CRDG
Year in Review 2005

“Committed to Quality”
The 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 Mission Statement

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CRDG . . . providing quality educational programs and services for preschool through grade 12.
CRDG and the University Laboratory School are pleased to present our 2005 *Year in Review*. We had another banner year, and this publication highlights some of the accomplishments of our dedicated teachers, researchers, evaluators, and support staff.

This year’s theme is collaboration. In the following pages you will find examples of CRDG faculty working with schools throughout the state, and in some cases on the U.S. mainland and in other countries. We are proud of our nearly 40-year history in curriculum research, development, program evaluation, publication, dissemination, and professional development. Collaborations are essential to our work, and we gratefully acknowledge our individual and organizational collaborators and funders who support our work at CRDG.

As in the past, the Laboratory School students continued to excel. For the fourth straight year, the Laboratory School ranked among the top performing public schools in Hawai‘i on the state assessments. Our students were honored with awards in writing, speech, art, music, science, mathematics, social studies, and athletics. We are proud of their accomplishments and of the dedicated faculty who consistently bring out the best in our Laboratory School students.

In the words of William Butler Yeats, “Education is not the filling of a pail, but the lighting of a fire.’’ We are pleased to describe, in this *Year in Review*, some of the fires that CRDG faculty and staff are lighting here at CRDG and in other schools with whom we work to constantly improve education.
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 conducts its 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.

**Funding Agencies**

- Bishop Museum
- Hawai‘i Department of Education
- Hawai‘i Department of Health
- Hawai‘i Department of Land and Natural Resources
- The Kamehameha Schools (PASE)
- National Science Foundation
- Texas Instruments
- U.S. Department of Education
- University of Hawai‘i Foundation
2005 marked the end of the third 5-year cycle for Pihana Nā Mamo: The Native Hawaiian Special Education Project. CRDG joined the project in its latest cycle, beginning a collaborative effort with the Hawai‘i Department of Education in 2000. Pihana Nā Mamo works with Hawai‘i schools to identify, develop, and implement effective programs to meet the unique needs of Native Hawaiian students. Its mission is to improve education outcomes of K–12 special needs students of Hawaiian or part-Hawaiian ancestry. To do this, the project has focused on reading and culturally appropriate support systems, including parent and community participation and new curriculum materials.

This year the project published the first three titles in the Ka Wana series, a set of books on Native Hawaiian cultural practices and traditions written by Malcolm Nāea Chun. (See page 23 for descriptions of the series and the new titles.)

Heluhelu, the Pihana reading component, had excellent outcomes in 2005, when thirteen out of sixteen Pihana elementary schools met Adequate Yearly Progress (AYP) standards for reading, and two other Pihana elementary schools met AYP in grade three or grade five. A recent newspaper article featured four formerly struggling schools that did well in 2005, all of which were Pihana schools.

Students in the Kākoʻo component of Pihana had a high school graduation rate of 99%, far exceeding normative expectations. In 2004–2005 the Makua Hānai component of Pihana worked with 1,075 students and 577 families from thirteen schools.

As this grant cycle winds down, CRDG and the DOE will continue their work with Native Hawaiian children and families under two new...
grants awarded in 2005. Kākoʻo Piha, a three-year grant from the U.S. Department of Education through the Native Hawaiian Education Act, will address the needs of at-risk Native Hawaiian secondary students. Systematic mentoring and transition planning, intensive academic support, and pro-social skills training will be used to help students make a successful transition from middle school to high school and from high school to post-high school employment or higher education. Nā Lama Heluhelu, a second three-year grant, also from the U.S. Department of Education, continues work in the other major focus area of the project: helping beginning readers. Focusing on students in kindergarten through grade three in up to twelve beacon schools, the project will implement a number of strategies to help the school communities make reading a priority. This project will work with approximately 3,000 students, 300 teachers, and 1,000 parents.

**GK–12 Project**

CRDG continued its work with the National Science Foundation-funded GK–12 project this year with twelve graduate fellows working in fourteen schools throughout the state. This partnership with the Ecology, Evolution, and Conservation Biology (EECB) program at UH Mānoa works to upgrade fellows’ communication skills, provide teachers with content knowledge about cutting-edge research on Hawai‘i’s unique environment, and reduce the time between the generation of new scientific knowledge and its impact on student learning. CRDG provides the education component of the fellows’ preparation, teaching them how to engage students and teachers in inquiry investigations related to their research.

This is the seventh year the CRDG has been involved in the GK–12 project, and the results are visible in the community. This year seven fellows, under the direction of Project Coordinator Erin Baumgartner and former fellow Alex Handler, currently with the Center for Conservation, Research, and Training at UHM, used what they had learned in the program to plan and implement an 8-day workshop for approximately thirty teachers on Palau. Their goal was to introduce teaching science as inquiry to the Palau teachers as a way to help them improve the quality of their science teaching.
A second goal of the GK–12 program, and of the Palau workshop, was to create new partnerships by bringing teachers and researchers together to infuse classroom teaching with current research. Seven researchers on Palau were recruited to participate in the workshop and have continued their collaborations with teachers.

A second offshoot of the project is the expansion of the intertidal biodiversity project started at ULS by former fellow Chela Zabin. As a GK–12 fellow, Chela worked with ULS ninth-graders to survey and catalog several coastal sites around Oahu and to start a database to catalog the intertidal environment. Once the program was established at ULS, Chela expanded the project to Kahuku Intermediate and High School and Farrington High School on Oahu, and Kalama Intermediate School on Maui. She also headed a team that developed an instructional guide for teachers new to the project, a set of identification cards for coastal organisms, and an online field guide also. This year, current fellows Jo Philippoff and Erin Cox have taken over the project and are working to expand it statewide. Another new development this year was the transfer of the database to the National Oceanic and Atmospheric Administration (NOAA). We are excited about the continued growth and success of this project as more schools get involved and help to collect new data.

Finally, one of the ongoing impacts of the project is a new course in science teaching for graduate students in the sciences developed by CRDG’s Erin Baumgartner. Feedback from fellows in the GK–12 program indicated that the education component had been especially valuable, and was something they thought all graduate students in the sciences could benefit from. As a result, Erin developed a one-credit seminar, taught for the first time in 2005 in the zoology department. The course filled and was so successful that it has been expanded to a two-credit course for 2006.

New East Asia Curriculum Materials

Given Asia’s importance to the United States, economically, politically, and strategically, there is general agreement in America, at least in theory, that students “should learn about Asia.” World history texts frequently give short shrift to Asia, although Asian civilizations do receive more coverage in such textbooks than they did in the past. And while it is true that there are a myriad of curriculum packages about Asia now available on the Web, the historical quality of these materials is uneven.

