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The *Pacific Educational Research Journal* is published every two years and features theoretical, empirical, and applied research with implications for and relevance to education in the Pacific area.

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Artist Byron Inouye created the journal logo. He combined Asian and Pacific themes using a design element to create a lotus blossom. The waving pages beneath the blossom symbolize academic scholarship and also call forth the Pacific Ocean. The opening lotus is symbolic of new knowledge and insights resulting from research.

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Editors' Notes

This issue of the Pacific Educational Research Journal (PERJ) comes at a time of unprecedented public focus on research in education. Accompanying this new valuing of education research are concomitantly high expectations for its rigor: to wit, the No Child Left Behind act of 2001, the Campbell Collaboration, the Carnegie Foundation for the Advancement of Teaching and its study of training in education research, and recent interest by the Department of Education in improving the rigor of training in education research.

One side effect of this emphasis on the rigor of education research has been a recrudescence of the method wars between qualitative and quantitative approaches to research. Claims for the superiority of experimental approaches to research have been challenged by statements from, among others, the American Evaluation Association. Sessions on the nature of causal attributions have been held at national conferences, and debates have been conducted.

Although PERJ welcomes this newfound relevance of education research to education policy, we do not welcome the prospect of another internecine struggle about method. PERJ approaches this argument from the perspective, to use an axiom from art, that form follows function. That is, we take the perspective that, in education research, the method employed follows from the question addressed. In our view, different research questions may require different methods. The articles published in PERJ must pose meaningful questions and defend the choice of methodology for best answering these. Although this editorial approach should result in methodological diversity in the pages of PERJ, it will not slacken the rigor with which these methods are scrutinized.

In this issue of the journal, PERJ brings to the reader a range of topics, methods, and populations. Given the journal's purpose and the swath of cultures in the Pacific region, we think this representation fitting and hope you find it useful.

Aloha pumehana mai kākou (Warm aloha among all of us),

Kathleen F. Berg
Charles Giuli
Editors

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A Causal Model to Explain Gender Differences in Mathematics in Hawai'i's Elementary Schools

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Girls consistently outperform boys in mathematics in Hawai'i. Starting from the premise that literacy is a prerequisite for mathematics learning, a causal model was proposed to account for gender differences in mathematics on multiple choice (MC) and constructed response (CR) items in conjunction with the effects of reading and writing. Two separate path analyses were conducted using the statewide 2002 Hawai'i State Assessment (HSA) data of the grade three and grade five cohorts. With their verbal advantage taken into consideration, girls are found to be disfavored on both MC and CR items, with MC items proving to be more challenging than CR items. These results call attention to gender appropriate pedagogical approaches to optimize mathematics learning for boys and girls in Hawai'i.

Research evidence has consistently shown that female students in Hawai'i outperform males in mathematics. Brandon, Newton, and Hammond (1987), who examined data from the 1982 and 1983 mathematics Stanford Achievement Test (SAT) administered to Hawai'i public school students in grades four, six, eight, and ten, found that overall, females consistently outperformed males across these grade levels. Brandon and Jordan (1994) examined the 1991 SAT mathematics results for tenth graders in Hawai'i and confirmed that girls performed better than boys.

Brandon and Jordan (1994) also analyzed the results for grade eight on the mathematics section of the 1990 National Assessment of Educational Progress (NAEP) and found that "of the 40 participating jurisdictions, Hawai'i was the only one in which girls' total-test mean scores were significantly higher than boys'" (p. 18). The results of the 2000 administration of the NAEP for grades four and eight also show that in Hawai'i, "unlike national results," females scored higher than males in mathematics (Hawai'i State Department of Education, 2001), with the same pattern reported for the 2003 administration (Hawai'i State Department of Education, 2003).

What these studies fail to elucidate, however, is why girls in Hawai'i consistently outperform boys in mathematics. Nor do the published studies make clear to what extent the gender-related difference in mathematics is attributable to gender-related differences in reading and writing. An extensive literature search failed to reveal any Hawai'i-based study that investigated the unique females' advantage over males in mathematics in conjunction with linguistic factors. To the best of the authors' knowledge, this paper represents the first research attempt on the topic and presents potential pedagogical implications or policy adjustment necessary to optimize mathematics education for boys and girls.

Literature Review

The female advantage in mathematics in Hawai'i lies in sharp contrast to the findings in the continental U.S. Ten large-scale mainland-based U.S. studies involving at least 1,000 students each were identified and reviewed. For overall mathematics performance, Cole (1997), Nowell and Hedges (1998), Wilson and Zhang (1998), and the Office of Educational Accountability (2002) all found that males outperformed females. For constructed-response (CR) items, however, the findings are inconclusive. A majority of studies found that females perform better than males (DeMars, 1998, 2000; Garner & Engelhard, 1999; Myerberg, 1996; Zhang & Manon, 2000). For selected-response (MC) items, the consistent finding is that males perform better than females (DeMars, 1997,

1998, 2000; Garner & Engelhard, 1999; Myerberg, 1996; Wilson & Zhang, 1998; Zhang & Manon, 2000).

To gain a better understanding of how gender differences may vary from one item format to another, a meta-analysis was undertaken (see Table 1)

Table 1. Sources of Effect Sizes

Study ID	Effect Size No.	Publication	Year Studied	Grade
1	1	(DeMars, 1998)	1996	11
1	2	(DeMars, 1998)	1996	11
2	3	(Zhang & Manon, 2000)	1998	3
2	4	(Zhang & Manon, 2000)	1998	5
2	5	(Zhang & Manon, 2000)	1998	8
2	6	(Zhang & Manon, 2000)	1998	10
2	7	(Zhang & Manon, 2000)	1999	3
2	8	(Zhang & Manon, 2000)	1999	5
2	9	(Zhang & Manon, 2000)	1999	8
2	10	(Zhang & Manon, 2000)	1999	10
3	11	(Wilson & Zhang, 1998)	1995	3
3	12	(Wilson & Zhang, 1998)	1995	5
3	13	(Wilson & Zhang, 1998)	1995	8
3	14	(Wilson & Zhang, 1998)	1995	10
4	15	(Garner & Engelhard, 1999)	1994	11

encompassing 15 independent MC and 14 independent CR gender difference effect sizes collected from four studies that were published between 1998 and 2000, and that reported boys' and girls' scores separately on MC and CR items. Despite the fact that both MC and CR items are widely adopted in large-scale mathematics assessment nowadays, the rather limited number of published studies on how the two formats may differentially affect males and females points to a clear need for further research in the area. No format-related effect sizes are available from any of the Hawai'i based published studies.

Table 2, which summarizes effect sizes on MC items, shows a consistent, though small, gender difference in favor of males. Hedges' g, an effect size indicator for the standardized differences between means, was obtained by dividing the mean difference between the female and male means by the pooled standard deviation (Hedges & Olkin, 1985; Rosenthal, 1991). The test of heterogeneity of the effect sizes is non-significant ($\chi^2(14) = 22.64$, $p > 0.05$). The average size of the effect is g = -0.06, indicating that the score of the average

male on MC mathematics tests surpasses that of 52.39% of females.

For the CR format, the results are inconsistent but favor females in 60% of the individual effect sizes examined (see Table 3). The test of heterogeneity for

Table 2 .
Descriptive Statistics and Effect Sizes for the Multiple-Choice Format

Study ID	Effect Size No.	Males			Females			
		N	M	SD	N	M	SD	g
1	1	572	.606	.196	603	.602	.183	-.02
1	2	652	.607	.211	694	.587	.197	-.10
2	3	3626	32.13	8.96	3463	32.04	8.77	-.01
2	4	3739	32.41	10.09	3777	32.18	9.67	-.02
2	5	3954	25.91	9.94	3681	25.41	9.52	-.05
2	6	3275	22.39	9.5	3276	22.08	8.55	-.03
2	7	3861	34.1	8.78	3674	33.45	8.7	-.07
2	8	4038	32.02	9.79	3790	31.55	9.35	-.05
2	9	3844	26.16	9.71	3719	25.42	9.1	-.08
2	10	3528	22.4	9.42	3407	21.47	8.15	-.11
3	11	4059	19.55	9.17	3854	19.21	5.84	-.06
3	12	3945	20.97	9.79	3789	20.83	6.48	-.02
3	13	3877	22.27	7.52	3807	21.62	6.99	-.09
3	14	3075	17.33	7.29	3129	16.99	6.38	-.05
4	15	1862	43.66	10.4	2090	42.51	10.29	-.11

the CR effect sizes is significant ($\chi^2(13) = 211.01, p < 0.05$). Even though the mean effect size ($g = + 0.01$) is in favor of females, this should be interpreted with caution because the effect sizes are heterogeneous. It is obvious from Tables 2 and 3 that gender-differences in mathematics vary across formats.

That females are advantaged on CR items might be explainable by females' superior performance on tests of language ability. There is a general consensus that females perform better than males on tests of verbal ability (Cole, 1997; Halpern, 2000, 2004; Hyde & Linn, 1988; Maccoby & Jacklin, 1974; Nowell & Hedges, 1998). Coley (2001), for example, reported that the results of the 1992, 1994, and 1998 NAEP for grades 4, 8, and 12 showed that females outperformed males in reading and writing for all racial/ethnic groups. Writing or verbal ability has been suggested as a possible reason for the better performance of females as compared to males on constructed-response

Table 3.
Descriptive Statistics and Effect Sizes for the Constructed-Response Format

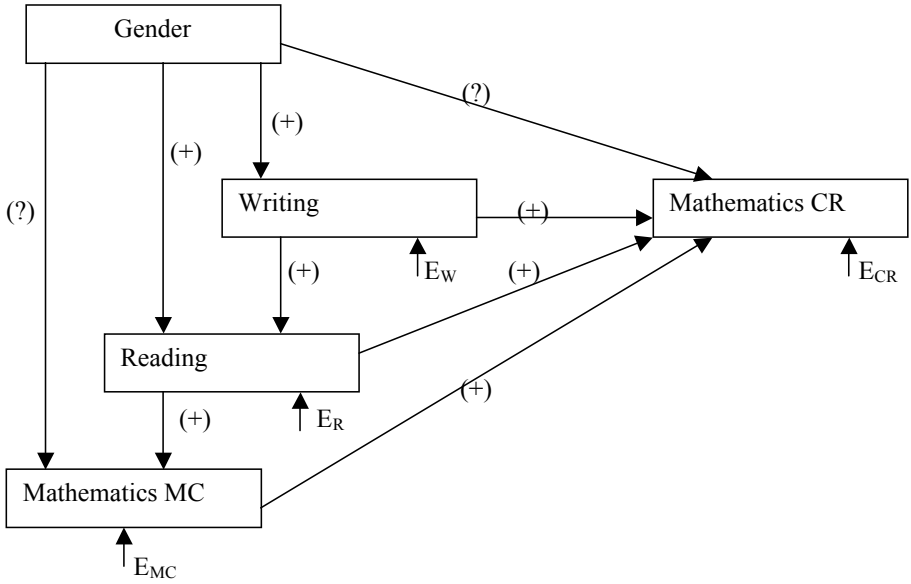
Study ID	Effect Size No.	Males			Females			
		N	M	SD	N	M	SD	g
1	1	572	.316	.27	603	.318	.271	.01
1	2	652	.326	.235	694	.343	.213	.08
2	3	4100	7.04	2.67	3871	7.29	2.52	.10
2	4	3948	3.9	2.48	3971	4.13	2.47	.09
2	5	4262	2.93	2.85	3973	2.91	2.88	-.01
2	6	3570	1.57	2.41	3570	1.56	2.34	.00
2	7	4182	6.59	2.88	3915	6.48	2.8	-.04
2	8	4258	2.86	2.81	3985	3.37	2.93	.18
2	9	4148	3.75	3.11	4079	3.8	2.98	.02
2	10	3790	3.11	2.55	36.79	3.28	2.33	.07
3	11	4035	16.15	6.31	3871	16.24	6.16	.01
3	12	3889	10.46	6.82	3824	10.07	6.52	-.06
3	13	3974	13.85	7.71	3910	12.57	7.38	-.17
3	14	3095	11.81	6.98	3211	10.88	6.40	-.14

mathematics items (Willingham & Cole, 1997).

Studies focusing on the impact of verbal skills on mathematics performance of students whose native language is not English have been conducted by a number of researchers (Abedi, 2000; Abedi, Lord, & Plummer, 1995; De Avila, 1988; Kiplinger, Haug, & Abedi, 2000). The results of these studies strongly suggest that language ability influences mathematics scores. One such study was conducted in Hawai'i by Gronna, Chin-Chance, and Abedi (2000), who concluded that "English language proficiency affects students assessment scores on standardized norm referenced tests in the content areas of reading and Mathematics [sic]" (p. 9). However, their study provides no information on how language proficiency may affect performances on MC and CR items respectively. Therefore, a study to examine the mathematics section of the Hawai'i State Assessment (HSA) program, with a particular focus on establishing a causal model that accounts for performances on MC and CR items by considering the effects of gender and language ability, would seem both relevant and necessary.

This study, based upon the 2002 HSA data for third and fifth graders, attempts to confirm a causal model that would explain how gender, verbal skills,

Figure 1. Causal Model Depicting Nature of Each Path



and mathematics performance on MC and CR items are causally connected. Such a study might eventually assist the state of Hawai'i in developing gender-appropriate intervention to adjust current mathematics education and meet the requirements of the No Child Left Behind Act (NCLB).

A Causal Model

The model (see Figure 1) includes one exogenous variable, gender, and four endogenous variables, writing score, reading score, mathematics MC score, and mathematics CR score. (In the HSA data set, gender is coded 1 = female, 0 = male.) Of the four endogenous variables, three also serve as mediating variables, writing score, reading score, and mathematics MC score, which pass various indirect gender effects on to the ultimate endogenous variable, CR score.

The continental U.S. studies reviewed show males to have an advantage over females on tests of mathematics, whereas the Hawai'i data show females to have an advantage over males. Figure 1 depicts a causal model that takes into account the hypothesized better performance of males on tests of mathematics ability as compared to females, as well as the hypothesized better performance of females on tests of verbal ability as compared to males.

The paths from gender to MC and CR in Figure 1 can be predicted to be

either positive or negative. Given the recurring female advantage in mathematics in Hawai'i over the last two decades, a positive direct effect from gender to CR or MC is conceivable. However, given the consistent male advantage in the continental U.S. when overall mathematics and the MC format are considered, a negative direct effect from gender to MC is also plausible. Based on the review of the literature and theoretical understanding, it is difficult to predict the direction of the path from gender to CR. Only 8 out of the 14 effect sizes examined above pointed to a female advantage on CR items.

The paths from gender to reading and writing are predicted to be positive because females have been shown nearly always to perform better on tests of verbal ability. Reading is shown in Figure 1 to have a positive effect on MC and CR for females. Similarly, writing should have a positive effect on CR and reading. Writing influences the reading variable because the HSA reading test incorporates CR items, which necessitate a written response.

In addition to the direct effects of gender on MC and CR, this model explains mathematics performance by considering the various paths that involve mediating variables. For example, the indirect effect of gender on MC is made up of the path that leads from gender via writing via reading to MC, and the path that leads from gender via reading to MC. The overall gender effect is a synthesis of both direct and indirect effects, illustrating how males and females may follow quite different direct and indirect paths to arrive at their respective performance levels.

Methods

Instruments

The HSA, designed specifically according to the revised Hawai'i Content and Performance Standards (HCPS II) (Hawai'i State Department of Education, 2005), assessed mathematics, reading, and writing in 2002. The reading and mathematics sections for all grades tested included MC and CR items. For mathematics, two types of CR items, short- and extended-response, were combined to make up a CR score. The writing section required students to produce an essay. (For sample items see Hawai'i Department of Education, 2004).

Sample

The data set used in this study included 6,352 girls and 6,354 boys in the third grade, and 6,331 girls and 6,717 boys in the fifth grade. Students who

received alternate tests or special accommodations were excluded from the analysis. Also excluded were students for whom one or more scores on the analysis. Also exlcuded were students for whom one or more scores on the reading, writing, or mathematics tests were missing, or whose gender had not been identified.

Table 4.
Descriptive Statistics for Reading, Writing, Mathematics MC and CR

Grade	Sex	N	Reading		Writing		Math MC		Math CR	
			Mean	STD	Mean	STD	Mean	STD	Mean	STD
3	F	6,352	38.20	10.92	23.46	6.87	26.66	6.93	12.65	6.87
	M	6,354	35.60	11.98	20.65	6.78	26.35	7.41	12.41	7.06
5	F	6,331	36.55	10.53	25.98	6.25	26.57	7.02	14.45	6.96
	M	6,717	32.74	10.81	22.53	6.40	26.33	7.26	13.58	7.21

Variables

For each grade, the standards-based reading, writing, MC mathematics, and CR mathematics scores were calculated. Descriptive statistics for the variables are given in Table 4. Cronbach's alpha, given in Table 5, ranges from 0.83 to 0.96, which shows that the items are highly inter-related and that the tests have satisfactory internal consistency.

Table 5. Cronbach's Alpha for Raw Score Variables

	Math Total	MC	CR	Reading	Writing
Grade 3	0.92	0.88	0.84	0.91	0.96
Grade 5	0.91	0.87	0.83	0.89	0.93

Analyses

For each grade, a separate path analysis was performed to investigate the proposed model. Because gender is coded dichotomously, only unstandardized path coefficients are reported. Analyses were based on the variance-covariance matrices derived from the raw scores for all variables (See Tables 6 and 7). The path analysis was conducted using the SAS System's CALIS procedure.

Table 6. Grade Three Variance-Covariance Matrix

	CR	MC	Writing	Gender	Reading
CR	48.61	40.22	24.43	0.06	59.50
MC	40.22	51.54	25.51	0.08	63.27
Writng	24.43	25.51	48.56	0.70	47.52
Gender	0.06	0.08	0.70	0.25	0.65
Reading	59.50	63.27	47.52	0.65	133.06

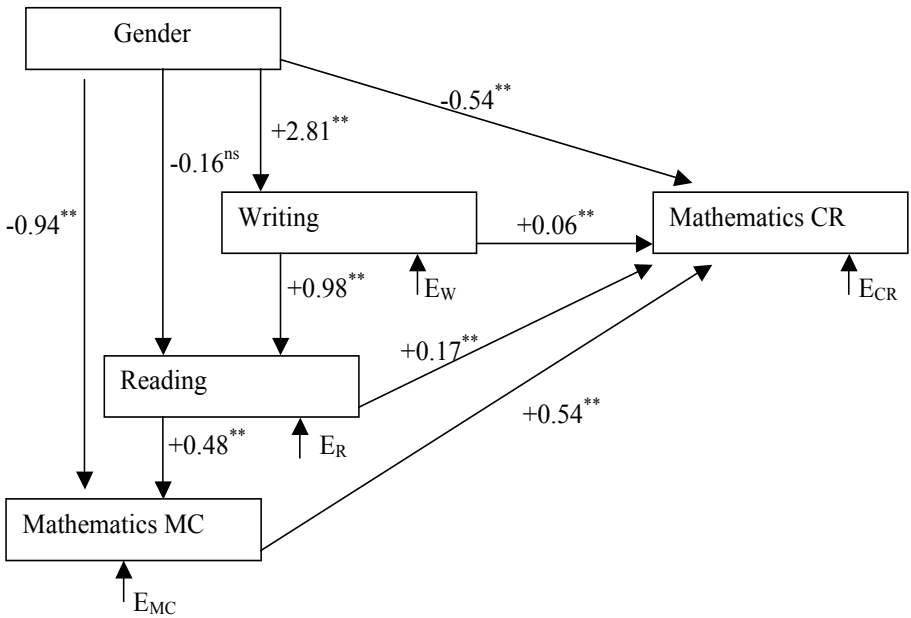
Table 7.
Grade Five Variance-Covariance Matrix

	CR	MC	Writing	Gender	Reading
CR	50.42	40.77	23.34	0.22	56.09
MC	40.77	52.65	22.28	0.06	57.70
Writng	23.34	22.28	42.98	0.86	41.28
Gender	0.22	0.06	0.86	0.25	0.95
Reading	56.09	57.70	41.28	0.95	117.58

Results

The results of the path analyses are reported in Figures 2 and 3 for the third and fifth grades, respectively. One interesting finding, consistent in both grades, is that the direct paths from gender to both mathematics-MC and mathematics-CR are in favor of males despite the well-documented findings in Hawai'i that

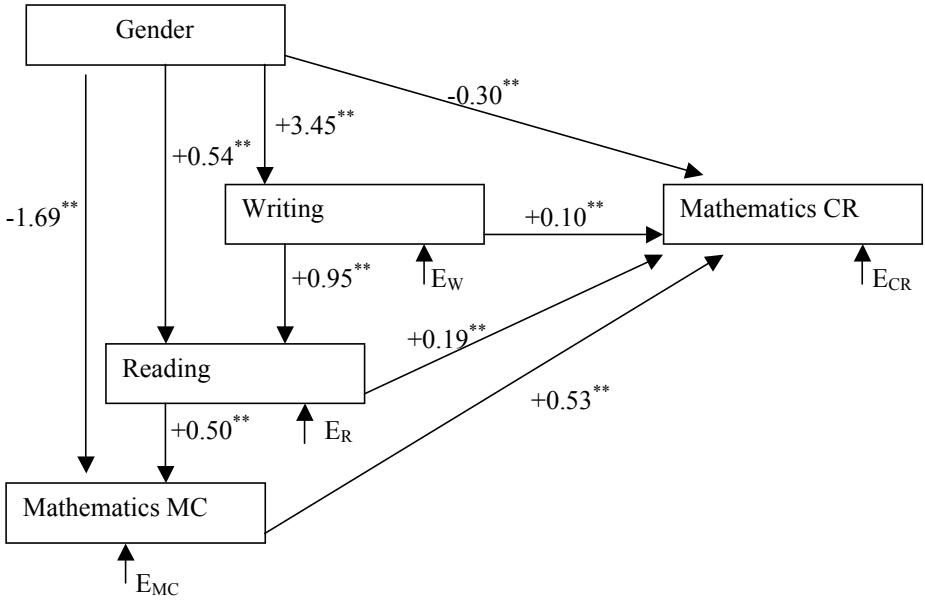
Figure 2. Unstandardized Path Coefficients for Grade Three



** $p < 0.01$

E_W Error Variance in Writing (95.94%)
E_R Error Variance in Reading (65.05%)
E_{MC} Error Variance in Mathematics MC (41.20%)
E_{CR} Error Variance in Mathematics CR (31.46%)

Figure 3. Unstandardized Path Coefficients for Grade Five



** $p < 0.01$

E_W Error Variance in Writing (93.08%)
E_R Error Variance in Reading (66.22%)
E_{MC} Error Variance in Mathematics MC (44.91%)
E_{CR} Error Variance in Mathematics CR (32.33%)

girls outperform boys in overall mathematics performance (Brandon et al., 1987; Brandon & Jordan, 1994; Hawai'i State Department of Education, 2001, 2003). This suggests that it is too simplistic to examine mathematics scores without taking into consideration the effect of language factors.

