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A BILL FOR AN ACT

MAKING AN APPROPRIATION TO ESTABLISH CREATIVITY ACADEMIES.

**BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:**

1           SECTION 1. Hawaii's economic policies have been  
2 continuously focused on developing its human and economic  
3 resources by creating and developing its innovation capacity.  
4 Studies reveal that Hawaii students experience a sharp decline  
5 in math skills particularly after the sixth grade, signaling a  
6 need to find new ways to engage Hawaii's students in the core  
7 skills needed to succeed in the twenty-first century. A major  
8 challenge in Hawaii's education system is in providing an  
9 adequate number of high school graduates with the skills related  
10 to basic science, technology, engineering, and mathematics that  
11 are needed to allow them to be adequately prepared for  
12 engineering or science programs at either a community college or  
13 four-year college.

14           In fact, according to the National Center for Public Policy  
15 and Higher Education, only eighteen per cent of Hawaii's eighth  
16 graders test proficient in mathematics, compared with thirty-  
17 eight per cent among top states in the United States.

18           The Americans for the Arts, a national nonprofit

1 organization supporting arts education, reports that in order  
2 for the United States to maintain and expand its economy,  
3 America's schools must encourage more students to pursue careers  
4 in science, technology, engineering, and mathematics, and better  
5 prepare all students in the science, technology, engineering,  
6 and mathematics content areas. National studies are showing  
7 that adding a creative arts component to science, technology,  
8 engineering, and mathematics education significantly enhances  
9 the learning outcomes.

10 In a paper titled "How do you turn STEM into STEAM? Add  
11 the arts!" published in October 2007, Joan Platz, information  
12 coordinator for Ohio Alliance for Arts Education, states that  
13 "Ohio lawmakers are also concerned about STEM preparation and  
14 participation. Music and the arts are essential educational  
15 components for all students to learn, including students who are  
16 pursuing careers in the STEM areas. Educational opportunities  
17 in music and the arts first and foremost prepare students for  
18 competitive careers in the \$316,000,000,000 communication,  
19 entertainment, and technology industries as musicians, artists,  
20 dancers, actors, directors, choreographers, videographers,  
21 graphic designers, architects, photographers, designers, film  
22 makers, arts administrators, and other professions. The growth

1 of the visual technologies alone, from computer graphics to  
2 digital video, has had a tremendous impact on our nation's  
3 economy and the global economy."

4 According to "the creative industries report", published by  
5 Americans for the Arts, more than 548,000 businesses nationwide  
6 are related to the arts and employ 2,990,000 people. In 2005,  
7 the research, economic analysis division of the department of  
8 business, economic development, and tourism reported that 28,884  
9 people in Hawaii were employed in creative industries. Many of  
10 these arts-related jobs require employees to understand and  
11 apply higher order concepts in the science, technology,  
12 engineering, and mathematics content areas in addition to having  
13 a preparation in the arts. The knowledge, skills, attitudes,  
14 and behaviors students acquire from studying the arts have been  
15 identified by the "Partnership for 21st Century Skills," and  
16 other organizations, as the skills needed to be successful in  
17 the global economy. These skills include creativity and  
18 innovation, critical thinking and problem solving, communication  
19 and collaboration, flexibility and adaptability, and social and  
20 cross-cultural skills.

21 The introduction of a classroom-based innovative curriculum  
22 through creative exploration provides a way to capture the

1 interest of and help Hawaii's students develop new approaches to  
2 problem solving, while developing the skills necessary to  
3 compete in the twenty-first century global marketplace through  
4 the integration of new media arts and science, technology,  
5 engineering, and mathematics content and processes.

6 The creativity academies seek to integrate the teaching,  
7 learning and use of science, technology, engineering, and  
8 mathematics and new media arts-related skills throughout  
9 Hawaii's education system by:

- 10 (1) Locally developing a turnkey creativity academies  
11 curriculum that is responsive to the educational and  
12 workforce development needs of Hawaii;
- 13 (2) Pilot-testing this turnkey curriculum for the  
14 University of Hawaii, community colleges and state  
15 department of education systems at Kapiolani Community  
16 College and a neighbor island community college  
17 involving area high school students in the first year  
18 of the program;
- 19 (3) Developing and pilot-testing "teacher training program  
20 activities";

1           (4) Establishing an after-school program for middle school  
2           students in animation, game development, and creative  
3           publishing; and

4           (5) Establishing an after-school program for at-risk youth  
5           in animation, game development, and creative  
6           publishing.

