

CRDG

Year in Review 2006

University of Hawai'i at Mānoa, College of Education

CRDG Curriculum Research & Development Group

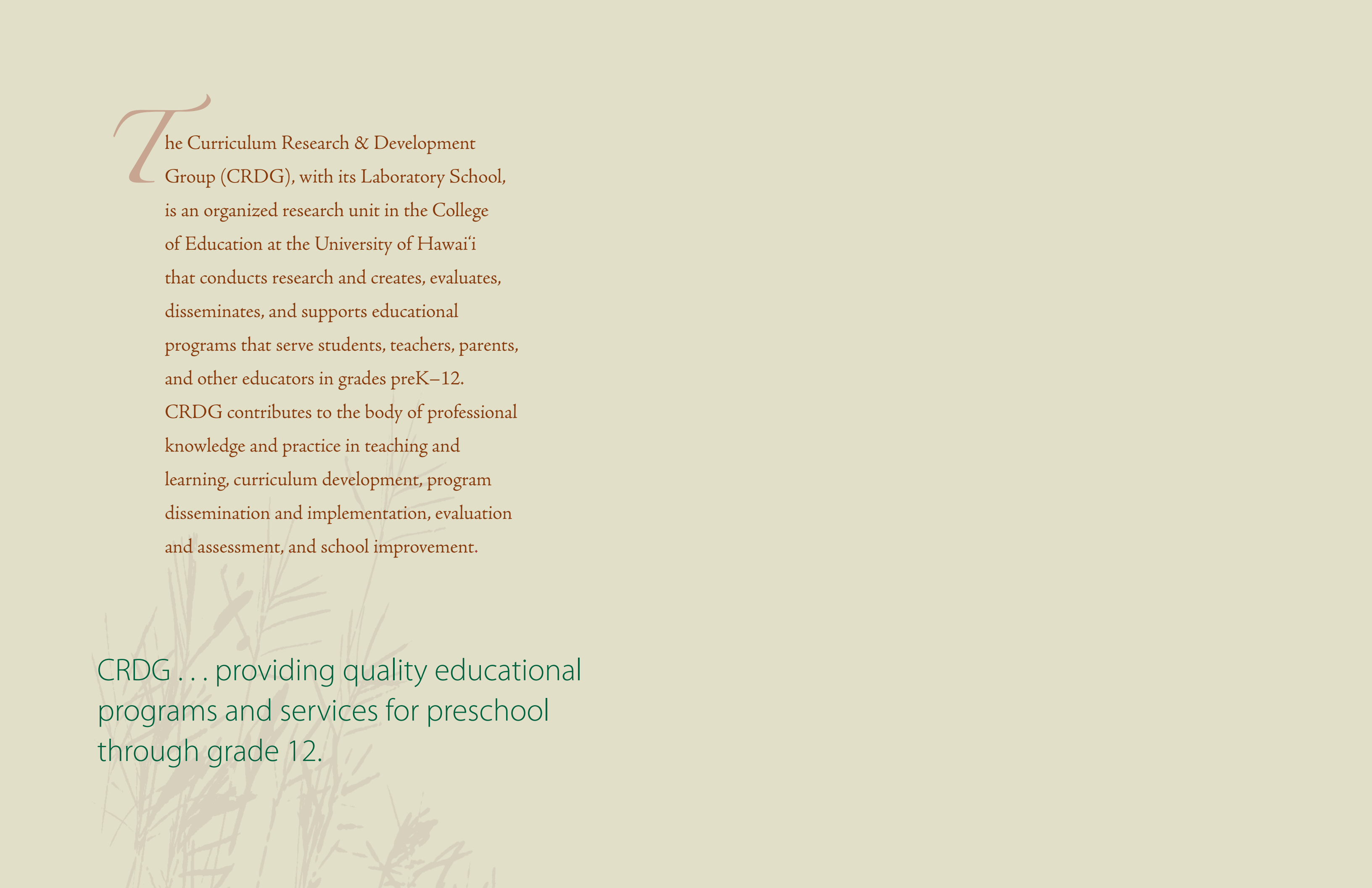
*providing quality educational programs
& services for preschool through grade 12*

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*T*he Curriculum Research & Development Group (CRDG), with its Laboratory School, is an organized research unit in the College of Education at the University of Hawai'i that conducts research and creates, evaluates, disseminates, and supports educational programs that serve students, teachers, parents, and other educators in grades preK–12. CRDG contributes to the body of professional knowledge and practice in teaching and learning, curriculum development, program dissemination and implementation, evaluation and assessment, and school improvement.

CRDG . . . providing quality educational programs and services for preschool through grade 12.

Message from the Director

Aloha from the Curriculum Research & Development Group and the University Laboratory School. We are pleased to present our 2006 *Year in Review*. In the pages that follow we highlight accomplishments of our dedicated researchers, teachers, evaluators, and support staff as well as events that made 2006 a remarkable year.

In the spring, CRDG Director Donald Young was asked to step into the leadership role of interim dean for the College of Education, and Associate Director Kathleen Berg became acting director of CRDG. In the midst of this transition, on the first day of our annual CRDG Summer Programs, a spectacular fire engulfed the University Elementary School building, one of the oldest buildings on our campus and home to several Laboratory School departments as well as offices for other college units.

Fire recovery claimed much of our energy for the rest of the year, but Summer Programs continued, as did the research, development, program evaluation, publication, dissemination, and professional development activities of CRDG. The Laboratory School started on time in August, and by December portable replacement classrooms and offices were on site (full story on page 24). It was a remarkable year.

As devastating as the fire and its aftermath were, they were also a revelation. CRDG and the Laboratory School have always been a part of the local community, working in partnerships with the state Department of Education, public and private schools, other colleges and departments in the university, foundations and funding agencies, educational and governmental entities, and individuals throughout Hawai'i. We have always felt connected to our community. What the fire revealed in its aftermath was how connected our community felt to us.

The immediate outpouring of sympathy and support and the ongoing offers of assistance and expressions of appreciation for our work have shown how much the community feels a part of us. Looking back over the history of CRDG and the Laboratory School, we see deep roots going back a hundred years. Over time we have woven connections throughout the community with our graduates, outreach and in-service programs, curriculum materials, research and program evaluation, and professional service.

Throughout the descriptions of our work that follow, you will see names of the many partners who work with us and provide support to us. They are from our local community as well the larger national and international community. This *Year in Review* is a celebration of our many community partners who share our mission to constantly improve education.



Donald B. Young
Director, CRDG
Professor of Education



Kathleen F. Berg
Acting Director, CRDG

Sincerely

A handwritten signature in black ink, appearing to read 'Kathleen F. Berg', written over a decorative, dotted line.

Kathleen F. Berg

Curriculum Research & Development Group

“Committed to Quality”

Funding Agencies

Bishop Museum
Castle Foundation
Hawai'i Alliance for Arts Education
Hawai'i Department of Education
Hawai'i Department of Health
John Dean Foundation
National Science Foundation
U.S. Department of Education
University of Hawai'i Foundation

The Curriculum Research & Development Group (CRDG) is an organized research unit in the College of Education at the University of Hawai'i. Since 1966, CRDG has served the educational community locally, nationally, and internationally by

- ❧ conducting research and creating, evaluating, disseminating, and supporting educational programs that serve students, teachers, parents, and other educators in grades preK–12; and
- ❧ contributing to the body of professional knowledge and practice in teaching and learning, curriculum development, program dissemination and implementation, evaluation and assessment, and school improvement.

CRDG operates the University Laboratory School (ULS), a public charter school, as its R & D laboratory under an agreement with the local school board. ULS provides a K–12 student population in a controlled environment where CRDG faculty members conduct their research and development work. Additionally, ULS serves as a demonstration site for improving K–12 education, while providing a high quality education for its approximately 420 students. The students, randomly selected from among applicants to represent a broad cross section of the state population, provide real-world data on ways all students can succeed.

Since its founding, CRDG has been an integral part of the education community. A research model that combines cutting edge thinking with real-world application has continued to add to the body of professional knowledge while bringing a large cross-section of the education community into the research process.

CRDG Focus Areas

CRDG focuses on five interrelated fields of educational endeavor, each of which addresses a central issue facing education in Hawai'i, on the U.S. Mainland, in American overseas schools, and in other nations.

Focus Area 1. Mathematics and Science Education

Focus Area 2. Hawai'i, Asia, and the Pacific

Focus Area 3. Relating Special Education to Regular Classrooms

Focus Area 4. Educational Technology Development

Focus Area 5. Designing Educational Systems

In each focus area, CRDG faculty members have accumulated a solid foundation in curriculum research and development; design and delivery of professional development for educators; evaluation and documentation of evidence of impact on learning, teaching, and assessment; and dissemination and implementation of effective programs.

CRDG burroots in the community



1895

- ▼ A teacher training department is formed at Honolulu High School, located in Princess Ruth's former mansion (now Central Intermediate School).



1896

- ▼ The teacher training department moves to Victoria and Young Streets and is renamed Honolulu Normal and Training School.

1905

- ▼ After annexation, Hawai'i becomes a U.S. territory. Honolulu Normal and Training School is renamed Territorial Normal and Training School and is moved to Lunalilo and Quarry Streets.



1930

- ▼ Benjamin Wist becomes the principal of the school.

1921

- ▼ The school moves to a new 15-acre site (once a pig farm) adjoining the University of Hawai'i at Mānoa. The University's Department of Secondary Education becomes the School of Education.



1931

- ▼ The legislature transfers the Territorial Normal and Training School to the School of Education. The School of Education is renamed Teachers College.

1939-41

- ▼ An elementary school (University Elementary School) is built on Metcalf Street as part of Teachers College. Construction begins on Castle Memorial Hall, a training center for kindergarten and nursery school teachers.



1941-45

- ▼ Punahou School, displaced by the military occupying its campus, moves into Castle Memorial Hall and other buildings, but Teachers College continues to operate.

1943

- ▼ University High School Building 1 on the Metcalf Street side of Teachers College is completed.

1948

- ▼ University High School Building 2 is constructed adjacent to Building 1. The University Laboratory School (ULS) now offers a complete K-12 curriculum. Hubert Everly (later dean of the College of Education) becomes the principal.



1959

- ▼ Teachers College becomes the College of Education, and Hawai'i becomes the fiftieth state.

1966

- ▼ ULS becomes part of a new entity, the Hawaii Curriculum Center. This is a joint operation of the Hawai'i Department of Education and the University of Hawai'i to develop curriculum programs and materials for schools.



1969

- ▼ The Hawaii Curriculum Center is phased out, and ULS comes under a new College of Education unit known as the Curriculum Research & Development Group (CRDG).



1996

- ▼ CRDG, along with other research units, reorganizes under the UH Office of the Senior Vice President for Research.

2000

- ▼ CRDG merges with the College of Education. ULS applies for charter school status.

2001

- ▼ ULS becomes a charter school. CRDG continues to operate the school as a laboratory for curriculum R & D.

Research and Curriculum Development

Invention Factory Community Partners

Waipahu Intermediate School
Dole Middle School
Farrington High School
Kalākaua Middle School
Roosevelt High School
O'ahu's leeward coast home schools
The Assistive Technology Resource Center of Hawai'i
Shriners Hospital
Hawai'i Department of Education
Kapi'olani Children's Hospital Speech and Hearing Clinic
Hawai'i Department of Health Early Intervention Program

The Invention Factory Students Aid Children with Disabilities

Teenagers from several intermediate and high schools have contributed modified toys and switches to community institutions that serve disabled children through the Invention Factory program. Students in this nontraditional, after-school program have worked with Shriners Hospital, Kapi'olani Children's Hospital Speech and Hearing Clinic, the Hawai'i Department of Health Early Intervention Program, and the Hawai'i Department of Education special education teachers to create modified toys that meet specific needs. Projects are carefully defined to include the client student as an equal partner in the design and invention process with the Invention Factory student-designers. In its first year, Invention Factory students contributed over one hundred toys and switches to the community. A lending library of toys that Invention Factory students have modified is maintained by the Assistive Technology Resource Center of Hawai'i.

The Invention Factory is a youth-based program that teaches information technology and mechanics to teenagers through hands-on projects that improve human computer interaction for disabled and elderly individuals.

In addition to providing real devices to contribute to the community, the Invention Factory program stimulates interest in science and engineering careers among students currently underrepresented in those fields: women, Native Hawaiians, students with disabilities, and students at risk of academic failure. Students learn sufficient electronics, mechanics, mathematics, and computer programming to enable them to



Two students at Waipahu Intermediate show off a toy that they have modified for children with disabilities.

develop needs analysis, design, fabrication, and evaluation of devices that meet the needs of disabled people. This learning, in turn, promotes science, engineering, and mathematics subjects to teenagers. The broader outcome is that students who create technology-based solutions that impact people have substantially increased motivation to pursue careers in engineering and science.

