to increase Native American retention including adjusting admission standards, beginning recruitment efforts earlier and providing more financial resources to aid in the cost of tuition. Additional ways to increase recruitment of Native Hawaiians and Pacific Islanders is to incorporate 1) culturally friendly provisions, 2) assistance to those students with lower levels of English language proficiency, 3) techniques to enhance specific learning styles, and 4) quality academic advising (Ah Sam & Robinson, 1998).

Focusing on the cultural differences of native peoples, Tierney (1995) identified institutional practices that assist retention including maintaining high expectations and active learning. Because Native Alaskans and Native Hawaiians share similar experiences such as

being indigenous to their geography while remaining minority in number and underrepresented in the higher socioeconomic divisions, those interested in the advancement of Native Hawaiians can be instructed from research on the indigenous people of the North. Examining gendered cultural issues among Native Alaskans, Maria Elena Reyes (2000) examined the factors contributing to students' academic success. Looking along gender lines was instructive because more Alaska Native females than males attend and graduated from the University of Alaska. Factors contributing to academic success included determination, hard work, financial assistance, family support, and the availability of developmental classes on campus. Hindrances included poor academic preparation, financial difficulties, inadequate childcare, lack of affordable housing, and hesitancy speaking up in class. All students reported experiences with discrimination and/or bias against Alaska Natives.

As earlier stated, it is regrettable that studies of underrepresented minorities either do not include Native Hawaiians or do not delineate between Native Hawaiians and Asians. Native Hawaiians are generally grouped in the heterogeneous Asian-Pacific Islander swell (AAPI). In direct opposition to the "model minority myth" the latest U.S. Census data indicated that AAPI's had higher rates of poverty, were less likely to have health insurance, were more likely to face cultural and linguistic barriers to health and social services, and had a higher rate of infant mortality (White House Initiative, 2003). More research on Native Hawaiians is needed to understand the complexities and specific cultural needs of the Native Hawaiian population. While the education of Hawaiians may be of specific interest to the state of Hawaii, there is reason to believe that the implications will spread beyond the single state. Although Hawaiians tend to be more concentrated in Hawaii and the western states, they are represented in all 50

states. Further, findings from the study of Hawaiians may yield interesting findings that may also be applicable to other indigenous groups.

## **Methodology**

### Background.

In December 2001, Kamehameha Schools of Honolulu, Hawaii, contracted with a large, research university to conduct a comprehensive project entailing the achievement, success and other academic outcomes of students who were influenced by their schooling.

This study is part of the *Completion, Persistence, Transfer and Success of Kamehameha Students* Project (acronym: CP-TASKS). The project involves high school alumni from the classes of 1993, 1994, and 1995. The specific goals of CP-TASKS are to explore the relationships between college preparation programs, financial aid and subsequent success in college attendance, retention, degree acquisition and occupational success. The project began in early February 2002, with a series of focus groups of students, faculty and administrators in order to gain an awareness of the unique features of the environment of the school. Researchers wanted to hear voices from multiple perspectives. The resulting data were used to create and hone the final survey questionnaire. Printed letters were sent to each of the graduates and financial aid recipients asking them to respond to an on-line questionnaire. An additional website link was established on the Kamehameha Schools home page. Printed versions were sent to those persons requesting hard copies of the questionnaire. To enhance a high rate of response, follow-up was done through email messages, mailed letters and telephone calls. The overall response rate was a little over 30 percent.

Kamehameha Schools is a unique, private, educational institution that was founded in 1887 by Princess Bernice Pauahi Bishop, great-granddaughter of Kamehameha I, to educate

native Hawaiian children. It is a day-type boarding school where the majority of students commute from their homes on the island of Oahu. Students from the neighboring Hawaiian Islands (the Big Island, Kauai, Maui, Molokai, Lanai, and Niihau) generally attend Kamehameha as boarders. By the time they graduate from Kamehameha Schools, students are expected to meet the academic, physical and religious requirements designed to develop the mind, body and spirit (Kamehameha Schools, 2002). Although the students who attend Kamehameha are selected using high academic standards, the low cost, subsidized tuition fees allow for a diverse group of students. Survey respondents are representative of the Hawaiian population in terms of socio-economic status, gender, and home island.

#### Sample.

The sample for this analysis consists of 376 Kamehameha High School graduates from the graduating classes of 1993, 1994, and 1995 who voluntarily participated by providing responses to our survey and who attended college. While approximately two thirds of those who reported attending college ultimately completed a bachelor's degree, the remaining third have not yet completed the degree in the seven to ten years since high school graduation.