7           The creativity academies will build on the best and  
8           promising practices of other similar innovative programs. For  
9           example, since 2002, California Institute of the Arts "ArtsCOOL"  
10          program, developed in partnership with Los Angeles unified  
11          school district arts education branch, has engaged students  
12          blending arts and sciences with great success. The program  
13          offers thirty weeks of courses in digital media, animation, and  
14          visual arts to twenty participating high schools in the  
15          Los Angeles unified school district. In addition, in Hawaii two  
16          pilot after-school programs in creativity, created by Ulua  
17          Media, LLC, were conducted at Iolani School and Niu Valley  
18          middle schools, and had high enrollment consistently. Finally,  
19          the academy concept utilized by Kapiolani Community College for  
20          the past two years in its summer science, technology,  
21          engineering, and mathematics program, bringing high school  
22          juniors and seniors to its campus, and involving them in

1 creative, contextual learning in science, technology,  
2 engineering, and mathematics and new media arts related  
3 projects, has been shown to be highly successful in recruiting  
4 students into science, technology, engineering, and mathematics  
5 related college majors.

6       The State's administration and lawmakers have recognized  
7 the need for the integration of creative cognitive, affective,  
8 and psychomotor processes in the classroom by supporting the  
9 establishment of programs such as project East, the  
10 establishment of science, technology, engineering and  
11 mathematics programs statewide and the academy model of Hawaii  
12 excellence through science and technology. These programs  
13 provide a framework to integrate new skill set development in  
14 the areas of creativity and innovation—both critical components  
15 to advanced problem solving, collaboration, and creative  
16 solutions to the challenges that face future generations.

17       In order to engage, ignite, and sustain the interest of  
18 students in the core skills needed to gain the basic knowledge  
19 and skills necessary for the twenty-first century workforce, the  
20 creativity academies will infuse science, technology,  
21 engineering, and mathematics course curriculum with animation,  
22 game development, digital media, and creative publishing

1 projects, blending art and science into a comprehensive lesson  
2 plan.

3 In line with the department of education's core curriculum  
4 standards, the creativity academies will offer middle and high  
5 school students statewide an opportunity to expand their  
6 science, technology, engineering, and mathematics education.

7 The creativity academies fill the gap in arts and sciences  
8 education, by introducing a program that meets the department of  
9 education's high school standards in an effort to move more  
10 students into and through the community college and four-year  
11 university system. As a logical progression to the effective  
12 "arts first" program in kindergarten through age six that  
13 provides an arts education tool kit for teachers, the creativity  
14 academies will introduce students ages seven through sixteen to  
15 the relationship between arts and the sciences through a  
16 contextual approach. Participating high schools, as well as  
17 students in after-school programs, including a component for at-  
18 risk youth, will receive hands-on training through project-based  
19 learning in the arts and sciences that will:

- 20 (1) Foster creativity, innovation, and entrepreneurship.
- 21 (2) Develop skill sets for creative problem solving at all  
22 stages of education.

- 1           (3) Support department of education framework to graduate  
2           students in the areas of math and science.
- 3           (4) Offer a contextual approach to science, technology,  
4           engineering, and mathematics learning through creative  
5           engagement.
- 6           (5) Provide an integrated program from kindergarten  
7           through age sixteen to job market.
- 8           (6) Provide articulated curriculum in creative media and  
9           arts within University of Hawaii community colleges  
10           and University of Hawaii system and with the  
11           department of education.
- 12           (7) Create science, technology, engineering, and  
13           mathematics and creativity programs for under-  
14           represented students.

15           The creativity academies will develop and implement the  
16           framework and course study for the system-wide program using in-  
17           class and web-based programs. As with the Hawaii excellence  
18           through science and technology academy, school participation is  
19           voluntary. The pilot program for high school students will be  
20           spearheaded by the University of Hawaii, Kapiolani Community  
21           College science, technology, engineering, and mathematics  
22           program and new media arts and the department of education, and



1 supported by local industry experts in education, new media,  
2 science, and engineering. The curriculum will expand on the  
3 existing Hawaii excellence through science and technology  
4 structure and include an integrated, project-based learning  
5 environment providing:

6 (1) Courses in animation, game development, creative  
7 publishing or science, technology, engineering, and  
8 mathematics disciplines for one hundred high school  
9 students per participating community college (juniors  
10 or seniors).

11 (2) A turnkey pilot digital animation media arts program  
12 developed in Hawaii, using courses such as the  
13 existing art 112, "introduction to digital art", and  
14 grounded in the standards based curriculum  
15 methodology.