Making the Connection: CRDG Web Databases

Web databases created by the CRDG Learning Technology Section allow easy access, entry, and examination of educational and scientific data by other CRDG sections and members of the community at large. The Hawai'i Watersheds and School Web of Instructional Media (SWIM) databases provide valuable connections to scientific and curriculum data to scientists, environmentalists, teachers, students, and interested observers.

The Hawai'i Watersheds Database was created as a part of a Hawai'i Department

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of Health project to provide a central place for students, teachers, and professional researchers to develop and test hypotheses to understand the impact of human behavior and natural events on the watershed ecology. The project's geographical scope includes watershed areas of Kaua'i, Lāna'i, O'ahu, Moloka'i, and Hawai'i. The data topics include location, time, weather, land use, ocean characteristics, fresh water characteristics, chemistry, substrates, plants, animals, and investigatory influence. Over 1500 entries from school groups and the community can be found on the site (www.hawaii.edu/environment). This database also supports the Kōlea Watch (www.hawaiinaturecenter.org/kolea/index.html), a project of the Hawai'i Nature Center, which has recorded 1400 observations.

The School Web of Instructional Media (SWIM) (www.hawaii.edu/swim/) makes connections between CRDG curricula, thousands of extant video, still pictures, and World Wide Web pages, and 350 registered instructors. The SWIM database allows teachers and students from around the world to enrich and enhance their learning experience with its quick textbook-media connections, each linked to a specific concept.

Learning Technology Moves Students into New Curriculum

The Learning Technology Section is working with eighth and ninth grade students in the University Laboratory School to develop a new curriculum in computer literacy.

The course goal is to question, embrace, and challenge what students already know about computers while developing a strong

Using Data to Drive Curriculum Development

One of the hallmarks of all CRDG-developed curricula is a design based in part on empirical data and research. As part of the process of developing the computer literacy curriculum, the Learning Technology Section conducted a study wherein students were asked to consider their expertise and comfort levels with various software applications before and after the class, and to discuss issues of safety and ethics when using computers. Results indicated that students were not computer literate in workforce-oriented computer tasks, yet were comfortable and well versed in the social realm. Before the class, many students interacted frequently with video game consoles, MP3 players, cell phones, and chat rooms. Yet, all students in the study recognized that they lacked specific skills that were needed in their future careers. Following the course, there was a statistically significant increase in students' skill levels for all software application areas as well as a statistically significant increase in their perception of learning. Students indicated that they appreciated the chance to learn, practice, and improve upon skills relevant to future professions, and that they appreciated the opportunity to discuss the social aspect of the Internet and their personal sense of computer ethics.

Web Databases Community Partners

Hawai'i Department of Health
Hawai'i Department of Education
Hawai'i Nature Center



Hawai'i Watersheds Database



School Web of Instructional Media (SWIM)

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sense of computer ethics, etiquette, safety, and responsibility. At the completion of the new curriculum students should have developed a clear understanding of the importance of computer literacy in modern society and of the ethics involved in using this technology in an information-rich society. Students must also demonstrate proficiency in

- identifying types of hardware components and their functions,
- identifying the differences in system and application software,
- using discussion boards and email,
- understanding the importance of the Internet and the World Wide Web for information dissemination,
- effectively researching a topic, and
- effectively using word-processing tools, different formats of presentation, and Web authoring.

Data drawn from the Laboratory School students' assessments of their current computer skills and perceptions together with the National Education Technology Standards for Students provided the basis of the new curriculum, which reflects the

recognition of the importance of computer technology in the future of students in school, workplace, and home. By working closely with Laboratory School students and continuing to align their needs with Hawai'i, national, and international standards and trends, the Learning Technology staff is shaping the evolving computer literacy curriculum into something that meets the students' needs now and in the future.

New Curriculum Materials on Modern East Asia

The latest project in the Social Studies Section, begun in 2005, continues their ongoing work in the development of historically accurate and pedagogically sound instructional materials on Asia. The thematically based text for high school students focuses on Modern East Asia and, in particular, on the interrelationships among China (including Taiwan and Hong Kong), Japan, and South and North Korea. The goal in developing these curriculum materials is to help prepare students to meet the changing global demands of tomorrow by arming them with knowledge of one of the most economically and politically dynamic regions of the world.

Following the pattern established in CRDG's previous history curricula, this text presents history as a living discipline through the use of primary documents, stories and poems, maps, timelines, and activities fostering critical thinking. As lessons are developed, they are tested in the Laboratory School and revised based on teacher and researcher observations and direct feedback from student evaluations. Additional invaluable feedback from Asian



Students in the computer literacy class investigate the internal components of a desktop tower.

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scholars regarding how to best organize these materials for student learning has come from presentations at scholarly conferences, including the Comparative International Education Society conference held in Honolulu in March 2006.

Cross Currents Continues Japan/U.S. Connection

Work continued in 2006 on *Cross Currents*, a bilingual multimedia educational Web site that contains extensive content about Japan and the United States and their interactions over the past fifty years. Partially funded by the Japan United States Friendship Commission, *Cross Currents* is a partnership that includes CRDG, the University of Hawai'i College of Social Sciences and School of Communication, and Tokyo University.

The *Cross Currents* Web site (www.crosscurrents.hawaii.edu) includes content units that have been written and recorded in both Japanese and English, allowing users to switch freely between languages for both text and sound. Photographs, maps, graphs, documents, film clips with subtitles and scripts in both languages, and virtual reality clips also support the text. Another

component of the site, called the scrapbook, allows teachers and students to create and manage interactive projects. Content development and classroom testing in the Laboratory School will continue in 2007.

Scholarly presentations focused on *Cross Currents* were well received at the Comparative International Education Society conference held in Honolulu in March 2006 and the Pacific Circle Consortium conference held in Mexico City in July 2006.

Texas Instruments and CRDG Network in the Mathematics Classroom

Texas Instruments partnered with the CRDG Mathematics Section and the Laboratory School to study the use of the TI-Navigator classroom networked system for formative assessment in tenth grade mathematics classes. Texas Instruments funded the study and provided the University Laboratory School with a complete TI-Navigator system, including a laptop computer and LCD projector, for the classroom and TI-84 Plus Silver Edition calculators for all tenth grade students. The study found the main benefits of using the networked technology to be a higher quality of interaction between teacher and student, more immediate teacher response to students' specific needs, and, as a result of these, an increased ability by students to fill gaps in their understanding of a concept.

The Mathematics Section continued its partnership with Texas Instruments by facilitating outreach activities jointly sponsored by CRDG and Texas Instruments at CRDG, Kailua, and Pearl City. In addition, a three-day summer workshop

Cross Currents Community Partners

Japan United States Friendship Commission
College of Social Sciences, UHM
School of Communication, UHM
Tokyo University

TI Navigator Study Community Partners

Texas Instruments
Chaminade University
Hawai'i Department of Education



for preservice and in-service teachers at CRDG, and a one-day handheld technology workshop at Chaminade University for preservice teachers allowed participants to gain hands-on experience with the TI-73 graphing calculator and the TI-Navigator system.

Studying the Role of Gender and Language for Mathematical Tasks

The National Science Foundation awarded researchers in CRDG's Mathematics Section \$450,000 to fund a three-year study of gender and mathematics. The research involves investigating gender-related differences in language and actions used by parents and children when working on number, algebra, and geometry tasks. Data are gathered during videotaped sessions and analyzed for gender-related differences in the use of cognitively demanding language used by parents and children as they work on mathematical tasks. Children's self-efficacy and parents' beliefs of competency for their children are part of the study.

During the pilot phase in 2006, eighteen child-parent dyads were videotaped, allowing for refinement of the survey instruments. Implementation of the formal study began in 2006 and will involve studying one hundred parent-child dyads over the 2006–2007 school year. Findings from this research will extend the knowledge base regarding gender issues in the role parents play in their children's mathematical learning.

Measure Up Reaches Milestone

The Measure Up elementary mathematics research project continues to

investigate the development of children's algebraic thinking through the teaching of mathematics concepts using a measurement context. The project is based on the work of Russian psychologists, mathematicians, and educators with the initial development done in collaboration with the Institute of Developmental Psychology and Pedagogy in Krasnoyarsk, Russia, and Best Practices in Education in New York. Current collaboration with the University of Mississippi supports project work by providing additional analyses of video data and student work.

The University Laboratory School (ULS) and Connections Public Charter School (CPCS) are the primary research sites for the curriculum development. The 2005–2006 academic year marked a milestone in the work of Measure Up. With the first cohort of ULS and CPCS students finishing grade 5, the project team has developed a complete first draft of this unique five-year program. Student pages and activities, teacher notes, and ancillary materials have been created based on findings using a design research methodology. Financial support from the Castle Foundation and the John Dean Foundation has enabled the project team to work with Waimānalo Elementary and Intermediate School as a potential site for future pilot studies.

GK–12 Program Lauded as Exemplary

The Graduate Teaching Fellowships in K–12 Education (GK–12) program is a partnership between CRDG and the Ecology, Evolution, and Conservation Biology (EECB) program at the University of Hawai'i. The National Science Foundation-

Measure Up Community Partners

Institute of Developmental Psychology
and Pedagogy, Krasnoyarsk, Russia
Best Practices in Education, New York
University of Mississippi
Connections Public Charter School
Castle Foundation
John Dean Foundation
Waimānalo Elementary and Intermediate
School

GK–12 Community Partners

Ecology, Evolution, and Conservation Biology,
UHM
Hawai'i Institute of Marine Biology, UHM
Lyon Arboretum, UHM
Hōkūlani Elementary School
Lanikai Elementary School
ASSETS School
Farrington High School
National Science Foundation

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funded GK–12 program brings doctoral candidates in the sciences into science classrooms where they gain experience in teaching while involving students in their research. In addition to providing the educational component of the project for graduate fellows, CRDG with its Laboratory School, allows fellows a place to work and learn as they become teachers as well as scientists.

Although 2006 was intended to be the final year of the project, its tremendous impact and success was rewarded with the only accomplishment-based renewal granted by NSF. The renewal allows the program to continue its work for another two years, allowing current research projects to continue and new fellows to be admitted to the program. In addition, the National Science Foundation singled out the EECB/CRDG GK–12 program as an example of an exemplary program in its annual report to Congress.

OPIHI: A Community of Students in Research

Our Project in Hawai'i's Intertidal (OPIHI) is one of the few ongoing conservation and monitoring efforts focused on Hawai'i's intertidal zone. This project originated at the University Laboratory School as part of the Graduate Teaching Fellowships in K–12 Education (GK–12) program at the University of Hawai'i. A fellow teaching in the Laboratory School's ninth grade marine science classes began the intertidal survey, taking the ULS students to sites around O'ahu to inventory species found in the intertidal zone. Although that fellow has long since graduated, the OPIHI program is thriving and has continued to expand.



Students and teachers participate in intertidal monitoring around O'ahu with OPIHI.

Students on O'ahu, Maui, Moloka'i, and, most recently, the Big Island have joined the Laboratory School students in monitoring the intertidal zone on their islands and contributing to a statewide database of macro-invertebrates, fish, and algae. More than six hundred taxa have been collected and identified.

The growth and vitality of OPIHI demonstrates the power of approaching science education as a community of scientists, improving students' content and skills knowledge while providing opportunities for them to develop individual investigations within the framework of real research. Writing samples conducted pre- and post-project have shown significant increases in critical thinking and investigative skills. Student products and comments also demonstrate a strong depth of knowledge of study topics. The OPIHI activity guide is now in the final stages of production for dissemination throughout Hawai'i's schools.

FE/LO Transitions to *Our Fluid Earth*

Revision of CRDG's award-winning marine science curriculum is ongoing in the

OPIHI Community Partners

Farrington High School
Kahuku Intermediate and High School
Kalama Intermediate School (Maui)
Ho'omana Hou Public Charter School
(Moloka'i)
Connections Public Charter School (Hawai'i)

Our Fluid Earth Community Partners

National Oceanic and Atmospheric
Administration
Hawai'i Sea Grant Program
Hanauma Bay Education Program
Toshiba America Foundation
Kohala Center
Hawai'i Institute of Marine Biology
Hawai'i Coral Reef Initiative
National Marine Sanctuaries Program
Waikiki Aquarium

Research and Curriculum Development

Laboratory School's ninth grade marine science classes where surveys, testing of early drafts of new material, and direct student feedback allow the authors to refine their approach and content. The current two-book program will be expanded and combined into a single book that integrates biological and physical sciences.

Ecology and evolutionary biology are the central organizers of the revised program. The study of interconnections between organisms and the environment naturally integrates physical and biological content in a meaningful way. As a thematic organizer, ecology allows developers to take advantage of biological systems to introduce physics and chemistry by connecting the abiotic features of the environment to the organisms living there and by examining how environmental features influence adaptation of organisms through natural selection.