The goodness of fit of the model was determined through the chi-square test and other commonly employed goodness of fit indices (see Table 8). The

Table 8. Goodness of Fit Indices for Grades Three and Five

Grade	Fit Function	GFI	AGFI	CFI	NNI	NFI
3	0.02	0.99	0.90	0.99	0.93	0.99
5	0.01	0.99	0.92	0.99	0.95	0.99

GFI = Goodness of Fit Index
AGFI = Goodness of Fit Index adjusted for degrees of freedom
CFI = Comparative Fit Index
NNI = Non-normed Index
NFI = Normed Fit Index

chi-square test with one degree of freedom is statistically significant, $\chi(1)^2 = 221.82$ at grade three and $\chi(1)^2 = 172.01$ at grade five, $p < 0.01$. Because of the very large sample size, it was expected that the outcome of the chi-square test would be significant. The other goodness of fit indices afford support of the model's fit at both grade levels. The GFI, AGFI, CFI, NNI, and NFI amount to at least 0.9, providing support for the model's fit at both grade levels.

The nine path coefficients in the model for grades three and five are shown in Figures 2 and 3, respectively. A positive path coefficient indicates that the path favors females, while a negative path coefficient specifies an advantage for males. All path coefficients presented are statistically significant $(p < 0.01)$ except for the path coefficient from gender to reading, which is non-significant $(p > 0.05)$ at grade three.

The direct effects show that the path leading from gender to CR is negative, and the path leading from gender to MC is also negative. Examining the path coefficient from gender to CR, one observes that for females, the CR score decreases , -0.54 points for grade three and -0.30 points for grade five, when all other independent variables are held constant. The direct effect from gender to MC is negative, meaning that there is a decrease for females on MC, -0.94 points for grade three and -1.69 points for grade five, when holding all other effects constant. This indicates that when the effect of reading and writing are partialled out, third and fifth grade females are disadvantaged in mathematics for both the MC and CR formats. This finding presents a very different pattern of gender differences than one would conclude by examining only the mathematics scores to the exclusion of verbal abilities.

Gender has a significant direct effect on writing. An average female's writing score is estimated to be 2.81 points higher in grade three, and 3.45 points higher in grade five. However, this is not a reliable prediction because 95.94% of the variability in writing cannot be attributed to gender.

Reading was also hypothesized to be directly influenced by gender. The results of the path analysis provide partial support for this hypothesis. The path from gender to reading is non-significant for grade three, but for grade five the results show that females are advantaged by 0.54 points when all other variables are held constant.

The various paths that involve mediating variables can be combined to show the indirect effects given in Tables 9 and 10 for grades three and five, respectively. For example, the indirect effect of gender on MC is made up of the path that leads from gender via writing via reading to MC, and the path that leads from gender via reading to MC. For grade three, the path coefficient from gender to writing is 2.81, from writing to reading is 0.98, and from reading to

Table 9. Indirect Effects for Grade Three

	Gender	MC	Writing	Reading
CR	0.77	0.00	0.42	0.26
MC	1.25	0.00	0.47	0.00
Writing	0.00	0.00	0.00	0.00
Reading	2.75	0.00	0.00	0.00

Table 10. Indirect Effects for Grade Five

	Gender	MC	Writing	Reading
CR	1.17	0.00	0.43	0.27
MC	1.93	0.00	0.48	0.00
Writing	0.00	0.00	0.00	0.00
Reading	3.28	0.00	0.00	0.00

MC is 0.48. Multiplying these path coefficients results in 1.32, representing the indirect effect of this path. The path that leads from gender to reading is -0.16, and the path from reading to MC is 0.48, which, when multiplied, amounts to -0.08. By adding the indirect effects from gender on MC, one obtains the combined indirect effects 1.32 + (-0.08) = 1.24 (the difference from the exact number 1.25 shown in Table 9 is due to rounding to two decimal places). The other indirect effects given in Tables 9 and 10 are derived in the same manner.

It is interesting to note that all the significant indirect effects, which involve language abilities (reading and writing), are positive indicating an advantage for females, whereas both direct effects from gender to mathematics MC and CR are negative, indicating an advantage for males when language factors have been

Table 11. Total Effects for Grade Three

	Gender	MC	Writing	Reading
CR	0.24	0.54	0.48	0.43
MC	0.31	0.00	0.47	0.48
Writing	2.81	0.00	0.00	0.00
Reading	2.60	0.00	0.98	0.00

Table 12. Total Effects for Grade Five

	Gender	MC	Writing	Reading
CR	0.86	0.53	0.53	0.45
MC	0.24	0.00	0.48	0.50
Writing	3.45	0.00	0.00	0.00
Reading	3.82	0.00	0.95	0.00

partialled out.

The total effects (see Tables 11 and 12), a synthesis of direct and indirect effects, are all positive, which explains why females appear to be performing better than males on mathematics. The effects of writing and reading mask the more subtle gender differences in the performance on mathematics. This masking of gender differences has been overlooked in previous studies. By adopting a simplistic causal model with one single cause (gender) and one single outcome (total mathematics score), the total effects obscure a more complex system in which positive and negative effects balance out or compensate for each other.

About 58.80% of the variance in the MC score and 68.54% in the CR score are accounted for in the causal model for grade three. For grade five, 55.09% of the variance in the MC score and 67.75% in the CR score are accounted for. These proportions are quite substantial and suggest stability of the causal model from grade three to five.

The direct effect of gender on MC does not appear to be equal to the direct effect of gender on CR in either grade three or grade five. To ascertain statistically that the effect of gender on MC is greater than the effect of gender on CR, it was tested whether constraining the parameters for MC and CR to be equal would result in an equally acceptable causal model. The unconstrained model was compared to the constrained model. The chi-square difference tests for grades three and five are given in Table 13. The path coefficients from gender (G) to MC and from gender (G) to CR for the unconstrained model, and the

Table 13. Comparison of Unconstrained and Constrained Models

	Unconstrained Model		Constrained Model		Difference	
Grade	df	χ^2	df	χ^2	df_{diff}	χ^2_{diff}
3	1	221.82**	2	235.48**	1	13.66**
5	1	172.01**	2	318.43**	1	146.42**

**$p<0.01$

Table 14. Path Coefficients from Gender to MC and CR

Grade	G to MC	G to CR	G to MC = G to CR
3	-0.94**	-0.54**	-0.71**
5	-1.69**	-0.30**	-0.89**

**$p<0.01$

path coefficients from gender (G) to MC/CR in the constrained model, are given in Table 14.

The results of this statistical procedure for the two grade levels show that the constrained model is inferior to the unconstrained model. This clearly indicates that the direct effect of gender on mathematics performance varies depending on whether the CR or the MC format is involved in the assessment. The path coefficients for grades three and five show that there is a greater disadvantage for females on MC items than on CR items after accounting for language factors.

Discussion

The causal model has been found to be stable from grade three to grade five, with more or less comparable overall fit indices and path coefficients across the two grades. The path coefficients for all paths, except for the path from gender to reading for grade three, are statistically significant. Although total gender difference effect sizes are in favor of females, girls are actually disfavored on both MC and CR after language factors have been accounted for. This finding, hitherto undocumented in Hawai'i or on the continental U.S., raises questions as to whether or not the more conventional direct comparison between males and females is the most appropriate or meaningful approach to understanding gender differences in mathematics performance.

The model explains that the reason for the gender difference in favor of females is that the advantage females have in reading and writing improves their mathematics scores. Although males are supposed to have an advantage on mathematics relative to females, males' lower reading and writing scores negatively impact their mathematics performance and mask their relative advantage in this subject. Corroborative evidence from grades eight and ten can be found in Reiss (2005).

The findings of this study have tangible pedagogical implications. Basic literary skills (reading and writing) are prerequisites to mathematics achievement. For instructional and learning purposes, increasing students' verbal scores might assist in increasing their performance on mathematics assessments. This is especially important for boys, whose lower linguistic skills negatively influence their mathematics assessment.

Because gender differences exist in early literacy skills, mathematics educators may need to consider gender-appropriate pedagogical approaches for boys and girls. To benefit males and females, the instruction for males and females might need to be differentiated. As Gambell and Hunter (2000) stated, "Males are in trouble in literacy!" (p. 712). And as a result, boys are in trouble with mathematics as well. While mathematics performance of males might be

improved by focusing on linguistic skills, for females beneficial outcomes might be obtained by focusing on mathematics. Boys might benefit from additional guidance in reading comprehension and verbalization along with quantitative reasoning, whereas for girls the benefit might accrue from focused practice with mathematics-specific semiotics, for example, symbols, formulas, and algorithms. Because MC and CR items present different challenges to boys and girls, instructors might consider providing girls with opportunities to practice more with MC items, and boys more with CR items.

In view of the consistent finding of girls outperforming boys on SAT, NAEP, and HSA, educators in Hawai'i need to reconsider the widely adopted assumption of boys being stronger in mathematics. The DOE needs to recognize the need to leave no boys behind in mathematics and language arts.

Limitations

One limitation of this study is that variables such as ethnicity, socioeconomic status, native language, motivation, or parental influences were either unavailable or not accurate enough to be taken into account. Another potential problem is that constructed-response items encompass a wide range of response types ranging from the production of a single word to an essay. It is not clear how different types of CR items may affect boys' and girls' performances differently. This study did not examine students' performance on the various domains of mathematics included in the HSA. It is possible that gender-related performance differences are due to factors not examined in this study, such as cognitive processing requirements as well as linguistic factors.

A further caveat arises from the possibility that CR items, which require more effort to answer than MC items, are skipped more often by males than females. The data set does not identify items on which no attempt was made. Girls may be more conscientious about responding to all items and might have earned more points. Boys, on the other hand, might have given up on CR items on which they might have been able to earn at least some points.

Conclusion

This study built on and extended prior research concerning gender differences in mathematics in Hawai'i by providing new understandings about gender differences in mathematics performance. A causal model was confirmed that supports the premise that girls do better than boys in mathematics due to their advantage in reading and writing. After controlling for linguistic factors, girls are found to be disadvantaged on both MC and CR. The disadvantage is more severe on MC than on CR.

Hawai'i's unique mathematics test results appear to be due to linguistic factors. While this study provides a plausible explanation for how females and males arrive at their respective CR and MC scores, the reasons and processes accounting for why language factors should affect males in Hawai'i more than they might in other places is left for further examination. Future research might consider whether factors such as identity issues and Hawai'i Creole English may play a role in the differential performance of gender on mathematics assessments.

The findings of this study call attention to the need for gender appropriate pedagogical approaches to optimize mathematics learning for boys and girls in Hawai'i.

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The Academic and Occupational Outcomes of Private Residential High School Student Instruction

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Using a population of graduates from a large high school with both residential and commuter students serving specifically students with Native Hawaiian ancestry, the study compares outcomes such as high school graduation, college attendance, college graduation, occupational status, and overall life happiness to determine the effects of residential status. Results indicated that the strongest variable that separated the college completers from the non-completers was receipt of college financial aid. Other important variables included Hawaiian culture, locus of control, family predominance of standard English, and beginning college at a community college.

A retrospective look at the boarding education of specifically indigenous people of America has uncovered injustices, misguided judgment, and in many unfortunate cases, severe cruelty. Indeed, the White conquest of North America used boarding education to separate children from their familial customs and to acculturate them into a Christian society (Cooper, 1999). The literature is replete with negative examples of forced assimilation occurring throughout American History (Ellis, 1996; Trennert, 1988) as well as the consequence of these practices that disrupted family customs and the passing of legacies from one generation to another (Apple, 1996; Greenfield & Smith, 1999; Henderson, Kunitz, & Levy, 1999; Ing, 1991; Shaughnessy, Branum, & Everett-Jones, 2001).

In the more enlightened Twenty-First-Century, there has been a resurgence of interest in residential education, but for different purposes and outcomes than the early American Indian Schools. Many contemporary residential schools attract and serve students from diverse ethnic, racial, socioeconomic, and cultural backgrounds. According to the National Association of Independent Schools (NAIS), during the 2000-2001 academic year, 16 percent of residential school students were of a racial group other than White (NAIS, 2001). There are many reasons why parents seek boarding schools for their child(ren). While some parents desire to send a child to a residential school as an escape from neighborhoods influenced by drugs, violence, or other negative factors, others see them as a solution to inadequate public schooling, problem families, or to provide a more highly structured environment for a child with difficulties (Hawkins, 1997; Smith, 2001). On the other hand, some parents seek residential schools for their child(ren) for the sole purpose of finding a quality educational experience. Regardless of the specific goal, parents expect that residential schools will provide environments with caring faculty and others whose sole interest is to provide their child(ren) with an academically and socially positive experience, smaller class sizes, diverse curricula, excellent facilities, a wide-range of co-curricular activities, and close interaction with teachers and counselors (McCoskey, 2002; The Association of Boarding Schools, 2002).

Today, there are over 42,500 students enrolled in more than 300 boarding schools across the country (The Association of Boarding Schools, 2002). Boarding schools are divided into three categories:

- True (24 hour) Boarding Schools: Schools where all students are expected to reside on campus for the entire academic year.
- Boarding Schools: Schools that combine a majority of boarding students (at least 51%) with commuting students.

- Day Schools: Schools that combine a majority of commuting students (at least 51%) with boarding students.

Many schools have specific admission criteria, sometimes based on ability, religion, or ethnicity. Others are military-based or provide a specialized training program (The Association of Boarding Schools, 2002). It is virtually impossible to describe boarding schools in the aggregate as each maintains a unique personality and purpose. Despite this nonuniformity, NAIS (2001) does report general trends and tendencies:

- On average boarding schools are small with the average enrollment being 275 students.
- Tuition is generally high, averaging approximately $25,000 per year.
- Slightly less than one-third of students receive financial assistance.
- Class sizes tend to be small, averaging eight students per faculty member.

This study uses the population of graduates from a large high school with both residential and commuter students serving specifically students with Native Hawaiian ancestry. Using a sample of both residential and commuting students from the graduating classes of 1993, 1994, and 1995, the study compares outcomes such as high school graduation, college attendance, college graduation, occupational status, and overall life happiness to determine the effects of residential status.

History of Residential/Boarding Schools

Residential/boarding education can be traced back to the earliest days of America. These schools were typically established by the clergy and catered mainly to privileged, wealthy, and white male students. Families sent their sons to boarding schools to make them "Christian gentlemen" and to prepare them to become members of the social and economic elite (Kashti, 1998). Over the last 350 years, this type of residential education has undergone many changes. Beginning as schools for families of high socioeconomic status, residential schools focused on preparing children for college (Coalition for Residential Education, 2002).

The purpose and function of boarding education became bifurcated in the 19th century, when schools specific for Native American students were introduced to "civilize," acculturate, and assimilate youth (Greenfeld, 2001; Riney, 1998; Sanchez & Stuckey, 1999). Students were forcibly separated from their families, language, and spirituality, resulting frequently in an inability to later assimilate back or be fully accepted into the tribal culture (Sanchez & Stuckey, 1999). Children were sent to schools all around the country teaching them "American" dress, manners, and job skills removing any resemblance of

native culture (The Library of Congress, 2002). Thousands of Native American children suffered from loneliness and some lost their lives to the rampant spread of influenza and measles. The Carlisle Indian Industrial School in Pennsylvania, the most famous of the Indian boarding schools, was founded by Richard Pratt in 1879. In the Carlisle schools, children were given new names, forced to convert to Christianity, and speak only English (Labriola Center, 2001; Adams, 1995). In 1905, the Indian Commissioner Francis Ellington believed that Native American assimilation should be a more gradual process and thus placed greater emphasis on day schools. Moreover, the Meriam Report of 1926 recommended that only older Native American children attend nonreservation boarding schools. As a result, after 1926 boarding education enrolled predominantly White, upper socioeconomic class students. Few boarding schools provided education to Native Americans or other ethnic minority groups.

Research on Residential/Boarding Schools

Empirical studies of the effects of boarding education are scant to nonexistent. Most of the literature is anecdotal or limited to only one specific school. For example, Smith (2001) and McCoskey (2002) reported that students in boarding schools learned independence, self-discipline, and self-confidence while they learned to work with and to lead others. Others reported that these students demonstrated a strong work ethic, excellent social skills, and positive attitudes (Hershey School, 2002). Although the empirical data are absent, what we do know about factors pertaining to boarding students indicates that placing students in small groups fosters a close working relationship between teachers and students, thus enhancing learning (Lee & Smith, 1997). Additional research indicates that small dorm groups and access to an extensive support network, individual advisors, dorm staff, the school chaplain and school psychologist creates a sense of community and support among boarding students and reduces the stress that might be associated with being away from home (Ainslie, 1996).

Although not empirically based, Smith (2001) and McCoskey (2002) reported that students in boarding schools learned independence, self-discipline, self-confidence, and the ability to work with and lead other students. Others believe that boarding students are more likely to demonstrate a strong work ethic, excellent social skills, and positive attitudes (Hershey, 2002).

Education in Hawai'i

The introduction of Western education to Hawai'i can be traced to American Protestant missionaries who arrived from New England in 1820 with the mission to convert the Hawaiian people to the Christian faith and establish churches. In concert with their mission was the establishment of schools throughout the islands. Following in the traditions of the prevalent New England boarding schools, the education offered on the islands was to provide a good basic educational foundation heavily peppered with sound moral training.

The missionaries established boarding schools with diverse missions. Boarding schools like The Chief's Children School was created at the request of the Hawaiian ruling elite to prepare their children to assume their positions in society. Other boarding schools like Lahainaluna Mission Seminary on the Island of Maui were designed to train young males to assume the roles of teachers and religious leaders among the Hawaiian people (Daws, 1968).

Historical Look at Kamehameha School

On November 4, 1887, the Kamehameha School for Boys opened with 35 students and four teachers. It was established through the will of Princess Bernice Pauahi Bishop as the sole beneficiary of her estate "to provide first and chiefly a good education in the common English branches, and also instruction in morals and in such useful knowledge as may tend to make good and industrious men and women" (Kamehameha Schools, 2002, Will of Bernice Pauahi Bishop).

The first curriculum emphasized industrial training that was considered necessary to achieve personal and social success. Other subjects included English and penmanship; arithmetic, algebra, and geometry; business and bookkeeping; mechanical drawing; geography and health (Chun & Agard, 1987). Funds offered by Charles Reed Bishop in 1888 were used to establish a Preparatory Department to educate and house primarily, homeless or orphaned young Hawaiian boys, aged 6 to 12. Daily lessons included English, arithmetic, drawing, penmanship, and singing (Black & Mellen, 1965). Unlike the affluent boarding schools on the east coast of the continental U.S., Kamehameha opened its doors to those who would most benefit including many poor. And, unlike the misguided American Indian Schools, Kamehameha was not designed for acculturation but for education.

In 1891, the first graduation ceremony for the School for Boys was held with 14 graduates. In keeping with Mrs. Pauahi Bishop's wish that there be a school for boys and girls, the Kamehameha School for Girls opened on December 19,

1894, with 27 girls aged 13 and above.

From those early beginnings, Kamehameha has grown to serve a population of over 3,800 students enrolled in Kindergarten through high school plus 1,200 students in prekindergarten classes statewide. By the year 2005, total kindergarten through high school enrollment at the Kapälama, Hawai'i, and Maui campuses will exceed 5,000 students (Kamehameha Schools, 2002).

Children of Hawaiian ancestry continue to receive admission preference at Kamehameha. As part of the admissions process, students must fill out an application for enrollment, pass a written examination and personal interview, and demonstrate their Hawaiian ancestry by submitting their own birth certificates along with the birth certificates of their parents and Hawaiian grandparents. According to Kamehameha's current statement of purpose (Kamehameha Schools, 2002):

> Kamehameha School admits children who show potential for excellence and who are able, in a timely and satisfactory manner, to meet all academic, physical and religious activities requirements which together comprise the fundamental nature of a Kamehameha education: Comprehensive development of the mind, body and spirit. Kamehameha admits children on the premise that they have the intent and ability to ultimately graduate from Kamehameha.

Kamehameha is currently a college-preparatory residential and day school. At the oldest campus, the Kapalama campus located on the island of O'ahu, the majority of students commute from their homes. In addition, over 500 seventh through twelfth grade students live on campus. These are students whose primary residence is from one of the other Hawaiian Islands.

Methodology

In December 2001, Kamehameha Schools of Hawai'i contracted the Rossier School of Education at the University of Southern California (USC) to perform a comprehensive study of the achievement, success, and academic outcomes of former students and financial aid recipients who were influenced by the Kamehameha experience. This study is part of a comprehensive project entitled Completion, Persistence, Transfer and Success of Kamehameha Schools Students (acronym CP-TASKS). The project includes several cohorts of Kamehameha High School alumni as well as individuals who graduated from high schools other than Kamehameha but were beneficiaries of college financial aid from the Schools.

The project began with the Kamehameha graduates of 1993, 1994, and 1995 plus a set of students who graduated from other high schools during those

same years but who received financial aid from Kamehameha for postsecondary study. Although not included in this specific study, the project also includes the graduating classes of 2001, 2002, and 2003.

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. In early February 2002, the project sponsored a series of focus groups with alumni, faculty, and administrators in order to gain an awareness of the unique features of the environment of the school and to hear alumni perspectives about the influence of Kamehameha Schools or subsequent financial aid or both. The resulting data were used to create and hone a final survey instrument designed specifically for Kamehameha alumni and former financial aid recipients.

Instrument

The final seven-part instrument consisted of 54 multi-part items covering demographics, Hawaiian culture, questions pertaining to junior and senior high school experiences, college questions, college satisfaction, self-efficacy, locus of control, and others. The Hawaiian Culture Exploration Scale, consisting of 5 items, was based on the Multigroup Ethnic Identity Measure (MEIM) designed to assess ethnic identity. MEIM was confirmed by researchers (Roberts, Phinney, Masse, Chen, Roberts, & Romero, 1999) as a global composite scale across ethnicity (European American, African American, and Mexican American). Ethnic identity was found to be positively associated with psychological well-being such as optimism and self-esteem. Since virtually all Kamehameha students have multiple ethnicities, the original scale items were modified to ensure that when survey participants responded to the items it was in reference to their Hawaiian ancestry.