The Social Studies Section at CRDG has worked to provide teachers and students with historically accurate and pedagogically sound instructional materials about Asia for the past fifteen years. We began with a curriculum package entitled China: Understanding Its Past, which includes a student book, teacher’s manual, and a compact disc with Chinese music from different regions, genres, and time periods. We followed this with a similar curriculum package in 2004 entitled The Rise of Modern Japan.

We were aware that our books on China and Japan did not address East Asia as a region and we were particularly concerned about the omission of Korea in this context.
Thus, our latest project, begun in 2005, will be a thematically based text for high school students focused on Modern East Asia and, in particular, on the inter-relationships between China, including Taiwan and Hong Kong; Japan; and South and North Korea. These materials will 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 today.

**CRDG Part of Bishop Museum Collaboration**

Erin Baumgartner is part of a team working on an ECHO (Education through Cultural and Historical Organizations) grant at the Bishop Museum. Erin’s background which combines marine science, education, and museum research, made her ideal for this project. Her role is to develop modules and activities for students in a magnet school focused on environmental and cultural science. The modules will teach content and skills identified by museum researchers as critical to their work. She is currently working on the first two modules on taxonomy and scientific ethics.

**Read Aloud Programs**

Jim Harstad, of the CRDG English Section, is one of the developers and co-authors of the Golden Triangle language arts materials. In addition to his work in the Laboratory School and in curriculum development, Jim has brought his passion for oral reading into the community as a board member of Read Aloud America. The program, which encourages literacy and greater family participation in the educational process by bringing families together to share in the joy of reading aloud, brings many of the concepts found in the Golden Triangle program to an extracurricular activity designed to bridge the gap between school and home. Serving as a liaison between the theoretical, academic community and the teachers/parents/students at individual public schools, Jim participated in Read Aloud programs at Nānāikapono Elementary, Wai‘anae Elementary, Waipahu Elementary, Wai‘au Elementary, and Pālolo Elementary in 2005.
Cross Currents
www.crosscurrents.hawaii.edu

Work continued in 2005 on Cross Currents, a multimedia website that explores the relationship between the United States and Japan throughout the past fifty years. This bilingual site contains pictures, videos, graphs, and a variety of primary documents that are easily accessible to teachers and students. The Cross Currents development team consists of content and design specialists from CRDG, the UH College of Social Sciences, the UH School of Communication, and Tokyo University.

Local and international teachers provided positive feedback on the site’s content and usability during the 2005 workshops. The new scrapbook component, which allows teachers and students to create and manage interactive projects, is of particular interest to teachers. The project will continue with content development and classroom testing through 2006.

A Daily Dose of Poetry

The Golden Triangle English program developed by the CRDG English Section is based on the concept of small daily doses of learning over many years. Students in the program do journal writing, dictation sentence study, and oral reading every day. Over many years these small doses add up to consistently high scores on standardized tests and a high level of competence in writing once students go on to college or work. This year, program developers are experimenting with the same concept for teaching poetry. Cheryl Harstad’s eighth graders and Bill Teter’s twelfth graders have been getting small daily doses of poetry over much of the school year, rather than the traditional unit wherein exposure to poetry comes in blocks of the full class period, but for just a few days or weeks. As with the other components of the Performance English program, the English faculty believe this will result in a stronger long-term knowledge and appreciation of poetry by all students.

Measure Up

Now in its fifth year, the Measure Up elementary mathematics research project focuses on developing algebraic thinking through measurement ideas in children as young as first grade. The project
is based on the work of Russian psychologists, mathematicians, and educators, and is being developed in collaborations with the Institute of Developmental Psychology and Pedagogy in Krasnyarsk, Russia as well as with other US institutions. The University Laboratory School and Connections Public Charter School in Hilo, Hawai'i are the research sites for the teaching and learning components of the program which spans grades one through five.

The project continues to attract much attention from teachers, school administrators, mathematics educators, and mathematicians. In 2005, Measure Up classes at University Laboratory School and Connections Public Charter hosted approximately one hundred observers from Hawai'i DOE schools, national and international universities, and mathematics education professional organizations. Kay Gilliland, past president of the National Council of Supervisors of Mathematics visited with Measure Up researchers and students and came away “very impressed” with our classes. A team of mathematics educators and mathematicians from the Show-Me Center at the University of Missouri spent a several days observing Measure Up classes and even got involved with the students by giving them challenging problems to solve.

We have seen through hosting many visitors that when people actually see the lessons live, they become believers. When we go out to speak about Measure Up, audiences marvel at the video clips and slides showing student work. But once they’ve been in the classroom, they know that it’s possible for children to engage in algebraic reasoning in younger grades.

**Technology in the Classroom**

Work began in 2005 on a research project that examines the effect of the Texas Instruments TI Navigator system on the teaching and learning of mathematics in an integrated high school curriculum. The TI-Navigator System provides wireless communication between students’ TI graphing calculators and the teacher’s PC, providing teachers with real-time feedback to instantly assess student understanding and allowing students to contribute real-time to a shared workspace. Irene Mackay is using the system in the Laboratory School’s tenth grade classes, and studied the effects of the Navigator system on students’ understanding of matrix construction, operations, and interpretation; teachers’ assessment of student understanding; teachers’ instructional practices; students’ beliefs about mathematics; and student’s confidence in their mathematical ability. The project involved five weeks of observation and filming in the classroom, followed by ongoing analysis. Subsequent funding for continuing the work with TI Navigator and links with formative assessment is being sought. The proposal is based on preliminary findings from the current project.

**Studying Gender, Language, and Mathematics**

“The Role of Gender in Language Used by Children and Parents Working on Mathematical Tasks” (GSE) is a three-year study funded by the National Science Foundation. For this research, one hundred
parent-child pairs from Hawai‘i public schools will be studied to investigate gender-related differences in language and actions while working on tasks representing each of three content strands: number, algebra, and geometry. Families participating in the study are all of low socio-economic status and represent a diversity of ethnicity. Data will be gathered to determine gender-related differences in parents’ and children’s use of cognitively demanding language, and on children’s self-efficacy and parents’ competence beliefs for their children. The study will also look at how these behaviors vary among the four types of child-parent dyads: daughter-mother, son-mother, daughter-father, and son-father. The findings will be used to determine how parent materials and parent involvement programs might address differences in how parents interact with their children when working on mathematical tasks.

Biotechnology Comes to the Classroom

CRDG took part in a joint effort sponsored by the Oregon State and University of Hawai‘i Sea Grant programs and the Hawai‘i Institute of Marine Biology to identify areas of marine biotechnology that could be targeted in high school science curricula. Erin Baumgartner, Tom Speitel, and Frank Pottenger represented CRDG. Following the planning workshop for teachers and researchers, a series of products were identified for development. Erin Baumgartner produced a set of activities combining sampling methodology with biotechnology to examine environmental problems such as pollution and invasive species. The activities will be included in the forthcoming Biotech Gets Wet: A Curriculum for Grades 9–12, a joint publication of the Hawai‘i and Oregon Sea Grant programs.