Activities targeting the nature of science follow CRDG's long-held philosophy that a science classroom should simulate a community of scientists. Project-based

instructional modules give students an opportunity to identify and resolve scientific questions, thereby engaging them in a long-term activity connected to their world, helping them to develop critical thinking and scientific investigation skills, and allowing them to form a more complete understanding of the scientific process as outlined in the National Science Education Standards on Science as Inquiry.

Physics, Physiology, and Technology (PP&T) Project Holds Statewide Professional Development

Following several years of development work in the eleventh grade classes at the Laboratory School, CRDG's newest science program—Physics, Physiology, and Technology (PP&T)—has begun pilot testing in several of Hawai'i's public schools and is expanding its focus to include studying the effect of mentoring on teaching.

With funding from a No Child Left Behind grant to a UH Mānoa physics professor, PP&T development team members from CRDG and the College of Education worked with teachers from the islands of Maui, Kaua'i, and Hawai'i in a professional development program that combined a one-week professional development summer workshop with subsequent classroom support.

In the course of their work with teachers trained in the program, the PP&T team began to ask, "What effect does mentored teaching have on teachers' perceived efficacy, and ultimately on classroom practice?" To answer this question, the collaborative team has begun planning for a one-week mentor teaching experience to be held under the auspices of the CRDG Summer Programs.

Physics, Physiology, and Technology Community Partners

Hilo High School
Lahainaluna High School, Maui
Chiefess Kamakahēlei High School, Kaua'i
Department of Physics and Astronomy,
UHM
U.S. Department of Education



Participants in the Physics, Physiology, and Technology (PP&T) workshop test the Galileo ramp.

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Coached by the PP&T team, cooperating teachers will be exploring the pedagogical features of PP&T by engaging in mentored teaching with a special class of summer science students.

The Golden Triangle English Program Builds a Literary Community

Communication links a community. The CRDG English Section continues to build on its work of creating a community of writers, readers, and speakers in the Laboratory School, in the state, and in the world at large through the use of the Performance English program. Developed over many years in the Laboratory School, the Performance English program, with its Golden Triangle, fosters community with reading aloud and shared writing. Whole classes experience books together word by word; students share their journals and listen to peers' formal essays. There are no boundaries or levels within the Performance English community. Laboratory School students share a literary fellowship with alumni wherever they may be.

The best evidence of the effectiveness of the program were the achievements of Laboratory School students who continue to excel in community workshops and statewide writing contests. In 2006 students won awards in new areas while continuing to excel in familiar forums. It was a first for the school to have a ULS student represent Hawai'i in Youth Speaks! a national poetry competition in New York City. Also, here in Hawai'i, two ULS students were winners in the 2006 Starbucks Star Poets contest.

The ongoing research into the use of the Golden Triangle at the Laboratory School

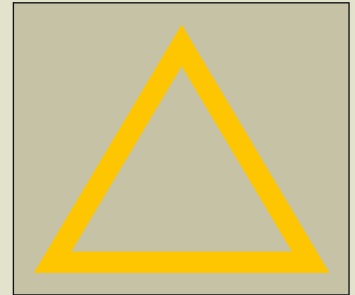
yielded a report titled "Enhancing Fluency: A Middle-School Teacher's Attempt to Improve the Abilities of Struggling Readers," which was presented at the charter school conference in Honolulu as well as the Pacific Circle Consortium Conference in Mexico City.

Development of the program continues with a project to extend the dictation sentence element to the upper grades with *The Dictation Sentence Handbook II*. A strengthening of links between the program and skills tested in college entrance exams is also under study. Developed and tested in the Laboratory School, the dictation sentence approach has proven to be successful in developing a strong foundation in the fundamentals of English grammar.

Bill Teter a National Endowment for the Humanities Fellow

Looking to the future and his projected text for seniors, ULS English teacher/researcher Bill Teter applied for and received a National Endowment for the Humanities (NEH) fellowship to study the writings of James Joyce at Connecticut College in New London, Connecticut, in the summer of 2006. The six-week seminar was conducted by Joyce scholar and author John Gordon. Along with 14 other high school teachers from across the country, CRDG's Mr. Teter read and discussed all of Joyce's writings, focusing in particular on *Ulysses*. Mr. Teter applied his work from the summer to the development of a new, thematically arranged text on British literature scheduled to begin testing in Laboratory School English classes in the coming school year.

Daily Journal Freewriting
(fluency, imagination, voice)



Daily Dictation Sentences
(grammar, voice, mechanics)

Frequent Reading Along
(imagination, voice, vocabulary)

Golden Triangle Community Partners

Kalihi Elementary School
Nānāikapono Elementary School
Wai'anae Elementary School
Ho'omana Hou School
Kua'ō Ka La PCS

Pihana Nā Mamo Community Partners

Castle High School
Hale'iwa Elementary School
Hāna High & Elementary School
Hau'ula Elementary School
Jarrett Middle School
Kahalu'u Elementary School
Kailua High School
Kaimuki High School
Kamaile Elementary School
King Intermediate School
Kapa'a High School
Kapa'a Middle School
Kapi'olani Elementary School
Kaunakakai Elementary School
Kea'au Elementary School
Kea'au High School
Keaukaha Elementary School
Konawaena High School
Kualapu'u Elementary School
Mā'ili Elementary School
Mountain View Elementary School
Parker Elementary School
Waiāhole Elementary School
Waiākea High School
Waihe'e Elementary School
Hawaii Department of Education
U.S. Department of Education

Pihana Nā Mamo Builds on Its Success

Since 2000, Pihana Nā Mamo: The Native Hawaiian Special Education Project has been a collaborative effort between CRDG and the Hawai'i Department of Education. This partnership identified, developed, and implemented effective programs to meet the unique needs of Native Hawaiian students.

A new phase of Pihana Nā Mamo began in 2006 with funding for two new projects that build upon Pihana Nā Mamo's seventeen years of successfully working with students, families, and community agencies, and allowed the project to continue their work supporting at-risk students and early reading success.

Kāko'o Piha focuses on providing at-risk Hawaiian students with systematic mentoring and transition planning, intensive academic support, and pro-social skills training to develop cultural competencies and resiliency. By the end of the three-year period, Kāko'o Piha will have worked with ninety seventh graders as they progress through middle/intermediate schools and will continue to support them during their first year in high school. The project will also track 219 eleventh graders and continue to support them through the first year in their post-high-school, college, or work settings.

Nā Lama Heluhelu is designed to address the beginning reading needs of Native Hawaiian students in kindergarten through third grade. The project has established and supported fifteen beacon schools in communities serving large numbers of Hawaiian students at risk for reading difficulties. The beacon schools are supported to establish the following critical

elements of effective school-wide reading programs: (1) reading as an established school priority; (2) an assessment system that screens, monitors progress, and informs reading instruction; (3) research-based core and supplemental reading programs and materials; (4) sufficient and protected instructional reading time; (5) differentiated instructional groupings, materials, and flexible schedules to assist struggling readers; (6) administrative leadership and ability to allocate resources to support reading; and (7) ongoing professional development that supports building school-level expertise and capabilities. The project anticipates serving approximately 6,300 students, including 3,676 Hawaiian and Part-Hawaiian students, 250 teachers and school-level instructional staff, and more than 800 parents and community members.

Ka Wana Series Connects Hawaiian Traditions to Contemporary Contexts

In 2006, two new volumes of the Ka Wana Series were published: *Kapu* (*Gender Roles in Traditional Society*) and *Welina* (*Traditional and Contemporary Ways of Welcome and Hospitality*).

The Ka Wana series, part of the Pihana Nā Mamo Native Hawaiian education project, offers new insight into the philosophy and way of life of Native Hawaiians. Those raised in these traditions will find memorable recollections, while those unfamiliar with Native Hawaiian values and practices will find insights and guidance.

The Ka Wana series consists of eleven short volumes covering a range of subjects including ethics and philosophy, leadership, education, health, cultural management,

Research and Curriculum Development



Author Malcolm Nāea Chun discusses the Ka Wana Series with Kaipō Hale and Lia Woo from Kamehameha Schools at the CRDG open house.

protocol, and religious beliefs. Each volume is illustrated with historical documents or with photographs of contemporary cultural practices. *Kapu* and *Welina* are the fifth and sixth volumes in the series to be published.

Author Malcolm Nāea Chun uses traditional and historical examples drawn from both written and pictorial primary sources to show behavior, thoughts, and values then analyzes events in traditional and contemporary contexts. Chun asks readers to think about whether we are following those traditions today, or whether we have changed them or are making them up. The implications of his findings will cause some to reexamine and rediscover a true sense of Native Hawaiian values and virtues.

Languages as Part of a Liberal Arts Curriculum

The Second Language Section at the Laboratory School began work on a program to expand the Japanese program into the elementary school. While teaching the language in the early grades, researchers will look at how language learning interacts with early reading and writing, how languages

relate to each other, and how students can learn to be citizens of the world through the cultural studies that are an inherent part of language learning.

One of the basic tenets underlying CRDG's research program is the belief in a thorough liberal arts education for all students, which leads to the corresponding goal that all students graduate ready for college and citizenship. For this reason, the Laboratory School's core curriculum has always included second language study for all students. Today, the tremendous changes in the way the current generation of students interacts with the world give the study of languages and the cultural learning that comes with it a new dimension and importance. The Second Language Section's exploratory work with language learning in the elementary grades responds to this changing climate and need.



Two volumes of the Ka Wana series were published in 2006: *Kapu, Gender Roles in Traditional Society* and *Welina, Traditional and Contemporary Ways of Welcome and Hospitality*.

Program Research and Evaluation

21st Century Community Learning Centers Community Partners

Hāna High and Elementary School
Ka'a'awa Elementary School
Kahalu'u Elementary School
Kahuku Elementary School
Lā'ie Elementary School
Sunset Elementary School
Kahuku High and Intermediate School
Kamaile Elementary School
Leihōkū Elementary School
Mā'ili Elementary School
Mākaha Elementary School
Wai'anae Elementary School
Wai'anae Intermediate School
Wai'anae High School
Keiki Steps School
Ha'ikū Elementary School
Kula Elementary School
Makawao Elementary School
Pā'ia Elementary School
Pukalani Elementary School
Kalama Intermediate School
Kekaulike High School

Evaluating 21st Century Community Learning Centers

The 21st Century Community Learning Centers program, as mandated in the No Child Left Behind Act of 2001, establishes community centers in Hawai'i schools that provide academic enrichment and other services and activities designed to reinforce and complement regular academic programs. Priority is given to complexes with high percentages of students at risk and in need of support to achieve state standards, and to complexes that serve the full K–12 range. CRDG faculty members have worked as the external evaluators with many schools over the course of the program. In 2006, CRDG worked with the 21st Century Community Learning Centers in twenty-one schools in the Hāna, Kahuku, Wai'anae, and Kekaulike complexes.

Transitions to Teaching: CRDG, COE, and DOE Work Together

The College of Education (COE) and CRDG have teamed up with the Hawai'i Department of Education (DOE) to address



Staff members from CRDG's Program Research and Evaluation (PRE) Section discuss Transition to Teaching project goals.

the shortage of mathematics and science teachers in Hawai'i's secondary schools. The five-year, federally-funded Transitions to Teaching program provides support for mid-career professionals and recent graduates in fields other than education to help them complete teacher training programs and attain teacher licensure. CRDG's evaluation role is to determine what kinds of support these students need to reach their goals and to determine where these needs are being met. The goal of the project is to produce 100 licensed science and mathematics teachers.

CRDG Teams with Hawai'i Arts Alliance

CRDG's Program Research and Evaluation Section completed the final stages of an evaluation of the three-year ARTS FIRST Windward Research Project as 2006 came to a close. The project is a collaboration between CRDG and the Hawai'i Arts Alliance and was funded by a grant from the U.S. Department of Education. Its focus was to develop and implement procedures for training elementary school teachers in how to use strategies from dance, music, drama, and the visual arts to help teach reading and mathematics. The Hawai'i Arts Alliance implemented the project in three randomly selected public elementary schools on O'ahu, and CRDG compared teachers and students in the three schools with those in a group of three randomly selected control schools in a mixed-method, quasi-experimental study. Over the course of the project, fifteen teachers in grades three through five were trained in how to use the arts to enhance their teaching of language arts and mathematics. The project will finish in 2007



Program Research and Evaluation

with an observational study of the quality of teachers' implementation of arts strategies, production of a final report, and submission of an article for publication. Preliminary results show that the project successfully affected project students' attitudes and achievement. CRDG and the Hawai'i Arts Alliance are continuing to collaborate and have begun a second project, also funded by the U.S. Department of Education, to study the arts in education in four O'ahu schools over the next four years.