We created the self-perceived discrimination scale to assess students' perceptions of discrimination based on ethnicity or gender or both. The three items composing this scale indicated a high reliability ($\alpha = .80$; see Table 1). Problems with everyday living can also influence college students' success. We created a student life problem scale comprised of student reports of homesickness and problems with roommates, food, and transportation.

Knowledge about financial aid and its processes can be highly effective in assisting students to complete their college degree. Two survey items were used to assess student knowledge on financial aid. The self-efficacy scale (four items), locus of control scale (two items), and peer influence scale (two items) were used to investigate if social-cognitive factors influence student success. Self-efficacy, defined as beliefs regarding one's ability to successfully

accomplish or perform tasks (Bandura, 1993), has previously been found to be positively related with academic performance (Multon et al., 1991; Pajares, 1996; Zimmerman, Bandura, & Martinez-Pons, 1992; Kim & Dembo, 2000). The self-efficacy scale used in the present study was derived from Factors Influencing Pursuit of Higher Education (FIPHE) Questionnaire (Harris, 1998; Harris, 2001; Harris & Halpin, 2002). Locus of control pertains to an individual's perception of control over the environment. Our scale consisted of two items from the FIPHE Questionnaire. The peer influence scale measured the influence of peers on students' decision to go to college and consisted of two items.

College completion can be affected by the student's satisfaction with the college. We created the college satisfaction scale consisting of two items that assess students' ratings of their colleges. Because job or family related responsibilities such as child care can be a factor influencing the student college completion rate, we included the job/family responsibility scale that was comprised of two items.

Life satisfaction of alumni is a very important outcome of interest to Kamehameha. The CP-TASKS questionnaire included the Diener's Satisfaction with Life scale (Diener, et al, 1985) that provides a reliable measure of general life satisfaction. The five items as shown in Table 1 were used with a seven-part Likert measure (*strongly agree* to *strongly disagree*). In our study, the five items produced an alpha coefficient measure of .91.

Nineteen variables were employed to identify the characteristics of the students who earned bachelor degrees. Ten measures were composed of multiple items while the other nine were single item measures. Sixteen out of nineteen

Table 1. Psychometric Properties of Scales

Measures	Mean	Alpha Reliability
Hawaiian Culture Exploration: - I have spent time trying to find out more about Hawaiian history, traditions, and customs - I am active in organizations or social groups that include mostly Hawaiians - I think a lot about how my life will be affected by my Hawaiian ethnicity - In order to learn more about my Hawaiian heritage, I have often talked to other people about my Hawaiian ethnicity - I participate in Hawaiian cultural practices such as special food, music, or customs	3.6106	.7879

Table 1. Continued		
Self-Perceived Discrimination: - My skin-color does not limit my ability to succeed in life - My gender does not limit my ability to succeed in life - Society does not limit my ability to succeed in life.	4.3401	.7975
Student Life Problems: - Homesickness - Living with roommate(s) - College food - Transportation (access to public transportation, sharing cars, etc.)	1.7694	.6197
Financial Aid Knowledge: - I was knowledgeable about the types of financial aid available to me - I knew where to find information about financial aid	2.9345	.9059
High School Peer Influence: - I was not able to talk to my high school friends about college - My high school friends did not understand the demands of college	3.2916	.7965
Self-Efficacy: - 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	2.9393	.7197
Locus of Control: - I had the power to achieve my educational goals - I felt that each person had control of his/her own fate	3.3317	.5341
College Satisfaction: - How well did you like college when you were an undergraduate - If you could do it over again, would you attend the same undergraduate college?	3.7994	.5691
Life Satisfaction: - 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.	4.9771	.9104
Family/Job Responsibility - Job related responsibilities - Family responsibilities (e.g. child care, parent care)	1.7261	.4932

Table 2. Single Item Measures

Boarding Status	Boarded (1) or commuted (0) while in high school
Parent Education Level	Composite score of mother's and father's education level
Social Welfare Benefits	Family received social welfare benefits while student was growing up
Standard English Speaker	Primary language spoken in the home
High School GPA	Self reported high School grades
Number of people that the students supported	Number of people the student was supporting at the time of high school graduation
Financial Aid from Kamehameha	Number of years received college financial aid from Kamehameha Schools
Number of closest Hawaiian friends in college	Number of closest personal friends in college from Hawaii
Community College Starter	Begin postsecondary education at a community college

variables were found to be significantly related with college completion in the analysis. All independent variables are provided in Tables 1 and 2.

Sample

This analysis included respondents from the Kamehameha High School graduating classes of 1993, 1994, and 1995. To correct for response bias, a weighting algorithm was created using the variables of high school (Kamehameha or other), gender, year of graduation, and boarding status. Because our outcome of interest was receipt of a bachelor's degree, we limited our analyses to only those students who attended college, whether or not a college degree was earned. The unweighted sample size was 376, consisting of 260 college graduates and 116 who have not earned a bachelor's degree. After applying the weighting algorithm, the weighted sample size was 1,588 consisting of 1,047 college graduates and 541 nongraduates.

Data Collection

Beginning in late April 2002, printed letters were sent to the last known address of each of the graduates[1] and financial aid recipients asking them to

respond to an Internet questionnaire. Follow-up hardcopies were sent to those not responding to the online request. To enhance the response rate, follow-up included email, printed letters, and telephone inquiries. Slightly more than one-third of the submitted responses (36.2%) were received online while the majority was submitted via hardcopy. The response rate calculated as the proportion of returned surveys (either online or via hardcopy) to those that were successfully delivered is somewhere between 30% and 60%.

In October of 2002, the CP-TASKS research team administered a short survey to 35 private schools in the state of Hawai'i to collect data on educational outcomes such as high school graduation rate, college attendance rate, and college graduation rate. This information was necessary to place Kamehameha within the context of other private schools in Hawai'i. The original research was the only way to gather this type of information due to the paucity of research and available statistics on private schools in the state.

Analyses

We report three levels of analyses. First, we provide comparisons of Kamehameha with other institutions on a national and statewide basis. Secondly, we provide a discriminant function equation to test for factors separating those who graduated from college from those who have not using boarder status as one of the test variables. After finding a significant relationship, we compare those who boarded at Kamehameha with those who did not through a one-way analysis of variance and Kruskal-Wallis nonparametric Test. We test for differences across the following outcomes:

1. Earned bachelor's degree
2. Level of reported parent education
3. Life satisfaction
4. Reported level of Hawaiian ancestry (blood quantum)
5. Hawaiian culture scale scores
6. Receipt of social welfare benefits
7. Level of standard English spoken in the home
8. High School GPA

1 The last known address of the sample was the residence during their senior year in high school. Since the sample was the graduating classes of 1993, 1994, and 1995, the addresses were more than 7 years old. Further, these addresses were typically those of the alumni's parents or other relatives. In most cases, the alumnus no longer lived at the address but the parents or other relatives forwarded the survey. Attempts to contact a subsample of 100 randomly chosen names indicated that only 40% of the available contact information was current. If considering only those students who likely received the survey, the actual response rate may be close to 60%.

Results

Kamehameha is one of more than 300 boarding schools across the country and one of three boarding school members of the Hawai'i and National Association of Independent Schools, the national advocate for independent pre-collegiate education (NAIS, 2002). Table 3 provides a comparison of these three schools and averages reported by the National Association of Independent Schools (NAIS). NAIS collects data on each of the 1,032 member schools, including Kamehameha Schools.

The two other boarding schools located in Hawai'i are Mid Pacific Institute located on the island of O'ahu and Hawai'i Preparatory Academy located on the island of Hawai'i. Table 3 shows that although all three schools share similarities, Kamehameha has several unique characteristics. Besides being the oldest and largest boarding school in the group, Kamehameha is most distinctive due to its low tuition. In addition, whereas the majority of Kamehameha students receive financial aid (within a reduced tuition institution) only a minimal proportion of students from other schools (with much higher tuition rates) are similarly receiving aid. Clearly, Kamehameha serves a different group of students than do the other boarding schools.

Table 4 compares Kamehameha against the self-reported results of selected institutions from the data collected as part of the CP-TASKS project. We also provide NAIS averages for purposes of comparison. A common thread among the day schools is the promise of success, especially in the areas of high graduation and college attendance figures.

We stress that Kamehameha is unique. In comparison to other day schools and the NAIS national averages, the tuition is minimal and the proportion of students receiving financial aid is far higher than any other school. In many respects, the students who attended Kamehameha are more comparable to public school students than those who attended other private schools. However in terms of successful outcomes, the Kamehameha students resemble their counterparts in the more exclusive private schools.

A study by Kamehameha Schools (2002) investigated Hawai'i public school graduation rates by the dominant ethnicity of the student. Making allowances for transfers to other school systems, private schools, or other educational opportunities, this study counted students who graduated within 4 years or made such transfers as "successes." The finding was that 90% of Japanese students, 83% of White students, and 82% of Filipino students graduated within 4 years or left for another school system. However, only 72% of Hawaiian students fell into these two categories.

Table 3. A Comparison of the Hawai'i and National Association of Independent Schools' Boarding Schools

	Kamehameha	Mid Pacific Institute	Hawai'i Preparatory Academy	NAIS Averages
Year established	**1887**	**1908**	**1949**	**N/A**
# Boarders	Grades 7-12 528	Grades 6-12 80	Grades 6-12 195	All grades 120
# Day (Grades K-12)	1,913	1030	395	97
Average tuition **Boarders** **Day**	 $2,824 $1,441	 $18,787 $11,190	 $23,925 $10,917	 $26,975 $14,150
Percentage of students receiving financial assistance	62%	15%	20%	20%
Average student-to-teacher ratio	14:1	8:1	10:1	8.7:1
Graduation rates	99%	100%	100%	N/A
Reported college attendance rate	98%	98%	100%	N/A

NAIS, HAIS, PASE, and Peterson's Guide to Private Schools 2000-2001 Data

A broad comparison against national and state averages clearly shows the commendable success rates of Kamehameha Schools. Only 71% of the nation's high school students graduate from high school while the state of Hawai'i reports a 69% rate. Kamehameha records an approximate 99% rate.

The national figure for the proportion of high school graduates who attend college varies by ethnicity. According to the High School and Beyond Study, the national rate for Whites was about 64% (High School and Beyond, 1992). The national studies do not report outcomes by Hawaiian ancestry. Our weighted data indicated that 92.6% of Kamehameha students attended college (irrespective of graduation), while to date 64.5% of the classes of 1993, 1994, and 1995 earned at least a bachelor's degree. In the most recent national longitudinal study of beginning postsecondary students (entering college in 1995), 53.3% of students with a bachelor's degree goal had earned those degrees within 6 years (Beginning Postsecondary Students, 2002).

Discriminant Function: How do graduates and non-graduates differ?

We created a discriminant function equation to identify the factors that

Table 4. A Comparison of the Private Day Schools in Hawaiʻi

	Kamehameha	St Andrews Priory School for Girls	Iolani School	Academy of the Pacific	Punahou School	Hawaiʻi Baptist Academy	Saint Louis School	Maryknoll School	Island School	NAIS Averages
Established	1887	1867	1863	1961	1814	1949	1846	1927	1977	N/A
Average tuition	$1,441	$8,750	$10,300	$10,700	$10,700	$7,590	$7,475	$8,300	$7,230	$14,150
Percentage of students receiving financial assistance	62%	%32	12%	30%	14%	8%	NA	17%	N/A	20%
Average student-to-teacher ratio	14:1	7:1	11:1	8:1	15:1	13:1	13:1	13:1	8:1	8.7: 1
Graduation rates – all students	99%	100%	100%	100%	100%	100%	96%	99%	85%	N/A
College attendance rate	98%	100%	100%	100%	100%	100%	96%	99%	85%	N/A

best separate those students who completed their bachelor's degrees from those who have not. We identified 19 independent variables and entered them into a stepwise discriminant analysis equation to determine those items and scales that significantly affected degree attainment. Of the 19 variables entered, 16 were significant predictors of college degree attainment. The classification procedure generated a discriminant function consisting of a linear combination of sixteen independent variables best predicting group membership. The canonical correlation was .63 (Table 5) while Wilks' Lambda was .59 ($p<.05$). Standardized Canonical Discriminant Function Coefficients and Canonical Discriminant Function Coefficients were provided in Table 6. Note that the table is in descending order by standardized coefficient and includes only those variables that were significant predictors in the equation.

One of our main variables of interest was boarding status. The function coefficient for boarder status was negative indicating that students who boarded at Kamehameha were less likely to complete their bachelor's degree than

Table 5. Multivariate Statistics for the Discriminant Function Analyses

Function	Canonical Correlation	Canonical Correlation	Wilks' Lambda	Chi-square	df	Sig.
1	.638	1	.593	675.872	16	.00

Table 6. Standardized Canonical Discriminant Function Coefficients and Canonical Discriminant Function Coefficients for Significantly Contributing Variables to Discriminating Process presented in descending order by standardized coefficients (alpha=.05)

	Standardized Canonical Discriminant Function Coefficients	Canonical Discriminant Function Coefficients (Unstandardized coefficients)
Financial Aid from Kamehameha	0.53	0.317
High School GPA	0.285	0.191
Locus of Control	0.216	0.218
College Satisfaction	0.211	0.112
Self Efficacy	0.135	0.063
Standard English Speaker	0.131	0.28
Financial Aid Information	0.13	0.092
Hawaiian Culture Exploration	0.095	0.022
Number of Closest Hawaiian Friends in College	0.088	0.056

Table 6. Continued		
Parent Education Level	0.059	0.028
Number of People Supported	-0.081	-0.146
Boarding Status	-0.19	-0.447
Family/Job Responsibility	-0.204	-0.139
High School Peer Influence	-0.235	-0.179
Community College Starter	-0.285	-0.887
Social Welfare Benefits	-0.313	-0.927

were non-boarders. This finding, however, must be carefully interpreted with others to fully understand the interplay of boarders and other factors playing prominent roles in the equation. Further, the absolute value of the coefficient for boarder status was one of the weaker predictors (ranked 12 of 16). 'Financial Aid from Kamehameha' was found to be strongest factor differentiating group membership (college completion vs. non-completion). The longer financial aid was provided (financial aid was measured in units of number of years of support and not dollars), the more likely students were to acquire a college degree. The strongest of the negative predictors was Social Welfare Benefits. Students from families who received Social Welfare Benefits, were less likely to finish their bachelor's degree. Also, when students reported financial responsibility for others they were also less likely to complete college degrees. Financial Aid Information also significantly predicted college completion. The more knowledgeable students were more likely to finish college.

Parent Education Level was a positive predictor of college completion. High parent education level positively predicted high college completion rates. Meanwhile, beginning one's postsecondary education at a community college was negatively related to college degree attainment.

High School GPA and Standard English as the predominant spoken language at home were positively related to college completion. We also note interesting cultural relationships to college completion. For this sample, Hawaiian Culture Exploration and the number of closest friends in College who were Hawaiian positively predicted students' college completion. College satisfaction and the tested social-cognitive factors such as self-efficacy, locus of control, and peer influence were significant predictor variables of college completion. Life satisfaction, self-perceived discrimination, and student life problems were not significant predictors.

The full discriminant function equation used to classify group membership predicting college completion follows:

> D (Group Membership) = (-4.34) + (-.44) x Boarding Status + (.02) x Parent Education Level + (-.92) x Social Welfare Benefits + (.28) x Standard English Speaker + (.02) x Hawaiian Culture Exploration + (.19) x High School GPA + (-.14) x Number of People Supported + (.31) x Financial Aid from Kamehameha + (-.13) x Family/Job Responsibility + (.05) x Number of Closest Hawaiian Friends in College + (.09) x Financial Aid Information + (-.17) x High School Peer Influence + (.06) x Self Efficacy + (.21) x Locus of Control + (.11) x College Satisfaction + (-.88) x Community College Starter.

A correlation matrix of college completion plus the sixteen significant independent variables is provided as Table 7. Table 8 provides details on the goodness of fit of the equation (81.2% of all cases correctly classified).

Pairwise Comparisons

Finding that boarders at the school had lower acquisitions of bachelor degrees, we performed pairwise comparisons across eight variables of interest. Table 9 provides the results of the analyses. We found that boarders in the sample had significantly lower high school grades, were less likely to have been raised in homes where standard English was the predominant language, were more likely to have received some form of social welfare assistance, had higher levels of Hawaiian ancestry, expressed lower levels of life satisfaction, and were less likely to have earned a bachelor's degree. In addition, we provide Figures 1a through 1e to graphically display these differences.

Discussion and Policy Implications

We provide this study as evidence that not only does Kamehameha serve a unique population; but does so in a distinctive fashion. Unlike other boarding schools in the state, Kamehameha serves many students with financial aid needs. But despite the lower socioeconomic status of its students, Kamehameha has the same admirably high graduation and college attendance rates as other schools. Recognizing the lower financial abilities of many of the families served, Kamehameha charges the lowest tuition rates of all private day schools in the state. For many reasons, the types of students who attend Kamehameha are more comparable to those attending public schools in the state. However, when

Table 7. Correlation Matrix

	College Completion	Boarder Status	Parent Education Level	Social Welfare Benefits	Standard English Speaker	Hawaiian Cultural Exploration	High School GPA	Number of people supported	FA form Kamehameha
College Completion	1	** -.163	**.155	** -.176	.103	** .159	** .437	** -.104	**.440
BOARDER	** -.163	1	.045	*.052	**-.228	.018	**-.190	-.004	.038
Parent Education Level	**.155	.045	1	** -.177	**.266	.047	**.177	-.012	.031
Social Welfare Benefits	**-.176	*.052	** -.177	1	**-.149	**.184	**-.074	**.144	.034
Standard English Speaker	**.103	**-.228	** .266	** -.149	1	**-.076	.046	**-.141	**-.080
Hawaiian Cultural Exploration	**.159	.018	.047	** .184	**-.076	1	**.224	.013	**.101
High School GPA	**.437	**-.190	** .177	** -.074	.046	**.224	1	**-.094	**.238
Number of people supported	**-.104	-.004	-.012	** .144	**-.141	.013	**-.094	1	-.006
FA from Kamehameha	**.440	**-.228	.031	.034	**-.080	**.101	**.238	-.006	1
Family/Job Responsibility	**-.181	**-.228	** -.106	** .235	**-.165	**.143	**-.132	**.300	**-.085
Number of closest Hawaiian friends	.023	**-.228	** -.074	.005	*-.052	**.245	-.016	**.068	-.004
Financial Aid information	**.297	**-.228	** .123	*-.060	-.006	*.243	**.172	.033	**.311
High School Peer Influence	**-.116	**-.228	.035	**-.144	*.050	*-.050	-.029	-.040	-.048
Self-Efficacy	**.277	**-.228	.000	*.066	*.057	**.263	**.322	**.099	**.104
Locus of Control	**.230	**-.228	* .056	-.038	*.051	**.116	**.194	.033	**.136
College Satisfaction	**.264	**-.228	** .164	-.031	-.014	**.098	**.200	**-.071	**.185
Community College Starter	**.333	**-.228	** -.138	.026	*.054	-.021	**-.294	**.112	**-.289

Table 7. Continued								
	Family/ Job Responsibility	Number of Closest Hawaiian friends	Financial Aid Information	High School Peer Influence	Self-Efficacy	Locus of Control	College Satisfaction	Communtiy College Starter
College Completion	**-.181	.023	**.297	**-.116	**.277	**.230	**.264	**-.333
BOARDER	*.063	.044	**-.065	**.171	**-.065	.063	.045	**-.073
Parent Education Level	*-.106	***-.074	**.123	.035	.000	*.056	**.164	**-.138
Social Welfare Benefits	**.235	-.005	*-.060	**-.144	*.066	-.038	-.031	.026
Standard English Speaker	**-.165	*-.052	-.006	*.050	*.057	*.051	-.014	*.054
Hawaiian Cultural Exploration	**.143	**.245	**.243	*-.050	**.263	**.116	**.098	-.021
High School GPA	**-.132	-.016	**.172	-.029	**.322	**.194	**.200	**-.294
Number of people supported	**.300	**.068	.033	-.040	**.099	.033	**-.071	**.112
FA from Kamehameha	**-.085	-.004	**.311	-.048	**.104	**.136	**.185	**-.289
Family/Job Responsibility	1	-.008	*-.061	**-.175	**.087	-.045	**-.149	**.099
Number of closest Hawaiian friends	-.008	1	**.176	**.177	.032	**.153	*-.058	.034
Financial Aid information	*-.061	**.176	1	**.068	**.258	**.363	**.253	-.030
High School Peer Influence	**-.175	**.177	**.068	1	-.040	**.145	.035	**.082
Self-Efficacy	**.087	.032	**.258	-.040	1	**.450	**.307	**-.116
Locus of Control	-.045	**.153	**.363	**.145	**.450	1	**.253	-.034
College Satisfaction	*-.149	*-.058	**.253	.035	**.307	**.253	1	**-.087
Community College Starter	**.099	.034	-.030	**.082	**-..116	-.034	**-.087	1

Table 8. Classification Results

Actual Group	Predicted Group Membership		Total Number of Cases
	Category 0	Category 1	
Category 0 – Not Attained Bachelor's Degree	328 (82%)	74 (18%)	402
Category 1 – Attained Bachelor's Degree	171 (19%)	729 (81%)	900

Table 9. Results of Pairwise Analyses (ANOVA and Kruskal-Wallis Test)

Outcome	Day Student Mean (s.d.)	Boarder Mean (s.d.)	F-Test
High School GPA[2]	6.36 (1.62)	5.62 (1.78)	59.199***
Level of Parent Education	6.84 (2.188)	7.08 (2.11)	2.99
Hawaiian Cultural Exploration scale	18.01 (4.36)	18.19 (5.20)	0.501
Level of Hawaiian Ancestry (reported blood quantum)	.284 (.183)	.376 (227)	61.429***
Life Satisfaction	25.434 (6.46)	23.246 (8.199)	29.661***
Nonparametric Test for dichotomous outcomes			
	Day Student Mean Rank	Boarder Mean Rank	Kruskal-Wallis Test
Spoke Predominantly Standard English while in High School (0=no; 1=yes)	849.34	670.88	81.40 ***
Received Social Welfare Benefits while in High School (0=no; 1=yes)	715.31	744.95	4.00 *
Earned Bachelor Degree (0=no; 1=yes)	841.37	698.42	42.52 ***

[2]9=A or A+; 8= A-; 7=B+; 6=B; 5=B-; 4=C+; 3=C; 2=C-; 1=D or lower

comparing Kamehameha's student success rate with public school outcomes, the difference is clearly in Kamehameha's favor.