16 (3) A "train-the-teachers" summer boot-camp program to  
17 educate high school teachers in digital media  
18 integration with science, technology, engineering, and  
19 mathematics curriculum.

20 (4) Courses in animation, game development, and creative  
21 publishing for three hundred middle school students in  
22 an after-school program.

1        Educational Components:

2        (1) High school juniors and seniors receive in-classroom  
3                training based on Hawaii excellence through science  
4                and technology guidelines, integrating the creative  
5                use of technology with the creative inquiry, problem  
6                solving, and critical thinking processes of the  
7                science, technology, engineering, and mathematics  
8                disciplines, and receive dual credit, i.e., high  
9                school plus college.

10        (2) A digital media production center incubator housed at  
11                Kapiolani Community College will afford college  
12                students the opportunity to develop skills for a new  
13                media arts career pathway or integrate new media arts  
14                knowledge, skills, and abilities into other science,  
15                technology, engineering, and mathematics areas and  
16                into other fields, such as hospitality and culinary  
17                arts, business, health sciences, and the liberal arts.  
18        The facility would be retrofitted into an existing  
19                building on campus.

20        (3) After-school middle school and elementary after-school  
21                enrichment programs for the department of education  
22                and rural, under-represented or at-risk youth in

1 animation, game development, and writing or  
2 publishing, and integration of science, technology,  
3 engineering, and mathematics disciplines.

4 Student Requirements:

5 (1) All high school students must maintain a "C+" grade in  
6 all classes with an overall 2.5 grade point average.

7 (2) All high school students must take at least one math  
8 class and one science class or digital arts class in  
9 their junior and senior year.

10 (3) All creativity academies students must participate in  
11 a science, technology, engineering, and mathematics or  
12 new media arts project competition.

13 (4) Middle and elementary after-school programs have no  
14 requirements.

15 Within the first year, the program will train high school  
16 and middle school teachers in the creative disciplines, provide  
17 in-classroom support via Kapiolani Community College's new media  
18 arts, and University of Hawaii's academy for creative media  
19 students interested in the creativity academies to team teach  
20 animation, game design, and digital media with industry  
21 professionals in feeder high schools and after-school middle  
22 school enrichment programs. This activity provides a workforce

1 development component for graduates and students in these  
2 programs. By 2009-2010, high school and college students in the  
3 program will have employment opportunities at the digital media  
4 production center incubator as well as mentorship opportunities  
5 with animation and game development companies as a result of the  
6 partnerships developed in the implementation of the overall  
7 creativity academies. The creativity academies were conceived  
8 to develop a new avenue to facilitate and increase the number of  
9 transfers into the University of Hawaii community colleges and  
10 the University of Hawaii systems, thereby meeting the department  
11 of education's goal of increasing the number of students  
12 graduating from high school and entering into university study  
13 in science, technology, engineering, and mathematics core  
14 disciplines; and to provide improved preparation for high school  
15 students so as to increase their success in college, in addition  
16 to spurring innovation-based economic diversification  
17 opportunities for the students and residents of the State of  
18 Hawaii.

19 SECTION 2. There is appropriated out of the general  
20 revenues of the State of Hawaii the sum of \$1,629,474, or so  
21 much thereof as may be necessary for fiscal year 2008-2009 to  
22 carry out the purposes of this Act, including equipping,

H.B. NO. 3066

1 training, hiring of instructors, and marketing for the creative  
2 or production center incubator and for the development of a  
3 turnkey digital media program that can be replicated for use in  
4 the University of Hawaii community colleges.

5 SECTION 3. The sum appropriated shall be expended by the  
6 department of business, economic development, and tourism for  
7 the purposes of this Act.

8 SECTION 4. This Act shall take effect on July 1, 2008.

9  
10 INTRODUCED BY:

Calvin H. Aoy  
BY REQUEST  
JAN 22 2008

HB 3066

**Report Title:**

Economic Development; Creativity Academies; Innovation

**Description:**

Makes an appropriation of \$1,629,474 to establish a digital media pilot program that builds upon the success of the science, technology, engineering, and mathematics/Hawaii excellence through science and technology academies.

JUSTIFICATION SHEET

DEPARTMENT: Business, Economic Development, and Tourism

TITLE: A BILL FOR AN ACT MAKING AN APPROPRIATION TO ESTABLISH CREATIVITY ACADEMIES.