CRDG Supports DOE Standards-Based Education Initiatives

As schools and teachers work to implement the No Child Left Behind Act, CRDG's Program Research and Evaluation (PRE) Section is working behind the scenes to support their efforts. The Hawai'i Department of Education created the TOTAL (Transforming Our Teaching and Learning) professional development modules to further the understanding of standards-based education and its implementation. PRE is evaluating the staff development and training portions of the process, providing feedback as the cadre-training model (train-the-trainer model) is implemented from the state level to the classroom level.

CRDG Contributes to Understanding of School Health Issues

CRDG continues to work with the Hawai'i Departments of Education (DOE) and Health (DOH) to monitor health-risk behaviors among Hawai'i's student population. This year, results of the 2005

version of the Centers for Disease Control and Prevention's (CDC) Youth Risk Behavior Survey (YRBS), with Hawai'i-specific modifications, were compiled and reported. This marks the seventh YRBS that CRDG has conducted. Twenty-three middle schools and twenty-three high schools in Hawai'i participated in the YRBS, but the results are generalizable to all sixth through twelfth grade Hawai'i public school students. The DOE, DOH, University of Hawai'i, and other agencies use the results of the ongoing studies in a variety of ways including identifying focus areas for curriculum development, training teachers, and planning for new programs, prevention efforts, and funding.

CRDG Partners With GEAR UP Hawai'i

CRDG's Program Research and Evaluation (PRE) Section conducted an impact analysis of GEAR UP's early intervention program, focusing on the GEAR UP Scholars' college preparation that began in the 2000–2005 grant cycle. GEAR UP (Gaining Early Awareness and Readiness for Undergraduate Programs) is a U.S. Department of Education program whose mission is to significantly increase the number of low-income students who are prepared to enter and succeed in postsecondary education. To qualify for federal funding, state programs must have partners who provide matching dollars or services. GEAR UP Hawai'i is a consortium of partners that includes the Hawai'i Department of Education, the University of Hawai'i's ten-campus system, and many business and community organizations. GEAR UP Hawai'i provided

The DOE, DOH, University of Hawai'i, and other agencies use the results of the ongoing studies in a variety of ways including identifying focus areas for curriculum development, training teachers, and planning for new programs, prevention efforts, and funding.



Program Research and Evaluation

students and their families with information and encouragement to support students' academic preparation and increase access to financial aid. The impact analysis also included case studies of three low-income middle schools to examine the implementation of the AVID (Advancement Via Individual Determination) program, a school-reform intervention, to identify effective practices and inform the sites' and program's practices.

FAST Community Partners

National Science Foundation
Sonoma State University



The *FASTer* DVD provides video, audio, narrated animations, and text about how to use *FAST* in the classroom.

National Science Foundation Project Studies *FAST*

2006 marked the final year of a National Science Foundation-funded project to develop an alternative to the traditional two-week professional development institute that is required of teachers who teach CRDG's Foundational Approaches in Science Teaching (*FAST*) program. Laboratory School teachers and classes provided CRDG's Learning Technology and Science sections with the setting to prepare a DVD that provides video, audio, narrated animations, and text showing the use of *FAST* in the classroom. Five data collection instruments, including a classroom observation protocol, teacher log, teacher questionnaire, and, in a collaboration with Sonoma State University, a student questionnaire and a student assessment were used to collect the data needed to evaluate the DVD as a professional development tool. CRDG is seeking funding to finish the alternative version of *FAST* professional development and eventually will compare the two versions.

University Laboratory School Evaluation and Research Studies

Each year the University Laboratory School is the focus for some of the work of the CRDG Program Research and Evaluation (PRE) Section. PRE conducts annual evaluations of the school and, using existing data, conducts small ad hoc research projects. The evaluations are designed to show the extent to which the school is achieving its overall purpose of having all students be prepared for college, work, and citizenship. The evaluation reports have presented descriptive and evaluative information about the school, with a focus on student characteristics and educational outcomes. Among other topics, research projects have focused on the extent to which gender and socio-economic status affect achievement in a school with a homogeneous curriculum serving a representative population of the state, and the relationship of college acceptance test scores and high grades with the rank of colleges that former Laboratory School students attend. A database of student records has been established and is regularly maintained. Additional studies using the database are part of PRE's future plans.

Professional Development

Professional Development Work in Our Extended Community

Requests for professional development often come from school principals whose teachers identify a need. These requests frequently call for help with problem solving and tasks that promote higher-level thinking for students. CRDG staff traveled around the state and around the world to meet these requests in 2006.

The Mathematics Section helped Hōkūlani School with work on process standards and on problem solving and the habits of successful problem solvers. Ka'ahumanu School asked to revisit familiar topics—addition, subtraction, multiplication and division—by analyzing the concepts behind the operations and learning new ways to work with students to develop mathematical understanding as well as skill. At Lanakila School, CRDG staff was asked to help with a mathematics and science partnership project. The goal of the project was to improve children's mathematical understanding through professional development that involved teachers in an in-depth exploration of mathematical ideas.

CRDG's Science Section modified their professional development model for the award-winning elementary science curriculum *Development Approaches in Science, Health and Technology (DASH)* to meet the special needs of two schools. Eight days of teacher training for twelve grade K–5 teachers and specialists of Ka Waihona o ka Na'auao New Century Public Charter School were designed to help them integrate *DASH* into their Native Hawaiian-based curriculum. The second modification, designed to help small, remote schools

implement the inquiry-based program, took *DASH* instructors to Ethiopia to train teachers of the International Community School (ICS) of Addis Ababa. ICS also began implementation of CRDG's *Foundational Approaches in Science Teaching (FAST)* with the attendance of two ICS middle school teachers at *FAST* workshops in Honolulu.

The English Section was also busy with requests for professional development this year, and also made the effort to help small schools with specific needs. They hosted teachers from Ho'omana Hou school on Moloka'i at the Laboratory School so the teachers could observe the Golden Triangle program, then a ULS teacher/researcher traveled to Moloka'i to demonstration teach in their school and provide additional training.

Connections to Kaua'i in Mathematics

The CRDG Mathematics Section worked on two professional development projects with the Kaua'i District of the Hawai'i DOE this year. The first, Mālama 'ia ka Makemakika (Caring for Math), is a three-year mathematics partnership project involving the Kaua'i District of the Hawai'i Department of Education, CRDG Mathematics Section, and Kaua'i Community College. The program, which has impacted 140 classroom teachers over the three-year grant period, focuses on mathematical concept development through problem solving. In a summer institute, teachers “unpacked” topics in number and operations in order to look more deeply into the mathematical foundations that underlie the algorithms they teach. Teachers worked

Professional Development Community Partners

Hōkūlani Elementary School
Ka'ahumanu Elementary School
Lanakila Elementary School
Ka Waihona o ka Na'auao PCS
International Community School of Addis Ababa
Ho'omana Hou PCS

Kaua'i Community Partners

Hawai'i Department of Education, Kaua'i District
Kaua'i Community College



Professional Development

in groups, used hands-on materials, and practiced questioning techniques to promote rich communication.

In the second project, a group of middle and high school teachers participated in a five-day professional development institute on the use of writing processes to teach and assess mathematical ideas. The first two days of the institute focused on writing in mathematics. During the remaining three days, personnel from the Mathematics Section observed participating teachers teaching in their classrooms and provided consultations, observed the teachers themselves implementing writing strategies, or modeled process teaching strategies.

Mathematics Professional Development for the Leeward Complex

The CRDG Mathematics Section has partnered with the Hawai'i DOE Leeward Complex on Bridging the Mathematical Continuum, an NCLB consolidated grant in the Nānākuli/Pearl City/Waipahu (NPW) Complex, for two of its components involving the use of technology. Participating mathematics teachers in grades six through eight all received a visualizer and data projector for their classrooms. They visited ULS mathematics classes to observe how the equipment was used to support mathematical processes that promote better mathematical understanding. Discussions with ULS teachers after the visits gave NPW teachers an opportunity to comment on their observations and ask questions about implementing instructional strategies. They also participated in a one-day workshop to experience, firsthand, teaching and learning

in an environment where communication and multiple representations are emphasized.

During the summer of 2006 each participating teacher received a classroom set of TI-73 calculators, and CRDG staff provided an additional four days of professional development related to the use of handheld technology for classroom instruction and learning. Participants engaged in mathematics activities developed and tested in ULS classrooms that allowed them to use the TI-73 graphing calculators while increasing their own mathematics content knowledge. During the implementation phase throughout the school year, teachers are involved in lesson study related to the improvement of mathematics instruction with an emphasis on using technology.

Leaving No Teacher Behind

The Professional Development for Understanding project, funded by a \$75,000 grant from the No Child Left Behind initiative, is a collaborative effort by CRDG, Connections Public Charter School, the Hawai'i Department of Education, and

After taking this course, I started asking my students more questions like, "How did you solve it?" "Why did you solve it that way?" etc. Prior to that I hardly asked questions!

Hawai'i Community College to work with teachers in the Hilo/Laupāhoehoe/Waiākea Complex. Calling on CRDG's experience in teacher professional development, this project focuses on the mathematical content

Leeward Complex Professional Development Community Partners

Hawai'i Department of Education, Leeward District
Highlands Intermediate School
Nānākuli High & Intermediate School
Waipahu Intermediate School
Texas Instruments

Leaving No Teacher Behind Community Partners

Hawai'i Department of Education
Hawai'i Community College
Connections Public Charter School

Professional Development



Teacher participants working in groups to count in different number systems (other than base ten) using area and length pieces.

knowledge teachers need to deepen their understanding of concepts and broaden their pedagogical skills, and to provide them with support for the practical application of new knowledge to their existing mathematics curricula.

At the conclusion of the institute in the spring of 2006, participants were asked to evaluate their experiences by reporting their perceived change in the quality of their teaching.

Increases were reported in all areas with the greatest gains made (on average by at least 2.7 points on a 10-point scale) in how the teacher asked students to justify their ideas, how often they used a problem-solving, inquiry-based approach to teach mathematics, and the frequency of posing open-ended questions in class. Teachers valued the new approaches to teaching mathematics and the clear explanations as to the purpose of teaching in these new ways. They expressed feeling more confident about teaching and feeling ready to apply their new knowledge to their existing mathematics curricula.

Teaching Science as Inquiry—FAST

Research has shown that learning through inquiry enhances students' capacity to understand the concepts and skills of science. While CRDG has always supported teachers with professional development within the context of the CRDG curriculum programs, in the past two years, the Science Section developed a course of professional development sessions to teach the theory and strategies of inquiry that underlie those programs.

A team of FAST (Foundational Approaches in Science Teaching) trainers came together in summer 2006 to work through the timing of the activities and clarify the best conditions and situations for teachers to learn how to use the techniques of inquiry in their classrooms.

This sharing of discoveries, innovations, and personal expertise of researchers, curriculum designers, evaluators, and seasoned professional development instructors with over thirty years of teaching and mentoring experience provided new insights that were incorporated into CRDG's Teaching Science as Inquiry (TSI) professional development series.

The first TSI Aquatic Science institute was trialed in October in Hilo, Hawai'i. Judging by remarks such as the following from one of the Hilo participants, it was an unqualified success: "This is the best thing to happen to me since I started teaching science. It renewed my belief in my ability to teach science."

"This is the best thing to happen to me since I started teaching science. It renewed my belief in my ability to teach science."



Research Support and Demonstration

The University Laboratory School

The University Laboratory School is operated by CRDG as a K–12 laboratory for researching, designing, testing, and evaluating effective approaches to improving learning, teaching, and assessment. In its nearly forty years as a research laboratory, the school has served as the seedbed for award-winning curricula in science, mathematics, English, social studies, and music. As CRDG's curriculum programs have matured, the school has taken on the additional role of demonstration site for the various curricula as well as for our model of teaching and learning with heterogeneous groups of students engaged in a full liberal arts curriculum.

The student population is randomly selected from among applicants to represent a broad cross section reflecting the state population distribution of gender, school-level accomplishment, family income, and ethnicity.

All students are in school for 7.5 hours each day and take a challenging comprehensive curriculum that includes English, mathematics, science, social studies, art, music, performing arts, and foreign languages, as well as electives each year. The school does no tracking of students. All students take the identical core program in non-segregated classes. All students graduate ready for college, work, and responsible citizenship.

The school curriculum is built on multi-year sequences of learning emphasizing creativity, inquiry, problem solving, and active learning. In most cases, students and teachers use CRDG-developed programs and approaches. The school serves as a

demonstration site for these programs, hosting observers, researchers, and educators-in-training.

The broad range of activities included in the school's core curriculum allows its students to excel in state- and national-level programs in all areas. Approximately 80 percent of ULS students participate in activities outside of school in visual and performing arts, speech, mathematics, music, writing, and athletics. Many of these programs take ULS students into the community where they meet and work with students and adults from a broad range of schools and community organizations.