With the favorable outcomes clearly stated, it is important to extend the field of inquiry beyond college attendance and study the college graduation outcome. Our discriminant function analysis clearly revealed that the strongest variable that separated the college completers from the non-completers was receipt of college financial aid from Kamehameha. This function was almost twice as strong as the effect of a high grade point average in high school. This finding underscores the importance of financial aid for this group of students. The need for financial aid is also seen by the negative coefficient for receipt of

social welfare benefits while in high school as well as the negative coefficient for the financial support of others. Other important variables included Hawaiian culture, locus of control, and family predominance of standard English. The negative nature of beginning college at a community college must be noted. While students attend community colleges for many reasons, it is important to note that beginning in a four-year college is more likely to predict college completion.

One of our important inquiries for this study was the relationship between boarding status and college graduation. In our multivariate discriminant analysis we found that boarding status was a negative predictor. To better understand group differences we performed comparisons (ANOVA and Kruskel-Wallis U test) between boarders and day students to provide insights as to why boarders were less likely to complete college. First, we found that boarders tended to have lower high school grades, be more likely to have received social welfare benefits, and less likely to come from families that spoke predominantly standard English. While the coefficient for boarders remained negative despite controls for these variables, it remains important and instructive to isolate how boarding status is also a proxy for other variables that were found to be negatively related to the outcomes of interest. It may also be that boarding acts as a mediating variable for low SES and therefore found to be a negative predictor. We see all of these factors to work together and in conjunction to predict lower college completion rates. Since life satisfaction levels were also lower for boarders, we hypothesize that the relationship likely includes but goes beyond the lack of college completion.

We see many avenues for policy arising from these analyses. First, to assist students of Native Hawaiian ancestry, the continued provision of financial aid appears key. Boarding students may face additional obstacles when the outcome is focused on achieving a college degree. It is important to note that the reason most students board at Kamehameha is because they live on islands other than Oahu. Thus, boarding status may also function as a proxy for a more rural upbringing. Further, the economy on different islands is such that there may be a different link between desirable occupation and education. Many attractive jobs in tourism do not require a college degree. Agriculture, another prominent occupation on some islands also lacks a strong and direct link with college attainment.

Conclusions

This study is not an evaluation or a political comment on the efficacy of private boarding education. Further, it is not the intent of this paper to claim

the acquisition of a bachelor's degree as the ultimate goal of all people. Rather, the intent of these analyses was to provide a comparison of actual outcomes between former boarding and commuting students who attended the SAME school, the same kinds of classes, and interacted with the same faculty. Although all significant findings cannot be attributed solely to residential status, the design of this analyses with the entrance of appropriate controls, presents an empirical analysis that can inform not only Kamehameha Schools but also other private residential high schools on the factors most likely to promote success long after the caps and gowns are returned and the senior yearbook is put on the shelf.

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An Exploratory Study of At-Risk Behaviors Among Teen-Aged Micronesian Immigrants

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Micronesian immigrants, especially teens, face a difficult adjustment to the modern teen culture and high school environment of Hawai'i. To gain some insight to the impact that these Micronesian students experience, a questionnaire was created to study the high school behavior of Micronesian teen in Hawai'i. The questionnaire asked for self-reported frequency in high school of selected risk behaviors.

The answers of Micronesian college students and Micronesian high school students were compared. Survey items were about behaviors conducted between the ages of 14 and 18 and attempted to explore the impact of cultural differences and adjustments affecting adolescent immigrant Micronesians.

Differences between the groups were tentatively interpreted as being caused by the different cultures in operation when the groups surveyed were in high school.

Barry Mitsuo Nakasone

High schools students who move to a new area typically engage in risky behaviors, face moral decisions that affect their well-being, and encounter particular age-related challenges as they adjust to their new environment. The research described here utilized indicators of cultural impact to explore whether living in Hawai'i might increase at-risk behavior among Micronesian youth as they attend high school in Hawai'i.

The United States signed a compact of free association with a number of Micronesian states: the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau. The agreement provides economic assistance and defense in exchange for denial of access by other nations to the regions under the jurisdiction of these states. The compact of association also allows citizens of the newly independent island nations to immigrate freely to the United States to live and work and guarantees continued federal assistance for various existing programs. Census statistics (State of Hawai'i Data Book, 2000, Table 1.31) show that the Micronesian population, including citizens of the Commonwealth of the Northern Mariana Islands (a state with territorial status), in Hawai'i increased 218% between 1990 and 2000.

Another provision in the agreement mandates Department of Education assistance for Micronesian students to attend school in the United States. Approximately 25% of the students who receive those grants attend schools in Hawai'i. The Micronesian adjustment to change and foreign influences has been analyzed for several decades. In their 1979 review of Micronesian adjustment to Hawai'i, Henning and Ching wrote:

> For the Palauans, Trukeese, Ponapeans and Marshalleese, change has often been an agonizing affair. The neutralization of native customs and values by four colonial powers has left an indelible mark upon these islands. While attempting to hold tenaciously to their valued customs, the people are also anxious to learn modern ways. (p. 2)

Considering those observations, the continually changing face of Hawaii's school population should be of particular interest to educators. This research explores at-risk behavior among immigrant Micronesian teenagers (ages 14-18) in an attempt to analyze how cultural background impacts the immigrant teens' adjustment to a new culture.

Method

By comparing the self-reported behaviors of immigrant and nonimmigrant Micronesian students, this research sought to determine whether the types and amounts of risk posed by immigration. A questionnaire was administered to two separate groups of high school and college students in Hawai'i. Because the

students at the college had attended Micronesian high schools, they were able to provide answers based on that experience.

Subjects

The questionnaire (the Micronesian Teen Behavior Survey) compares responses of high school students presently attending a public high school in Honolulu that serves many Micronesian students with responses collected from Micronesian college students presently attending a college in Honolulu.

There were 46 Micronesian participants. The larger group, 28 participants who are presently attending college on Oahu after attending Micronesian high schools, was labeled the MSM group (Micronesian Students-Micronesia). Another 18 students, who were attending high school, are referred to as the MSH group (Micronesian Students-Hawai'i). Participation in the survey was voluntary and names and identities were anonymous to facilitate accurate data collection.

All participants of the MSM group held high school diplomas and were enrolled in college. Participants included 7 males and 21 females. The group included 11 Chuukese, 2 Chamorro, 1 Marshalleese, 5 Yapese, 3 Palauan, 3 Kosraean, 2 Pohnapein and 1 student of mixed ethnicity. Participants ranged in ages from 17 to 33 years of age with an average age of 20 years. Twenty one members from MSM group attend Chaminade University of Honolulu in the Kaimuki District. The remaining six participants work at Pacific Resources for Education and Learning (PREL).

Participants in the MSH group included 4 males, 9 females, and 5 participants who did not reveal their gender. This group included 3 Chuukese, 11 Marshalleese, 2 Kosraean, 1 Pohnapeian, and 1 Saipanese. Participants ranged in ages from 14 to 18 years of age with an average age of 16 years. The Honolulu area of Oahu, in the state of Hawai'i, was selected as the location for data collection. The entire MSH group currently attends Roosevelt High School, located in the Makiki District of Honolulu, which has a high concentration of Micronesians families residing within the area.

Measure

The exploratory survey collected information on the participants' ethnicity, age, gender, high school attended, and year of high school graduation. Another, 18 questions explored, delinquent moral behaviors, and crimes committed as a teen.

Survey results for both groups of study participants were compared, and

both were compared to Hawai'i results for the Youth Risk Behavior Surveillance instrument (YRBS) (United States Department of Health and Human Services, National Center for Chronic Disease and Control and Prevention 2001).

The Curriculum Research & Development Group at the University of Hawai'i, Manoa campus, gathers responses in their ongoing YRBS survey, administered to Hawaii's public middle school and high school students during even numbered years. The instrument monitors six areas of concern for student health:

1. behaviors that contribute to unintentional and intentional injuries,
2. alcohol and other drug use behaviors,
3. sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases (STDs),
4. tobacco use behaviors,
5. unhealthy dietary behaviors, and
6. 60 physical inactivity behaviors.

The data collected from the college group was used to compare with the data collected from the high school group. The collected data was used to explore the possibility of a difference between risk behavior of Micronesians educated in Micronesia as compared to and those educated in Hawai'i.

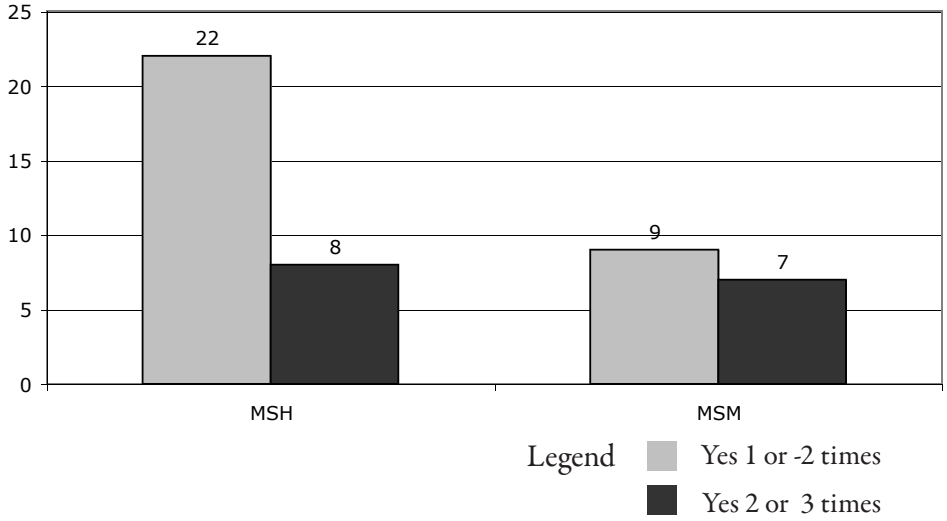
Although only a few questions correlated directly with the Micronesian Teen Behavior Survey, the YRBS served as a measure of Hawai'i students' at-risk behaviors.

Results

The results of the survey show an overall higher rate of at-risk behavior within the MSH group in comparison to the MSM group (Figure 1). Twenty-two per cent (22%) of the MSH responses were "yes 1 or 2 times" when asked about new at-risk behaviors in comparison to only 9% of the MSM group. When answering "yes 3 or more times," the two groups had similarly low responses. Eight per cent (8%) of the MSH group and 7% of the MSM group admitted participation in at-risk behaviors at this frequency.

Tables 1 and 2 reveal seemingly significant differences between the two groups among responses of "yes 1 or 2 times." Six categories reflected higher frequencies of gambling and drug and alcohol use among the MSH group: being arrested (16) 39% MSH - 7% MSM, gambling (18) 39% MSH group - 4% MSM group, marijuana use (10) 50% MSH group - 14% MSM group, heroin use (11) 22% MSH group - 0% MSM group, methamphetamine use (12) 11% MSH group - 0% MSM group, and other drug use (13) 28% MSH group - 11% MSM group.

Figure 1. A comparison of yes responses for the MSM and MSH groups.



When considering responses of "yes 3 or more times" a reverse perspective emerges, and the MSM group shows higher percentages in at least three areas: alcohol use (9) 6% MSH group - 32% MSM group, marijuana use (10) 0% MSH group - 18% MSM group, and other drug use (13) 0% MSH group - 18% MSM group.

Within the Micronesian Survey, the MSM and MSH total "yes" responses to drinking alcoholic beverages (9) are similar. The MSH group totaled 43% "yes" responses and the MSH group totaled 45%. Both groups are lower than the YRBS "yes" responses, however, which totaled 73% in the YRBS 1997 survey (Pateman, Saka & Lai, 2000).

The MSH "yes" response to marijuana use (10), 50%, was higher than their MSM counterparts (32%) but very similar to the 1997 YRBS responses (46.4%).

The methamphetamine use (12) category also revealed an apparently large difference. There were zero "yes" responses within the MSM group, in comparison to the MSH group which totaled 17% "yes" responses and the YRBS 1999 survey which reflected 3.2% "yes" responses.

Discussion

Because this study was exploratory and the number of subjects small, we chose not to use statistical significance testing. The use of percentages, while convenient for identifying possibly notable differences, can lead astray if they

Table 1. Micronesian Teen Behavior Survey Responses College Student Responses (MSM Group)

Survey Questions:	No – Never	Yes –1 or 2 times	Yes – 3 or more times
1. Did you skip school?	15 (54%)	9 (32%)	4 (14%)
2. Were you involved in a physical fight?	20 (71%)	6 (21%)	2 (7%)
3. Did you runaway from home?	26 (93%)	2 (7%)	0 (0%)
4. Were you given in-school suspension?	24 (86%)	3 (11%)	1 (0%)
5. Were you given out of school suspension?	27 (96%)	1 (4%)	0 (0%)
6. Did you take less than $25.00?	22 (79%)	3 (11%)	2 (7%)
7. Did you steal more than $25.00?	26 (93%)	2 (7%)	0 (0%)
8. Did you steal personal property?	25 (89%)	1 (4%)	2 (7%)
9. Have you had an alcoholic beverage?	16 (57%)	3 (11%)	9 (32%)
10. Have you experienced marijuana?	18 (64%)	4 (14%)	5 (18%)
11. Have you experienced cocaine or heroin?	28 (100%)	0 (0%)	0 (0%)
12. Have you experienced methamphetamine?	28 (100%)	0 (0%)	0 (0%)
13. Have you experienced other drugs?	20 (71%)	3 (11%)	5 (18%)
14. Have you committed a sexual offense?	26 (93%)	1 (4%)	1 (4%)
15. Have you carried a weapon?	25 (89%)	1 (4%)	2(7%)
16. Have you been arrested?	26 (93%)	2(7%)	0 (0%)
17. Have you been to juvenile court?	26 (93%)	2(7%)	0 (0%)
18. Have you every gambled?	24 (86%)	1 (4%)	3 (11%)

are not taken as suggestive only. The small number of respondents gives a misleading importance to differences of a single person. For instance, for the high school group of 18, a single subject represents 5.6 percentage points.

Although both the MSH and MSM groups indicated higher percentages of at-risk behaviors in specific areas than Hawai‘i youths in the YRBS survey, the total percentages are lower than those of the YRSB respondents. The few instances of higher percentages are “yes 1 or 2 times” responses, and therefore considered experimental or exploratory behaviors.

Despite this allowance, the higher percentages of “yes” responses within the MSH group, in comparison to the MSM group, suggest that a new cultural environment with its different lifestyle and presumably increased exposure to drug use, may have a strong impact on the MSH group and ultimately impact these students as they attend high school in Hawai‘i.

Kitano (1997) noted that Pacific Island immigrants to Hawai‘i have high educational attainment and that high Micronesian educational attainment reinforces Micronesian family attachments and cultural commitment.

Table 2. Micronesian Teen Behavior Survey Responses High School Student Responses (MSH Group)

Survey Questions:	No – Never	Yes –1 or 2 times	Yes – 3 or more times
1. Did you skip school?	8 (44%)	9 (50%)	1 (6%)
2. Were you involved in a physical fight?	12 (67%)	3 (17%)	2 (11%)
3. Did you runaway from home?	17 (94%)	1 (6%)	0 (0%)
4. Were you given in-school suspension?	14 (78%)	4 (22%)	0 (0%)
5. Were you given out of school suspension?	16 (89%)	1 (6%)	0 (0%)
6. Did you take less than $25.00?	12 (67%)	4 (22%)	1 (6%)
7. Did you steal more than $25.00?	17 (94%)	1 (6%)	0 (0%)
8. Did you steal personal property?	17 (94%)	0 (0%)	0 (0%)
9. Have you had an alcoholic beverage?	10 (56%)	7 (39%)	1 (6%)
10. Have you experienced marijuana?	8 (44%)	9 (50%)	0 (0%)
11. Have you experienced cocaine or heroin?	14 (78%)	4 (22%)	0 (0%)
12. Have you experienced methamphetamine?	15 (83%)	2 (11%)	1 (6%)
13. Have you experienced other drugs?	13 (72%)	5 (28%)	0 (0%)
14. Have you committed a sexual offense?	14 (78%)	4 (22%)	0 (0%)
15. Have you carried a weapon?	17 (94%)	1 (6%)	0 (0%)
16. Have you been arrested?	11 (61%)	7(39%)	0 (0%)
17. Have you been to juvenile court?	15 (83%)	3(17%)	0 (0%)
18. Have you every gambled?	11 (61%)	7 (39%)	0 (0%)

This commitment to education and ethnic culture may be reflected in the low percentages of "yes 3 or more times" responses. These percentages are lower than the YRBS results and may suggest that specific behaviors within the MSH group remain experimental rather than established.

The notably higher percentage of "yes 3 or more times" responses to alcohol use within the MSM group (32%), in comparison to the MSH group (6%), may reflect the Micronesian acceptance of alcohol use as a rite of passage to manhood which Hezel (1992) earlier documented as a factor that contributed to alcohol problems among teens.

Kitano (1997) cites some of the adjustment problems that Pacific Islanders face as they adjust to American society and notes that drug and crime problems often accompany that struggle. Economic difficulties, increased individual freedom, new job choices, and different educational expectations can also negatively affect their adjustment. He suggests that subsequent generations of Pacific Islanders, like other ethnic minorities that immigrated to the United States, might continue to face challenges as they adjust to American society.

Conclusion

Although this instrument of research was exploratory and the sampling of students small, it suggests that Micronesian teens' at-risk behavior is increased by their new high school environment in Hawai'i. These findings support the development of an expanded instrument of research to include students who attend secondary schools in Micronesia and students who attend other secondary schools in Hawai'i.

The survey questions should be expanded and aligned with the Hawai'i Youth Risk Behavior Survey in order to perform comprehensive comparisons between students living in Micronesia with Micronesian immigrants to Hawai'i. An expanded instrument of research might also explore other variables that impact Micronesian youths as they adapt to a new environment.

Micronesian families will continue to immigrate to Hawai'i because they believe this society provides endless opportunities. This survey demonstrates a certain Micronesian resilience to delinquent teen culture, but it also alerts educators to the potential for increased at-risk behaviors among this group of immigrant youths.

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Building Literacy-Rich Environments in the Pacific: College Students and Literacy in Chuuk, F.S.M.

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The purpose of the research reported here was to improve understanding of the educational problems faced by Micronesian and Pacific islanders and to provide an example of culturally appropriate curricula. A survey was administered to 92 community college students in Chuuk, Federated States of Micronesia (F.S.M.), regarding their educational experiences with literacy and language. Results indicated that for most respondents, English instruction began by ninth grade, with first grade representing the mode. Reading instruction began anywhere from first through twelfth grade, with fourth grade representing the mode. The majority of these community college students also reported that they value literacy, read daily, and have a variety of reading materials available at home. A subgroup of respondents, who were also practicing teachers, suggested ways to support literacy instruction, including providing materials in both English and Chuukese, incorporating aspects of Chuukese culture into instruction, and increasing teacher training and support. In response to the need for culturally-referenced curricula, bilingual materials were developed in partnership with local teachers.

The issue of literacy development is of primary importance in education. This is true in developing countries and U.S.-affiliated entities, as well as in developed nations. The United States, because of its Compact of Free Association with the Federated States of Micronesia (FSM), is committed both to teacher training and curriculum development in Chuuk and school improvement efforts in Guam and Hawai'i to better serve Chuukese immigrants. In both circumstances, this presents major challenges. Most American teachers know very little about countries like the Federated States of Micronesia and their histories and political relationships with the U.S., and even less about the literacy, language, and educational backgrounds and needs of Chuukese teachers and students. This lack of understanding can handicap instructional efforts.

In this paper, we provide basic information about Chuuk. Then, we describe results of a literacy survey administered to 92 students (including 19 practicing teachers) at the College of Micronesia (C.O.M), Chuuk Campus. Finally, we describe an action research project at Sapuk Elementary School exploring technology-enhanced intervention strategies to promote literacy. To the best of our knowledge, this is the only literacy research of its kind that has been conducted in Chuuk in at least twenty years.

Chuuk: Location, History and Population

Chuuk is lcated 650 miles east of Guam, and northwest of Papua, New Guinea. It is one of four Federated States of Micronesia. Chuuk consists of six major inhabited volcanic islands, and many smaller ones, spread out over 800 square miles.

According to the 2000 census, Chuuk has 53,945 people, with 25% of these inhabiting Weno, the capital and most developed island. In 2000, the median age of the population was 18.5 years old. The language spoken at home for 94% was Chuukese. As the census report explains, "Although English has been used as a second language and the medium of communication at the government offices and the private sectors, the percentage of Chuukese who speak English dropped from 36% in 1994 to 20% in the year 2000" (p. 60). (This decline may be caused by emigration of English speakers from Chuuk.) This is especially interesting considering that the language used for education (at the fourth grade level and beyond) is English.

In 2000, the median household income was $2,445 USD, and the average household consisted of 7.7 persons. The labor force participation rate was described at 58% with the following major industries: public administration, education, agriculture, wholesale and retail, health, hotels, restaurants, and bars.

Historically, Chuuk (previously known as Truk) was inhabited by Micronesians (of Malay-Polynesian descent). Explorations into Chuuk brought Europeans, and colonization by Spain (1885), Germany (1899), and Japan (1914). Protestant missionaries arrived in the late 1800's, providing Bible-reading as a motive for literacy in a culture that relied primarily on oral tradition. Japan made Tonoas, Chuuk its military headquarters, and in the 1930's, many Japanese immigrated and set up businesses and the first formal schools.

In 1947, at the conclusion of World War II, the United Nations placed Micronesia under the trusteeship of the United States. In 1986, F.S.M. became self-governing, although Compacts of Free Association provided financial and military assistance from the U.S.

Literacy Level and Educational Attainment

According to the 2000 F.S.M. census, the general literacy level was 89%. As the report indicates, " An inverse relationship existed between literacy and age where the proportion of literates decreased as age increased, showing better education for the younger generation" (p. 71). Although this is positive, literacy, according to the census definition, consisted of asking people orally whether they could read or write a paragraph, a process that could be of questionable validity.

Census data indicate that educational levels vary, with 17.8% not receiving education; 33.7%, a grade school education; 34.1%, a high school education, and 13.7% attending college. Students passing an eighth-grade exit examination are allowed to continue on to high school, with more girls than boys passing this exam. Opportunities for higher education include obtaining an A.A. or A.S. degree at College of Micronesia, Chuuk Branch, in the main island of Weno. Some pursue further education at the national campus, College of Micronesia, Pohnpei, or at the University of Guam, the University of Hawai'i, or elsewhere in the continental United States.

According to one reviewer (Heine 2002), the majority of Micronesian schools use the home language for instruction in grades 1-3. English instruction begins in the fourth grade and, by high school is the main language of instruction. Heine describes Gibson's (1980) contention that "This practice has done little to help with proficiency in either language" (p. 6). In practice, Heine contends that many teachers in the elementary grades feel uncomfortable using English, and use the local language instead. Furthermore, an absence of either English or Chuukese reading materials makes literacy instruction difficult.

