Broadening Horizons: Pre-College Outreach through the Digital Arts

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**ABSTRACT**

This paper discusses the evolution of an educational outreach program designed to engage at-risk high school students in the digital arts as a means of broadening participation in computing disciplines. The Digital Arts Workshop (DAW) is a cooperative partnership between the Mentoring for Connections to Computing (MC²) program at the University of Cincinnati and the Cincinnati Arts and Technology Center (CATC). CATC is a non-profit organization serving fourteen of the most socio-economically challenged Cincinnati Public Schools. The goal is to create a positive, professional experience relating computing with digital arts education while integrating exposure to higher education resources and lifelong learning skills. We look at the impact of scaling up the program from a one-week stand-alone workshop to a semester-long digital multi-media studio program aligned with the academic school year.

**Keywords:** computing outreach, digital arts, broadening participation, at-risk youth, scaling up

1. **INTRODUCTION**

The Digital Arts Workshop is a community-based digital arts education collaboration with the goal of creating positive experiences relating computing concepts, the arts, and higher education. Currently in its third year, the Digital Arts Workshop (DAW) is one component of Mentoring for Connections to Computing (MC²), a National Science Foundation Broadening Participation in Computing program originating from the College of Engineering at the University of Cincinnati. MC² consists of three components: 1) a mentoring/teaching educational program that connects undergraduate engineering students from UC with students from one of Cincinnati’s most socio-economically challenged public high schools, 2) an on-line digital repository for capturing and sharing mentors’ lesson plans, and 3) the Digital Arts Workshop [1] where at-risk high school students engage in professional-style technical and aesthetic training to create and exhibit original art. In addition to administering the MC² grant, the University of Cincinnati hosts the students for a college tour and an on-campus art exhibition. Students are introduced to the UC at-risk and outreach services. UC has two non-profit organizations as partners in this effort: the Cincinnati Arts and Technology Center (CATC) and the Cincinnati Youth Collaborative (CYC). CATC provides the teachers, staff, and facility for the workshop, as well as serving as an alternative learning location for the Cincinnati Public Schools. CYC provides higher educational access support.

In February of 2009, at the National Science Foundation Broadening Participation in Computing annual meeting [2], an initiative was introduced for increasing program outreach by scaling up in the number of participants as well as the degree of impact. In response to that initiative and with the intention of strengthening long-term sustainability, the 2009 DAW was modified to increase the number of participants served and to provide more in-depth higher educational resources. Key structural elements of the program were modified while keeping the original goals and objectives intact.

One fundamental program shift created several potential opportunities for broadening participation. In this paper, the main program characteristics are defined to identify the criteria for design decisions. We discuss the changes to the existing design, alignment of various activities to achieve the original workshop objectives, and the revised methods to measure achievement of participation goals. We then look at implementation of the revised design and discuss the broader participation achieved based on the program modifications. Challenges and opportunities to investigate additional modifications emerged for enhancement of long-term sustainability.

2. **PROGRAM CHARACTERISTICS**

The goals of the DAW are to introduce at-risk youth to computing disciplines and professions by creating positive computing experiences, and by facilitating exposure to higher education resources.

The first DAW took place for one week in June 2007; nineteen students enrolled in an intensive training program with two days of studio work and a one-day public art exhibition. The instructors introduced the artistic styles of the Harlem Renaissance, focusing on the creation of collages that reflected everyday urban life. Students toured the architecturally significant UC campus taking digital photos that they could use in their own collages. In the studio, students trained on Adobe Photoshop software to create digital collages for display on the UC campus. The students and their families attended an exhibition and mingled with arts instructors, engineering faculty, and university staff. This was an event where students from some of the Cincinnati most challenged public school were celebrated as members of the university’s creative and computing communities, as well as contributors to the cultural enrichment of the UC student union. In June 2008, the program was basically replicated with minor alterations in the evaluation plan [3]. Both years were deemed successful from a programmatic standpoint with students learning professional
software skills while experiencing a positive higher educational environment.

The Cincinnati Arts and Technology Center staff provide the digital arts training for the workshop. As their main mission, CATC provides fine arts and elective credit classes to students from 14 socio-economically challenged Cincinnati Public High Schools during the school year in an alternative learning environment. CATC teaches studio courses in digital multimedia, two- and three-dimensional arts, ceramics, and jewelry making. The not-for-profit organization was established out of a city-wide social justice initiative following riots in 2004; its mission is to enhance learning opportunities for all ages, including high school completion, vocational technology training, and work force preparedness. This alternative environment, in a trendy downtown loft space, is geared toward providing a professional atmosphere. In addition there are established connections to social services, job fairs, and higher educational access as well as opportunities to work with professional artists. The CATC engages in several community outreach projects throughout the year with organizations that commission artwork for fundraising and public art projects.

The students of the CATC are considered to be at-risk of non-completion of a high school diploma due to the socio-economic factors in their communities or due to the individual student’s circumstances. Students may have academic challenges, although there is a wide range of achievement levels with some students being very accomplished and some at great risk of non-completion. Most students are eligible for free or reduced lunch and while many are not academically challenged they live in communities with high risk factors for poverty. The ethnic diversity of the students served by CATC consist of mainly African American (80%), Latino (2%), Asian (.8%), Caucasian (13%), many of Appalachian descent, Pacific Islander (.4%), and those self-selected as other (3%).