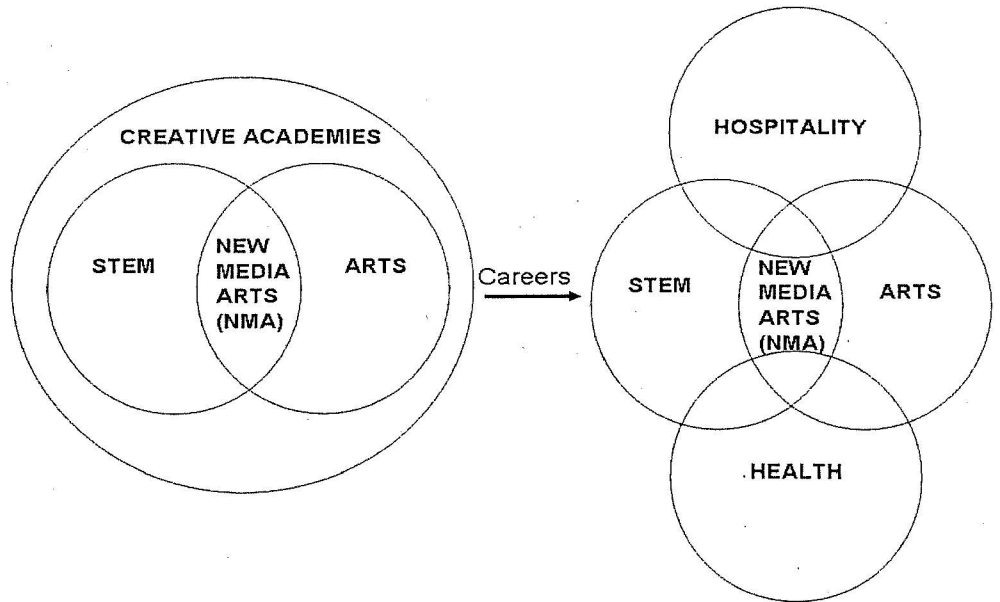
PURPOSE: Hawaii's economic policies are shifting toward developing its human resources through its innovation capacity. Studies reveal that Hawaii students experience a sharp decline and interest in math and science, particularly after sixth grade, signaling a need to find new ways to engage young minds in the core skills needed to develop innovative businesses or find high paying jobs in the twenty-first century.

With the integration of the science, technology, engineering, and mathematics (STEM) program in Hawaii participating schools, and the Hawaii excellence through science and technology programs, there is a solid foundation on which to introduce creative disciplines to students to support creative problem solving, innovative thinking, as well as postsecondary training and career options in science, technology, math, digital media, interface design, animation, and creative publishing. There is a need, however, to further improve our STEM infrastructure to ignite the interest of those students who may learn these core skills better through contextual learning.

Through development of a turnkey creativity academies program for integration and replication in appropriate Hawaii community colleges and high schools, the creativity academies program will blend creative exploration (STEM) and creative expression (art), focusing on the intersection of these creative disciplines (new media arts). The creativity academies program will fuse science, technology, engineering, and mathematics education with the arts in order

to: (a) broaden student learning opportunities; (b) better prepare high school students to attend college; and (c) offer students the opportunity to learn high technology skills needed to succeed in Hawaii's workforce (see Figure 1.)

Figure 1. Creativity academies program and careers



The development of the turnkey creativity academies program curricula will be based on existing courses in new media arts (NMA) and science, technology, engineering, and mathematics. For example, art 112 "Introduction to Digital Art" is an introduction to digital technology and its application in the production of visual art and computer-produced images. In 2005, art 112 was articulated on a University of Hawaii system-wide basis, resulting in course offerings and articulation through Hawaii, Honolulu, Kapiolani, Leeward and Maui community colleges.

Art 112 is the beginning course in new media arts/digital media programs at the above mentioned University of Hawaii community colleges. This University of Hawaii system



articulation agreement is now being expanded to potentially include the remaining community college campuses as well as the department of education high schools. These agreements will make possible dual credit opportunities for high school students, but moreover set up a foundation for developing and establishing creativity academies program across the University of Hawaii community colleges and in participating department of education high schools.