Physics, Physiology, and Technology Extends Inquiry Curriculum to Grade Ten

Work on the latest inquiry science curriculum, Physics, Physiology, and Technology, has moved out of the Laboratory School to the next level of field testing and revision with the involvement of two cohorts of public school teachers. PP&T, as it is called, is designed for tenth grade, though it is being used in secondary schools in grades nine through
Following many years of design, redesign, and testing by CRDG, the program is now in twenty public school classrooms. The teachers who attended training sessions in the summer of 2005 have met monthly throughout the year to receive support as they implement the programs and provide feedback to researchers. A No Child Left Behind grant of $10,800 will allow expansion of the test group to neighbor island teachers in 2006. Dr. Arnold Feldman of the physics department of the University of Hawai‘i at Mānoa is the principal investigator for these workshops. The physics department has also provided the laboratory facilities and the assistance of Joe Laszlo. Course delivery has been carried out by David Kleinjans, Stacey Carpenter, Jim Redmond, and Frank Pottenger of CRDG with evaluation from Barbara Klemm of the College of Education, Institute for Teacher Education.

**Invention Factory 2005**

CRDG and the Archimedes project, under the guidance of Tom Speitel and Neil Scott, have begun work on the Invention Factory, a three-year, $900,000 project funded by the National Science Foundation. The program will teach information technology to teenagers by involving them in interactive hands-on projects designed to improve human-computer interaction for individuals that are disabled or elderly. The project’s objectives include stimulating an interest in science and engineering careers among students currently under-represented in those fields; giving students the skills they need in mathematics and computer programming to allow them to participate in the needs analysis, design, fabrication, and evaluation of devices that meet the needs of the disabled; and demonstrating that students who create technology-based solutions that impact people have substantially greater motivation to pursue careers in engineering.

Students from Dole Middle School, Farrington High School, and Waipahu High School show off the results of their lamp circuit project at their first session of the Invention Factory. The exercise teaches them basic electrical concepts as well as how to solder and use hand tools. Students are so excited when they press the switch and their very own light bulb lights up.
Arts Education in Windward Schools

Faculty from CRDG’s Program Research and Evaluation (PRE) and Art Sections have teamed with the Hawai‘i Alliance for Arts Education to conduct a U.S. Department of Education funded project that uses strategies from the visual and performing arts to teach reading, writing, and mathematics. Six windward schools are participating in the project, three randomly assigned as experimental sites and three randomly assigned as control sites. The project provides extensive professional development for teachers in how to use arts strategies in teaching basic skills and brings artists into the classroom to work directly with teachers. 2005 is the second year of the three-year project. Paul Brandon and Brian Lawton from the Program Research and Evaluation Section designed the research study and prepared data-collection instruments. They collected, analyzed, and reported evaluation results in both of the first two years of the study and will continue these tasks in the third year. Val Krohn-Ching, from CRDG’s Art Section, is documenting the training and working with project developers to prepare methods for using the visual arts to enhance student learning. The final results of the project will be reported not only to the Hawai‘i Alliance for Arts Education but also to evaluators and researchers nationwide in conference presentations and articles.

“Hawai‘i Alliance for Arts Education could not be more delighted with the opportunity to work with CRDG. We find the researchers of top quality. In fact, the CRDG research design was key to our success in receiving a grant from the U.S. DOE.”

Supporting Partnerships to Assure Ready Kids (SPARK)

As a partner in the SPARK (Supporting Partnerships to Assure Ready Kids) project, CRDG continued its work with early elementary children in the Wa‘ianae and Keaukaha areas in 2005. In its second year, SPARK is an initiative of the W. K. Kellogg Foundation, and is implemented in Hawai‘i by INPEACE (Institute for Native Pacific Education and Culture). INPEACE’s partners include Kamehameha

Participating schools

He‘eia Elementary
Ka‘a‘awa Elementary
Kahuku Elementary
Keolu Elementary
La‘ie Elementary
Ben Parker Elementary
Schools, The Good Beginnings Alliance, the Hawai‘i Department of Education, and CRDG. The project works with children ages three through seven and with elementary schools to improve the transition from home to school. Some of the activities are intended to help prepare children for school, while others focus on helping schools prepare for incoming kindergartners. CRDG’s role in the project is two-fold: First, as the internal evaluator, CRDG prepares annual reports evaluating the grant’s implementation. In addition, CRDG is conducting a longitudinal study of SPARK participants to see whether the interventions have a significant impact on children’s school readiness and subsequent success. The project will continue through 2008.

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 the regular academic programs. Priority is given to complexes with a high percentage of students coming from low-income families, and with programs that serve the full preK–12 range. CRDG faculty have worked as the external evaluators with many schools over the course of the project. In 2005, CRDG worked with the 21st Century Community Learning Centers in twenty schools in the Kahuku, Wai‘anae, and Kekaulike complexes.

Transitions to Teaching

The College of Education and CRDG have teamed up with the College of Tropical Agriculture & Human Resources, and the Hawai‘i Department of Education to address 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 role is to determine what kinds of support these students need to reach their goals, and to determine whether these needs are being met,” said evaluation principal investigator Terry Higa. The project’s goal is to produce 50 licensed science and mathematics teachers.

CRDG Contributes to Understanding of School Health Issues

CRDG has continued its commitment to working with the Hawai‘i Departments of Education and Health to monitor health risk behaviors among Hawai‘i’s student population. Known collectively as the Hawai‘i School Health Surveys, the 2005 versions of the Centers for Disease Control and Prevention’s (CDC) Youth Risk Behavior Survey (YRBS) and Youth Tobacco Survey (YTS), with Hawai‘i-specific modifications, were conducted in twenty-three middle and twenty-three high schools in Hawai‘i. This marks the third YTS and the seventh YRBS CRDG
has conducted. The results of the ongoing studies are used in a variety of ways by the Departments of Education and Health, the University of Hawai‘i, and other agencies. These include identifying focus areas for curriculum development and teacher training, and for prevention and treatment efforts and resources. Other uses include identifying risk behaviors of Hawai‘i public school students in grades six through twelve, informing health and safety curricula, program planning by the Department of Health and organizations, and applying for grants to address identified risky behaviors.

**Hawai‘i Nutrition Education Needs Assessment**

Susan Saka, Morris Lai, and Sandy Shimabukuro led a four-year study on the nutritional habits and height and weight of fourth and tenth graders in Hawai‘i. This study is the third installment in a longitudinal study that has looked at similar issues every ten years. Collecting data on students’ diets, feelings about school lunch, levels of physical activity, and height and weight, the team was able to create a nutrition needs assessment report for Hawai‘i students. The study found a low mean energy intake by students in the current study as compared to the previous studies. There was a low consumption of fruits and vegetables and dairy products and a frequent consumption of sweetened beverages and candy. About one fifth of the students were classified as overweight and three fifths were in the healthy range.