Finally Heine explains, "In many parts of Micronesia, schools were

(and still are) modeled after American institutions with American teachers. These methods were very foreign to traditional educators, so parents felt uncomfortable in a place where they were unfamiliar with the ideas, methods and language taught. Over decades, this effectively alienated parents and the larger community from being involved in education. Those attitudes, beliefs, and feelings still hold true today" (p. 12). Clearly, much can be done to better situate literacy and education generally within appropriate social, cultural, and contemporary contexts in Chuuk, and to increase U.S. teachers' awareness of the backgrounds of their students.

An investigation of the general literacy backgrounds and needs as expressed by community college students in Chuuk provides part of the needed educational research foundation. Therefore, in the present study a survey was developed to investigate literacy backgrounds, current literacy practices including computer use, and teacher suggestions for improving literacy instruction.

Method

Participants

Survey participants were 92 community college students in Chuuk, 19 of whom were also practicing teachers. Participation was voluntary and anonymous, and took approximately 30 minutes.

Materials

The questionnaire was developed by the authors and consisted of 45 multiple-choice, fill-in and open-ended items addressing the following areas: Background information, including first and other languages, educational attainment, career aspiration, and parental educational attainment.

1. Language and reading education, including language and level of instruction for initially learning to read, kinds of materials used, and language proficiency in English and Chuukese.
2. Current reading practices, including kinds of materials read, library usage, access to recreational reading materials, and importance of literacy for respondents and for their families.
3. Computer use and access as a form of literacy.
4. Teaching practices, challenges and suggestions of educators for improving literacy learning were included in the second part of the survey, designed to be only answered only by respondents who were also teachers.

Results and Discussion

Data analyses consisted of calculating frequencies and means (where appropriate) for all quantifiable data. Responses to open-ended questions were categorized according to general themes that emerged and were determined to most clearly represent students' comments. Major findings are discussed below and presented in the appendix.

Participants' Backgrounds and Career Goals

The mean age of respondents was 23.8 years old. For all but one, the first language was Chuukese, and English constituted a second language.

In Question 2 (see appendix), students were asked about future career choices. Despite the issue of limited employment opportunities in Chuuk (Hezel, 2002), respondents selected careers that reflected realistic possibilities for future employment. The largest group of students selected teaching (29 respondents), then business (26). Three were undecided and 7 selected other, including diverse careers, such as travel industry, medicine, law, nursing, and farming.

Although we did not ask whether participants planned to emigrate to the U.S. for employment later, as do many Chuukese (Hezel, 2002), the majority of respondents indicated that they planned to continue their college educations beyond the community college level (see Question 3). Due to a lack of a four-year college option, this necessitates leaving Chuuk. Sixty-five listed colleges or universities that they planned to attend later, including the University of Hawaii (34), University of Guam (14) and others (17).

To gain a better picture of their backgrounds, we asked about parental educational levels of attainment (Question 1). Of respondents, 43 (59.7 percent) reported their mothers had finished high school; and 17 (23.6 percent) that their mothers had completed some college or had college degrees. In contrast, more of the fathers (51 or 53.1 percent) had completed high school, and 36 (37.5 percent) completed some college or had college degrees. These educational levels are higher than levels reported in the 2000 F.S.M. census, in which only 43.1% completed high school and 13.7% had college-level educations. These figures also indicate that females lag behind males in terms of educational attainment beyond eighth grade.

English Language Instruction

In response to Question 4, respondents indicated that their English instruction began in different grades, from Head Start all the way through ninth

grade, with first grade representing the mode (23). Additionally, a large number reported initial English instruction in grades second through fifth (32).

When asked how frequently their teachers spoke English in class during elementary school, the mean response on a scale of 1-5, ranging from never to always, was 3.4. For high school, M = 4.0, and community college M = 4.2, indicating increasing use of English in conjunction with higher educational levels.This supports Heine's (2002) observation that English instruction is used increasingly in the higher grades.

Additionally, we asked them to rate their own language proficiency on a 5-point scale ranging from 1 (very poor) to 5 (very good). The mean was 4.3 for Chuukese and 3.3 for English. Twenty-seven reported English as the language in which they felt most comfortable expressing themselves, 33 selected Chuukese, and 15 indicated both.

Reading Instruction

In Question 4, students were also asked to report in which grade their initial reading instruction had begun. Responses were highly variable, ranging from first through twelfth grade, with fourth grade representing the mode (19).

It is interesting to note that the ages students recalled initial reading instruction as taking place were far more variable and later than in the U.S. As can be expected, most children learned to read the same year reading instruction began in school or after. However, some students learned to read before formal reading instruction began in school, indicating that at least for some, support for early literacy development was provided in the home or family.

It is also interesting to note that many students selected fourth grade as the year in which reading instruction began. For many, this coincides with the year that English language is formally introduced, perhaps indicating that teachers wait to begin instruction until English is introduced, possibly due to the lack of Chuukese reading materials.

When asked about the kinds of materials used for their early reading instruction (Question 5), the majority reported textbooks (54 respondents), then children's books (40), the Bible and other religious materials (36), or teacher-made materials (32). Fifty-two respondents indicated that English was the language of the materials, 7 indicated Chuukese and 22 indicated both. Again, the lack of reading materials in Chuukese creates an additional responsibility for teachers who must create them.

Importance of Literacy and Access to Reading Materials

The majority reported reading on a daily basis and had a variety of reading materials available at home (Question 8). The largest category was novels, then Bibles or other religious materials. It was noteworthy that more than half have newspapers at home. At the time the survey was administered, Chuuk did not have its own newspaper (an outer island newspaper was sometimes shipped in), and most local news is conveyed via the local radio.

When asked what kinds of recreational reading materials they would like to have more access to, only 24 suggestions were made (Question 10). These included novels, magazines, and Internet access.

Participants were also asked to rate the importance of literacy in their lives, on a 5-point scale, from 1 (unimportant) to 5 (absolutely essential). The importance of literacy was rated highly (M = 4.2) in their lives and the importance of literacy among their family members was rated somewhat less highly (M = 3.9). It would be expected that college students might value literacy more than would other family members.

This valuing of literacy was also apparent when asked about library use. The majority (80) reported using the C.O.M. library and 17 reported using the high school library. In Question 11, students indicated specific library uses. The highest usage category was research for classes (71), then for several computer-use categories, including word processing (65), Internet use (64) and e-mail (54). The C.O.M. library is also a computer lab.

Computer Use as a Form of Literacy

Participants were also asked about computer use. Seventy-nine reported using computers. Some students did not report computer use at all. This would be expected as only the main island, Weno, where the community college is situated, has electricity. Some of the students commute from the outer islands by boat daily to attend the community college.

Specific computer uses were also reported (See Question 13). The most popular use was word processing for writing papers. However, Internet use, both for school and personal research was also prevalent, including writing to each other on e-mail.

Only six reported using computers over 10 hours per week, with the majority (52) reporting use from 30 minutes to five hours. Students were not asked whether they have personal computers, although it is likely that very few have them.

Teachers' Responses

Open-ended comments from teachers

Through the open-ended questions in the latter part of the survey, teachers were asked to identify their educational strengths, values and needs. A content analysis of their responses yielded three major categories or areas presented below. Within each category, illustrative teachers' responses are paraphrased and summarized.

Regarding literacy needs and values, teachers write:

1. We need reading materials of all sorts (including story books, textbooks and notebooks). Shortages of materials abound across all the grades.
2. We must value bilingual education, including literacy in both languages.
3. We must teach the history and culture of Chuuk (including the reading and writing of stories).
4. We must promote reading and writing of all sorts.

Regarding Chuukese culture and education, teachers affirm:

1. We should teach "respect" for elders and friends.
2. We should celebrate the great Chuukese navigators across the curriculum.
3. We are learning about Micronesia and the Pacific (cross-cultural comparisons). We need the "prior knowledge" of our culture, both to empower ourselves and to learn about others.
4. Our children want to learn the skills of the culture and their own language, both written and spoken.
5. We need to integrate cultural studies across the curriculum (literacy, math, science and social studies)
6. We should teach daily aspects of culture, including foods and cooking, farming, fishing and weaving.
7. We need community and family support. Sometimes we feel abandoned.
8. We need to motivate our students to overcome boredom and frustration.

Regarding needs as Chuukese educators, teachers express:

1. We need more skills and knowledge as teachers.
2. We need to make "outsiders" feel welcome to support us in teaching English.
3. We need to be paid a living wage.
4. We need parent and community support to overcome our feelings of isolation.

We acknowledge that this summary is limited only to 19 respondents; however, we believe that these themes are representative of the major concerns expressed by teachers in the region, as we have encountered them in our teaching and fieldwork. In response to these themes, one of our Chuukese co-authors, Margarita Cholymay, former Chair of the Board of the Chuuk State School System, and PhD student at the University of Hawai'i writes:

> I agree with what teachers expressed as their main needs and concerns based on improving literacy teaching in Chuuk. There is a great need of literacy materials in both English and Chuukese languages. It is important that teachers accept the relevancy of incorporating Chuukese culture into their teaching. It is also important to accept the fact that technology is increasingly spread through out the world, and it is important that Chuukese children will be prepared as well as other children in the world.
>
> One important point that I...emphasize is that teaching Chuukese children to read and write in Chuukese provides an important foundation for them to transfer into English when they start writing in English and reading books written in English.

In general, most Chuukese teachers agree that literacy, bilingualism and Chuukese culture and history should be infused across the educational curriculum from first grade through high school. Teachers acknowledge that they need more training, books and resources, and certainly better compensation, but they express confidence that they know what their students need, if the windows of opportunity can be opened.

Typically, Chuukese teachers do not mention "technology" in their responses. Apparently, computers and multimedia have not yet significantly impacted their classrooms. With the advent of the Internet, school computer labs and cable television, we predict that teachers' expectations of technology will soon change, however. In the following section, we describe a model of one way to address literacy needs through the incorporation of technology.

Pacific Voices: Action research in Chuuk

In response to the above described need to develop bilingual, culturally referenced curriculum materials in Chuuk; and to validate technology-enriched instructional strategies to empower Chuukese teachers and students to engage in curriculum development, the Pacific Voices Project at the University of Hawai'i in Fall 2001 initiated an action research partnership with Sapuk Elementary School and Xavier High School on Weno island.

The purpose of the action research was to place multimedia technologies

in the hands of village teachers and youth, and to provide them with supports to develop culturally referenced, bilingual (Chuukese and English) curriculum materials using educational technologies. The research questions, simply put, included:

- Are multimedia technologies appropriate for under resourced schools in Chuuk?
- How can multimedia technologies be employed in rural classrooms to promote curriculum development in Chuuk at a grass roots level?
- What multimedia techniques are most effective in the hands of Chuukese teachers, children, and youth to honor "village wisdom", including story telling and cultural teaching?

The intervention targeted a 6th grade classroom at an under-resourced public elementary school (the classroom was without desks, electricity or books). Five seniors at the nearby Xavier High School (a private school) volunteered for a service learning project to work with the Sapuk Elementary sixth graders to produce video and audio recordings of cultural practices and story telling; and to transcribe the recorded stories and publish them bilingually within PowerPoint presentations. The University of Hawai'i provided two digital video editing Macintosh computers (a laptop and a desktop), a digital still camera, two audio tape recorders, a printer and laminator. The project implementation was from January to May, 2002 (at which time the seniors graduated from Xavier). The Pacific Voices staff made three 3-day site visits during the interim to provide consultation and support.

The outcome products were positive and surprising to all participants. The products included four 15-minute cultural how-to videos related to food harvesting and preparation (including copra, tapioca, taro and yams); and five recorded story-tellings with village elders, with corresponding bilingual print interpretations. The teachers at both Sapuk Elementary and Xavier High School rated the project as "highly successful" and requested that it be continued in the upcoming school year.

This action research project suggests that children, youth, and teachers can engage in empowering pedagogy to develop locally responsive curricula. This is in clear juxtaposition with the accepted practice of purchasing English-only curricula from the United States, or employing "professional" curriculum developers at the Chuukese state level to produce materials that are sent to schools for didactic instruction.

Summary and Conclusion

In summary, we shared results from a survey that was administered to Chuukese community college students. Our general findings indicated that these students value literacy, read regularly, and have access to some reading materials at home. The varied grade levels at which students begin to learn English as a second language and the relatively late level at which reading is taught combined with the lack of culturally appropriate early reading materials in Chuukese language create challenges for early literacy and language learning. We presented the literacy needs as expressed by teachers for materials, support, and culturally appropriate bilingual instruction. Finally, we described the Pacific Voices project, in which Chuukese and University of Hawaii students and educators used technology enriched, authentic literacy tasks to record, interpret, and publish stories and create videograms, both for cultural preservation and expression as well as for the creation of culturally and linguistically appropriate literacy materials.

In conclusion, this research contributes to an understanding of literacy and language learning in Chuuk. It is hoped that further interest in work such as this will facilitate the development of effective literacy materials and interventions for students and teachers in Chuuk and elsewhere and will contribute to U.S. educators' understanding of the cultural and literary richness of their own Micronesian and Pacific Islander students.

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Appendix

Selected Literacy Survey Items With Results

Family Educational Levels and Participants' Career Plans

1. Parents' educational levels:

	Mother	Father
Some college or college degree	17	36
High school graduate	43	51
Some high school	5	6
Eighth grade	3	1
Seventh grade	1	0
Sixth grade	1	0
Fifth grade	1	1
No education	1	1
Total	**72**	**96**

2. If you are not a practicing teacher, which of the below best describes your intended career?

Teaching	29
Business	26
Undecided	3
Other (includes travel, medicine, law, nursing, farming)	7
Total	**65**

3. Do you plan to attend another college or university after COM?

University of Hawaii	34
University of Guam	14
Other	17
Total	**65**

Initial English Language and Reading Educational Experiences

4.

	Grade of Initial English Instruction	Grade of Initial Reading Instruction
Head Start	4	0
First	23	8
Second	5	9
Third	7	8
Fourth	12	19
Fifth	8	9
Sixth	3	6
Seventh	4	1

Eighth	4	3
Ninth	4	3
Tenth	0	0
Eleventh	0	0
Twelfth	0	1

5. What kinds of reading materials were used?

Textbooks	54
Children's books	40
Bible or other religious materials	36
Teacher-made materials	32
No materials	3
Other	2

6. Which language were the reading materials written in?

English	52
Chuukese	7
Both English and Chuukese	22

7. In which language do you feel most comfortable expressing yourself?

Chuukese	33
English	27
Both	15

Current Access to Literacy Materials

8. Which of the following materials can be found in your home? (Please check all that apply)

Novels	84
Bible or other religious materials	81
Textbooks	67
Newspapers	53
Magazines	49
Other	9

9. Do you have access to recreational reading materials (e.g., novels, magazines, mysteries, the Internet)?

Yes	56
No	31

10. If no, what kinds of material would you like to have more access to?

Novels	7
Magazines	5
Internet	5
Other	7

11. Do you use a library for the following?

Work on research for classes	71
Use the computer to type papers for class	65
Use the Internet for research	64
Use the computer for email	54
Socialize with friends	48
Borrow books	45
Work on research related to personal interests	41
Other	7

Computer Use as a Form of Literacy

12. Please estimate the number of hours that you use computers each week.

Over 10 hours	6
6-10 hours	9
30 minutes to 5 hours	52
No use	7

13. Do you use computers for the following?

Word processing for writing papers	65
Research for school on the Internet	57
Write to others on email	51
Personal research on topics of interest	47
Other	8

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Counseling Samoan Adolescents: A Qualitative Study

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This phenomenological study examined the perceptions of Samoan youth relative to problems their cultural group face, reasons they think these problems exist, and possible solutions to these problems. Recommendations for counselors and educators are also discussed.

People migrate from all over the world to call Hawai'i their new home. In fact, Hawai'i is the only state where no ethnic group constitutes a majority of the population (Ock Yum & Wang, 1983). It is believed that over twenty-seven races and cultures live in Hawai'i (Iuli, 1991). One only needs to take a look at the customs and traditions in Hawai'i to see that many different cultures are rooted in these islands. Because of this myriad of cultures in the islands, Hawai'i is often referred to as the melting pot of the Pacific. One of the newer members of this melting pot in Hawai'i is the Samoan group. Historically, Samoans have migrated to Hawai'i and other states such as California and Washington from Western Samoa and American Samoa in two major waves (Foon Young, 1977). The first movement began about 1920 when many Samoan Mormons came to Hawai'i to join the temple. The second, larger movement, that began in 1951 and continues to today, was primarily due to military relocation to Hawai'i and other states (Foon Young, 1977). Today, many Samoans come to America seeking better economic and educational opportunities for their families (Franco, 1987).

Like any new group entering into a new environment, Samoans faced a number of problems when they came to the United States. According to Eyde's study in 1954, Samoans encountered difficulties in finding housing. Although the military provided some housing, the rest were left to locate housing as best as they could. They had problems with language barriers, and as a related consequence, finding adequate job opportunities. Samoans also faced confusion and conflicts within their own cultural practices governed by the Fa'a samoa (way of life), such as the matai system (system of hierarchy and power). They were faced with having to adopt values which to them seemed like "idiosyncrasies of foreigners: ideas such as, "rugged individualization," "economic Darwinism," the nuclear family system, private ownership of goods, apartment and low-income dwelling, etc." (Ho, Fong, Oshiro, & Omori, 1974, p.10). Samoans were faced with the dilemma of trying to adapt to the more modern lifestyle of the United States while at the same time holding on to their cultural traditions and values.

According to statistics gathered within the last two decades, the problems in the Samoan group do not appear to be getting any better (Munroe, Huelfeld, & Rogers, 2002). Samoans are highly over represented in the areas of incarceration and arrests, health problems, low-income socioeconomic status, and unemployment. Samoans are negatively stereotyped as being on welfare, being incarcerated and displaying violent behaviors (McDade, 2002). Samoans are over represented in the areas of many health problems such as hypertension, heart disease, obesity and diabetes (Wright & Littford, 2002). They also are

reported to have higher levels of psychosocial problems such as depression, alcoholism and occupational stress. Studies have shown that migration may be a common factor among these problems (Hanna, 1998; Hanna & Fitzgerald, 1993).

Finally, Samoans are also over represented in areas of low family income and unemployment. The economic reality is that according to recent statistics available, Samoans are the most impoverished ethnic group in the United States (Brousseau, 1993). Samoans also have the lowest use of community services and the lowest rates of awareness that these agencies exist (Wright & Littleford, 2002).

Given this somewhat bleak picture of Samoans, one might wonder how this affects Samoan youth. Samoan youth are faced with a unique situation of being caught in the middle of two worlds: the strong fa'a samoa (Samoan way of life) traditions and culture vs. the modern life of growing up in the United States (Wong, 2001). On top of dealing with the painful process of coming of age that many adolescents face, Samoan youth must also deal with cultural generation gaps which exist in their families. Studies have shown that Samoan youth born in Samoa and the United States are facing many adjustment problems and are not necessarily overcoming the odds (Gerber, 1975; Iuli, 1991; Rolff, 1978; Sheeran, 1982).

There is evident need to investigate the struggles Samoan youth face in order to better understand how to help them as counselors, educators and other members of the helping profession. Although there were studies done on the Samoan population in the 1970's and 1980's, these studies have become scarce, and the bleak situation remains today. One way to better understand the situation of the Samoan youth is to ask their opinion on where their people are at and what can be done to better their futures.

The purpose of this phenomenological study was to answer the following three research questions: What are the perceptions of Samoan youth today on the problems their culture face? Why they think these problems exist? and What can be done to solve these problems?

Methodology

Research model

The phenomenological model of qualitative research provides an alternative to the statistically oriented quantitative models of conducting research. It can help researchers to better understand the problems and concerns of Samoan adolescents. Phenomenological research explores personal experiences and

perceptions of the participants who are referred to as co-researchers (Matsu, 2001; Omizo, Omizo, & Honda, 1997). This model can provide a deeper and thorough understanding of human experience and behavior as compared to other methods of research (Giorgi, 1970; Matsu, 2001; Sakato, 2000). According to Patton (1986), investigators immerse themselves in the material to better understand and appreciate the co-researchers' experiences. The model uses a semi-structured interview to gather information from co-researchers. The investigators make an attempt to capture what is actually taking place through direct quotations of the co-researchers (Patton, 1986).

According to Kornfeld (1989), phenomenological research has two phases. The first phase, Epoche, occurs when the researchers record his/her biases and assumptions about the phenomenon and then tears up the paper to symbolically get rid of biases, prejudices, and stereotypes. This facilitates objectivity in the interviewing, collecting, and analyzing of the statements. The second phase involves recording, clustering, and synthesizing categories to discover themes among the co-researchers.

Co-researchers

The co-researchers were obtained from a high school on Oʻahu, Hawaiʻi with a relatively high Samoan student population. Ten co-researchers were chosen to participate in the study. All co-researchers completed the semi-structured interview. The co-researchers ranged from grades nine to twelve and were carefully chosen through a collaborative effort between the advisor of the Samoan club at the high school and the head of the counseling department. First, with the assistance of the registrar, a list was generated of all students of Samoan ancestry that attended the high school. Next, a selection committee met to narrow the list to students they felt were honest, trustworthy, and were doing well enough in school to get permission from their teachers to miss class to participate in the study. Finally, this list of students was finally narrowed down to choosing students based on the following criteria: five female co-researchers and five male co-researchers; five who were born in Hawaiʻi and five who recently migrated from Samoa (Western or American) within the past five years.

Procedure

The study was given approval by the Human Subjects Committee of the local university. Parental permission was also obtained since the co-researchers were minors. The researchers participated in epoche by writing down their

biases, discussing them and tearing them up. Each student was interviewed individually. No translator was used since the students were fluent in English. All interviews were audiotaped and later transcribed verbatim.

Instrumentation

The semi-structured interview format was created by the researchers. The questions asked were broken down into background information on the subject, the three research categories: what problems they face, why they feel they face these problems, and what can be done to solve the problems. A total of fourteen questions were asked. The first four questions were basic questions which asked about the co-researchers' backgrounds. The next group of questions asked about the problems they face as an individual of Samoan ancestry, and also the problems that they felt the Samoan community faces. The following group of questions addressed the "whys" of the above mentioned problems. The last group of questions dealt with brainstorming solutions to the abovementioned areas relative to how positive change can occur. The following is the semi-structured interview used:

1. Are you full or part Samoan? What things about yourself do you consider Samoan? (characteristics, personality, language, clothing, friends, etc.)
2. Do you speak Samoan? What is the role of Samoan language in your family? Do parents and relatives speak Samoan? English? What is spoken in the household?
3. Were you born in Samoa or Hawai'i? How has this affected who you are?
4. Who do you consider to be your social network support system? Tell me about your aiga (family) and aiga potopoto (extended family).
5. What about generation gaps in your family? Tell me about it and how it affects you as part of the younger generation.
6. What is the role of religion in your family?
7. How are you doing in school?
8. What are your future plans?
9. How do you feel about yourself?
10. What are some of the difficulties you, as a Samoan face?
11. What are some difficulties you see the Samoan community face todayWhy? How does this affect you?
12. What do you think about the stereotypes Samoans face? How does this affect you?
13. How does fa'a Samoa (Samoan way of life) affect your life? Your family's life?
14. How is positive change possible for Samoans in Hawai'i?