2006 Visual Arts at the Regional and National Level

In keeping with CRDG's founding philosophy, the Laboratory School employs practitioners as teachers who create communities of learners within the various disciplines of knowledge. ULS takes great pride in the success students have achieved using this artists-in-residence approach in the studio and performing arts, considered to be a part of the core curriculum. ULS arts programs have consistently produced artists, musicians, and actors who understand and are capable of participating fully in the disciplines. This year, the studio arts program reached new levels of success as the students earned unprecedented recognition in the regional and national Scholastic Art & Writing Awards exhibitions. The Scholastic Art & Writing Awards program is the nation's longest running, most competitive, and most prestigious art exhibition for high school students. Each year, more than 250,000 entries are submitted for judging at



Be Thi Ho, Gold Key, grade 11



Research Support and Demonstration

more than eighty regional-level competitions. More than one thousand students from the Hawai'i region submit their two- and three-dimensional artworks for judging at the Hawai'i Regional Scholastic Art Awards exhibition. The most outstanding works receive regional Gold Key awards and earn the right to participate in the national judging, where panels of distinguished artists review over seven thousand works of art and select national award winners.

In 2006 the University Laboratory School submitted seventy-three artworks to the competition. Thirty-two were selected for the regional exhibition. All four art disciplines taught in the school's art department (drawing/painting, ceramics, sculpture, and fiber arts) were represented. Ten works received Gold Key recognition and became eligible for national judging in New York. The other twenty-two artworks received Silver Key recognition at the regional level.

At the national judging two students received Gold Awards and four received Silver Awards. In the Design-Product (fiber arts) category, Be Thi Ho (grade 11) received one of only seven national Gold Awards, Bradley Bonilla (grade 12) and Brittany Caron (grade 8) each received one of twenty-one national Silver Awards. These three nationally accepted artworks represent almost 10 percent of national winners in their category. In the Drawing category Jerrold Wu (grade 11) received one of forty-four national Gold Awards, and Chad Kikuchi (grade 12) and Joshua Tran (grade 12) each received one of 154 national Silver Awards. The Gold Key winners' art was exhibited at the Corcoran

Gallery of Art in Washington, DC, during the summer and will travel and be exhibited throughout the United States for the next two years. The Alliance for Young Artists & Writers, the event's organizer, recognized Val Krohn-Ching (fiber arts) and Matthew Miller (drawing/painting), the students' art teachers, as outstanding educators for 2006.

The number of works in the Hawai'i regional show has been reduced from a high of approximately 400 in the 1970s to 212 in 2006, yet the Laboratory School's acceptance rate has almost tripled during that period. At both the regional and national levels, 2006 was the most impressive and successful year for University Laboratory School's students in thirty-six years.



Chad Kikuchi, Silver Key, grade 12

Fiber Art Piece Chosen for Publication in *Spark, Young Visions and Voices*

In addition to its great success in the Scholastic Art & Writing Awards program in 2006, the Laboratory School had another first when eighth-grader Brittany Caron's fiber art piece was chosen for publication in *Spark, Young Visions and Voices* of 2006. This elite publication, produced by the Alliance for Young Artists & Writers, showcases creative excellence by our nation's seventh and



eighth grade emerging artists and writers. The Alliance encourages the development of creativity in teenagers by showcasing their work and providing resources to encourage them in their creative endeavors.



Research Support and Demonstration

Social Studies Faculty Active In and Out of the Laboratory

While the Laboratory School is a true laboratory for CRDG researchers, for students, it is both laboratory and school. ULS students are well aware of their role in the research process and participate actively in research functions. But this is also where they go to school: it is the place they meet friends, form clubs, play on school athletic teams, and do all the other things that kids do at school. Recognizing this need to address all aspects of school life, ULS teacher/researchers are active in a number of non-research school functions, as illustrated by these examples from our Social Studies Section.

The Social Studies Section's ongoing collaboration with the Pacific and Asian Affairs Council (PAAC) allowed Laboratory School students to take part in a number of activities with students from high schools throughout the state. In the World Quest competition, over forty teams competed in the annual event that tests knowledge of current events, geography, and world leaders. A Laboratory School team placed third in the very stiff competition in 2006.

ULS students also took part in two PAAC-sponsored day-long conferences for Hawai'i high school students. The spring conference focused on the role that economic aid plays in U.S. foreign policy. Students studied and debated different rationale for allocating foreign aid and proposed changes that they felt would make U.S. foreign aid more effective. The fall conference looked at the core issues that underlie the ongoing unrest in the Middle East. Each school delegation represented a nation or group involved in the Arab-Israeli conflict.



ULS students learned about foreign aid at the PAAC Global Vision Summit 2006.

Laboratory School students took on the role of the PLO/Palestinian Authority and attempted to reach a comprehensive peace settlement through extensive negotiations.

The PAAC Summer Study Tour, sponsored by the Freeman Foundation, allows twenty high school students to travel to another county where they learn about its history and culture. Four Laboratory School students were chosen for the 2006 study tour to Japan where they spent two weeks touring the country, meeting teenagers and their families, and learning firsthand about current events in that part of the world.

Social Studies teachers were also active with students in coaching the Mock Trial team, a tournament-style competition that allows students to argue a case in a real courtroom before a practicing attorney, and advising the Community Service Club. This year students involved with the club organized game days for children at Shriners' Hospital, assisted a wheel-chair bowling league on a monthly basis, organized trips to a Ronald McDonald house, and held a coin drive for victims of the earthquake in Pakistan.



Research Support and Demonstration

Measure Up Brings Elementary Students into the Research Process

Brows furrow in concentration as second graders at the University Laboratory School work in groups to come up with equations based on diagrams of 8 and two of its addends (e.g., $7 + 1 = 8$, $2 + 6 = 8$). They are then asked to draw a line segment representing the relationship of the addends and 8. After a specified amount of time, the teacher/researcher calls each group to come up and explain their answers to their classmates. Another researcher observes and takes notes on the lesson, including how the groups, with varying degrees of confidence, go through their explanations of how parts relate to a whole.

These second graders are helping the researchers at CRDG create a unique elementary mathematics program called Measure Up. The curriculum for grades 1–5 is based on preliminary work done by a group of psychologists, mathematicians, and educators at the Institute for Developmental Psychology and Pedagogy in Krasnoyarsk, Russia. For many years, it has been understood that the transition from arithmetic taught in elementary school to the algebraic thinking required for higher mathematics is a difficult one for students. This is a critical point in a student's mathematics learning, since it is also recognized that successful completion of algebra is a gate-keeper for higher-level mathematics. The Measure Up program is addressing this critical issue in education by restructuring the way mathematical understanding is developed, thereby allowing an algebraic focus to be introduced in elementary school.

Measure Up “Family Night”

Measure Up “Family Night” at the University Laboratory School saw curious parents engaged in measurement tasks while their student “experts” eagerly provided guidance and explanations of the mathematics encountered.

First grade parents compared and equalized masses, areas, and lengths. Second grade parents solved addition and subtraction problems in different bases. Afterwards, parents and project staff sat down to talk about the foundation of the Measure Up program and to share insights about helping children with their homework.



The research team uses its daily observation notes to chart the development of mathematical understandings and to identify instructional techniques that enhance the learning of mathematics. The team regularly conducts student interviews to validate or clarify what it observes in the class. These data are then used to assess students' progress in understanding mathematics and identify revisions needed in the materials to optimize student learning.

Ultimately, the Measure Up team aims to improve the teaching of elementary mathematics by restructuring the way mathematical understanding is developed in order to lay the groundwork for all students to succeed in higher mathematics.



Research Support and Demonstration

Fire Destroys University Elementary School Building

On June 13, 2006, a devastating fire destroyed the University Elementary School (UES) building. The building had housed the University Laboratory School athletic and physical education offices; weight and athletic training rooms; and choral, drama, hula and chant, and orchestra classrooms, along with offices of some thirty College of Education faculty and staff. The fire was determined to be intentionally set, but to date no suspects have been arrested.

Alumni and friends of the Laboratory School and the college were quick to respond. Within hours of the fire donations were coming in from all sectors. Both monetary and in-kind donations were offered to the Laboratory School. Local entertainers came forward to donate their talents, time, and aloha to help raise morale and money, but most of all to show their support for the Laboratory School. In every way, the University Laboratory School felt the caring of our extended 'ohana, our community.

In early July, the Laboratory School organized Ke Aloha No, a healing ceremony for the extended family of supporters, where all were invited to share and celebrate the memories that were made in that very special building. Everyone present was able to place lei upon the only salvageable relic from the building, the metal sign that had hung above the Diamond Head doorway.

In August, the University Laboratory School with its Booster Club organized the Holomua Benefit Fundraiser Concert that featured top Hawai'i entertainers including Barry Flanagan and Nathen Aweau of HAPA, Na Leo Pilimihana, The Brothers Cazimero, Andy Bumatai, Maunaloa, Inoa'Ole, Danny Kaleikini, The Honolulu Jazz Quartet, and Keahi Conjugation. Laboratory School alumni donated their skills to this effort: Sandy Hiraoka, '86, created the distinctive retrospective Holomua posters and tickets; James Sereno, '84, produced a television public service announcement; Lianne Nishimura Killion, '82, distributed the PSA through Oceanic Time Warner Cable;

Jonathan Syper, '95, as iNTREPiD performed several popular and original hip-hop and contemporary musical numbers, along with the members of his group, Communication; Darron Cambra, '98, with students of Youth Speaks Hawaii, performed original slam poetry at the concert; Aron Dote, '96, aired promotional PSAs through the Cox Radio Stations; and Kahi Kaonohi, '86, of Maunaloa graced the crowds with his vocal styling. In addition, local businesses Times Supermarkets, Coca-Cola Bottling Company, Pepsi, and Kraft Foods provided food and drinks.

As the fire burned, the University of Hawai'i administration, as well as facilities management, campus security, and buildings and grounds staff came on site. A crisis response team was immediately mobilized and within days began working with the insurance company on the recovery phase. Creative scheduling and the renovation of some existing spaces in Castle Memorial Hall, the locker rooms, and University High School buildings 1





Research Support and Demonstration



and 3 allowed the Laboratory School to open on time in August 2006.

In the meantime, renovations in Everly Hall and the Biomedical Sciences building made it possible to house some of the College of Education faculty and staff who were displaced. However, there were about twenty faculty and staff members still working from their homes by year's end. AIG insurance company worked with the school every step of the way as these emergency accommodations were made.

By late October the debris from the fire was removed, and by late December four modular buildings were in place housing the Laboratory School athletic office, training room, and weight room; Laboratory School orchestra; classrooms for both Laboratory School and College of Education classes; and COE faculty offices.

And now the focus is on the future. Funding for a new College of Education building was included in the University's biennium budget request. The Department of Business, Economic Development, and Tourism (DBEDT) continued to provide support. On December 5, 2006, DBEDT brought in mainland consultants to conduct a charrette that involved a cross section of the college community. The charrette began the planning phase for a new

building. DBEDT also assisted in contracting a "green" consultant to estimate the long-term cost savings of constructing an energy efficient building. In the meantime, work continued with the insurance company to determine the dollar amount they

will pay toward a replacement building for UES. Settlement will occur when ground is broken for the new building and work has begun on fundraising plans to fully develop the education complex on this side of campus.

Mr. Lanning Lee was honored at the 2006 University Laboratory School Pa'ina celebration as a recipient of the Mahalo Award for his outstanding contribution to students and faculty at the Laboratory School. Although he has at various times been a student, a teacher, an administrator, and a researcher, Lanning Lee, a 1972 ULS graduate, is best known today as the "soul" of the alumni association.

Throughout the years Lanning has dedicated himself to supporting the Laboratory School by reaching out to many of its graduates. In 2001, following an all school reunion on the occasion of the fiftieth graduating class, Lee recruited graduates Leighton Wong, 1973, and Scott Yamashita, 1976, and together the three of them formed the ULS



Lanning Lee

Alumni Association. In 2002, they began an annual dinner on campus for all graduates, with attendance growing from forty at the first dinner to over six hundred in 2006. They have also sponsored an annual golf tournament to directly benefit the students and their activities, and created an alumni Web page.

With the recent fire that destroyed the Elementary School building, Lanning was instrumental in getting information out to the alumni and coordinating their efforts to help the school recover from the crisis. In addition to their many contributions to the success of the Holomua benefit concert, the alumni the association raised over \$100,000 for the performing arts and athletic/physical education departments.