Prior to our analyses, we performed tests to ascertain the representativeness of the sample to the population of graduates. We found that the voluntary nature of the questionnaire produced a gender bias that left us with twice as many female than male participants. Further, while approximately 20 percent of Kamehameha students board, our sample was comprised of only 12 percent boarders. To correct for the sampling bias we created and applied an effective weighting algorithm to create a more balanced and representative dataset. Our weighting algorithm focused



on gender, year of graduation, and boarding status during the 7<sup>th</sup> to 12<sup>th</sup> grade<sup>1</sup>. We limited our analyses to only those students who attended college because our outcome of interest was college retention and completion. The sample is described in Table 1.

**Table 1. Sample Sizes by Year of Graduation, Gender, and Boarding Status**

	<b>Kamehameha Students N and % (Unweighted)</b>
<b>1993</b>	120 (31.9%)
<b>1994</b>	140 (37.2%)
<b>1995</b>	116 (30.9%)
<b>Male</b>	116 (30.9%)
<b>Female</b>	259 (69.1%)
<b>Non-Boarding (Commuter) Student</b>	329 (87.5%)
<b>Boarding Student</b>	47 (12.5%)

Measures.

Project data was collected via a questionnaire consisting of 54 multi-part items including sections on demographics, high school experiences, college questions, life satisfaction, and others. Questionnaire design was based on a number of previous inquiries, studies, and conceptual frameworks.

For the purposes of identifying factors affecting success in academic outcomes, college completion was used as the dependent variable indicating whether the respondents earned a bachelor’s degree or not. To determine the relationship with college completion, independent variables such as receipt of financial aid from Kamehameha School, high school GPA, parent’s education level, life satisfaction, family/job responsibility, Hawaiian blood quantum, and self-efficacy were employed to predict student college completion. College location (Mainland or Hawaii) was also selected as an independent variable to better understand the differences in

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<sup>1</sup> The weighting algorithm was specific to the year of boarding. In other words, we discriminated between those students who boarded during the seventh grade from those who boarded during the ninth grade. This design allowed a better representation by boarding participation.

college completion and retention among the students who attended mainland four-year colleges, four-year colleges in Hawaii, mainland community colleges, and community colleges in Hawaii.

Diener's Satisfaction with life scale (Diener, Emmons, Larsen, Griffin, 1985) was used to measure the participants' general life satisfaction. This scale was composed of five items such as "In most ways my life is close to ideal" or "I am satisfied with life", and is measured with a seven-part Likert-Type scale ranging from "strongly agree" to "strongly disagree". The alpha coefficient of five items to measure "Satisfaction with life" construct was .91 as seen in Table 2 and was consistent with the findings of other researchers (Diener, et al, 1985; Pavot, Diener, Colvin, & Sandvik, 1991; Pavot & Diener, 1993) which revealed high test-retest reliability and validity of the measures.

Hawaiian blood quantum variable was created to quantify the percentage of Native Hawaiian ethnicity for each respondent. It was calculated using the quantum variable - full, half, one-quarter, and none and combined percentage of paternal ancestry and maternal ancestry. The self-efficacy scale in the present study was derived from Factors Influencing Pursuit of Higher Education (FIPHE) Questionnaire (Harris, 1998; Harris, 2001; Harris & Halpin, 2002) which measured the respondents' self-beliefs regarding ability to successfully accomplish task performance in college. The alpha coefficient was .72 indicating reasonably high reliability in non-experimental research. Self-efficacy scale consisted of four items measured with a four-point Likert-Type scale ranging from "strongly agree" to "strongly disagree". The Family/job responsibility scale consisted of two items measured via a four-point Likert-Type scale ranging

from “Not a problem” to “Large problem”. The alpha coefficient of the two items was .50.<sup>2</sup>

Tables 4 and 5 provide information on the scales and other items used in the study.