**Standards-Based Learning**

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. As the TOTAL (Transforming Our Teaching and Learning) professional development package works 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 employed from the state level to the classroom level. CRDG attended state and district level training in 2005.

**United for Learning: The Hawai‘i P–20 Initiative Promotes Life-long Learning**

The University of Hawai‘i, the Hawai‘i Department of Education, and the Good Beginnings Alliance have joined to lead a two-year strategic planning project funded by the W. K. Kellogg Foundation. Known as the Hawai‘i P–20 initiative, the project will identify existing life-long learning programs, coordinate current efforts, determine where additional funding is needed, and plan for ways to fill the gaps in services. CRDG’s Program Research and Evaluation Section is working with the partners to evaluate the strategic planning process.
Leaving No Teacher Behind

The Professional Development for Understanding project, headed by Linda Venenciano of CRDG’s Mathematics Section, is funded with $75,000 from the Improving Teacher Quality Higher Education Grants program of the No Child Left Behind act. The project brings together a team consisting of CRDG, Connections Public Charter School, the Hawai‘i Department of Education, and Hawai‘i Community College to work with teachers in the Hilo/Laupahoehoe/Waiakea complex. Calling on CRDG’s long experience in teacher professional development, this project uses an established teacher institute design focused on the mathematical content knowledge teachers need for teaching to deepen teachers’ understanding of familiar mathematical concepts, broaden teachers’ pedagogical skills, and provide support for the practical application of new knowledge to participants’ existing mathematics curricula.

Teaching Science as Inquiry

Implementing the No Child Left Behind Act has resulted in great challenges for teachers, and by extension, a greater need for professional development, than ever before.

CRDG’s Science Section has responded to this need by creating a series of two- and three-day workshops on teaching science through inquiry. Research has shown that learning through inquiry enhances students’ capacity to understand the concepts and skills of science. Our science faculty drew on their thirty-five years of experience supporting teachers and schools K–12 as they implemented inquiry strategies in their classrooms to create this series of workshops. The first session was held on Guam in the summer of 2005 where twenty-four elementary teachers from Guam and the Commonwealth of the Northern Mariana Islands (CNMI) focused on teaching astronomy through inquiry. Other modules
Professional Development

developed in 2005 are Simple Machines (elementary), Why Do Things Sink and Float? (middle school), and Aquatic Science (high school).

Partnerships and Grants Add to Professional Development Opportunities

In addition to the many grant-funded projects that incorporated professional development for teachers in Hawai‘i and throughout the Pacific, CRDG continued its commitment to quality professional development in 2005 with courses on Oahu, Maui, and the Big Island, and in Ohio and Illinois. A total of 107 teachers attended sessions in science, mathematics, English. A partnership with Connections Public Charter School in Hilo provided grant funding for 63 teachers from throughout Hawai‘i.

DASH in the Pacific Islands

2005 saw CRDG’s Carol Brennan completing a four-year project in the Republic of the Marshall Islands (RMI) and beginning work with the Commonwealth of the Mariana Islands (CNMI).

The work in RMI began in 2001 with the implementation using a unique two-year professional development model that has elementary teachers train in the DASH program for the first year (upper or lower elementary) in order to build understanding of inquiry in science education and then continue their training for their particular grade level the second year. Carol, along with DASH Instructors Brooke Davis, Maria DaSilva, Craig Doyle, and Jim Hope, worked with 400 teachers in grades one through six while beginning to create a cadre of local trainers who will be able to provide continued training and support in RMI. A second part of the project was the adaptation and revision of the DASH materials along with the addition of activities to create a program relevant to Pacific natural and cultural environments and to address RMI science standards.

Beginning in Saipan in 2005, Carol and Brooke began the implementation of DASH in CNMI. The first summer’s sessions resulted in seventy teachers and seven new CNMI instructors trained in DASH grades K–3. Plans are to continue with expansion into the upper elementary grades.

Comment from teacher on Saipan about the DASH Pacific workshop

“This is one of the best workshops I have ever attended. I can’t wait to apply the activities in my classroom.”

Teachers use a gnomon to verify that the sun rises in the east.
STARnet

STARnet: Casting a Broader Net Through Teaching and Technology began in 2005 with five schools in the Hilo area: Kea’au Middle School, Pāhoa Intermediate School, Ka’ū High & Pāhala Elementary, St. Joseph Middle and High School, and Connections Public Charter School. The project contributes to the implementation of Hawai’i’s Act 51 by establishing and sustaining communities of learners through professional development for teachers and their principals. This year STARnet is developing a prototype for 8th grade teachers with the intent of expanding to other grades and schools in coming years. The professional development course is designed to help teachers tie their science curriculum to the 8th grade HCPS III using CRDG’s FAST 3, Change Over Time and Teaching Science as Inquiry: Astronomy. The project also incorporates exhibits from ‘Imiloa Astronomy Center of Hawai’i and other resources accessed through distance-learning technologies. The four cornerstones of the project are standards-based earth and space science content knowledge; research-based teaching and learning; distance-learning enrichment, and parent and family involvement in standards-based education. Added to these are frequent collection of student data and inquiry to inform teaching and learning decisions. STARnet project partners include Department of Education Hawai’i District’s Ka’ū, Kea’au and Pāhoa Complex; University of Hawai’i at Hilo Department of Physics and Astronomy; ‘Imiloa Astronomy Center of Hawai’i, and the Curriculum Research & Development Group.

Hawai’i Interactive Television System (HITS)

Frank Pottenger and Sandra Shimabukuro continued to provide professional development in science to elementary teachers statewide in 2005 through the Hawai’i Interactive Television System (HITS). In addition to specific sessions focused on the DASH program, they expanded the content this year to include some of the material on inquiry strategies developed for the Teaching Science as Inquiry program. This was the sixteenth year that weekly HITS sessions were offered several times each month to teachers throughout the state. With Sandy’s retirement the series will continue with other Science Section staff.

Professional Development a Critical Need for Mathematics Teachers

With the implementation of the No Child Left Behind legislation, professional development has become one of the most urgent needs of teachers. CRDG’s Mathematics Section has felt the impact of the emphasis on testing in mathematics as schools strive to comply with NCLB guidelines. In response to calls from schools requesting help, 2005 found CRDG faculty working on unique professional development programs throughout the state, each tailored to the specific needs of the schools and complexes that requested their help.
Hokulani School wanted help with standards focused on problem solving, reasoning, and communication. This request resulted in a series of three sessions that engaged teachers in authentic problem solving experiences, with CRDG professional developers modeling best practices in instruction. This approach helped teachers develop awareness of problem solving strategies and to connect those strategies to the NCTM process standards.