Research Support and Demonstration

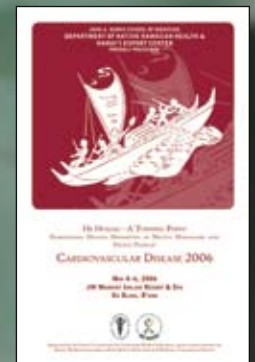
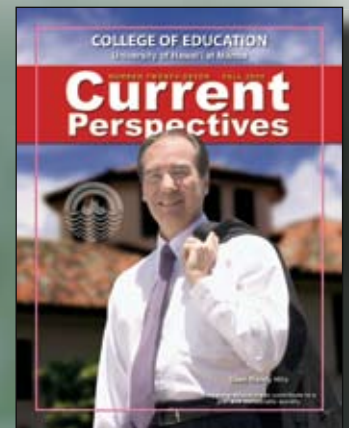
Marketing and Publications Services (MaPS)

In the rapidly changing landscape of marketing and publishing in the education arena, CRDG's Marketing and Publication Services (MaPS) continued to expand its product and service offerings in 2006. MaPS has undergone many changes in the last few years under the strong leadership of the CRDG directors, building a team of experienced marketers, designers, and

printers, and, new as of this year, Web designers and technicians.

From its beginnings as a support unit for CRDG research projects, MaPS has become a full-service marketing and publication unit that offers marketing strategies and publication services to the entire university community. It is a one-stop source to plan and implement a wide range of publication projects, both in print and online, as well as the marketing and public information hub for CRDG and the College of Education.

MaPS produced a variety of products and services for internal and external customers in 2006, including this sampling of Web, graphic, and print projects.





Research Support and Demonstration

CRDG Summer Programs: Exploring Our Island Home

Summer Programs expanded again in 2006 to reach a broader range of students. Fueling the almost 50 percent growth in enrollment was the addition of a pair of

track both the indigenous and introduced bird species of Hawai'i. Students enrolled in the Robotics courses learned the effects of different gear ratios by building race cars. And although the theater went down in flames, the hopes of a successful production did not. The eight-person drama class wrote



Exploration and discovery begin in the classroom and laboratory, and move outdoors into the field, where students experience first-hand the pivotal role that scientists play in the world around them. Above, students in the fifth grade Sky & Space class visited the Ka'ena Point Tracking Station where they learned how scientists track local and global weather patterns. Clockwise from top left, sixth through eighth grade students in the Electronics & Engineering class modified toys for children with disabilities. The toys were later donated to the Assistive Resource Center of Hawai'i. A student in the fourth grade Sea class used his coral and fish guide to identify the different marine species at Hanauma Bay. Third grade students in the Plants & Animals class visited a bee farm to see how honey is made, and at Lyon Arboretum they learned how scientists band birds in their effort to track the different species in Hawai'i.

classes for students entering the third grade and the program's first foray into the arts, test prep, and driver's education. In addition, Summer Programs partnered with the Archimedes Project to provide a course to support their ongoing research of science and math education through engineering.

Although the fire that destroyed the University Elementary School building occurred on the first day, forcing some classes to be relocated, it did not disrupt any of the students' engaging exploration and learning. The program's youngest students discovered the methods scientists use to

and produced a short play based on the Aesop fable "The Boy Who Cried Wolf," and the students did two performances of the play.

Additional highlights of the summer included a donation of toys modified by Summer Programs students for use by children with disabilities to the Assistive Technology Resource Centers of Hawai'i, and student participation in the restoration and maintenance of two ancient Hawaiian fishponds on the Windward coast.

Chapters in Books

Okazaki, C., Zenigami, F., & Dougherty, B. (2006). Classroom research informs Measure Up: A different look at elementary mathematics. In S. Z. Smith & M. E. Smith (Eds.), *Teachers engaged in research: Inquiry into mathematics classrooms, Prekindergarten–grade 2* (pp. 135–151). Greenwich, CT: Information Age Publishing.

Books/Media Published

Dougherty, B., Slovin, H., Venenciano, L., Zenigami, F., Okazaki, C., Mackay, I. et al. (2006). *Working 'Round A Problem*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Dougherty, B., Zenigami, F., Okazaki, C., Venenciano, L., & Slovin, H. (2002–2006). *Measure Up Grades 1–4, Teacher Notes & Masters and Student Materials*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Sandall, B., Olson, M., & Olson, T. (2006). *Algebra II practice*. Quincy, IL: Mark Twain Media.

Sandall, B., Olson, M., & Olson, T. (2006). *Algebra practice*. Quincy, IL: Mark Twain Media.

Sandall, B., Olson, M., & Olson, T. (2006). *Geometry practice*. Quincy, IL: Mark Twain Media.

Sandall, B., Olson, M., & Olson, T. (2006). *Pre-Algebra practice*. Quincy, IL: Mark Twain Media.

Zenigami, F., Okazaki, C., & Olson, M. (2006). *Measure Up Grade 5, Teacher Notes & Masters and Student Materials*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Peer-Reviewed Journal Articles

Baumgartner, E. (2006). Literary readings supplement a high school marine science curriculum. *Current: The Journal of Marine Education*, 22(1), 9–13.

Baumgartner, E., & Zabin, C. (2006). Visualizing zonation patterns. *The Science Teacher*, 73(6), 60–64.

Baumgartner, E., Duncan, K. M., & Handler, A. T. (2006). Student scientist partnerships at work in Hawai'i. *Journal of Natural Resources and Life Sciences Education*, 35, 72–78.

Duncan, K. M. (2006). Estimation of daily energetic requirements of young scalloped hammerhead sharks. *Environmental Biology of Fishes*, 76, 139–149.

Duncan, K. M., & Holland, K. N. (2006). Habitat use growth rates and dispersal patterns of juvenile scalloped hammerhead sharks (*Sphyrna lewini*) in a nursery habitat. *Marine Ecology Progress Series*, 312, 211–221.

Duncan, K. M., Martin, A. P., Bowen, B. W., & de Couet, G. H. (2006). Global phylogeography of the scalloped hammerhead shark (*Sphyrna lewini*). *Molecular Ecology*, 15, 2239–2251.

Duncan, K. M., & Daly-Engel, T. S. (2006). Using forensic science problems as teaching tools: Helping students think like scientists about authentic problems. *The Science Teacher*, 73(11), 38–43.

Handler, A. T., & Duncan, K. M. (2006). Hammerhead shark research immersion program: Experiential learning leads to lasting educational benefits. *Journal of Science Education and Technology*, 15(1), 1059–10145.

Handler, A. T., & Duncan, K. M. (2006). Studying Hammerheads in Hawai'i: High school students work with biologists to study sharks as part of a partnership research collaboration. *The Science Teacher*, 73(4), 36–39.

Other Publications

Afaga, L. (2006). *An evaluation of the Olomana School Native Hawaiian Education Act Project*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Baumgartner, E. (2006). *Science skills, Bishop Museum ECHO project instructional module*. Honolulu: Bishop Museum.

Baumgartner, E. (2006). *Science skills instructor's guide, Bishop Museum ECHO project instructional module*. Honolulu: Bishop Museum.

Baumgartner, E. (2006). *Taxonomy, Bishop Museum ECHO project instructional module*. Honolulu: Bishop Museum.

Baumgartner, E. (2006). *Taxonomy instructor's guide, Bishop Museum ECHO project instructional module*. Honolulu: Bishop Museum.

Brennan, C., & Pottenger, F. (2006). *Meeting HCPS III, Grade 4*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Dunn, H. H., Lai, M. K., & Kishi, G. S. (2006). *Annual performance report for Kāko'o Pihā: The Pihāna Nā Mamo Project to support at-risk Native Hawaiian youth*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Dunn, H. H., Lai, M. K., & Kishi, G. S. (2006). *Annual performance report for Nā Lama Heluhelu: The Pihāna Nā Mamo Early Reading Initiative*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Higa, T. F., Kozuma, W. M., & Nakamura, A. D. H. (2006). *The Hana Complex's 21st Century Community Learning Center Project*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Higa, T. F., Kozuma, W. M., & Nakamura, A. D. H. (2006). *The Kekaulike Complex's 21st Century Community Learning Center Project*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Higa, T. F., Kozuma, W. M., & Nakamura, A. D. H. (2006). *The Wai'ānae Complex's 21st Century Community Learning Center Project*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Higa, T. F., & Nakamura, A. D. H. (2006). *A retrospective study of the North Complex's three-year No Child Left Behind Consolidated Grants Project*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Kaneshiro, K. Y., Baumgartner, E., & Gartrell, J. (2006). *The GK–12 Program in Hawai'i: Using the native biota for science*



Scholarship

education: *Annual report*. Washington, DC: National Science Foundation GK-12 Program.

Lai, M. K., & York, S. E. (2006). *SPARK-Hawai'i Year-3 evaluation report*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Linke, L. H., Zimmer, N. B., & Brandon, P. R. (2006). *Multi-year review of University Laboratory School*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group, Program Research and Evaluation Office.

Saka S. M. (2006). *Evaluation of the implementation of Advancement Via Individual Determination (AVID) at GEAR UP-funded middle schools*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Saka, S. M., & Kumaran, L. (2006). *Highlights and results of the 2005 Hawai'i Youth Risk Behavior Survey*. Honolulu: University of Hawai'i at Mānoa, Curriculum Research & Development Group.

Saka, S. M., Berg, K. F., & Young, D. B. (2006). *Evaluation of the Hawai'i P-20 Initiative's strategic planning process*. Honolulu: The Hawai'i Educational Policy Center.

Awards & Recognitions

Suzanne Acord received a "Pearl Harbor: History, Memory and Memorial" scholarship from the National Endowment for the Humanities of Honolulu, Hawai'i in August of 2006.

Val Krohn-Ching was awarded the Outstanding Educator Award by the Alliance for Young Writers & Artists. The recognition is given for dedication, commitment, and guidance as three of her students' art was selected for national honors.

Matthew Miller was awarded the Outstanding Educator Award by the Alliance for Young Writers & Artists. The recognition is given for dedication, commitment, and guidance as three of his students' art was selected for national honors.

James Redmond was elected President of Hawaii Science Teachers Association in June of 2006.

James Redmond was elected to the National Science Teacher Association Congress Planning Committee by the National Science Teacher Association Congress.

John Southworth was awarded the 2006 Technology Industry Award by the state of Hawai'i Pacific Technology Foundation for "significant and positive impact on the technology industry in our island community."

John Southworth was awarded the Mayor's Award of Recognition by the City and County of Honolulu upon being named a 2006 Top 50 High Tech Leader by the Pacific Technology Foundation and Technology News Network.

William Teter was awarded two Honorable Mentions in the 2006 Honolulu Magazine Annual Fiction Contest.

William Teter received a Summer Institutes for School Teachers Fellowship from the National Endowment for the Humanities to study James Joyce at Connecticut College.

Grants and Contracts

Afaga, L. Olomana school native Hawaiian education project. Hawai'i Department of Education. \$22,500. 2006.

Afaga, L. Kapolei NCLB grant: Rendezvous with investigation mathematics and inquiry project. Hawai'i Department of Education. \$24,500. 2006.

Berg, K.F. DOE Military Survey Project. Hawai'i Department of Education. \$150,000. 2006.

Brandon, P. R. Evaluation of the ARTS FIRST Windward research project. U.S. Department of Education under a contract to the Hawai'i Alliance for Arts Education. \$345,000. 2005-2006

Brandon, P. R. Evaluation of the integrative graduate education and research traineeship project; subcontractor on a grant to the John A. Burns School of Medicine from the National Science Foundation. \$30,000. 2005-2006

Brandon, P. R. Phase-I study of the effects of professional development and long-term support on program implementation and scaling up. National Science Foundation. \$1.1 million. 2003-2007.

Brandon, P. R. Evaluation of the Arts and Literacy for All Project. U.S. Department of Education under a contract to the Hawai'i Alliance for Arts Education. \$360,000. 2005-2006.

Hamilton, M. Hawai'i charter school administrative office. Title II Grant. \$2500. 2006.

Hamilton, M. Hawai'i charter school administrative office. Individual teacher professional development grant. \$1500. 2006.

Higa, T. F. Ka Ipu Kāeo: An evaluation of the Kekaulike Complex's 21st Century Community Learning Center in 2006. Hawai'i Department of Education. \$30,000. 2006.

Higa, T. F. Kōolauloa: An evaluation of the Kahuku Complex's 21st Century Community Learning Center in 2005-2006. Hawai'i Department of Education. \$24,000. 2006.

Higa, T. F. Project Hi'ikule'a: The Wai'anae Complex's 21st Century Community Learning Center in 2005-2006. Hawai'i Department of Education. \$24,000. 2006.

Higa, T. F. A 2005-06 evaluation of Hana's 21st Century Community Learning Centers Projects. Hawai'i Department of Education. \$31,000. 2006.

Higa, T. F. An evaluation of the implementation and outcomes of the Hana Complex's 21st Century Community Learning Centers Project in 2006-2007. Hawai'i Department of Education. \$ 31,000. 2006.

Higa, T. F. An evaluation of the Nanakuli, Pearl City, and Waipahu Complexes' NCLB Consolidated Grant in School Year 2006-2007. Hawai'i Department of Education. \$30,000. 2006.

Higa, T. F. An evaluation of the Leeward District's NCLB Consolidated Grant in School Year 2005-06. Hawai'i Department of Education. \$35,000. 2006.