Researchers

Researchers have graduate counseling degrees and experience working with the Samoan population. Counseling skills such as rapport building, probing, clarifying, paraphrasing, reflecting, summarizing, and encouraging were used during the interview process.

Analysis

After the structured interviews were completed and transcribed, each interview was carefully analyzed. Using a process of analysis similar to phenomenological studies done by Omizo, Omizo, and Honda (1997), Sakato, 2000, and Matsu, 2001, the data was analyzed by gathering themes and patterns. To determine patterns and themes, each question of the structured interview was analyzed based on the frequency of the subjects' responses. The data was analyzed individually for each subject, and then analyzed on the whole group basis. These group recurring themes and patterns were then grouped into the three categories related to the three research questions the perceptions of Samoan youth today on the problems their cultural groups face, why they think that these problems exist, and what can be done to solve these problems.

Limitations and Delimitations

There are a number of limitations and delimitations in this study. First of all, the results cannot be generalized to the entire Samoan population in Hawai'i and the United States. The instrument was designed by the researchers. The results are based on the assumption that the co-researchers responded honestly. The co-researchers numbered only ten and were not randomly selected. Lastly, there is a degree of subjectivity in interviewing and analyzing the data.

Results and Discussion

Eight of the ten co-researchers were full Samoan, and two were part-Samoan. Interestingly enough, the two co-researchers who were part-Samoan identified with their Samoan culture. All ten co-researchers reported that mostly the Samoan language was spoken at home, and that they could almost speak the language fluently themselves. The main difference between the co-researchers born in Hawai'i and the co-researchers born in Samoa was that they (those born in Samoa) preferred life in Samoa over Hawai'i even if they enjoyed the freedom in Hawai'i. The Samoan born co-researchers said that Samoans in Hawai'i, especially the teenagers, don't have respect.

When asked who they would consider to be their family members, nine of

the ten co-researchers mentioned mother, father, siblings and extended family members such as cousins, aunts, uncles, and grandparents as well. Nine of the ten co-researchers claimed that their families were their greatest support system. Religion appeared to be a strong theme among the co-researchers. Nine of the ten co-researchers said that they were strong Christians, and going to church was a must. The tenth co-researcher reported to be strongly rooted in the Catholic religion.

The responses of the co-researchers were analyzed according to the first research question on perceptions of Samoan youth of the problems their cultural group faces. The most common theme was not being understood by other people and being looked at as bad people and troublemakers. Other stereotypes the co-researchers mentioned were being violent, scary, rough, and stupid. They believed that these negative stereotypes were due to the media. The majority of the co-researchers said that they were not treated fairly by others including teachers who did not treat them fairly because they were Samoan.

On the community level, there were several common themes that stood out. Financial problems and Samoan families on welfare seemed to be the biggest problems. Co-researchers also mentioned that too many Samoans were in prison and lived in housing projects. Another problem mentioned is that Samoan parents do not get involved with their childrens' lives. Another issue mentioned is that child abuse is often misunderstood. What is seen as child abuse is seen as discipline and respect by the Samoan culture. Keeping the Samoan culture strong was also seen as a problem. Examples of comments include:

- "They think we trouble makers and cannot speak English."
- "Some people don't understand our culture."
- "Too much domestics at home."
- "They tease the way you talk, the way you dress, the way you look."
- "Child abuse."
- "Some Samoans are lazy."
- "Money problems-it is a big one."
- "Violence, too much violence."
- "Samoans are going no where, no future."
- "When it comes to traditions, there is no communication."

There seemed to be a wide range of reasons why the co-researchers believed that the problems existed. Regarding finances, co-researchers felt that Samoans do not save money. When Samoan people get some money, they blow it all at once and do not save for necessities in life such as food and bills. Others felt that

the giving of monetary gifts (fa'alavelaves) to other family members and church was too extravagant and status oriented. Sometimes family members put strain on each other financially.

In regards to crime and violence, researchers felt that some of the problems stem from frustration in the home environment including poor communication. Because the communication does not appear to be effective, differences are not ironed out and issues are not always openly discussed. The following are perceptions of the co-researchers as to why the problems exist:

- "Everybody think they big and better than everybody, and that's how they get in trouble."
- "Sometimes people try and put down the Samoans and make "um feel bad."
- "That's all they look at, the bad things Samoans do. They don't really look at the good things."
- "Not getting enough attention at home, so they take their frustration out into the street."
- "They don't save their money, don't think of their future."
- "They just want attention, I guess."
- "Parents are just trying to teach their children respect, that's not abuse."
- "Bad choices, friends, who their with . . ."
- "The media."
- "They get frustrated because they try to tell their parents how things are now, in the 90's, and their parents don't listen."

The co-researchers provided a wealth of information relative to what can be done to solve the problems. One of the solutions involved getting better and higher paying jobs. This might also help get Samoans off of the welfare system and public housing. They thought that it may be helpful to have workshops to help Samoans develop better job skills. The co-researchers also felt that Samoans need more support and encouragement from within the Samoan community itself. Samoan families also need to be better able to communicate with each other. Several co-researchers also mentioned Samoans need to make better choices. Many of the recommendations implied that Samoan individuals need to take more responsibility rather than relying on a system to take care of them, such as the welfare system, the school system, the family system, etc. They also mentioned that the Samoan community needs to look at what other people are working hard to achieve and aim high for themselves. They mentioned that oftentimes, Samoans accept their situations and do little to change it. The majority of the co-researchers believed that it was time for change.

One of the most common themes seemed to focus on Samoan youth. The

co-researchers emphasized the importance of education and getting a high school diploma. They suggested getting programs started to get the Samoan youth off the streets. Having positive adult role models was also mentioned. Too often, Samoans do not make it big so there are not enough positive Samoan role models. The co-researchers also believed that they need a way to learn the Samoan culture even sending the teens to Samoa. Examples of statements for solutions include:

- "Help the situation back in Samoa. That's where it comes from."
- "Get better adult Samoan role models for teens. Right now, there is not a whole lot."
- "Start programs for kids after school."
- "We gotta communicate better."
- "Go back to Samoa to learn the culture."
- "Teach them the Samoan way."

The researchers also looked for other common themes other than those related to the three research questions. The following are the important themes and examples:

Theme 1: Cultural Pride

- "I am happy to be a Samoan."
- "Oh, yes, the fa'a Samoa is very important."
- "I would definitely pass the fa'a Samoa on to my children."
- "Feels good to be a Samoan."
- "I'm different than everybody. I know my culture."

Theme 2: Importance of Respect

- I tell them if they respect me, I respect them. That's how it goes."
- "Respect for your elders. That's a big one."
- "When I went to Samoa . . . I couldn't believe that I was seeing young teenagers helping old ladies across the streets. It was so good."
- "I listen to my parents out of respect."

Theme 3: Generation Gaps

- "My parents, they don't understand how things are nowadays."
- "I try to explain to them, but they don't understand."
- "I cannot go out with my friends or have a boyfriend. They don't understand."

- "Especially for girls. My mom says that good girls are supposed to stay home and do chores according to the Samoan way."
- "My parents are from Samoa, and it is just like they brought Samoa with them to Hawai'i.
- They don't understand how it is here."

Theme 4: Youths Claim to Adjust Well Between Two Worlds

- "I'm used to it."
- "I'm like a chameleon."
- "I, not the same person in school and at home. Depends where I'm at."
- "I'm super quiet at home, don't talk back.
- "At school, I'm more loud. But at home I'm quiet. I just do what I'm told."
- "I was raised this way. I'm used to it already."
- "It was hard in the beginning, but now I'm used to it."

Theme 5: Positive Change is Possible for Samoans in Hawai'i

- "Oh, of course. Samoans just have to get up and do it."
- "Teach kids their culture, the Samoan way. Then they'll learn respect."
- "Yeah, I would start with the youth first. That's the key."
- "Since the teens are confused, I would help them understand how their parents think and what they think that way."
- "Definitely, If we had better older Samoan role models, that would be the best for kids."

Implications and Recommendations for Counselors

One common theme was that Samoan youth should learn more about their Samoan culture to become more grounded and to learn respect. Other themes centered around Samoan youth and developing programs to get them involved in positive activities and learn about their culture, but also stress the importance of education. Counselors need to understand the problems of Samoan youth and try to develop ways to solve individual and group problems (Toporek & Reza, 2001).

The traditional Western concept of counseling services centers around one-on-one counseling. It is the researchers opinion that in counseling members of this community, a slightly different approach might be more effective. Taking the Samoan individual within the family context and seeing the entire family unit as one whole decision-making entity seems more accurate than trying to

deal with the individual on a separate level. Oftentimes, the elders may make decisions for them. An example of this is counseling a Samoan student who wants to go to college, but decides not to because his/her family doesn't want him/her to. If one deals with this Samoan student on an individual level and goes the traditional route and attempts to empower the individual and create a stronger internal locus of control, this person would be missing the larger picture. One must approach this situation by looking at the family as a whole, and perhaps meeting with not only the Samoan student, but the parents and whomever else makes the big decisions of the family as well. One must also remember to respect the family's decisions and to take each situation within the Samoan cultural context.

Another theme was the importance of learning skills to attain higher-paying jobs. According to the co-researchers, financial problems plague the Samoan community, and helping Samoans find better jobs would better their financial situation. Statistics show that the financial situation of Samoans are not improving, so we as members of the helping profession must find ways to help the Samoan community find jobs. Related to this is completing high school and receiving further training. The stereotype that exists is that Samoans are too lazy to find jobs, but we must look beyond this stereotype and discover the reason for unemployment. Perhaps child rearing or taking care of elder members of the family take precedence over finding a job. Maybe the individual is suffering from health problems. Maybe they need help, and don't know who to turn to. Samoans do not appear to be very aware of social services that are out there in the community. Perhaps they feel that their English language skills are not very good, or maybe they are having trouble finding a job because of their limited English speaking capabilities. There are a host of reasons why a Samoan individual is unemployed. Laziness is just a stereotype and should be treated as one. To truly help a Samoan individual, one must go past the stereotypes and discover who the person is on an individual level, and then understand the family context from which he/she comes from (Cushner, 2003).

Individuals taking responsibility for their lives is another theme from the co-researchers. This may be the result of influences from the Western culture. Most co-researchers stressed this with more proactive as opposed to reactive approaches. The challenge for counselors in helping Samoan youths develop a stronger internal locus of control and positive self-image without taking them out of the Samoan cultural context. It is important that these Samoan youths growing up in two worlds can take elements of both the Western and the Samoan culture and incorporate them together for success on an individual level. Samoan individuals who become successful should hold on to their pride

of being a Samoan, and pass this on to others to help empower the Samoan community.

The co-researchers also alluded to a slow breakdown of the family unit. They discussed how communication between generations, especially between parent and child, are not very effective. Since the family is the most integral unit, one needs to focus on the family unit when working with a Samoan individual. Communication seemed to be a common concern among the co-researchers. Without effective communication, the family unit has no basis of understanding one another, and many times arguments may be the result of misunderstanding or miscommunication. Communication appears to be one-way, from elders to the children. The children dare not question an elder or parent, tell them that they disagree about something, or tell them how they feel about certain things in the family. This would be disrespectful. In helping a Samoan youth deal with this type of problem, one must first understand the hierarchy in the family, and how communication is currently operating in the family. To send the Samoan youth home and tell that youth to sit his/her parent down and truly tell that parent that he/she feels the parent is too strict and that he/she disagrees with rules around the house would only prove to be worse for the child. One should instead help this Samoan youth by going through the proper channels of communication. Maybe there is an elder in the family who the parent speaks with frequently who the youth could talk to and ask for advice. Perhaps that counselor could sit down with this elder and the youth and discuss the problem. The counselor could also ask the youth if there are any pastors or religious figures that the family talks to about these sorts of problems who the parents would be willing to listen to. Maybe when the youth is ready to talk to his/her parents, the counselor could arrange for a meeting with the parent and the child, and help to mediate an open discussion, or get an elder from the family to act as a mediator. What the counselor must keep in mind is that respect is such an important aspect in the Samoan culture, especially respect for the elders. The counselor must approach the situation only after first understanding how communication works in the family, then going through the proper channels within the hierarchy.

Recommendations for Future Research

The following recommendations are offered for future research:

1. If Samoan families are experiencing a break down in the family unit, we must find out why, and what environmental factors are affecting the family unit.
2. Researchers need to replicate this study with Samoans who live in other

areas.

3. Research should develop ways of improving communication within the family.
4. Co-researchers mentioned some of the negative stereotypes that Samoans are violent people who commit crimes and are trouble makers. Statistics show that there is a large number of Samoans who are incarcerated. Research should interview incarcerated Samoans to get a better understanding of what got them there.
5. Research should be conducted on which aspects of the fa'a samoa is different from the Western culture to better understand why these aspects are incongruent and what can be done to help the Samoan community without asking them to give up their Samoan culture.

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Chinese Student and Teacher Perceptions of Their High School's Ethical Climate and Its Importance to School Safety

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The common element in maintaining a safe school environment is a climate of mutual trust and respect among students and staff. This study examined student and teacher perceptions of their high school's ethical climate and its importance to the school safety in South China. Seven hundred and fifty four students and 74 teachers completed the School Ethical Climate Index (SECI) to assess the school's ethical climate. Both student and teacher perceptions of their school's ethical climate were moderately positive. They also perceived a positive ethical climate to be important in keeping their school safe. Teachers' rating of teacher-to-student relationships and interactions were significantly more positive than students'. Implications of the findings were discussed and recommendations on enhancing school ethical climate were made by introducing the initiatives and strategies taken by the school.

Students grow intellectually and morally within the social environment of a school, and researchers (e.g., Felner & Felner, 1989) have shown that this school environment has a profound and pervasive impact on both the academic and social adaptation of students. In particular, Cannon's (1983) study indicated developmental growth can occur optimally in an ethically congruent school environment. Brown and Craig (1985) also believed that both teacher and student could grow by being aware of their ethical responsibilities because an ethical environment nurtures students' positive social and personal attitudes and supports academic participation, motivation, and engagement in school (Goodenow, 1993; Ryan, Stiller, & Lynch, 1994; Wentzel, 1998).

School climate based upon ethics of acceptance of otherness with respect, justice, appreciation, and peaceful cooperation within difference, is the common element in maintaining a safe school environment (Furman, 1998; MacDonald, 1997; Welsh, 2000). This school climate demonstrates a sense of collaboration among students and educators, promotes harmony and interpersonal relations among students, and reflects positive verbal interactions. Teachers and students feel free to express opinions, listen to others with empathy, and support others in a non-threatening situation. A school climate reflecting ethical responsibilities also nurtures a sense of community in the school environment where all individuals are valued and where people feel respected and nurtured, with everyone accepting responsibility for student success. Such an environment lessens conflicts between teachers and students, and reduces discipline referrals and confrontations among students. By eliminating the mentality of students versus educators, students perceive the harmonious relationships in the school and see less need to engage in hostile and confrontational behaviors (Green, 1998). On the other hand, research has proved that a lack of ethical obligations in school climate is associated with an atmosphere of unfriendliness, loneliness, depression, delinquency, aggression, vandalism, and diminished motivation. This atmosphere not only negatively impacts student academic performance, but also nurtures behavior problems, incidence of mental illness, and a culture of violence in school (Battistich & Hom, 1997; Kagan, 1990; MacDonald, 1997; Newmann, 1981).

With the general focus of providing a safe environment for students, school ethical climate is one school characteristic that needs to be considered as important in keeping schools safe. In order to maintain and improve an ethical learning environment, school leaders need to assess the school climate (Rojewski & Wendel, 1990; Schulte et al., 2003). Student and teacher reports of their school's ethical climate both reflect critical regularities of the school and can help us to understand the ways in which the schools serve as contexts of

socialization (Trickett, 1978) that shape learning, achievement, and adjustment. The assessment of the ethical climate would enable school leaders to pinpoint areas that need improvement and focus activities in those areas to enhance the school's ethical climate, safety, and student growth (Schulte et al., 2003). The purpose of this study was to examine teacher and student perceptions of the ethical climate of a high school and its importance to school safety in Shenzhen, a metropolitan city in South China.

Ethical Principles and Ethical Climate

Brown and Craig (1985) insisted that if schools want to create a climate with ethical obligations, a logical starting point is the day-to-day interaction between teachers and students. They provided a framework of student-teacher relationships for delineating and examining the ethical responsibilities of teachers and students by adopting Kitchener's (1984) professional ethical codes and ethical principles. This framework was developed upon the following five ethical principles: respect for autonomy, nonmaleficence, beneficence, justice, and fidelity. Respect for autonomy refers to freedom of action and freedom of choice, respecting an individual's right to make his or her own decisions. Nonmaleficence means doing no harm to others through intention or risking others. Beneficence requires one to contribute to another's welfare, such as promoting positive personal growth. Justice necessities treating each other fairly. Fidelity calls for being loyal and trustworthy toward others. Within this theoretical perspective, not only teachers, but students also have their ethical obligations guided by these five principles in their daily relationships and interactions.

For the purpose of this study, the ethical climate is defined as the aprplication of the five ethical principles, respect for autonomy, nonmaleficence, beneficence, justice, and fidelity, within student-to-teacher, student-to-student, and teacher-to-student relationships and interactions. Important components of good ethical climate specifically demonstrated the positive student and teacher interactions and relationships, a sense of community and affiliation, and a strong student support system (Brown & Craig, 1985; Kitchener, 1984).

Research Questions

The research questions of this study included: 1) What were the Chinese student and teacher perceptions of their high school ethical climate? 2) Was there a difference between the student and teacher perceptions of their high school's (a) student-to-teacher interactions and relationships, (b) student-to-

student interactions and relationships, and (c) teacher-to-student interactions and relationships? 3) Was there a difference between the student and teacher perceptions of the importance of a positive ethical climate in keeping their school safe?

Method

Design and Subjects

The study used a cross-sectional survey procedure to collect information from students and teachers of a high school (Tenth Grade, Eleventh Grade and Twelfth Grade) in the city of Shenzhen with a population of approximately six million, located at South China and bordering Hong Kong. The average socioeconomic level of the residents in Shenzhen is among the several highest cities in China. The School Ethical Climate Index (SECI) (Schulte et al., 2002) was distributed to all the students and teachers at the high school.

Of the 795 returned student surveys, 754 (95%) contained the necessary information to be used in the study (i.e., valid responses, missing no more than six SECI items). Of the student respondents, 41% were males and 59% were females. Thirty-five percent were in Tenth Grade, 36% were in Eleventh Grade, and 29% were in Twelfth Grade. The mean age of the student respondents was 16.85 (SD = 1.21). Of the 76 returned teacher surveys, 74 (97%) contained the necessary information to be used in the study (i.e., valid responses, missing no more than six SECI items). Of the teacher respondents, 51% were males and 49% were females. Twenty-six percent were at the age of 30 or less, 39% were between the ages of 31 and 40, 28% were between the ages of 41 and 50, and 7% were at the age of more than 50. The number of years that the high school teacher respondents were employed at their current school included one year or less (18%), more than one year, but less than or equal to three years (38%), more than three years, but less than or equal to six years (42%), and more than 10 years (3%).

Survey Instrument and Its Validity

The School Ethical Climate Index (SECI) was developed and validated based upon the theoretical framework of ethical responsibilities in student and teacher relationships and interactions (Brown and Craig, 1985) by Schulte et al. (2002). The SECI were designed to measure the ethical climate of middle and high schools. Items of the SECI were developed to demonstrate the daily student and teacher relationships and interactions (i.e., student-to-

teacher, student-to-student, and teacher-to-student) that reflect the five ethical principles: respect for autonomy, nonmaleficence, beneficence, justice, and fidelity (Brown and Craig). The purpose of the SECI was to help school staff to pinpoint areas where changes could be made to enhance the climate and thereby, reduce school disorder and violence by assessing student and teacher interactions and relationships

The 49-item SECI was used to assess Chinese student and teacher perceptions of their high school's ethical climate (see Table 1). The SECI used a 5-point Likert scale for answers: 1 = rarely or never true, 2 = seldom, 3 = sometimes, 4 = often, and 5 = usually or always true. The SECI also included the 4-item Importance Scale, which was used to measure the importance of a school's ethical climate in keeping a school safe (see Table 2). The students and teachers were asked to rate the importance of each item in keeping their school safe using a 5-point Likert scale: 1 = not important, 2 = seldom, 3 = somewhat important, 4 = important, and 5 = very important.

Schulte et al. (2002) provided evidence of the SECI's reliability and validity in their validation study. The reliability estimates for the subscales of the 9-item student-to-teacher, the 14-item student-to-student, the 26-item teacher-to-student, and the 4-item importance were respectively .86, .90, .95, and .85. Factor analysis indicated that the SECI measures three dimensions of relationship and interactions: student-to-teacher, student-to-student, and teacher-to-student. These dimensions demonstrated strong evidence of construct validity. However, because the SECI was originally developed in English and then translated into Chinese by the researchers for this survey study, the following three steps were followed to help ensure that the SECI was valid in measuring the Chinese student and teacher perceptions of their high school's ethical climate. The first step in survey instrument and measurement validation was expert review. Two Chinese professors with experience in school climate research and two expert teachers teaching Chinese from the high school were asked to review each item of the Chinese version of the SECI. The researchers revised and modified the translated SECI based on the comments and suggestions of the professors and teachers. Expert review can make the instrument accurate and easily administered while potential respondents can help to guarantee that the items are meaningful and inclusive of all important ideas (Litwin, 2003).

Second, a pilot study was completed in November 2003 to test the translated SECI. It was used to determine if the instruments addressed the information they were intended to obtain. The pilot survey was delivered to 30 students and 15 teachers from the high school. Twenty-eight students and

15 teachers completed the survey. The survey was coded and basic statistics computed by using SPSS 12. The subscale internal consistency was checked by computing Cronbach alphas in the following four constructs of the translated SECI: interactions and relationships of student-to-teacher, student-to-student, teacher-to-student, and the Importance Subscale. For the pilot data, Cronbach alphas ranged from .71 to .75 in the SECI. Based on the results of the pilot study, the translated survey instrument was deemed to be reliable for assessing student and teacher perceptions of their high school's ethical climate.