Recruited to participate during the school year by the CATC staff, students opt to attend for several reasons. They are able to earn Fine Arts credits as well as elective credits toward their high school diploma requirements. Due to the design of this unique learning environment they may attend the CATC as several times during the week to accumulate the necessary hours toward their required contact time. As such student attendance varies throughout the year with the student body expanding and contracting as some complete their hours and others add to the program when they realize they need additional credits to graduate. The majority of the students are juniors and seniors with some sophomores attending. Some attend to take advantage of the uniquely strong studio resources. Others attend to achieve credits quickly. Some students return year after year, engaging in internships and as summer workers on public art projects.

Cincinnati Public Schools, in partnership with the CATC, has a very active role in the operation, by providing two full-time teachers as well as administrative leadership and support personnel to meet the state requirements for a credit granting educational location. The CATC operates in sync with CPS academic calendar and has curriculum aligned with the State of Ohio arts and technology academic standards.

Each of the high schools where the students attend has its own idiosyncrasies ranging from charming Works Project Administration era murals and Rookwood Pottery fountains, to locked libraries where books are not allowed to be checked out.

There is a great disparity among the academic environments at the various high schools with one particular school having a very rigorous admissions exam and other schools experiencing institutional barriers such as no advanced math or Advanced Placement courses, few or no guidance counselors, and other unfortunate results of the scarce resources in urban education. Alternative educational options such as the CATC have emerged in the last decade to increase the successful graduation rates in Cincinnati Public Schools. Another successful alternative is The Virtual High School where students attend a hybrid of distance and classroom courses connected to their home high schools. Students from The Virtual High School locations across the city combine to come to the CATC program one day a week to meet in a professional learning environment and interact with their peers on creative projects.

Teaching at the CATC are two full-time, certified art teachers and eight teaching artists working with the students in various studios. The teaching artists provide direct instruction and individualized guidance, working in concert with the lead full-time art teacher in two- and three-dimensional art, jewelry making and digital multi-media studios. Instruction by teaching artists brings professional workforce experiences as well as access to contemporary practices in the various disciplines. Teaching artists are sometimes engaged to manage production of community outreach projects. The sessions are held two times a day from Monday-Thursday with an open studio time period late Thursday afternoon.

In 2007 and 2008, the Digital Arts Workshop was held at the CATC for one week during June with nineteen and fourteen students participating, respectively. They attended UC for a half-day lesson learning about the Harlem Renaissance, toured the campus to take photos, worked in the studio for one day and participated in an art exhibit on the campus [1, 2]. The key elements that changed for the 2009 workshop were the time period, transportation, recruitment, curriculum and instruction, studio time, the college tour and the exhibition format.

3. PROGRAM CHANGES

The most significant program change was the shifting and extending of the timeline from a two full-day workshop to a semester-long two hour a week studio workshop meeting with six different groups a week. Several new program aspects emerged based on this one change (Table 1). The delivery of the curriculum of the 2007 and 2008 workshops was intensely focused in two days with students solely engaged in the DAW. In the once a week format in 2009, students had additional priorities to complete projects for other community outreach commitments that divided their time and attention.

The program was lengthened and aligned to correspond with the school academic calendar rather than offered in a stand-alone summer camp. The DAW was offered as a two-hour session bringing approximately 60 digital multi-media students from 14 schools. The students attend once a week for two hours in small groups in six different time slots during the week. By aligning with the school year, we were able to capture the students who would disperse during the summer months and increased our students served. All of the CATC students from every art studio attended the University of Cincinnati college tour to acquaint them with the campus and to educate them on ways to access higher education at a point in the year when the seniors could still take advantage of the opportunity. The students prepared work for their own public
In 2007 and 2008, the full-time lead art teacher recruited students for the DAW on an individualized basis from the existing CATC student population. In 2009, the students came to the CATC to achieve their fine arts and elective credits. All the digital multi-media students became enrolled in the DAW. Transportation to academic enrichment programs is a major factor in achieving desired participation rates. In 2007 and 2008, the challenge of gathering a few students from disparate locations was expensive and inefficient. In 2009, students taking the chartered school buses from six of the participating high schools could access the program on a consistent basis.