Scholarship

- Higa, T. F. An evaluation of the West Kauai Complex's NCLB Consolidated Grant in 2005–06. Hawai'i Department of Education. \$35,000. 2006.
- Higa, T. F. An evaluation of the implementation and outcomes of the Waianae Complex's 21st Century Community Learning Centers (CCLC) Project in 2006–2007. Hawai'i Department of Education. \$33,000. 2006.
- Higa, T. F. A final year evaluation of the North Complex's NCLB Consolidated Grants Project in 2006. Hawai'i Department of Education. \$32,000. 2006.
- Higa, T. F. Transitions to Teaching. University of Hawai'i at Mānoa College of Education. \$33,000. 2006.
- Lai, M. K. Coordination of the SPARK evaluation. Kamehameha Schools. \$30,000. 2006.
- Lai, M. K. Coordination of INPEACE's SPARK Evaluation, 2006–2007. INPEACE. \$35,000. 2006.
- Lai, M. K. (Hugh Dunn, Project Director). Pihana Nā Mamo: The Native Hawaiian special education project. United States Department of Education. \$14.5 million for 2000–2005 (no cost extension, 2005–2007).
- Lai, M. K. (Hugh Dunn, Project Director). Nā Lama Heluhelu: The Pihana Nā Mamo Early Reading Initiative. United States Department of Education. \$951,485. 2006–2007.
- Lai, M. K. (Hugh Dunn, Project Director). Kāko'o Piha: The Pihana Nā Mamo Project to Support At-Risk Native Hawaiian Youth. United States Department of Education. \$1.1 million. 2006–2007.
- Lai, M. K. Supporting Partnerships to Assure Ready Kids. INPEACE. \$9,776. 2006.
- Nguyen, T. T. SMARTer Kids. Computer Literacy SMART Products Grant #161450YYC. \$1600. 2006–2007.
- Saka, S. M. 2005 Hawai'i School Health Surveys. Hawai'i Department of Health. \$100,000. 2006.
- Saka, S. M. Coordination & Administration of 2005 High School Hawai'i Youth Risk Behavior Survey. Hawai'i Department of Education. \$57,475. 2006.
- Saka, S. M. Evaluation of GEAR UP Hawai'i 2005–2006. \$43,908. 2006.
- Saka, S. M. Evaluation of TOTAL program, Year 01. Hawai'i Department of Education. \$32,800. 2006.
- Slovin, H. Effects of TI Navigator on Student Achievement, Formative Assessment, and Student Beliefs in Reform High School Mathematics Classes. Texas Instruments. \$38,472. 2005–2006.
- Slovin, H. Harold K. Castle Foundation grant for work on the Measure Up project. \$50,000. 2004–2006.
- Slovin, H. John and Sue Dean Foundation for work on the Measure Up project. \$25,000. 2004–2006.
- Slovin, H. Nanakuli/Pearl City/Waipahu area complex *Bridging the Mathematical Curriculum* project contract to CRDG. \$6000. 2006.
- Venenciano, L., Okazaki, C., Slovin, H., & Zenigami, F. No Child Left Behind: Improving Teacher Quality Higher Education Grants Program. Professional development for understanding - leaving no teacher behind. \$75,657. 2005–2006.
- Zenigami, F. Enhancing Teacher Content Knowledge and Promoting Algebraic Thinking Through Mathematics Without Number. University of Hawai'i University Research Council Faculty Travel Fund. \$1600. 2006.
- Presentations**
- Acord, S. (2006, March). *Cross currents: A bilingual binational multimedia website*. Presented at the meeting of the Comparative International Education Society, Honolulu, Hawai'i.
- Acord, S. (2006, July). *Cross currents: A bilingual binational multimedia website*. Presented at the meeting of the Pacific Circle Consortium, Mexico City, Mexico.
- Ayala, C. A., & Brandon, P. R. (2006, November). *The relationships among middle-school inquiry-based science student achievement measures: The results of structural equation modeling analyses*. Presented at the meeting of the American Evaluation Association, Portland, OR.
- Baumgartner, E. (2006, December). *Scientific literacy*. Presented at the University of Hawai'i Zoology Department Seminar Series, Honolulu, HI.
- Baumgartner, E. (2006, March). *Shaping powerful learning through performance based assessment*. A presentation at the annual meeting of the Association for Supervision & Curriculum Development, Chicago, IL.
- Baumgartner, E. & Handler, A. T. (2006, January). *Hawai'i researchers work to augment environmental education in Palau*. Presented at the meeting of the Hawai'i International Conference on Education, Honolulu, HI.
- Berg, K. F. (2006, July). *Easing transitions for transient students: The case of military dependents in Hawaii public schools*. Paper presented at the Pacific Circle Consortium Annual Conference, Mexico City, Mexico.
- Brandon, P. R., Taum, A. K. H., Young, D. B., Pottenger, F. M., Gray, M., & Ayala, C. (2006, July). *The implementation and outcomes of the Foundational Approaches in Science Teaching program: Results of a pilot study*. Presented at the meeting of the Pacific Circle Consortium, Mexico City, Mexico.
- Brandon, P. R., Taum, A. K. H., Young, D. B., Pottenger, F. M., & Gray, M. (2006, November). *Findings about the implementation and outcomes of inquiry-based science in middle-school classrooms*. Presented at the meeting of the American Evaluation Association, Portland, OR.
- Brennan, C. (2006, April). *Concept mapping for all kinds of learners*. Presented at the National Science Teacher's Association, Anaheim, CA.
- Brennan, C. (2006, September). *DASH: An introduction for parents*. Presented at the International Community School, Addis Ababa, Ethiopia.
- Brennan, C. (2006, February). *Developmental Approaches in Science*



Scholarship

Health and Technology: Meeting HCPS III. Presented at the GEAR-UP Promising Practices Showcase, Honolulu, HI.

Brennan, C. (2006, February). *Foundational Approaches to Science Teaching: Meeting HCPS III standards.* Presented at the GEAR-UP Promising Practices Showcase, Honolulu, HI.

Brennan, C. (2006, April). *Gyotaku for beginners.* Presented at the Council for Elementary Science International, Anaheim, CA.

Brennan, C. (2006, February). *Standards-based science education-STARnet: Casting a broader net through teaching and tech.* Presented at the GEAR-UP Promising Practices Showcase, Honolulu, HI.

Brennan, C. (2006, March). *Teaching Science as Inquiry: Astronomy.* University of Hawai'i at Mānoa, Curriculum Research & Development Group Teacher Workshop, Honolulu, HI.

Brennan, C. (2006, March). *Teaching Science as Inquiry: Simple machines.* University of Hawai'i at Mānoa, Curriculum Research & Development Group Teacher Workshop, Honolulu, HI.

Brennan, C. (2006, April). *The multiple dimensions of scientific inquiry.* Presentation at the National Science Teacher's Association, Anaheim, CA.

Cram, F., Kawakami, A. J., Aton, K., Lai, M. K., & Porima, L. (2006). *Using indigenous evaluation methodologies: Our fundamental right.* Presented at the meeting of the American Evaluation Association, Portland, OR.

Dasilva, M. (2006, February). *Castle Grant: Professional Development. Session Co-leader, Mathematical Content Knowledge Seminar, Waimanalo, HI.*

Dasilva, M. (2006, May). *NCLB: Professional development for mathematical understanding.* Presented at the NCLB Professional Development Seminar, Hilo, HI.

Dasilva, M. (2006, May). *Teacher's questioning strategies.* Leader, Professional Development Seminar. Hilo, HI.

Dougherty, B. & Slovin, H. (2006, April). *Developing mathematical understanding through measurement.* Presented at the National Council of Teachers of Mathematics Research Pre-session, St. Louis, MO.

Duncan, K. (2006, April). *Creating partnerships between researchers and teachers.* Presented at the National Science Teacher's Meeting, Anaheim, CA.

Duncan, K. (2006, August). *Ecology and population genetic structure of the scalloped hammerhead shark.* Presented at the Hanauma Bay Lecture Series, Honolulu, HI.

Duncan, K. (2006, October). *Keynote speaker: The wonder of water.* A Presentation for Expanding Your Horizons in Science and Mathematics, Stockton, CA.

Dunn, H. H., Higa, T. F., & Lai, M. K. (2006, March). *The relationship between a subtest of the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) and Hawai'i State Assessment for Pihana Nā Mamo Grade 3 and Grade 5 students in School Year 2004–05.* Presentation at the annual Hawai'i Educational Research Association, Honolulu, HI.

Hamilton, M. (2006, July). *Enhancing fluency.* Presented at the meeting of the Pacific Circle Consortium, Mexico City, Mexico.

Hamilton, M. (2006, June). *Enhancing fluency.* Presented at the Charter School Administrative Office Teacher Professional Development Conference, Honolulu, HI.

Harstad, Cheryl. (2006, July). *A public charter school Kua'ōka.* Golden Triangle Professional Development Workshop, Puna, HI.

Harstad, James. (2006, August). *Golden Triangle Professional Development Workshop.* Presented at Ho'omana Ho Molokai, HI.

Harstad, James. Presented at Ho'omana Hou, (2006, March). *Literacy for young children.* Presented at the meeting of the Native Hawaiian Education Association, Honolulu, HI.

Higa, T. F., Brandon, P. R., & Nakamura, A. D. H. (2006, March). *A Vygotskian perspective of a hybrid model of participatory*

evaluation and school-based evaluation. Presented at the meeting of the Hawai'i Educational Research Association, Honolulu, HI.

Lai, M. K., & York, S. E. (2006, November). *Building cultural bridges: The impact of culturally appropriate relationships in programming and evaluation.* Presented at the meeting of the American Evaluation Association, Portland, OR.

Lai, M. K. (2006, March). *Challenging past and present inequities of evaluation methodology and practice.* Presented at the meeting of the American Evaluation Association, Portland, OR.


Lai, M. K. (2006, March). *How researchers define Hawaiian/part-Hawaiian can strongly affect results.* Presented at the meeting of the Hawai'i Educational Research Association, Honolulu, HI.

Lai, M. K. & Dunn, H. H. (2006, November). *Culturally appropriate evaluation: Examples from a mo'olelo evaluation video.* Presented at the 2006 Ku'i Ka Lono Conference on Hawaiian Indigenous Education, Research, and Well-Being, Honolulu, HI.

Lai, M. K., & York, S. E. (2006, November). *Honoring and respecting the cultures of project participants, communities, funding agencies, and evaluators.* Presented at Ku'i Ka Lono, the Conference on Hawaiian Indigenous Education, Research, and Well-Being, Honolulu, HI.

Lawton, B., & Brandon, P. R. (2006, November). *Methods and results of a three-year evaluation of a project to infuse arts strategies in elementary school reading and mathematics instruction.* Presented at the meeting of the American Evaluation Association, Portland, OR.

Linke, L. H., Zimmer, N. B., & Brandon, P. R. (2006, March). *Relationships among secondary school achievement variables and college acceptance for students from a high school with a diverse student body and homogeneous curriculum.* Presented at the meeting of the American Evaluation Association, Portland, OR.