To build upon existing digital media programs at the University of Hawaii community colleges, the implementation plan for the creativity academies program will involve the following goals and activities:

- (1) To locally develop turnkey creativity academies program curricula that are responsive to the educational and workforce development needs of Hawaii;
- (2) To pilot test these turnkey curricula at Kapiolani Community College involving interested high school students;
- (3) To develop and pilot test the teacher training activities;
- (4) To develop and pilot test the creativity academies program courses for after school enrichment in middle schools and high schools;
- (5) To develop and pilot test the creativity academies program courses for at-risk middle and high schools; and
- (6) To implement the program in fiscal year 2008-2009 by accomplishing the following activities:
  - (A) Convene a team of University of Hawaii community colleges and department of education faculty and staff involved in the articulation of art 112 and the creation of a program of study with department of education;

- (B) Inventory best and promising practices in science, technology, engineering, and mathematics/digital media/creative media curricula;
- (C) Develop plans for renovation of Kopiko 202 at Kapiolani Community College to design and equip a creative production center/classroom for housing the piloted creativity academy program;
- (D) Identify possible partnerships and software programs to help develop and implement the curricula;
- (E) Develop the turnkey curricula during the period June-December 2008;
- (F) Implement and pilot test these turnkey curricula during January-May 2009;
- (G) Implement and pilot test the teacher training curricula at Kapiolani community college during summer 2009; and
- (H) Based on curricula development, number of University of Hawaii community colleges and department of education schools involved and preliminary pilot test results, work with the department of business, economic development, and tourism to develop 2009-2011 biennium budget for replication of creativity academies program and partnerships between University of Hawaii community colleges and department of education schools statewide.

The creativity academies program will use active learning pedagogies in science, technology, engineering, and mathematics and new media arts courses, high technology skills development, business and entrepreneurial elements to augment high school and middle school education. All students will use digital media to express

ideas and will work in teams to develop projects that introduce students to high technology STEM/NMA workforce skills and to develop entrepreneurial and innovative spirit.

No child left behind has nearly eradicated the arts from the classroom. The proposed creativity academies program expands the existing science, technology, engineering, and mathematics/new media arts programs by incorporating creative curricula in the arts, animation, game development, web design, digital media, and creative writing in a project-based, contextual learning program for middle school, high school, and community college students statewide. The program features dual credits for high school students, as well as an annual teacher training boot camp, using the University of Hawaii community college campuses as partners in the delivery of programs.

Furthermore, after school enrichment programs at the department of education middle schools will employ graduates from Kapiolani Community College NMA and University of Hawaii Academy for Creative Media programs and others to serve as peer mentors and help team teach the creativity academies program curricula in the middle school environment. An after school enrichment program for at-risk youth that emphasizes creative learning methods through new media arts is an integral part of the overall mission to increase Hawaii's potential for building careers for its youth in twenty-first century literacy.

MEANS: Appropriate from the general fund the sum of \$1,629,474.

JUSTIFICATION: The introduction of classroom-based innovative thinking through creative exploration provides a way to teach Hawaii's students a new approach to problem solving

and develops the skills necessary to compete in the fast-changing world marketplace. For example, the ArtsCOOL program, a partnership between California Institute of the Arts and the Los Angeles public school system, has found that creativity through technology training is increasing creative industries employment, as well as increasing enrollment in math, science, and the creative industries. In addition, teachers have upgraded their skills and developed a renewed sense of enthusiasm seeing their students embrace creativity across many disciplines.

Just as Walt Disney launched generations of "imagineers", the creativity academies program will build on the foundation of science, technology, engineering, and mathematics/new media arts learning and infuse it with other creative disciplines to develop generations of innovators in Hawaii by:

- (1) Fostering creativity, innovation, and entrepreneurship;
- (2) Developing skill sets for creative problem solving at all stages of education;
- (3) Supporting department of education framework to graduate students in the areas of math and science;
- (4) Offering a contextual approach to STEM/MNA learning through a variety of creative engagement opportunities;
- (5) Providing integrated programs from kindergarten through age sixteen to job market;
- (6) Infusing science, technology, engineering, and mathematics/new media arts programs with digital media creative components to enhance the contextual learning experience; and
- (7) Infusing existing programs in business, culinary arts and hospitality, health sciences, teacher education, as well as all science and math with digital media applications and expression.

Impact on the public: Creativity academies program expands on the existing Hawaii excellence through science and technology structure by weaving integrated creative digital media curricula into science, technology, engineering, and mathematics in an experiential, contextual learning environment.

Impact on the department and other agencies:  
None.

GENERAL FUND: \$1,629,474.

OTHER FUNDS: None.

PPBS PROGRAM DESIGNATION: BED 105.

OTHER AFFECTED AGENCIES: University of Hawaii, Kapiolani Community College/NMA, STEM programs; University of Hawaii at Manoa/Academy of Creative Media program; Leeward Community College; Maui Community College; Hawaii Community College; Honolulu Community College; Windward Community College; Kauai Community College; and the State of Hawaii department of education.

EFFECTIVE DATE: July 1, 2008.