Work with teachers at Waimanalo Elementary and Intermediate School involved a series of full-day institutes to support the implementation of their new mathematics program. The goals of the institute were to (1) enhance teachers’ content knowledge in mathematics, (2) model the teaching of problem-solving within mathematics curricula rather than as a separate strand, (3) develop and practice instructional strategies related to communication and other process standards, and (4) provide support and guidance as teachers implement new mathematics learning in their classrooms.

The Mathematics Section’s work on Kauai follows a successful project working with special education teachers that focused on algebraic content appropriate for all students, pedagogical strategies that support high student engagement and interaction, fundamental learning theories from which to build problem-solving abilities and algebraic understandings, and multi-dimensional assessment techniques. The current project, a three-year project funded by a Math Science Partnership grant the Kauai Central area complex received in 2004, seeks to enhance teachers’ content knowledge of mathematics in grades K–6, helping them to develop a repertoire of instructional strategies that promote the implementation of the HCPS in mathematics, and to develop performance assessment tasks and a standards-based instructional plan. In 2004, the content focus was on number and operations; in 2005, the content focus was geometry and measurement.
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.

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 seven and one-half 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 has 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

ULS students participated in the following programs:

- National Merit Scholarship Program
- 2004 National Scholastic Art Exhibition
- 2004 Hawai‘i Regional Scholastic Art Exhibition
- Kahi Ki‘i Congressional Art Exhibition
- Hawai‘i Education Association Essay Contest
- Hawai‘i Speech League Speech and Debate Championship Tournament
- Martin Luther King Speech Invitational Tournament
- American Mathematics Competition
- Hawai‘i State Math Bowl
- Oahu Mathematics League
- MathCounts
- Hawai‘i Regional Ocean Science Bowl
- O‘ahu Band Directors’ Association Select Band

O‘ahu Band Directors’ Association High School Solo & Ensemble Competition
Hawai‘i Youth Symphony
Hawai‘i All-State High School Honor Choir
First annual State Spanish Poetry Contest
Hawai‘i History Day
University of Hawai‘i at Mānoa Outreach College Summer Scholars program
Interscholastic League of Honolulu
Model United Nations
Japan Bowl
Japan Wizards Competition
WorldQuest Competition
Pacific and Asian Affairs Council South Korea Study Trip
ULS Community Service Club
Hawai‘i High School Mock Trial Tournament
participate in activities outside of school in visual and performing arts, speech, mathematics, music, writing, and athletics.

The University Laboratory School was honored in 2005 as one of Hawai‘i’s distinguished schools. The twenty public schools that received this designation showed significant achievement in the areas of language arts and mathematics and consistently performed well on standardized tests.

For over twenty years, ULS has maintained a sister school relationship with two Japanese high schools. This year, 155 students from Nishinippon High School visited ULS on December 1. Eight-eight students from Sohseikan High School visited on December 5. Both schools were hosted by our seniors and were treated to performances by the ULS Funk Band, the Hula and Chant class, and the ULS Select Chorus.

While we are very proud of our students’ test scores, which continue to be among the highest in the state, we are equally proud of the many other indicators of success our students exhibit. A key statistic, often overlooked, but critical to so many other areas, is our 97 percent attendance rate and 100 percent graduation rate. Additionally, 97 percent of our graduates this year went on to some form of higher education.
Another set of statistics we feel demonstrates our student’s success is the high rate of participation in a wide range of activities. In addition to the standard ULS curriculum which includes award-winning programs in English, mathematics, science, social studies, music, art, and computer education, approximately 80 percent of our students participated in extra-curricular activities including academic programs, performing arts, and athletics.
CRDG Summer Programs

Celebrating a thirty-fifth anniversary in 2005, Summer Programs continued the tradition of providing enrichment learning in science and technology to one hundred fifteen students from Hawai‘i and abroad. Students came from as far as Texas, California, and Korea to explore the natural environment as well as the virtual one, making discoveries about their observations and experiencing learning outside of traditional textbooks. Six weeks provided ample time for students in grades four through twelve to complete a comparative study of all four of O‘ahu’s coastlines: north (Shark’s Cove), south (Kuli‘ou‘ou Mudflats), east (Kaiona Beach), and west (Ma‘ili Tidepools); apply the principles of aerodynamics to construct various planes and rockets; or storyboard, film, and edit a stop-motion claymation movie.

A staff of DOE teachers, private school teachers, and members of the research community helped Summer Programs with the community contacts to provide students with relevant and interesting field studies around the island. Staff members, who dutifully return to Summer Programs year after year, help provide a safe environment—whether in a classroom, laboratory, or out in the field—that is truly conducive to learning.

Additional highlights of the summer 2005 included a visit by the researchers and administrators that were instrumental in the development of the FAST program: Lee and Will Kyselka, Art King, Frank Pottenger, Don Young, Tom Speitel, and Cecilia Fordham; and a feature article in the Ka Leo o Hawai‘i that helped increase the community’s awareness of the program.

Comment from a parent about the CRDG Summer Programs

“My child was able to apply the lessons he learned to other aspects in his life (outside of the classroom). He maintained a journal that showed evidence of his learning.”

“Our child would tell us what he had learned in class and explains how things work. Our dinner conversations were very educational.”

Summer Programs students experience learning outside the classroom (counter-clockwise from top): 5th grade Sky & Space students at Air Soar in Mokuleia, 6th–8th grade Fish & Physics students at the fish auction at Pier 38, 6th–8th grade Physical & Environmental Science students gather soil and water data at Manoa Stream, 4th–5th grade Robotics students work on their Lego theme park rides.
Marketing and Publications Services (MaPS)

CRDG’s Marketing and Publications Services (MaPS) continued to grow in 2005. The challenges of offering a wider range of services to a larger group of customers throughout the university community was met by our talented group of marketers, designers, and printers. Designers Darrell Asato, Wayne Shishido, and Byron Inouye, and printer Bert Narimasu have been working behind the scenes for over twenty years, doing the kind of quality work that has resulted in the current reputation for excellence MaPS enjoys.

Long-time customers and newcomers alike appreciate the combination of commitment to quality and family feel that they find at MaPS. The addition of newcomers Aaron Lee (web graphic designer), Winnie So (marketing assistant), and Jaret Leong (account associate) in 2005 have allowed MaPS to offer an even greater range of services along with a higher level of customer service.

MaPS produced a variety of publications this year. Pictured (top row, left to right) are Current Perspectives (Spring 05 and Fall 05), CRDG Year in Review 2004, (middle row) College of Education Research Retrospective 2000–2005, Teaching Science as Inquiry Astronomy Inquiry Lab Book, CRDG section brochures, (bottom row) Educational Perspectives (Spring 05 and Fall 05), Ka Wana series books A'o, Pono, and Ho'oponopono, and Working 'Round a Problem (WRAP) Mathematics Cards.
New Products

Ka Wana Series

The Ka Wana series was developed through the Pihana Nā Mamo Native Hawaiian reading program. It offers new insight into the philosophy and way of life of Native Hawaiian culture. Those raised in these traditions will find memorable recollections, while those growing up without opportunities to know 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, management, protocol, and religious beliefs. Each volume is illustrated with historical documents accompanied by detailed cultural descriptions.