Scholarship

- Lush, N. (2006, March). *Cross currents: A bilingual binational multimedia website*. Presented at the meeting of the Comparative International Education Society, Honolulu, HI.
- Menton, L. (2006, December). *An approach to equity in K–12 education: The University of Hawai‘i Laboratory School*. Presented at the East West Center International Conference, Hanoi, Vietnam.
- Menton, L. (2006, December). *Developing curriculum materials on East Asia for secondary students*. Presented at the East West Center International Conference, Hanoi, Vietnam.
- Menton, L. (2006, March). *Developing curriculum materials on East Asia for secondary students*. Presented at the meeting of the Comparative & International Education Society, Honolulu, HI.
- Menton, L. (2006, March). *Developing curriculum materials on East Asia for secondary students*. Presented at the meeting of the Hawai‘i Educational Research Association, Honolulu, HI.
- Menton, L. (2006, January). *Education in Hawai‘i, 1820–1920*. Presented at the Lyman Museum, Hilo, HI.
- Nguyen, T. T. (2006, June). *But I’m already computer literate: Perspectives of 9th grade students*. Presented at the 30th Annual Pacific Circle Consortium Conference, Mexico City, Mexico.
- Nguyen, T. T. (2006, October). *Considerations of the computer literate 9th grade student*. Presented at the Inaugural Electronic Brown Bagger for Phi Delta Kappa Hawai‘i Chapter, Honolulu, HI.
- Nguyen, T. T., Speitel, T. W., & Gray, M. E. (2006, June). *Development of FASTeR: A multimedia DVD-ROM for science education*. Presented at the 30th Annual Pacific Circle Consortium Conference, Mexico City, Mexico.
- Okazaki, C. and Venenciano, L. (2006, April). *Problem solving by working ‘round a problem*. Presentation at the 84th Annual Meeting of the National Council of Teachers of Mathematics, St. Louis, MO.
- Olson, M., Okazaki, C., Olson, J., & Zenigami, F. (2006, February). *Gender equity and mathematics: A journey, not a destination*. Paper presented at the annual meeting of the Research Council on Mathematics Learning, Las Vegas, NV.
- Pottenger, F. (2006, February). *DASH and FAST*. Presented at the GEAR-UP Promising Practices Showcase, Honolulu, HI.
- Pottenger, F. (Presenter/Producer). (2006). *DASH professional development*. [Television Series]. Honolulu, HI: Hawai‘i Interactive Television System.
- Pottenger, F. (2006, January). *Inquiry*. Presented at the Hawai‘i International Conference on Education, Honolulu, HI.
- Pottenger, F. (2006, March). *Inquiry active formative assessment and planned assessment in the science field and classroom experience*. Presented at the Hawai‘i Educational Research Administration, Honolulu, HI.
- Pottenger, F. (2006, April). *Inquiry in science*. Presented at the Hawai‘i State Teacher’s Association Spring Conference, Honolulu, HI.
- Pottenger, F. (2006, July). *Inservice training in science inquiry*. Presented at the meeting of the Pacific Circle Consortium, Mexico City, Mexico.
- Pottenger, F. (2006, October). *Science education*. Presented at the Hawai‘i State Teacher’s Association Fall Conference, Honolulu, HI.
- Pottenger, F. (2006, March). *Teaching Science as Inquiry: Why things sink and float*. University of Hawai‘i at Mānoa, Curriculum Research & Development Group Teacher Workshop, Honolulu, HI.
- Pottenger, F. (2006, April). *The multiple dimensions of scientific inquiry*. Presented at the National Science Teacher’s Association National Conference on Science Education, Anaheim, CA.
- Redmond, J. (2006, October). *Devices for physics teaching*. Presented for the Hawai‘i Science Teacher’s Association, Honolulu, HI.
- Redmond, J. (2006). *Inquiry across the curriculum*. Presented at the Moanalua High School Professional Development Conference, Honolulu, HI.
- Redmond, J. (2006, June). *Physics, Physiology and Technology (PP&T)*. Lahainaluna, Kauai Community College, and Hilo High School PP&T Teacher Training Workshops. Lahaina, Lihue, and Hilo, HI.
- Saka, S. M. (2006, November). *Lessons learned from the evaluation of the Hawai‘i P–20 Initiative*. Presented at the American Evaluation Association conference, Portland, OR.
- Slovin, H. (2006, July). *Comparing numbers: Counting-based and unit-based approaches*. Presented at the PME General Annual Meeting, Prague, Czech Republic.
- Slovin, H. (2006). *Early algebra research: An overview of the field*. Presented at the Hawai‘i International Conference on Education, Honolulu, HI.
- Taum, A. K. H. (2006, March). *A hodgepodge of classroom observation data: What does it all mean?* Presented at the meeting of the Hawai‘i Educational Research Association, Honolulu, HI.
- Taum, A. K. H., & Brandon, P. R. (2006, April). *The iterative process of developing an inquiry science classroom observation protocol*. Presented at the meeting of the American Educational Research Association, San Francisco, CA.
- Venenciano, L., Slovin, H., Zenigami, F., and Okazaki, C. (2006, April). *Enhancing teacher content knowledge and promoting algebraic thinking through mathematics without number*. Presented at the Annual Meeting of the National Council of Supervisors of Mathematics, St. Louis, MO.
- Yamauchi, L. A., Taum, A., & Wyatt, T. (2006, April). *Teachers’ use and understanding of instructional conversations in high school classrooms*. Presented at the meeting of the American Educational Research Association, San Francisco, CA.
- Zenigami, Fay. (2006, April). *Experience and explore labs that enhance students’ understanding in algebra*. Presented at the 84th Annual Meeting of the National Council of Teachers of Mathematics Workshop, St. Louis, MO.

Personnel

CRDG Organization

College of Education

Randy Hitz, Dean
Donald B. Young, Interim Dean
(Effective August 1, 2006)

Curriculum Research & Development Group

Donald B. Young, Director
Kathleen Berg, Acting Director
(Effective August 1, 2006)
Helen Au, Assistant Director

Research and Development Sections

Art

Val Krohn-Ching, Section Head

English

Cheryl Harstad, Section Head

Learning Technology

Thomas W. Speitel, Section Head

Mathematics

Hannah Slovin, Section Head

Program Research and Evaluation

Paul Brandon, Section Head

Diverse Learner Needs

Nicole Marquez, Section Head

Science

Francis M. Pottenger, Section Head

Social Studies

Linda Menton, Section Head

Systems

Arthur R. King, Section Head

Research Support

Information Technology

Mark Yap

Laboratory School

Peter Estomago, Interim ULS Principal

Keoni Jeremiah, Vice-Principal

Audrey Maedo, Secretary

Marketing and Publication Services (MaPS)

Helen Au

Summer Programs

Ricardo Lorenzana

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Social Studies

BA 1996, St. Edward's; MA 2002,
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Program Research and Evaluation BA
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Foreign Language
BA 2003, Hawai'i

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Physical Education
BBA 1983, Hawai'i

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Physical Education
AA 1978 Leeward CC, BS 1980,
Hawai'i

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Marketing and Publication Services
BFA 1979, Hawai'i

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Administration BEd 1973, PD 1973,
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Foreign Language
BA 1992, Maryland at College Park;
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Program Research and Evaluation BS
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Mathematics
BBA 1999, Gettysburg College;
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Science
BA 1965, Catholic University of
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EdD 1996, Hawai'i

Buchholz, Donald

Science
BA 1968, MA 1970, UC Berkeley

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Bugado, Brad Physical Education BA 2002, Hawai'i	Dunn, Hugh Pihana Nā Mamo BE 1990, MEd 1999, Hawai'i	Harstad, James English BA 1963, Washington; MA 1974, Hawai'i
Bukes, James G. Athletics BE 1974, MEd 1985, Hawai'i	Erbe, Piilani Social Studies BA 2001, Brigham Young	Hartle, Alison English BA 1992, UC Berkeley; MA 1996, Hawai'i
Carter, Robert Diverse Learner Needs	Estomago, Pete ULS Administration BA 1967, Chaminade; MEd 1998, Hawai'i	Hashimoto, Val Science BS 1993, HPU; MAEd 2003, Phoenix
Chan, Raymond Mathematics BS 2002, Hawai'i	Franklin, Marci Visual Arts BS 1984, PBCSE 2006, Hawai'i	Higa, Terry Ann Program Research and Evaluation BE 1977, MEd 1978, MEd 1994, PhD 2005, Hawai'i
Chang, Nancy Cafeteria BS 1973, UC Berkeley	Fordham, Cecilia Learning Technology BS 1959, SUNY Fredonia; MFA 1976, Hawai'i	Inouye, Byron Learning Technology BFA 1993, Hawai'i
Chun, Malcolm Pihana Nā Mamo BA 1976, MA 1981, Hawai'i	Fujii, Alycia Marketing and Publication Services BA 1996, Hawai'i	Ishihara, Melanie Mathematics BE 1990, Hawai'i
Chun, Russell Administration BBA 1982, Hawai'i	Fujii, Nancy Administration BA 1979, Hawai'i	Iwata, Harrison Administration AS 1989, Hawai'i
Clark, Robin Pihana Nā Mamo BFA 1994, Hawai'i	Gabrielli, Sandy Learning Technology BS 1990, Nevada, Reno	Jacobs, Adrienne R. Administration
Clement, Denise Mathematics AS 1973, Johnson & Wales College	Gill, Kevin Learning Technology 2000, California Regional Occupational Programming Information Technology Training Series	Jeremiah, Albert (Keoni) ULS Administration BA 1993, Hawai'i; MA 2002, San Francisco
Croft, David E. Learning Technology BA 2005, PBCSE 2006, Hawai'i	Gray, Mary E. Science BS 1986, Oregon; PD 1990, MEd 1991, Hawai'i	Kaupp, Lauren Science BS 2003, Maryland-Baltimore County; MS 2005, Hawai'i
DaSilva, Maria Elementary BA 1990, Antioch	Haberman, Martha Foreign Language BA 1979, Guam; MA 1985, San Jose	Kelsey, Deborah Mary K. Performing Arts BE 1983, Hawai'i
Davis, Rebecca Elementary BA 2005, Duke	Hamilton, Marybeth English BA 2000, Seattle; MAT 2003, Portland	Kido, Lillian Pihana Nā Mamo BA 1971, Hawai'i
Doi, Douglas M. Visual Arts BA, BFA 1976, MFA 1983, Hawai'i	Harpstrite, James J. Social Studies BA 1963, Colorado; MA 1967, Hawai'i; PhD 1971, Michigan State	King, Arthur Administration BA 1946, Washington; MA 1950, EdD 1955, Stanford
Doyle, Craig K. Elementary BA 1972, PD 1989, MEd 2002, Hawai'i	Harstad, Cheryl A. English BA 1967, MA 1970, Hawai'i	Kozuma, Wayne Program Research and Evaluation BE 1971, PD 1995, Brigham Young
Drick, George R. English BA 1966, Yale; MAT 1971, Harvard; MBA 1978, Chicago		
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Personnel

Krohn-Ching, Tiana Performing Arts BS 2004, Puget Sound	Malama, Yvette College and Career Counselor BA 1990, MEd 1998, Hawai'i	Olafsson, Kevin Performing Arts BM 1986, British Columbia; BMEd 1987, Simon Frasier
Krohn-Ching, Waldtraut (Val) L. Visual Arts BS 1968, MA 1969, Eastern Michigan; MFA 1974, Hawai'i	Menton, Linda K. Social Studies BA 1968, Chaminade; MLS 1972, MA 1978, PhD 1982, Hawai'i	Olson, Judith Mathematics BS 1968, Valley City State; MST 1981, Wyoming; EdD 1985, Oklahoma State
Kuroda, Kathleen Performing Arts BFA 1971, MFA 1983, Hawai'i	Miller, Matthew Visual Arts BFA 1984, Hawai'i; MFA 1991, Oregon	Olson, Melfried Mathematics BS 1968, Valley City State; MS 1972, Arkansas; EdD 1975, Oklahoma State
Lai, Morris K. Program Research and Evaluation BS 1965, Stanford; MA 1967, Hawai'i; PhD 1972, UC Berkeley	Morehead, Leslee Science BS 2001, Sam Houston State; MSSE 2006, Montana State	Orcutt, Kristen Diverse Learner Needs
Lawton, Brian Program Research and Evaluation BA 2001, Nevada; MEd 2005, Hawai'i	Murchison, Sally Visual Arts BFA 1955, UCLA; MFA 1966, Hawai'i	Pottenger, Francis M. Science BS 1951, Otterbein; MEd 1957, Xavier; MS 1964, New Mexico Highlands; PhD 1969, Claremont Graduate School
Lee, Aaron Marketing and Publication Services BFA 1999, Hawai'i	Nakamura, Aric Program Research and Evaluation BA 2004, Hawai'i	Pottenger, Larma Editorial BA 1950, Otterbein
Lee, Meredith Pihana Nā Mamo BA 1996, Hawai'i; MA 2003, Washington	Narimasu, Bert Marketing and Publication Services BA 1976, MFA 1993, Hawai'i	Quintan, Walter Physical Education
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Lindo, Shane Y. Marketing and Publication Services BSBA 2004, Hawai'i Pacific	Nguyen, Thanh Truc T. Learning Technology BA 1996, MEd. 2000, Hawai'i	Ramos, Rosemarie Clerical AS 1976, St. Ferdinand
Lorenzana, Ricardo Summer Programs BA 2000, UC Irvine; MBA 2004, Hawai'i	Nite, Kaimi ULS Administration BS 2005, Brigham-Young	Redmond, James Science BA 1968, SUNY; MEd 1979, Pepperdine
Lush, Noren Social Studies BEd 1974, Franklin College; MA 1988, Hawai'i	Nunokawa, Shane Physical Education BA 1995, Purdue; MPT 1997, Northwestern	Ritts, Lisa Social Studies BA 1996, American University of Paris; MA 1998, Washington
Mackay, Irene Mathematics BS 1973, MSc 1988, Strathclyde (Glasgow, UK); PhD 2005, The Open University (UK)	Oda, Yukari Foreign Language BA 1985, Junshin Women's College; BA 1997, Bryn Mawr; BA 1998, Hawai'i Pacific	Rivera, Grant Cafeteria
Maedo, Audrey ULS Administration AS 1970, KCC Hawai'i	Okazaki, Claire Mathematics BA 1970, Washington State at Pullman; MEd 2004, Hawai'i	Saka, Susan Program Research and Evaluation BS 1980, BBA 1980, MEd 1994, Hawai'i
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