**Table 2. Psychometric Properties of Scales**

<b>Variables and Composite items</b>	<b>Alpha Reliability</b>	<b>Mean (S.D.)</b>	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Life Satisfaction</b> (Independent Variable): - In most ways my life is close to my ideal. - The conditions of my life are excellent. - I am satisfied with life. - So far, I have gotten the more important things I want in life. - If I could live my life over, I would change almost nothing.	.91	4.977 (7.00)	1588	5.0	35.0
<b>Self-Efficacy</b> (Independent Variable): - I chose my college major because I was good at it - I chose my college major because I found the work challenging - I believed I would be successful at my college major - I considered myself a good college student	.72	2.9393 (2.21)	1588	5.0	16.0
<b>Family/Job Responsibility</b> (Independent Variable): - Job related responsibilities - Family responsibilities (e.g. child care, parent care)	.50	1.7261 (1.48)	1588	2.0	8.0

**Table 3. Single Item Measures**

<b>Single Item Variables</b>	<b>Variable Description</b>	<b>N</b>	<b>Mean (S.D.)</b>	<b>Minimum</b>	<b>Maximum</b>
<b>College Completion</b> (Dependent variable)	(dichotomous) indicating whether the respondent received Bachelor’s degree (1) or not (0)	1588	.66 (.474)	0 (No)	1 (Yes)
<b>Parent Education Level</b> (Independent Variable)	Composite score of mother’s and father’s education level	1495	6.90 (2.17)	2 (Middle School)	11 (Graduate degree)
<b>High School GPA</b> (Independent Variable)	Self reported high School grades	1586	6.17 (1.69)	2 (C-)	9 (A or A+)
<b>Financial Aid from Kamehameha</b> (Independent Variable)	Number of years received college financial aid from Kamehameha Schools	1588	2.38 (1.80)	0	5
<b>Hawaiian Blood Quantum</b> (Independent Variable)	Quantum Percentage of Native Hawaiian Blood	1408	.31 (.20)	0	1

<sup>2</sup> The alpha coefficient is highly related with number of items to be measured. Larger numbers of items yield a higher reliability coefficient. The alpha for the Family/job responsibility scale is somewhat low. However, in light of the fact that it consists only of two items, it was deemed appropriate for the analyses.

### Analysis.

The data analysis consisted of creating and testing scales for reliability, correlational analyses, logistic regression, and one-way analysis of variance (ANOVA). First, we computed the reliability coefficients, Cronbach's alphas, for the three scales -- Life Satisfaction, Family/Job Responsibility, and Self-Efficacy to check for the internal consistency. As mentioned earlier, the reliabilities of the scales were within the acceptable ranges.

Simple bidirectional relationships among the variables were explored using correlational analyses. As a next step of analyses, Logistic Regression was conducted to clearly understand factors predicting college completion and retention because Linear Regression was not appropriate based on the dichotomous nature of the dependant variable we employed. Included in the logistic regression is the Delta-p statistic which provides an estimate of the change in the probability of the dependent variable resulting from a unit change in the predictor (independent) variable (Cabrera, 1994; Petersen, 1985). The last statistical test was one-way analysis of variance (ANOVA) tests to investigate the differences in college completion and retention between those who went to mainland colleges and those who went to college in the state of Hawaii.

### Results.

Correlational analyses revealed a significant positive relationship between college completion and other independent variables such as financial aid from Kamehameha School, high school GPA, parent's education level, life satisfaction, and self-efficacy. Despite a positive coefficient, the relationship between college completion and Hawaiian blood quantum was not significant. On the other hand, family/job responsibility was negatively related with college completion. Thus students who reported high levels of problems related to family and job

responsibilities were also less likely to complete college. Without any assumptions of causality, the correlations revealed that higher levels of financial aid from Kamehameha School were positively related to higher self-efficacy and life satisfaction.

**Table 4. Correlation among Variables**

	<b>College Completion</b>	<b>Financial Aid from Kamehameha</b>	<b>Parent Education Level</b>	<b>High School GPA</b>	<b>Self Efficacy</b>	<b>Life Satisfaction</b>	<b>Hawaiian Blood Quantum</b>	<b>Family/Job Responsibility</b>
<b>College Completion</b>	1	** .440	** .155	** .437	** .277	** .313	.049	** -.181
<b>Financial Aid from Kamehameha</b>	** .440	1	.031	** .238	** .104	** .155	** .196	** -.085
<b>Parent Education Level</b>	** .155	.031	1	** .177	.000	** .138	** -.214	** -.106
<b>High School GPA</b>	** .437	** .238	** .177	1	** .322	** .346	** -.087	** -.132
<b>Self Efficacy</b>	** .277	** .104	.000	** .322	1	** .346	.029	** .087
<b>Life Satisfaction</b>	** .313	** .155	** .138	** .346	** .346	1	* -.052	** -.194
<b>Hawaiian Blood Quantum</b>	.049	** .196	** -.214	** -.087	.029	* -.052	1	* .063
<b>Family/Job Responsibility</b>	** -.181	** -.085	** -.106	** -.132	** .087	** -.194	* .063	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