A'o, Educational Traditions

There was a period in Hawaiian history when the literacy rates for Native Hawaiians, both children and adults, was higher than that of the United States. What happened and what can we learn from that situation in addressing the education needs of Native Hawaiians today? In A'o, Educational Traditions, Malcolm Nāea Chun takes the reader through the fascinating story of how Native Hawaiians learn, why learning and knowledge were prized in traditional society, and how two systems, native and foreign, combined to achieve one of the highest literacy rates in the world.

Pono, The Way of Living

When confronted with the question, what is the greatest Hawaiian value?, researcher and scholar Malcolm Nāea Chun, after a very long period of consideration, decided it has to be pono. What about lōkahi, aloha, ola, mahalo, or other buzz words used today to describe Native Hawaiian values? In Pono, The Way of Living Chun explores why pono is the core value for critical Native Hawaiian thinking and decision making. He uses traditional and historical accounts to describe what pono means, how it was valued in traditional society, and the key role it has in modern Native Hawaiian society. Pono, The Way of Living is the first volume in the Ka Wana series and as such, presents the worldview of Native Hawaiians.

Ho'oponopono, Traditional Ways of Healing to Make Things Right Again

Pono is about the importance of living a life of goodness. But what happens when that struggle is knocked out of balance? The cultural practice of restoring this goodness to what it once was is called ho'oponopono, now a widely known and respected part of Native Hawaiian culture. But without the advocacy of Mary Kawena Pukui and the Queen Lili'uokalani Children's Center ho'oponopono might well have been forgotten. Malcolm Nāea Chun traces the practice of ho'oponopono back to the earliest traditional accounts, taking the reader on a journey through the practice's acceptance in academic circles, and its institutionalization into health and social practices in modern Hawai'i.
On ePortfolios

In a project that breaks new ground in many ways, CRDG entered into a collaboration with the College of Education’s educational technology (ETEC) department to market their new product, On ePortfolios. The product is an interactive learning capsule that addresses faculty and student needs related to the development of electronic portfolios. The creation, marketing, and distribution of an original product is a first for ETEC. On ePortfolios is an exciting and engaging way for both faculty and students to tackle the challenges of developing program and course-based electronic portfolios, and creates electronic portfolios that showcase the dynamics of a graduate’s skill-set to future employers. The product sports its own slogan, “Your Passport to Career-path Success,” and as such, sets the standard for conceptualizing, producing, and distributing a unique electronic portfolio while providing a life-long professional development tool for the digital age.

Working ‘Round A Problem (WRAP)

Working ‘Round A Problem (WRAP) is a new and exciting mathematics supplement for students in middle and high school. The WRAP box includes 250 problem cards that engage students in solving problems from each of the NCTM content strands: number and operation; patterns, functions and algebra; geometry; measurement; and data analysis and probability. The thought provoking and non-traditional problems included in the set were created from years of research into how students learn mathematics.
Peer Reviewed Journal Articles


Linda Menton became the editor of the Hawaiian Journal of History in 2005 at the request of the Hawaiian Historical Society’s Board of Trustees. She has served on the Society’s publication committee since 1994. She is the co-author of A History of Hawai’i and has published on the subject of nineteenth century Hawai’i history, particularly on the history of education in Hawai’i.

The Hawaiian Journal of History has been published by the Hawaiian Historical Society since 1967. It is a scholarly refereed journal devoted to original articles on the history of Hawai’i, Polynesia, and the Pacific with worldwide circulation. Each issue includes articles on a variety of subjects; illustrations; book reviews; notes and queries; and a bibliography of Hawaiiana titles of historical interest.

Volume 13 of the Pacific Educational Research Journal (PERJ) was published this year under the stewardship of CRDG Associate Director Kathleen Berg and co-editor Chuck Guili. Following the publication of volume 7 and the retirement of its editor in 1991, PERJ ceased publication. In 1997, after several colleagues had expressed a need for a peer-reviewed research journal that addressed educational issues specifically relevant to the Pacific region, Kathy and Morris Lai of CRDG’s Program Research and Evaluation (PRE) Section revived the journal. The two continued to co-edit the journal until this year when Chuck Guili of Pacific Resources for Education and Learning (PREL) joined Kathy as co-editor.

The Pacific Educational Research Journal is published every other year under sponsorship of the Hawai’i Educational Research Association and features theoretical, empirical, and applied research with implications for and relevance to education in the Pacific area. Besides Morris, Paul Brandon and Susan Saka from CRDG’s PRE Section are among the current PERJ volume’s contributing editors.
Books/Media Published


Chapters in Books


Other Publications

Baumgartner, E. (2005). *Results of OPIHI (Our Project in Hawai‘i’s Intertidal) monitoring for intertidal invasives*. Hawai‘i Invasive Species Committee.


**Grants and Contracts**

Baumgartner, E. Bishop Museum. Education through Cultural & Historic Organizations. $18,000. August 2005.


Brandon, P. R. U.S. Department of Education (via a subcontract with the Hawai‘i Alliance for Arts Education). $345,000. 2003–2006.


Duncan, K. M. PADI Foundation. Education cooperative program on *Sphyrna lewini* energetic requirements. $1,700. 2005.


Saka, S. M. Hawai‘i Department of Education. Evaluation of Transforming Our Teaching and Learning (TOTAL) Program, Yr 1. $98,400. 3/18/05–7/31/06.

Saka, S. M. Hawai‘i Department of Health. *2005 Hawai‘i School Health Surveys*. $100,000. 9/1/05–10/31/06.

Slovin, H. John and Sue Dean. Measure Up. initial funding $25,00 with additional funding added periodically. Ongoing.