Finally, Cronbach alphas were also used for measuring the subscale internal consistency of the three constructs of the SECI and the Importance Scale after all the survey data were collected. For all the 754 student and 74 teacher respondents in this study, the reliability estimates for the four subscales of student-to-teacher, student-to-student, teacher-to-student, and the Importance Scale were .79, .79, .93, and .83, respectively.

Survey Administration

The principal of the high school and the students' parents granted their approval to conduct the study in September 2003. During January 2004, the Chinese version of the SECI was distributed to all the students and teachers in the high school. The survey packet included (a) a cover letter briefly explaining the purposes of the study, giving instructions of doing the survey, informing the participants that participation was voluntary, and assuring that their responses would be completely anonymous; (b) the SECI including the Importance Scale; and (c) demographic questions. The participants were asked to send back their surveys with the envelops provided by the researchers. Teachers at the high school distributed the SECI surveys to the students during one week in January 2004. A student from each class collected the completed surveys and returned them to the school's main office. At the same week, a teacher from the high school distributed the SECI surveys to all the other teachers. The teachers completed the surveys and returned them to the school's main office.

Data Analysis Techniques

Data were analyzed with descriptive statistics and independent t-tests by using the SPSS 12.0 software. Mean scores and standard deviations on each item and each of the three subscales of the SECI were calculated to present the detailed information of the student and teacher perceptions of their school's ethical climate. Mean scores and standard deviations on each item and the construct of the Importance Scale were also calculated. The mean substitution

process was applied to calculate subject mean scores for each of the SECI subscales and the Importance Scale so that data could be used for subjects who did not respond to every SECI item. The mean substitution process generates a subscale mean for each subject by computing the mean of the items with data. As the mean substitution process was applied for data analysis, respondents were not included if they failed to respond to more than six of the SECI items, which was more than 15% of a total 49 SECI items. Forty-one respondents, failing to respond to more than six items, were excluded for analysis in order to keep the mean substitution process reasonable and reliable.

Independent t-tests were applied to determine whether there were significant differences between student and teacher perceptions of the constructs of the SECI and the Importance Scale. Because multiple t-tests were conducted, a .01 significant level was employed for each t-test to control for Type I errors. Effect size estimate of Cohen's (1988) d was used to measure the strength or magnitude of the difference between two sets of students' and teachers' perception data when the significant differences were found. The independent variables for the t-tests were group (student or teacher). The dependent variables for the t-tests were mean scores on the constructs of the SECI and the Importance Scale.

Results

Table 1 presents the means and standard deviations across survey items and the three subscales of the SECI for the student and teacher groups. There was no significant difference between student ($M = 3.71$, $SD = 0.57$) and teacher ($M = 3.83$, $SD = 0.48$) perceptions on the subscale of student-to-teacher interactions and relationships ($t(826) = -1.703$, $p = .089$). No significant difference was found between student ($M = 3.63$, $SD = 0.53$) and teacher ($M = 3.63$, $SD = 0.46$) perceptions on the subscale of student-to-student interactions and relationships ($t(826) = 0.028$, $p = .977$). However, there was a significant difference between teacher and student perceptions in the subscale of teacher-to-student interactions and relationships ($t(826) = 8.008$, $p < .0005$). Teacher ($M = 4.20$, $SD = 0.48$) perceptions were significantly more positive than student ($M = 3.63$, $SD = 0.59$) perceptions in the subscale of teacher-to-student interactions and relationships ($d = 1.06$).

Effect size estimate of Cohen's (1988) d was used to measure the strength or magnitude of the difference between two sets of students' and teachers' perception data. Cohen suggested large magnitudes of effect were $d = .80$ or bigger. Medium-sized effects were $d = .50$ or bigger. The effect size estimate of $d = 1.06$ in this statistical test indicated that the difference between students'

Table 1. Means and Standard Deviations of SECI Subscales and Items

	Student			Teacher		
	n	Mean	SD	n	Mean	SD
Student-to-Teacher Subscale	754	3.71	0.57	74	3.83	0.48
1. Students' work shows efforts. *	751	3.53	0.97	74	4.33	0.68
2. Students follow teachers' directions.	754	4.02	0.82	74	3.85	0.72
3. Students complete assignment on time.	753	3.97	0.87	74	3.89	0.73
4. Students are respectful to teachers.	754	4.26	0.82	74	4.15	0.73
5. Students actively participate in class discussion.	754	3.54	0.91	74	3.70	0.74
6. Students pay attention during class.	753	3.76	0.83	74	3.91	0.71
7. Students accept responsibility for getting help when they need it.	752	4.00	0.95	74	4.11	0.77
8. Students let their teachers know when commitments cannot be met.	743	3.08	1.13	73	3.15	0.95
9. Teachers can trust students to behave appropriately in unsupervised situations.	751	3.21	1.01	74	3.32	0.94
Student-to-Student Subscale	754	3.63	0.53	74	3.63	0.46
1. Students feel free to discuss their ideas with their classmates.	753	4.13	0.94	74	4.22	0.83
2. Students are considerate of their classmates' feelings.	754	3.80	0.96	74	3.74	0.79
3. Students make new students feel welcome at the school.	752	3.64	0.99	74	3.86	0.78
4. Students make fun of classmates who are different from themselves. (RK)	752	3.39	1.22	74	3.03	0.94
5. Students go out of their way to help their classmates.	749	3.80	0.90	74	3.96	0.67
6. Students encourage their classmates when appropriate.	752	3.74	0.98	73	3.85	0.72
7. Without cheating, students share ideas, class notes, and other materials with their classmates.	753	3.38	1.10	73	3.44	0.87
8. When working in a group with their classmates, students do their fair share of the work.	751	3.63	0.96	74	3.53	0.91
9. Students treat their classmates with respect.	754	3.88	0.96	74	3.85	0.70
10. Students defend classmates who are being picked on by others.	750	3.33	1.01	74	3.46	0.92

Table 1. Continued

	Student			Teacher		
	n	Mean	SD	n	Mean	SD
11. Students respect classmates' belongings.	751	3.85	1.01	74	3.59	0.91
12. Students are treated differently because of the way they address. (RK)	749	3.30	1.26	74	3.19	1.22
13. Honor roll students are accepted by their classmates.	736	4.15	0.92	74	4.22	0.73
14. Students feel it is OK to walk away from a fight.	747	2.82	1.20	73	2.89	1.07
Teacher-to-Student Subscale	754	3.63	0.59	74	4.20	0.48
1. Teachers are available to students outside of class time. *	754	3.60	1.05	74	4.23	0.77
2. Teachers praise students for excellent work. *	754	3.94	0.97	74	4.51	0.71
3. Teachers help students improve their study habits. *	752	3.58	1.05	74	4.39	0.72
4. Teachers present more than one point of view.	753	3.69	0.98	74	4.05	0.86
5. Teachers treat all students with respect.*	754	3.75	1.03	74	4.50	0.67
6. Teachers encourage students to ask questions if they are appropriate. *	754	3.80	1.00	74	4.34	0.83
7. Teachers give students the opportunity to practice what they learn.*	752	2.95	1.06	74	3.53	1.00
8. Teachers are well prepared for their classes.	753	4.21	0.83	73	4.48	0.69
9. Teachers are positive role models for students. *	750	3.66	0.94	74	4.53	0.65
10. Students and teachers cooperate with each other. *	753	3.62	0.89	73	4.14	0.69
11. Teachers respect the cultures of all students.	753	3.97	1.01	72	4.42	0.80
12. Teachers' tests cover what was taught.	750	4.03	0.90	74	4.38	0.73
13. Teachers are available to all students on an equal basis. *	751	3.66	1.05	74	4.32	0.76
14. Teachers help students with special needs. *	751	3.46	1.02	74	4.12	0.78
15. Teachers provide students with praise when appropriate. *	751	3.87	0.96	74	4.42	0.70
16. Teachers return assignments in a reasonable amount of time.	753	3.98	0.96	74	4.35	0.78
17. Students who have questions about grades feel free to talk to their teachers. *	748	3.91	1.00	74	4.51	0.69

Table 1. Continued

	Student			Teacher		
	n	Mean	SD	n	Mean	SD
18. Students feel comfortable seeking help from teachers outside of class time. *	754	3.19	1.05	74	3.88	0.76
19. When school-related problem arise, students feel free to talk with teachers. *	750	2.86	1.13	74	3.58	0.86
20. Students can trust teachers with personal information. *	752	2.86	1.12	74	3.72	1.07
21. Teachers promote cooperation among students. *	752	3.41	0.98	74	4.00	0.79
22. Course exams, projects, and papers are graded fairly. *	751	3.94	0.96	73	4.44	0.58
23. Teachers follow through on reasonable requests made by students. *	748	3.57	0.95	74	4.23	0.84
24. Teachers allow students to choose topics for course projects or papers.	754	3.15	1.18	74	3.69	1.01
25. Teachers are attentive to students during meetings.	746	3.83	0.95	74	4.15	0.84
26. Teachers allow students to express their opinions even if they are different from the teachers'.	751	3.88	1.02	74	4.28	0.84

Note. RK indicates that the item is reverse-keyed. * indicates that an effect size exceeding .50 was found in the difference between student and teacher perceptions of the item.

and teachers' perceptions in the teacher-to-student subscale was a substantial effect. Table 1 (see items indicated by an asterisk) also presents the survey items in which differences were found between student and teacher perceptions with an effect size exceeding .50. This indicated the difference between students' and teachers' perceptions in these items was a medium or large effect.

Table 2. Means and Standard Deviations of Importance Scale and Items

	Student			Teacher		
	n	Mean	SD	n	Mean	SD
Importance Scale (Total)	754	4.36	0.65	74	4.32	0.66
1. A positive ethical climate is important in keeping our school safe.	753	4.34	0.85	74	4.27	0.83
2. Positive student-to-teacher interactions and relationships are important in keeping our school safe.	753	4.25	0.81	73	4.32	0.81

Table 2. Continued

	Student			Teacher		
	n	Mean	SD	n	Mean	SD
3. Positive student-to-student interactions and relationships are important in keeping our school safe.	750	4.42	0.78	74	4.26	0.78
4. Positive teacher-to-student interactions and relationships are important in keeping our school safe.	752	4.45	0.80	74	4.45	0.69

Table 2 includes the means and standard deviations of the survey items and construct of the Importance Scale for the student and teacher groups. There were no significant differences between student (M = 4.36, SD = 0.65) and teacher (M = 4.32, SD = 0.66) perceptions of the importance of a positive ethical climate in keeping their school safe ($t(826) = 0.532$, $p = .595$).

Discussion

Student and Teacher Perceptions of the SECI

Student perceptions of the three subscales of student-to-teacher interactions and relationships (M = 3.71), student-to-student interactions and relationships (M = 3.63), and teacher-to-student interactions and relationships (M = 3.63) were all moderately positive with the range from "sometimes true" to "often true". Regarding the individual SECI items, the student mean perception scores ranged from 2.82 to 4.26, which indicated that the students were mostly satisfied with their high school ethical climate. The students perceived most of the SECI items between "sometimes true" and "often true". There are only four items in which students' perceptions were between "seldom true" and "sometimes true": (a) Students feel it is OK to walk away from a fight (M = 2.82); (b) Teachers give students the opportunity to practice what they learn (M = 2.95); (c) When school-related problems arise, students feel free to talk with teachers (M=2.86); and (d) Students can trust teachers with personal information (M = 2.86). Some example items that the students assessed most positively were: (a) Students are respectful to teachers (M = 4.26); (b) Students feel free to discuss their ideas with their classmates (M = 4.13); (c) Honor roll

students are accepted by their classmates (M = 4.15); and (d) Teachers are well prepared for their classes (M = 4.21).

Teacher perceptions of the subscales of student-to-teacher interactions and relationships (M = 3.83) and student-to-student interactions and relationships (M = 3.63), were moderately positive with the range from "sometimes true" to "often true". Teacher perceptions of the subscale of teacher-to-student interactions and relationships (M = 4.20) were strongly positive with the range from "often true" to "usually or always true". Teachers rated teacher-to-student interactions and relationships more positively than the other two constructs of interactions and relationships: student-to-teacher and student-to-student. Twenty-six out of the total of 49 SECI items were rated with mean scores above 4.00, which indicated that these item statements were perceived between "often true" and "usually or always true". Twenty-two items were rated with means between "sometimes true" and "often true". The only item that was rated with a mean below 3.00 was "Students feel it is OK to walk away from a fight" (M = 2.89). Some example items that the teachers assessed most positively were: (a) Teachers praise students for excellent work (M = 4.51); (b) Teachers treat all students with respect (M = 4.50); (c) Teachers are positive role models for students (M = 4.53); and (d) Students who have questions about grades feel free to talk to their teachers (M = 4.51).

Compared with the results of the American studies by Schulte et al. (2003) and Battistich, Solomon, Kim, Watson, and Schaps (1995), we found that both students and teachers perceived their high school's ethical climate more positively than their counterparts in American schools in the overall ethical climate and all the three types of relationships and interactions. On a 5-point Likert scale the overall mean rating of the ethical climate among students for the 24 schools in Battistich et al. study was 2.95. The study by Schulte et al. used the same instrument to survey 508 students and 41 teachers in a Mid-western high school. Student mean ratings of student-to-teacher interactions and relationships, student-to-student interactions and relationships, and teacher-to-student interactions and relationships were 3.35, 3.12, and 3.46, respectively. Teacher mean ratings of these three types of relationships and interactions were respectively 3.60, 3.32, and 4.13. Relationships and interactions between students and teachers in America tend to be friendly, informal and characterized by a certain absence of seriously emphasized educational purpose. In China, student-teacher interactions emphasize formality, mutual respect and attention to the business of learning (Lee Grove, 1984).

Differences Between Student and Teacher Perceptions

There were no significant differences between student and teacher perceptions on the SECI student-to-teacher and student-to-student subscales. However, student and teacher perceptions of teacher-to-student relationships and interactions differed significantly. Teacher perceptions of the teacher-to-student subscale were significantly more positive than student perceptions. The above findings concurred with the results of the studies conducted in America (Schulte et al. 2003).

In an organization, people (teachers) in powerful positions may view themselves more positively than people (students) in positions with less power (Kipnis, 1976). On the other hand, a person's socialization has an impact on the perception of and interaction with people who are ethically, culturally, and socially different. As students are socialized about their teachers who may be dissimilar to themselves in prior experience and expectations, they make personal value judgments, performance assessments, and even stereotypical comments about their teachers (Banks 1991; Robbins, 2000). The social difference between students and teachers may also act to some degree as an element for the differences of these perceptions.

However, teacher-to-student relationships and interactions, like all human relationships and interactions in groups, are reciprocal. Particularly, teachers whose main organizational role is to influence students must also be prepared to accept student influence from them. While dominance and subordination may indeed be inherent in the role of teacher and student respectively, it is oversimplified to consider that the student role is entirely passive (Schlechty & Atwood, 1977). Therefore, these differences between student and teacher perceptions on the subscale of teacher-to-student relationships and interactions, and the 19 items (see items indicated by an asterisk in Table 1) can be pinpointed to enhance the ethical climate of the high school (Schulte et al., 2003). In-depth understanding of the opposite roles of students and teachers between these two groups may need to be reinforced in the intervention programs of improving the school ethical climate.

Student and Teacher Perceptions of the Ethical Climate Importance

Both students ($M = 4.37$, $SD = 0.65$) and teachers ($M = 4.32$, $SD = 0.67$) almost equally perceived that a positive ethical climate was important or very important in keeping the school safe. Regarding the individual items, student and teacher perceptions ranged from 4.25 to 4.45 (important to very important). In comparison with the findings of the Schulte el al. (2003)

study, the students in this Chinese high school perceived the importance of a positive ethical climate in keeping school safety in a much higher degree than the American high school students (M = 3.85, SD = 0.90) while the teacher perceptions were lower than their counterparts in the American high school (M = 4.68, SD = 0.43).

Both student and teacher mean ratings of this Importance Scale are significantly higher than their perceptions on the three types of relationships and interactions except for teacher perceptions of teacher-to-student relationships and interactions. This finding is similar to the results of the studies conducted in America (Schulte et al., 2003). This finding provides good information and creates opportunities for the school to enhance its ethical climate because a person's perceptions influence and shape his/her individual behaviors (Robbins, 2000). If students and teachers understand the importance of a school's ethical climate in maintaining a safe school environment, they are more willing to change the way they relate and interact with others in the school (Schulte et al.).

Implications and Recommendations

For students to grow intellectually and morally in a positive direction, one of the important school leadership team's tasks is to assess the current level of safety of the school, evaluate the current school climate, and develop strategies to enhance both the security and ethical climate of the school. This three-pronged approach recognizes that security and climate can only work successfully when they fit together (Owen, 2000). Schools can make significant differences in promoting school safety and improving the academic environment by concentrating on the climate, culture and organizational features of the school. School ethical climate can be enhanced by making changes of school policies and strategies based upon the results of the ethical climate survey. In this study, the teachers should be informed of the previously listed SECI faculty-to-student subscale items in which differences existed between student and teacher perceptions. Students should be informed about the SECI items with relatively low teacher and student ratings (Schulte et al., 2003).

The results of this study indicated that both students and teachers believed that a positive school ethical climate was very important in keeping their school safe. A positive ethical climate demonstrating the ethical principles cultivates moral interactions and caring relationships among students and teachers, in which they accept others with respect, justice, and appreciation, and cooperate with each other peacefully within differences (Furman, 1998). If safe schools are

to be created and maintained, it is imperative that relationships and interaction among students and teachers be positive and regularly improved. A safe, orderly and secure school environment is conducive to learning and academic achievement. School leaders should fully consider both student and teacher perceptions and strategically take the advantages of the strong perceptions for enhancing the ethical climate. They should also offer sufficient time, resources, and efforts to narrow or close the discrepancy between students' and teachers' perceptions of their relationships and interaction and the importance of a positive ethical climate in keeping the school safe.

Many schools respond to negative ethical climate with the police model by increasing surveillance, imposing tougher discipline, more school security personnel and tougher punishment. School efforts to identify problem students and to design appropriate intervention strategies to change students' behaviors will be of limited success unless there is an emphasis on reinforcing the vision that all students can learn, study and work peacefully together (Gacia, 1994). On the other hand, urging teachers to keep in mind the aims of education, and encouraging them to make themselves more competent and to be more diligent in pursuing them is not very helpful in promoting school ethical climate (Bibby, 1998). Positive changes in school ethical climate require systemic school-wide strategies and efforts.

School safety is one of the prioritized issues for educators in China. In addition to securing the school facility, school administrators and teachers in China are making every effort to keep their students safe. They are finding ways to maintain an ethical and moral climate that supports students' learning. Although effective approaches of improving school ethical climate are complex and situational, the following strategies adopted by the Chinese school can provide some recommendations for improving a school's ethical climate since both students and teachers perceived their school's ethical climate positively. Three key aspects of the school's efforts in moral education can be summarized as follows. First, moral development and education were integrated into curriculum and instruction. The school emphasized that the moral development and education of the students were an integral part of schooling purpose. Ethical issues are central to the teaching profession and teachers have a special role, in which they must teach morality (Bibby, 1998). Ethical and moral education in this school was regularly woven into the discussion and combined with the learning of culture, science, music, arts, and sports. The school provided detailed lesson plans, literature recommendations, and concrete activities that addressed ethical questions within the different subject areas. Student classroom reflections and internalization of the core values such as

integrity, self-control, and respect were greatly encouraged by the teachers.

Second, the school established and actively maintained a website of Moral Education Forefront for communication and interaction between teachers and students. Teachers and students used the website for discussions on student discipline and behaviors, conflict resolution and anger management. Students could conduct online dialogues with teachers and school administrators through the website. It was also used for teachers to check student attendance, assign homework, assist student learning, and provide counseling. Parents were also invited to communicate and cooperate with teachers on student discipline and behavior problems in an increased level of empowerment by using the website.

Third, the school-wide Activity Month of Moral Education Theme was organized and implemented at the school every year. Examples of moral education activities were (a) workshops in which moral quality, ethical performance, and legal behaviors, were taught and practiced throughout the school; (b) classroom photo exhibitions and bulletin publications in which students and teachers presented typical moral education activities; (c) moral education case reports in which students wrote and published journals, news and essays on moral education, (d) student leadership activities in which students were given a voice in school matters, and encouraged to serve on school committees, task forces and councils. Other important activities included creating opportunities to practice the code of behavior for classroom and school to which students and teachers agree, establishing mentoring and role modeling programs for all students, modifying current recognition programs to include academic, artistic, athletic and moral education achievement, and organizing students and teachers to provide community services.

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Promoting Assessment Literacy in Teachers: Lessons from the Hawai'i School Assessment Liaison Program

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The School Assessment Liaison (SAL) program is an ambitious initiative designed to enhance the assessment literacy level of teachers across the state of Hawai'i. Funding and other resources are targeted to support the development of sound, standards-based school and classroom student assessment. Drawing primarily on a sample of 489 survey respondents, the SAL program was examined for its effectiveness in promoting assessment literacy. Respondents also commented on the main successes and challenges associated with the implementation of the program. A series of five lessons are offered for consideration. We conclude by discussing the implications for teacher development and Pacific Rim educational contexts.

Assessment literacy – an understanding of the principles of sound assessment, is an essential skill for classroom teachers (Popham, 2004; Stiggens, 2000). In addition to monitoring individual students' learning, classroom assessment can also be used to inform teaching practices (Sheppard, 2000). Thus, assessment competence is a fundamental capacity for improving the quality of the teaching – learning process. Teachers with a solid background in this area are well positioned to integrate assessment with instruction so that appropriate levels of teaching are utilized (McMillan, 2000). Unfortunately, there continues to be relatively little emphasis on assessment in the professional development of teachers and administrators (Stiggens, 1999). Training at the preservice and inservice level has been woefully inadequate. This is particularly surprising given the growing trend towards assessment-based accountability models (Linn, 2001; Ryan, 2002).

Given the size and scope of the problem, enhancing the assessment literacy of practicing teachers appears to be a monumental task. In 2000 alone, the National Center for Educational Statistics indicated that the United States had approximately 3 million teachers working within elementary and secondary schools (http://nces.ed.gov/programs/digest/d01/fig8.asp). Providing appropriate professional development for even a fraction of these teachers requires a significant commitment from federal and state governments. Hawaii's School Assessment Liaison Program (SAL) represents an ambitious large-scale initiative designed to enhance the assessment literacy level of teachers across the state. Given the geographical diversity of Hawai'i, the SAL program offers a unique case study for multi-island reform and Pacific Rim student populations. The next sections provide details on the purpose and history behind the program as well as the central focus of the present investigation.