The logistic regression model indicated a relatively high level of goodness of fit. While the Cox and Snell test revealed that approximately 28 percent of the variance of the dependent variable was explained, the Nagelkerke test provided a higher estimate of 40 percent. The model correctly predicted college completion in 81 percent of the sample. Financial aid from Kamehameha was the strongest positive predictor of college completion (See Table 5). According to the Delta-p statistic, a unit increase in financial aid from Kamehameha increases

the probability of bachelor's degree attainment by 9 %. High school GPA, parent education level, self-efficacy, and life satisfaction also had positive impacts on college completion. Students with higher academic achievements, as measured by GPA, and higher parent education levels, were more likely to successfully complete college. The model predicts that a unit increase in parent education level, in high school GPA, in self-efficacy, and in life satisfaction, increase the probability of college completion by 3.73 %, 7.58 %, 3.22 %, and 1 % respectively (See Table 5). Further, those students with strong beliefs in their ability to succeed in college and those who were overall more satisfied (life satisfaction), also tended to complete their bachelor's degrees. The family/job responsibility was negatively related with college completion. Students, who had problems in family/job responsibility while they were attending colleges, were less likely to finish their degrees than those who did not. The probability of college completion decreased by 5.26 % with a unit increase in family/job responsibility. Hawaiian blood quantum was not a significant predictor of college completion.

**Table 5. Logistic Regression Results**

Dependent Variable = YES			
Variable	Coefficient	Delta P	t-stat
Constant	-5.59		.000
Financial Aid from Kamehameha	** .462	.09 (9 %)	.000
Parent Education Level	** .171	.03726 (3.73 %)	.000
High School GPA	** .361	.07581 (7.58 %)	.000
Self-Efficacy	** .147	.03217 (3.22 %)	.000
Life Satisfaction	** .044	.00980(1 %)	.000
Hawaiian Blood Quantum	.308		.407
Family/Job Responsibility	** -.227	-.05262 (5.26 %)	.000
Model Chi-Square [df]	429.97 [7]		
% Correct Predictions	81 %		
Cox & Snell R Square	0.28		
Nagelkerke R Square	0.40		
Note: *Indicates that the coefficient is statistically significant at, at least, the .05 level. ** Indicates that the coefficient is statistically significant at, at least, the .01 level.			

Our last analyses consisted of checking for differences in college completion based on type and location of college. One-way analysis of variance tests (See Tables 6, 7, and 8) revealed that students who attended mainland four- year colleges were much more likely to complete their degrees than those who attended any of the other types of colleges. While 78 percent of the students who attended four-year colleges on the mainland have earned at least a bachelor’s degree, 70 percent of students who attended a four-year in Hawaii, 47% of those who attended a mainland community college and only 28% of those who attended a community college in Hawaii have similarly earned a degree. Clearly those beginning their postsecondary experiences in community colleges were less likely to complete than their counterparts at four-year institutions.

**Table 6. Summary of Means for *College Completion* among 4 groups**

<b>Group</b>	<b>N</b>	<b>Means</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Standard Deviation</b>
Went to Hawaii 4 Yrs College	545	.70	0	1	.459
Went to Mainland 4 Yrs College	746	.78	0	1	.414
Went to Hawaii Community College	185	.28	0	1	.449
Went to Mainland Community College	14	.47	0	1	.518
Total	1491	.70	0	1	.464

**Table 7. One-Way Analysis of Variance on *College Completion* by groups**

<b>Source of Variation</b>	<b>Df</b>	<b>MS</b>	<b>F-Ratio</b>	<b>probability</b>
<i>Group</i>	3	12.732	66.83	.00
Residual	1486	.191		
Total	1489	12.329		

**Table 8. Tukey Post-Hoc Test for One-Way Analysis of Variance  
On College Completion**

Mean of <i>College Completion</i>	Group	Hawaii 4 Yrs College	Hawaii Community College	Mainland 4 Yrs College	Mainland Community College
.70	Hawaii 4 Yrs College		*	*	
.28	Hawaii Community College	*		*	
.78	Mainland 4 Yrs College	*	*		*
.47	Mainland Community College			*	

### Conclusions and Implications

Results of causal analyses that controlled for important variables clearly revealed that the financial aid provided by the Kamehameha Schools significantly increases the likelihood that students will complete college. This result clearly overshadowed other important variables such as high school grades and family responsibilities. However, despite the strong dominance of the effect of financial aid, one should not discount other predictors. The model clearly demonstrated that having significant family or job responsibilities detracts from college completion. While financial aid may help alleviate the burdens, it cannot erase them.