Scholarship


Presentations


Awards and Recognitions

Morris K. Lai received the College of Education COE Faculty Senate Impact Award.
Morris K. Lai was one of five evaluators sponsored by a grant from the W. K. Kellogg Foundation to the Institute for Native Education and Culture (INPEACE) to make presentations on culturally appropriate evaluation methodology at the American Evaluation Association conference in Toronto and at the World Indigenous Peoples Conference on Education in Hamilton, New Zealand.
Linda Menton was selected to participate in 2005 Fall Fellowship in Korean Studies by the Korea Society. The award included a 12 day docent-led study tour of Korea designed for textbook writers, editors, and other educational professionals.
Bill Teter received a diamond award from the National Forensic League in May 2005. The award represents 15,000 competition points accumulated by Lab School students in competition in the Hawaii Speech League.
CRDG Organization

College of Education
Randy Hitz, Dean

Curriculum Research & Development Group
Donald B. Young, Director
Kathleen Berg, Associate Director
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

School Success
Carolyn Shea, Section Head

Science
Francis M. Pottenger, Section Head

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Administration

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Jane Burke/Peter Estomago, ULS Principal
Nancy Fujii, Secretary
Sheryl Nohara/Russell Chun, Administrative Officer

Social Studies
Linda Menton, Section Head

Systems
Arthur R. King, Section Head

Research Support
Information Technology
Mark Yap

Laboratory School
Jane Burke/Peter Estomago, Principal
Keoni Jeremiah, Vice-Principal
Audrey Maedo, Secretary

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Helen Au
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Science
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Buchholz, Donald
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Bugado, Brad
Athletics
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Bukes, James G.
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Burke, Jane
ELS Administration
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Carpenter, Stacey
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BS 2002, Hawai‘i

Chan, Raymond
Mathematics
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Chun, Malcolm
Pihana Na Mamo
BA 1976, MA 1981, Hawai‘i

Chun, Russell
Administration
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Clark, Robin
Pihana Na Mamo
BA 1994, Hawai‘i

Clement, Denise
Mathematics
AS 1973, Johnson & Wales College

Collins, Marie
Science
MS 1996, Massachusetts

DaSilva, Maria
Elementary
BA 1990, Antioch

Davis, Rebecca
Elementary
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Doi, Douglas M.
Art
BA, BFA 1976, MFA 1983, Hawai‘i

Dougherty, Barbara
Mathematics
BSE 1982, MA 1985, Northeast Missouri State; PhD 1989, Missouri

Doyle, Craig K.
Elementary
BA 1972, PD 1989, MEd 2002, Hawai‘i

Drick, George R.
English
BA 1966, Yale; MAT 1971, Harvard; MBA 1978, Chicago

Duncan, Kanesa
Science
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Dunn, Hugh
Pihana Na Mamo
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Erbe, Piilani
Social Studies
BA 2001, Brigham Young

Estromago, Pete
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Learning Technology
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Fujii, Nancy
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BA 1979, Hawai‘i

Gabrielli, Sandy
Learning Technology
BS 1990, Nevada, Reno

Gill, Kevin
Learning Technology
2000, California Regional Occupational Programming Information Technology Training Series

Gray, Mary E.
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BS 1986, Oregon; PD 1990, MEd 1991, Hawai‘i

Gusukuma, Chance
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Haberman, Martha
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BA 1979, Guam; MA 1985, San Jose

Hamilton, Marybeth
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Harpstrate, James J.
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BA 1963, Colorado; MA 1967, Hawai‘i; PhD 1971, Michigan State

Harstad, Cheryl A.
English
BA 1967, MA 1970, Hawai‘i

Harstad, James
English
BA 1963, Washington; MA 1974, Hawai‘i

Hartle, Alison
English
BA 1992, UC Berkeley; MA 1996, Hawai‘i

Hashimoto, Val
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BS 1993, HPU; MAEd 2003, U Phoenix

Higa, Terry Ann
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BEd 1977, MEd 1978, MEd 1994, PhD 2005, Hawai‘i

Hoof, Jennifer
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BS 2002, Washington; MS 2004, Hawai‘i

Inouye, Byron
Learning Technology
BFA 1993, Hawai‘i

Ishihara, Melanie
Mathematics
BEd 1990, Hawai‘i

Jeremiah, Albert (Keoni)
ELS Administration
BA 1993, Hawai‘i; MA 2002, San Francisco

Kaupp, Lauren
Science
BS 2003, Maryland-Baltimore County; MS 2005, Hawai‘i

Kelsey, Deborah Mary K.
Performing Arts
BEd 1983, Hawai‘i

Kido, Lillian
Pihana Na Mamo
BA 1971, Hawai‘i

King, Arthur
Administration
BA 1946, Washington; MA 1950, EdD 1955, Stanford

Kleinjans, David
Science
BA 1972, Hawai‘i

Kozuma, Wayne
Program Research and Evaluation
BEd 1971, PD 1995, Brigham Young
Sandra Shimabukuro began her career at CRDG as part of a collaboration with the College of Tropical Agriculture and Human Resources (CTAHR). In the mid-1970s, with a master's degree in public health nutrition, Sandy was working with Audrey Maretzki of the then Department of Food Science and Human Nutrition on a food education research and curriculum development project. CRDG and the Laboratory School became involved in pilot testing the activities in the curriculum, and Sandy eventually moved her home base from CTAHR to CRDG with the science and evaluation sections. She worked on nutrition education and evaluation projects through the 1970s and into the 1980s. That early work involved conducting needs assessments, developing a preschool to grade 12 food and nutrition education program, and providing professional development for teachers and food service managers. The nutrition needs assessment, which included a study of the eating habits of school children in Hawai‘i, turned into a long-term project with follow-up assessments every ten years. The latest results are described elsewhere in this issue.

The 1980s saw Sandy moving back and forth between CRDG and CTAHR, as well as taking time off for her family. In 1989 Sandy returned to CRDG to work with the Science Section on the Developmental Approaches in Science, Health and Technology (DASH) program. In her role as the field support person for Hawai‘i, she quickly became the face of DASH for Hawai‘i elementary teachers. Sandy coordinated and oversaw DASH teacher professional development institutes on all islands and provided follow-up support throughout the school year both in person and by distributed learning through the Hawai‘i Interactive Television System (HITS). And in her role as a member of the research team, she took hours of video of teachers using DASH in their classrooms and edited the footage for use on HITS and other professional development and evaluation activities.

Looking back over her years at CRDG, Sandy recognizes that changes have occurred in the education landscape, but appreciates CRDG’s commitment to provide quality programs and teacher support. She has seen the stress of more demands being made on teachers and admires those who have taken on the challenge by creatively integrating science with other instruction. She has been rewarded with the opportunity to be in classrooms of DASH teachers throughout the state witnessing first hand the student enjoyment and authentic learning that occurs.