The SAL Program

The SAL program provides staffing, funding and other resources to support the development of sound, standards-based school and classroom student assessment. Opening in July 2000 with an annual budget allocation of $1.4 million, the program provides staffing for 24.5 resource teacher positions distributed across districts based on student population. The SAL program is a joint and cooperative effort of the Districts of the Hawai'i State Department of Education (DOE) and the State Office. The districts manage staffing decisions, allocation of resources within districts, developing teams, and coordination and communication across all district-level support staff. The State Office provides training and professional development of SAL resource teachers and general direction for the program.

The SAL program is built on research findings that suggest classroom assessment is a critical component of effective teaching and that enhancing assessment practice at the school and classroom level will raise student achievement (Black & Wiliam, 1998; Salsberry, 2002; Stiggens, 2001). The program is designed to increase assessment literacy among school staffs in order to improve:

- Knowledge and use of sound assessment practices;
- Teacher confidence with assessment, including managing classroom assessment effectively;
- Student motivation for learning; and
- Student learning.

Each of these objectives was developed in accordance with the DOE Strategic Plan for Standards-Based Reform.

Much of the impetus for the SAL program arouse from a genuine desire to improve the state's performance in national assessment rankings. For example, the National Association for Educational Progress (NAEP) has consistently reported that Hawaii's K-12 students achieve below the national average in reading, writing, mathematics and science (http://nces.ed.gov/naep). In order to address this problem, the SAL program supports the implementation of the Hawai'i Content and Performance Standards II (HCPS II), the systemic change effort designed to raise student performance. SAL resource teachers are expected to engage in four areas of service:

- Promote awareness of assessment literacy and School Assessment Liaison resource teacher services (projected at 20 percent of total effort);
- Deliver professional development services (projected at 50 percent of total effort);
- Provide technical assistance/consultation services related to assessment (projected at 15 percent of total effort); and
- Coordinate services with related standards-based activities (projected at 15 percent of total effort).

Lastly, SALs support the activities of the Hawai'i Assessment Program (HAP) through technical assistance for data review, analysis, and utilization, as well as assistance with testing and data collection.

Study Background and Major Research Questions

The authors examined perceptions of the SAL program primarily through the use of a large sample of survey questionnaires that were distributed across a number of islands within the state. This study also draws on findings from personal interviews conducted at eight, randomly selected schools on Oahu

that were presented in an earlier evaluation report (Melahn, 2004). Collectively, the survey and interview data were analyzed to address three main research questions (1) To what extent has the program promoted assessment literacy in the state of Hawai'i? (2) What are the main successes and challenges associated with the SAL program; and (3) What lessons may be derived from the implementation of the SAL program? Each of these questions is addressed sequentially in the results and discussion section.

Methodology

Survey Instrument

A copy of the survey instrument is provided in Appendix A. Briefly, the survey asks about the district, service role (administrator, teacher, support staff member), service level (elementary, intermediate, secondary, and multi-level), and years of service of respondents, as well as six areas for user feedback:

- Experiences with SAL services during the current and past three academic years (Question 2);
- General level of satisfaction with SAL services (Questions 3, 4, and 5);
- Personal assessment of the current overall assessment literacy of teachers and staff members (Question 6);
- Feedback about specific SAL services (Question 7);
- Opinions about outstanding service experiences (Question 8); and
- Suggestions for improving the SAL program (Question 9).

In general, the survey instrument was designed to be as simple, straightforward, and brief as possible. Three standardized questions (Numbers 3, 4, and 5) were developed within the American Customer Satisfaction Index program at the University of Michigan, School of Business (Bryant & Marsden, 1995).

Data Collection

The administrative staff of the SAL program provided specific suggestions about data collection. Previous experience with surveys of staff members as well as an assessment of the number of surveys conducted within Hawaii's public schools suggested an alternative approach to blanket distribution. In line with this, data was collected in three phases:

- Small group training sessions. Principals and other key administrators attending training on computer technology were asked to complete a survey (N= 99, 20 percent of final sample of 489).
- Large group training sessions. During training offered to key school staff

members, those present were invited to complete a survey (N= 64, 13 percent of final sample of 489).

- District/Complex level data collection. Teams at the district and/or complex level were invited to decide how best to involve staff members in completing surveys (N= 326, 67 percent of the final sample of 489).

The data collection strategy produced an overall sample that allowed comparisons among specific subgroups within the state.

Survey Sample

Four hundred and eighty-nine surveys were completed during the 2003-2004 academic year. Respondents represented educators working on Hawaii's four most populous islands (i.e., Oahu, Hawai'i, Maui, and Kauai). The main island of Oahu consists of 4 districts (Central, Honolulu, Leeward, and Windward) and accounted for 60 percent of survey respondents. The remaining three islands (i.e., Hawai'i, Maui, and Kauai) are each represented by a single district bearing the same name. These three islands are commonly referred to as neighbor islands, and accounted for 40 percent of the survey sample. This 60/40 split between Oahu and the participating neighbor islands is generally reflective of the student population in the state.

One of the strengths of the sample is the inclusion of responses from 102 principals and 16 vice-principals (collectively, 24 percent of the survey sample) as well as a range of support staff members having strong knowledge of SAL activities (28 percent of the sample). The average years of service of respondents was 9.0 with a range from first and second year employees (20 percent of the sample) to those with more than 25 years of service (5 percent of the sample). Approximately 67 percent of respondents were employees working at the elementary school level. Employees at intermediate and secondary levels accounted for approximately 13 percent and 11 percent, respectively, of respondents. The remaining group comprised the 4 percent working in a multi-level school setting.

Data Analysis

The closed-ended items on the survey were analyzed according to statistical techniques designed to allow comparison across districts, roles (i.e., principal, teacher, etc.), and assignment level (i.e., elementary, middle, etc.). Means were calculated for each closed-ended item within the survey. An Analysis of Variance (ANOVA) was also conducted on each closed-ended item to determine if there were statistically significant differences across specific subgroups. The above calculations were made using the Statistical Package for the Social Sciences

(SPSS) version 12.0. SPSS is currently one of the most popular data analysis programs for social scientists (Sweet, 1999).

Responses on the two open-ended items (i.e., questions 8 and 9) were examined using content analysis. Codes were assigned to each open-ended questionnaire comment. Entries with codes of similar meanings were merged into a new category. Codes from the first questionnaire were carried to the second questionnaire. This procedure, which is commonly referred to as the process of constant comparison (Bogdan & Biklen, 2003), allowed the authors to identify a set of common themes across respondents.

Results & Discussion

Promoting Assessment Literacy

As mentioned previously, an ANOVA was conducted on each closed-ended item of the survey. One of these items generated a response about perceived level of assessment literacy/assessment expertise within the respondent's school. Interestingly, average ratings varied significantly by district, employment role, grade level of service assignment, and reported experience with SAL services. The overall average rating across all respondents was 6.2 out of a possible 10. A summary of average ratings for selected subgroups is provided in Table 1.

Although an average rating of 6.2 leaves much room for improvement, analysis of group differences along with the consideration of satisfaction index values provides compelling reasons for judging the program as a success. As indicated at the bottom of Table 1, respondents who reported greater experience with the SAL program were significantly more likely to judge the assessment literacy of their school at a higher level. User satisfaction ratings were also highly related to level of experience with SAL services. The correlation coefficient between these two variables was statistically significant, $r\,(421) = .51$, $p < .001$], with satisfaction values rising sharply as respondents reported greater experiences with SAL services. An ANOVA revealed that the relationship between satisfaction index values and reported experiences with SAL services was highly significant, $F(4,408) = 54.02$, $p < .001$. Collectively, the results indicated that individuals who had greater experiences with the SAL program were significantly more likely to report higher satisfaction values along with a higher level of assessment literacy within their schools. These findings provide a strong basis for intensifying educators' level of contact with SAL resource teachers across the state.

Given that there is no data in this area from previous years, the average rating of 6.2 provides an important benchmark from which to judge the

Table 1. Ratings for assessment literacy / assessment expertise by selected subgroups

District	*Count*	*Sum*	*Average*	*Variance*	*F*	*P*
Central	46	296	6.4	3.58	7.89	< 0.001
Honolulu	95	691	7.3	5.03		
Leeward	52	266	5.1	4.81		
Windward	54	333	6.2	3.61		
Hawai_i	85	501	5.9	5.12		
Maui	74	456	6.2	3.07		
Kauai	10	47	4.7	3.79		
Total	416		6.2			

Role	*Count*	*Sum*	*Average*	*Variance*	*F*	*P*
Administrator	101	575	5.7	4.67	5.84	< 0.001
Teachers	198	1301	6.6	4.79		
Support Staff	117	714	6.1	4.28		

Level	*Count*	*Sum*	*Average*	*Variance*	*F*	*P*
Elementary	272	1735	6.4	4.52	2.70	< .05
Intermediate/Middle	55	327	5.9	5.02		
Secondary	46	271	5.9	4.94		
Multi-Level	19	98	5.2	3.58		

Years of Service in DOE	*Count*	*Sum*	*Average*	*Variance*	*F*	*P*
No Response	69	416	6.0	5.21	1.09	ns
1-2	85	566	6.7	4.75		
3-5	69	420	6.1	3.93		
6-10	77	461	6.0	5.07		
11-15	65	413	6.4	4.92		
>15	51	314	6.2	4.33		

Reported Experience with SAL Services	*Count*	*Sum*	*Average*	*Variance*	*F*	*P*
0	27	121	4.5	4.34	14.81	< 0.001
< 5	50	240	4.8	3.71		
5-10	93	555	6.0	4.10		
11-20	120	779	6.5	3.78		
21-35	89	621	7.0	4.52		
>35	37	274	7.4	3.97		

effectiveness of the program as it moves forward. Annual benchmarks also allow program administrators to interpret the success of new developments within the program. Recent innovations may be judged against past results in self-reported assessment literacy levels and user satisfaction values. By breaking down or disaggregating data at the district, role, and assignment level, program administrators can identify and learn from pockets of success. The latter is especially important when contemplating program refinements. Disaggregated self-efficacy ratings could also be compared to district performance as measured by HCPS II. Ideally, higher self-efficacy ratings in particular districts would translate into better performance on standardized measures. The latter would provide support for SAL services as Hawai'i seeks to address the student achievement challenges reported by NAEP.

Successes and Challenges

Three hundred and forty-seven survey respondents (71 percent of the sample) provided a total of 478 written responses to the question about program highlights. Somewhat fewer, 297 respondents (61 percent of the total), offered a total of 371 suggestions for program change or improvement. Content analyses of open-ended response data yielded 30 clusters of comments regarding program highlights and 50 for suggested program changes. These clusters were merged into a smaller set of themes to represent the main successes and challenges associated with the SAL program.

Successes

In general, users identified the following elements as the main successes of the program:

- Professional development workshops and presentations;
- Assistance in the development of standards-based activities;
- Assistance with the analysis and review of school assessment data;
- Provision of resources targeted at individual school needs;
- Information / updates on the Hawai'i Student Assessment Program;

Overall, the comments from respondents closely aligned with the areas of service to which all SALs were expected to engage. In this respect, the program was highly successful in maintaining its stated objectives.

The analysis of user comments, broken down by districts, shows elements of consistency across the districts. For example, SAL involvement in providing professional development training programs was typically the most-frequently-mentioned or second most-frequently-mentioned SAL program success. At

the same time, some services highlighted by respondent's comments were comparatively more frequent in selected districts. For example, mention of learning teams as a most helpful SAL service only occurred in the Honolulu district. Similarly, mention of the effectiveness of the SALs in terms of demonstrating methods and coaching teachers through assessment activities were comparatively more frequent in Honolulu and Leeward districts. These results should be of interest to SAL staff members as they discuss differential patterns of program implementation and user response across districts.

The comments from survey respondents supported the results from personal interviews conducted during an earlier phase of the study (Melahn, 2004). These discussions with staff members revealed a recurring pattern: selected pockets of strong enthusiasm, knowledge, and appreciation for the SAL program, combined with bands of passing or limited awareness that extended across all levels of employees in the DOE. A part of this pattern included a gap between activity or service recall of specific SAL services and activities and explicit name recognition of the term School Assessment Liaison or SAL. An extreme example of this pattern was an employee who participated in a yearlong SAL training program; learned, implemented, and continued multiple innovations in classroom assessment—and yet, was quite certain that he did not know anything about his SAL or School Assessment Liaison.

Challenges

In general, users identified several leading themes for program consideration:

- Frequency of contact and regularity of service
- Direct involvement with classroom teachers and ensuring their ability to effectively assess student progress
- Hiring of more SALs in order to both fill existing vacancies as well as to extend the level of resources for assessment-related development in the schools
- Focus the work of SALs on assessment issues; don't pull them off for other district-level assignments

Collectively, these themes underscore the importance of having sufficient funding to support direct contact with classroom teachers. Results generally showed consistency across districts for the key themes identified as leading user suggestions. However, some suggested areas of change showed greater salience in selected districts. For example, Central, Honolulu, and Leeward districts emphasized the value of a more regular visitation or service schedule by the SAL. Similarly, in the Windward district, users expressed comparatively higher rates of emphasis on working more directly with teachers, increasing

the visibility and information about the program, and providing more training at the individual school level. Both the user feedback overall, as well as the breakdown of ideas by district, provide SAL staff members with information they can use in planning for ongoing program refinement and improvement.

As with the program successes, the pattern of respondent comments and opinions supported previous results from interviews conducted on Oahu (Melahn, 2004). Consider the following quotes:

> The SALs have so many commitments at the district level; they really don't have time to work with us in the schools. (Elementary School Curriculum Coordinator)
>
> What I need is my SAL full-time right here on my campus working with my teachers on a daily basis. In fact, I could use two full-time positions given the amount of work that needs to be done. (High School Principal)

These types of comments closely mirror the open-ended responses of survey respondents. That is, the SAL program needed to be expanded with a central focus on working directly with classroom teachers. This conclusion is also supported by data that showed a close relationship between exposure to direct SAL services (ranging from .42 to .77 of the nominal work year) and user satisfaction values. For example, the two districts at the extremes in this case, Kauai and Honolulu, also represent the extremes of user satisfaction as recorded in satisfaction index values of 5.8 for Kauai contrasted with 8.7 for Honolulu.

Lessons

Five main lessons have been derived from the implementation of the SAL program initiative: (1) There is value in utilizing a multifaceted service strategy to enhance the assessment literacy of classroom teachers; (2) resource staff must maintain currency of knowledge if they are to remain effective consultants; (3) large-scale teacher development programs require reliable reporting systems; (4) program administrators need to track a range of variables when assessing the overall effectiveness of a new initiative; (5) program funding levels must be aligned with outcome expectations. Collectively, these lessons are meant to inform other large-scale teacher development programs, particularly those aimed at enhancing assessment literacy.

Multifaceted Service Strategy

There has been a tendency to rely primarily on workshops to foster professional development in classroom teachers. This narrow focus will not

result in the desired improvements we seek in teachers' assessment literacy (Stiggens, 1999). The SAL program should be commended for its creation of a multifaceted approach in an effort to ensure that Hawaii's teachers take full advantage of current concepts and methods in school and classroom assessment. As previously noted, multiple channels included information service, consultation, direct instruction and training, and dispersal of resources and funds. Schools, districts, and complex areas were able to create customization of the support service based on local needs, and yet a core of the program elements were extended statewide. This type of service strategy appears to allow for variations around key program themes, with high-quality and valued services being distributed on an as-needed basis. The latter is especially important for a state such as Hawai'i that has its student population spread over a number of islands. Other Pacific Rim contexts would be wise to consider the benefits of a multifaceted service approach.

Current Knowledge

The SAL program exhibits a strong commitment to maintaining current knowledge among its staff members through its monthly training sessions and its ongoing effort to keep SALs informed about new developments and trends in the areas of student achievement and assessment practice. Maintaining an ongoing level of expertise is essential for program sustainability. Educators who feel training accurately captures the realities of present-day classrooms are more willing to reflect on their practice and make pedagogical refinements (Cohen, Hill, & Kennedy, 2002). Reform efforts need to provide opportunities for the ongoing professional development of the individuals who deliver training and consultation services. In this respect, training the trainer is just as important as training the teacher.

Reporting Systems

The data from the study regarding user feedback and SAL utilization of work time provide a basis for a more focused discussion on the importance of reliable reporting systems. Although creating and maintaining accurate reporting systems can be a challenging endeavor, the advantages for innovation and program refinement are worth the trouble. Data collected from the study revealed differences in user satisfaction across districts, as well as patterns of service delivery that may be related to the satisfaction data. Review of service information from districts that recorded comparatively strong user satisfaction suggests specific program elements that could enhance user satisfaction and

program impact if implemented in other districts. Given recent advances in technology, the creation of an on-line data collection capacity might be a key step toward the development of a workable and efficient system.

Tracking Variables

The key question to be asked of training and development efforts is: what are the outcomes for the enterprise of the trainees? Are the ultimate program goals—in this case, enhanced teacher assessment literacy and corresponding improvements in student achievement—being met? In examining the implementation of the SAL program it was interesting to note that no data about the number, background, range of experience, and existing skill and knowledge profiles for potential trainees were part of the planning and development process. Nor were there clear indications that outcomes at schools in individual SAL service areas were being tracked. The program might consider developing some means for the ongoing tracking of student progress. This data allows program administrators to examine the relationship between self-efficacy ratings and measures of student performance. That is, do teachers who report a higher level of assessment literacy within their schools realize gains on the HCPS II? Tracking student assessment results also provides valuable information that can inform the direction of future professional development activities. Clearly, reform efforts need to develop and track a variety of outcome measures in students, teachers and consultation staff.

Funding-Outcome Alignment

SAL program implementation at individual employee levels occurs with time commitments that reportedly extend to nearly 60 percent above the contracted level for the SAL position (Melahn & Volante, 2004). Moreover, the collective view, based on a composite tally across 23 incumbent SALs, showed an overall work commitment pattern that is approximately 30 percent beyond the contracted year, or the equivalent of about seven SAL positions (Melahn & Volante, 2004). There are multiple examples of SAL employees markedly extending themselves in an effort to effectively attain program outcomes in the face of multiple pressures on their time. Although this type of hard work and dedication are to be commended, there is clearly a need for additional resource staff. Collectively, the findings underscore the value in having outcomes that are more closely aligned with levels of program funding. Although Districts of Education may set ambitious objectives for their programs, their success (or lack thereof) needs to be considered in light of their initial and ongoing investment.

Minimal investments are bound to result in minimal results. The present study suggested that the size of the SAL program could easily be doubled and still attain only a fraction of the outcomes that would be needed to create significant widespread improvements in assessment literacy across the state.

Conclusion

The strategy of focusing on school and classroom assessment as a means of extending teacher knowledge and supporting educational reform has received relatively little attention. Although teachers are often asked to demonstrate their effectiveness through reference to assessment data, they have been equipped with relatively little knowledge in this area at both the preservice and inservice level. The current study suggested that one way to remedy this situation is through the implementation of a large-scale professional development initiative. Results indicated that the SAL program was able to generate impressive levels of support and appreciation from its users. The central foci of the program—supporting the development of sound standards-based school and classroom student assessment—are critical elements of a developmental innovation agenda centered on improving student achievement. As previously noted, this is a particularly urgent priority for the state of Hawai'i.

The success of educational reforms is inextricably connected to the preparation and professional development of educators (Fullan, 2001). This study encourages us to think further about the value of promoting school and classroom assessment literacy in our attempts to realize improvements in K-12 education. The results provide other Pacific Rim populations with a series of considerations when implementing multi-island reform initiatives. The previously noted lessons also inform the development and implementation of similar professional development initiatives in broader contexts. Identifying these types of distinguishing characteristics is essential for assessment literacy development and large-scale reform. As Popham (2004) argued, our failure to address teachers' assessment illiteracy is nothing less than professional suicide.

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Appendix A: Survey Instrument

1. What is your current assignment and role within the DOE? (Please one box in each of the three areas below, & write two answers.)

District
- ☐ Central District
- ☐ Honolulu District
- ☐ Leeward District
- ☐ Windward District
- ☐ Hawai_i District
- ☐ Maui District
- ☐ Kauai District

Role
- ☐ Principal
- ☐ Vice Principal
- ☐ Testing Coordinator
- ☐ Curriculum Coordinator
- ☐ Classroom Teacher
- ☐ Other: _____

Level
- ☐ Elementary
- ☐ Intermediate/Middle
- ☐ Secondary
- ☐ Multi-Level

My complex: _____

Number of Years in current school/department: _____

2. What services have you received from the School Assessment Liaison Resource Teacher in your complex?

(Please provide checks in the boxes below as appropriate. Blanks will indicate that you did not receive or observe the service.)

Services of the SALs Resource Teacher(s)	2000-01	2001-02	2002-03	2003-04
None—I don't recall any services from the SALs Resource Teacher				
He/she:				
Presented a staff development program at our school.				
Helped us plan and present a staff development program at our school.				
Participated in or planned a complex or district staff development program.				
Provided us with information about the Hawai_i Assessment Program.				
Informed us about staff development opportunities.				
Provided us with information/expertise about assessment.				
Served on our school leadership team.				
Served on a committee within our school.				
Researched, analyzed, or disseminated assessment materials or methods for/to us.				
Provided us with books or printed materials on assessment.				
Retrieved and/or analyzed school level assessment data for us.				

Assisted with outreach to the school community regarding student assessment.				
Helped with data collection and/or testing at our school.				
Observed teachers in the classroom/worked directly with them on assessment.				
Talked to us about the role of assessment in a standards-based classroom.				
Other:				
Other:				
Other:				

3. **Utilizing a scale of 1 to 10 where "1" means "Very Dissatisfied" and "10" means "Very Satisfied" what is your overall satisfaction with the service(s) provided by the SALs Resource Teachers?**

Very Dissatisfied 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8☐ 9☐ 10☐ **Very Satisfied** **Don't Know** ☐

4. **Considering all of the expectations you may have had about the services, to what extent have the services met your expectations? "1" now means "Falls Short of Your Expectations" and "10" means "Exceeds Your Expectations."**

Falls Short of 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8☐ 9☐ 10☐ **Exceeds** **Don't Know** ☐

5. **Now think of the ideal service(s) for people in your circumstances. How well do you think the service(s) you received compare with the ideal service(s)? "1" now means "Not Very Close to Ideal" and "10" now means "Very Close to the Ideal."**

Not Close to Ideal 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ 8☐ 9☐ 10☐ **Very Close to Ideal** **Don't Know** ☐

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