Similar to virtually all studies of college completion, we found that students with high grades tend to finish college. While this connection was expected, it should not be overlooked or discarded as unimportant. College success is strongly related to academic ability. Those students who do not take education seriously while young, will have a more difficult time being academically successful later in life. Thus Kamehameha High School must continue to assist



students to be academically successful throughout their schooling years if college completion is to result.

While discussing those variables that statistically predicted the outcome, it is important not to discount the results of those variables that were found not to be important predictors. The fact that blood quantum levels were not a statistically significant predictor of college completion indicates that attending Kamehameha Schools does not disproportionately assist those students with higher levels of Hawaiian blood. Rather, blood quantum appears to be unimportant for academic outcomes.

These analyses of the graduating classes of 1993, 1994, and 1995 took place a minimum of seven years after high school graduation. At this time 58.5 percent have earned at least a bachelor's degree. This percentage is higher than national norms and may increase with time as it is highly likely that some students will earn degrees in the future. Despite the relatively high levels of degree acquisition, it is clear that students who attended four-year colleges on the mainland were much more likely to complete. While the initial policy conclusion might be that students should be sent to the mainland to college, there are other variables to consider. For example, students who go to the mainland are generally those with stronger academic records. A check of our data revealed that students who went to four-year colleges on the mainland had the highest GPA's of all other groups tested. Thus, attending a mainland four-year college is a proxy for higher academic success and increased opportunity to attend a larger group of colleges. Further, another difference between those who go to the mainland and those who stay in Hawaii may be related to family responsibilities. Again, we found that those students who attended four-year colleges on the mainland reported the lowest levels of family responsibility of all other groups.

Attending a community college appears to be highly detrimental to bachelor degree acquisition. However, caution must be exercised not to rush to conclusions. Students often go to community colleges for reasons that will make it more difficult for them to complete their degrees. For example, students with lower academic grades will enter community colleges because they cannot gain admission to more prestigious colleges. Or, students who must work to support family will find it impossible to enter a four-year college but will be able to schedule community college classes around a working schedule. In short, the students who attend community colleges are not the same as those who attend four-year schools. While it is clear that those students who attended the community colleges were less likely to finish college, it is not clear if the mere act of attending a community college was the true reason for lowered success or if two-year colleges are proxies for these and other factors that make college completion less likely. In short, while the relationship between lowered degree acquisition and community college attendance should not be denied, the nature of the causation is blurred.

Collecting all of the findings, we posit that the overall success of Kamehameha students is due in large part to the college financial aid provided. Further, it is this aid that allows and encourages many of the students to attend diverse colleges, including those on the mainland. If Kamehameha intends to continue to influence and encourage success of Native Hawaiians, then the financial aid program should continue. While success rates of those who attend community colleges were not as high as those who attend four-year institutions, it is hoped that Kamehameha will not discontinue aid to those students attending two-year colleges. As indicated earlier, community college students have many obstacles to overcome if college completion is to occur. These students may be those who most need financial aid for postsecondary attendance. Further, it is imperative to state that while our dependent variable was

college completion, many students will benefit from college attendance regardless if they complete the degree process. Thus, those students who did not graduate must not be seen as “failures”. It is relatively easy to study measurable outcomes like college completion, but it is much harder, if not impossible, to study more nebulous outcomes such as benefit. In other words, this study cannot measure the benefits of financial aid, only its impact on college completion. Those students who partook of financial aid and did not complete their degrees may have accrued benefits that were not measured by the questionnaires.

In conclusion, this study of Kamehameha graduates found that the students continued to derive benefit from the financial aid provided by the school after graduation. During one of the initial focus groups, one of the students included in this study reported the effects of Kamehameha’s financial aid as follows:

If not for the aid, I probably wouldn’t have gone to college. I probably would’ve just maybe joined the military or something else. I don’t know. I wouldn’t have gone if I didn’t have the help.

We posit that this response represents many Kamehameha students.

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