For herself, Sandy is grateful to those she worked with at CRDG. They created a lifelong learning environment that nurtured and supported her as she grew professionally. The lessons learned will help her take on different challenges in her retirement.
<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Degrees and Institutions</th>
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<tr>
<td>Lee, Aaron</td>
<td>Marketing and Publication Services</td>
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<td>Lorenzana, Ricardo</td>
<td>Summer Programs</td>
<td>BA 2000, UC-Irvine; MBA 2004, Hawai‘i</td>
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<td>Lush, Noren</td>
<td>Social Studies</td>
<td>BEd 1974, Franklin College; MA 1988, Hawai‘i</td>
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<td>Mackay, Irene</td>
<td>Mathematics</td>
<td>BSc 1973, MSc 1988, Strathclyde (Glasgow, UK), PhD 2005, The Open University (UK)</td>
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<td>Maedo, Audrey</td>
<td>ELS Administration</td>
<td>AS 1970, KCC Hawai‘i</td>
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<td>Marquez, Nicole</td>
<td>School Success</td>
<td>BA 1978, PhD 1982, Hawai‘i</td>
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<td>Miller, Matthew</td>
<td>Art</td>
<td>BA 1984, Hawai‘i; MFA 1991, Oregon</td>
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<td>Murchison, Sally</td>
<td>Art</td>
<td>BFA 1955, UCLA; MFA 1966, Hawai‘i</td>
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<td>Narimasu, Bert</td>
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<td>BA 1976, MFA 1993, Hawai‘i</td>
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<td>Ng, Jeranna</td>
<td>Marketing and Publication Services</td>
<td>BBBA 1995, Royal Melbourne Institute of Technology; MBA 2000, Hawai‘i Pacific</td>
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<td>Nguyen, Thanh Truc T.</td>
<td>Learning Technology</td>
<td>BA 1996, MEd. 2000, Hawai‘i</td>
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<td>Nohara, Sheryl</td>
<td>Administration</td>
<td>BA 1977, MEd 1997, Hawai‘i</td>
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<td>Nunokawa, Shane</td>
<td>Athletics</td>
<td>BA 1995, Purdue; MPT 1997, Northwestern</td>
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<td>Oda, Yukari</td>
<td>Foreign Language</td>
<td>BA 1985, Junahin Women’s College; BA 1997, Bryn Mawr; BA 1998, HPU</td>
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<td>Okazaki, Claire</td>
<td>Mathematics</td>
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<td>Olafsson, Kevin</td>
<td>Performing Arts</td>
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<td>Mathematics</td>
<td>BS 1968, Valley City State; MST 1981, Wyoming; EdD 1985, Oklahoma State</td>
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<td>Mathematics</td>
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<tr>
<td>Pottenger, Francis M.</td>
<td>Science</td>
<td>BS 1951, Otterbein; MEd 1957, Xavier; MS 1964, New Mexico Highlands; PhD 1969, Claremont Graduate School</td>
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<td>Pottenger, Larma</td>
<td>Editorial</td>
<td>BA 1950, Otterbein</td>
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<td>Ramos, Rosemarie</td>
<td>Clerical</td>
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<td>Redmond, James</td>
<td>Science</td>
<td>BA 1968, SUNY; MEd 1979, Pepperdine</td>
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<td>Rivera, Grant</td>
<td>Cafeteria</td>
<td>AS 1976, St. Ferdinand</td>
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<td>Saka, Susan</td>
<td>Program Research and Evaluation</td>
<td>BS 1980, MEd 1994, Hawai‘i</td>
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<td>Sakihara, Jean</td>
<td>Foreign Language</td>
<td>BA 1958 Jissen Women’s University</td>
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<td>Sand, Noriko</td>
<td>Foreign Language</td>
<td>BA 1973, MA 1975, Tama University of Arts</td>
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<td>Scott, Neil</td>
<td>Learning Technologies</td>
<td>BE 1970, Canterbury University, New Zealand</td>
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<td>Shea, Carolyn</td>
<td>School Success</td>
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<td>Shimabukuro, Sandra</td>
<td>Science</td>
<td>BS 1970, Hawai‘i; MPH 1973, Michigan</td>
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<td>Shiroma, Michael</td>
<td>Technology</td>
<td>AS 2002, HCC Hawai‘i</td>
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<td>Shishido, Wayne</td>
<td>Marketing and Publication Services</td>
<td>BFA 1972, Hawai‘i</td>
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<td>Sjostrom, Mary Pat</td>
<td>Mathematics</td>
<td>BS 1972 Wright State; MA 1981, South Florida; PhD 2000, Georgia State</td>
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<td>So, Winnie</td>
<td>Marketing and Publication Services</td>
<td>BA, BMus 2000, Hawai‘i; MM 2004, Boston Conservatory</td>
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<td>Solomon, John</td>
<td>Athletics</td>
<td>BA 1998, Bluffton; MS 2004, Hawai‘i</td>
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<td>Southworth, John H.</td>
<td>Science</td>
<td>BA 1961, Pomona; MA 1971, Hawai‘i</td>
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<td>Speitel, Thomas W.</td>
<td>Learning Technology</td>
<td>BS 1967, Manhattan College; PhD 1975, Hawai‘i</td>
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<td>Starko, Terry</td>
<td>Elementary</td>
<td>BS 1972, Pacific</td>
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<td>Subedi, Lillette</td>
<td>Art</td>
<td>BA 1977, BFA 1977, MA 1989, Hawai‘i</td>
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<td>Tassill, Kekoa</td>
<td>Social Studies</td>
<td>BA 2002, Northern Colorado</td>
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<td>Tau, Leah</td>
<td>Social Studies</td>
<td>BA 2001, Hawai‘i</td>
</tr>
</tbody>
</table>
Personnel

Taum, Alice
Program Research and Evaluation
BA 1997, Chaminade

Teixeira, Tracy Lee
ELS Administration
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BED 1967, 5-Yr Diploma 1968, MEd 1968, Hawai‘i

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Collaborations

Universities
Carnegie Mellon University
Illinois State University
Miami University of Ohio
Ohio State University
Oregon State University
Purdue University
Shippensburg State University
Sonoma State University
Stanford University
Syracuse University
University of Arizona
University of California–Davis
University of Illinois
Western Illinois University

Schools
Connections Public Charter School
Hawai‘i Department of Education Schools
Kamehameha Schools

Educational Research/Service Agencies
ARTS First Partners
Center for Conservation Research and Training, University of Hawai‘i
College of Tropical Agriculture and Human Resources, University of Hawai‘i
Ecology, Evolution & Conservation Biology, University of Hawai‘i
Education Development Center
Eisenhower National Clearinghouse for Mathematics and Science
Hawaii Alliance for Arts Education
Institute for Native Pacific Education and Culture
Pacific Circle Consortium
Pacific Regional Mathematics and Science Consortium
Pacific Resources for Education and Learning
Research Corporation of the University of Hawai‘i
University of Hawai‘i Foundation
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International Partners

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Nishinippon High School
Sohseikan High and Middle School
University of Tokyo

Korea
Korea Educational Development Institute
Korea Institute of Curriculum of Education
Korea National University of Education

Pacific Islands Departments of Education
American Samoa
Federated States of Micronesia (Chuuk, Kosrae, Pohnpei, Yap)
Commonwealth of the Northern Mariana Islands
Guam
Republic of Palau
Republic of the Marshall Islands

Russia
Academy of Sciences, Scientific Council for Cybernetics
Russian Ministry of Education
Institute of Developmental Psychology and Pedagogy
Krasnoyarsk State University
Krasnoyarsk Department of Education

Singapore
Ngee Ann Polytechnic Institute

Slovakia
Comenius University, Bratislava