### Table 1. Program Changes

<table>
<thead>
<tr>
<th>Program Elements</th>
<th>Summer 2007 and 2008</th>
<th>Spring 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time period</td>
<td>Two and ½ days, 2 sessions one week in June</td>
<td>14 weeks of two-hour sessions, six times a week.</td>
</tr>
<tr>
<td>Participants</td>
<td>19 students in 2007; 14 students in 2008</td>
<td>55 digital arts students participated in the workshop at various levels; 162 CATC students went on UC tours</td>
</tr>
<tr>
<td>Transportation</td>
<td>Expenses for bus rental for four days</td>
<td>Use existing CATC bus services</td>
</tr>
<tr>
<td>Curriculum and Instruction</td>
<td>Harlem Renaissance lesson; in-depth digital photography; direct instruction on software and aesthetics; two instructors</td>
<td>Harlem Renaissance lesson; little direct instruction in software skills; no digital photography instruction; five rotating instructors</td>
</tr>
<tr>
<td>Studio time</td>
<td>4 hours average</td>
<td>Mainly studio time with individualized coaching by teaching artists</td>
</tr>
<tr>
<td>UC campus tour</td>
<td>Small group seeking architectural photos</td>
<td>Customized UC college tour featuring admissions information; information on access for underprepared students; hosted by African American Cultural Research Center; 162 CATC art students attended</td>
</tr>
<tr>
<td>Art Exhibition</td>
<td>Two hour-long exhibition during the summer</td>
<td>Day-long exhibition held during the academic year with an students having an additional college tour</td>
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The UC college tour was another program component that was significantly changed. In 2007 and 2008 the UC tour was focused on learning digital photography techniques and securing visual imagery of architectural elements to use in Photoshop collages. In 2009, the college tour was designed as a two-hour trip conducted six times in one week, with students experiencing the UC Admissions presentation and learning about ways to access the university. They had a brief tour of some facilities before heading to the African American Cultural Center for pizza and presentations on services designed to retain students of color and support those who are admitted the university underprepared. One speaker was a young man who provided an authentic voice speaking about the challenges and opportunities they could expect when entering higher education. He had attended the Cincinnati Art and Technology Center and had made the transition into UC utilizing a variety of programs to support his success.

In 2007 and 2008, the art exhibition was held for two hours on a Friday during the UC summer session. In Spring 2009, the exhibition was held on Thursday, May 14 from 10:30 am to 5:30 pm during the spring quarter. The regular CATC class sessions arrived at the UC campus to attend the exhibition with some students arriving on their own via the public transportation system. The students toured the Design, Art, Architecture, and Planning building and met with their teaching artists on campus. Their artwork was exhibited in the UC student union, with a panel of judges awarding prizes.

One primary program shift created many new facets to the Digital Arts Workshop. Changing the timeline and aligning with the Cincinnati Public School year was the primary program alteration with extended contact time, existing transportation and student exposure to specific higher educational resources.

### 5. DISCUSSION

Overall, the program changes achieved the objective of broadening participation and increasing sustainability. Although we did use existing resources to achieve greater participation, we encountered unforeseen challenges to meeting the learning
Aligning the DAW with the academic calendar increased the program impact by (1) extending the length of time that students could participate, and (2) increasing the use of existing resources. The opportunity allowed us to engage students over several weeks, as well as to spend more time interacting in the studio, on the UC campus for the college tour, and at the art exhibition. By scheduling in alignment with the CATC bus service that was already commissioned, the number of participants improved immensely. Students earned credits so they could be counted on to attend the field trips, college tour and art exhibition. The difficulty with participant recruitment and retention was alleviated; although the number of participants attending from week to week was still difficult to accurately predict because of students entering and exiting the program each week throughout the semester. In 2009, we served 55 digital arts students over 12 weeks as compared to serving 19 students in for one week in 2007 and 14 students for one week in 2008.

The curriculum and instruction design was vastly different in 2009 as compared to the first two years of the workshop. The semester-long session was taught by several different teaching artists during each week, which lead to disjointed experiences and miscommunication. In 2009, the students received a single, direct Adobe Photoshop software instruction during the fall semester prior to the DAW; as a result those who entered in the second semester did not have direct instruction in the software, only limited individualized studio time with the teaching artist.

Multiple other community projects were underway during the workshop with public art and commissioned auction pieces competing for the students’ limited contact time and attention. As a result the instruction on the assignment was uneven and the time on task was not adequate to facilitate all the students becoming deeply engaged in the learning. The artwork was hasty made with little studio time devoted to the Digital Arts Workshop final project.

The alteration of the format for the UC college tour had a great deal of impact on the degree of participation, the exposure to higher educational access resources, and the ability of the students to complete the assignment successfully. All of the students attending CATC came on the tour including those registered in the other studios. Students saw firsthand the location of the Admissions office; they met the staff of the African American Cultural Center and learned about programs to support retention of underrepresented students. They were introduced to the University of Cincinnati Center for Access and Transition staff who provide services designed for students not yet qualified for admission to their program of choice, but who potentially could if they utilized and maximized provided support.

There are several recommendations for the next iteration of the Digital Arts Workshop to not only broaden participation, but also to increase student learning in specific computing concepts, and to provide students with exposure to more higher education directly related to accessing technology-related higher education disciplines. The first is to re-examine the timeline of the workshop with the possibility of moving it to the fall semester instead of the spring to alleviate competition for students’ time. Additional emphasis can be placed on achieving more of the arts and technology State of Ohio academic standards by creating a more structured curriculum. One possibility is to use an electronic portfolio and by balancing supported studio time with direct instruction by teaching artists. Additional emphasis could be placed on developing the existing artistic statement and project planning assignments to increase concrete skill building for participation in the digital media workforce. Individualized on-line tutorials aligned with the classroom instruction could be developed so students entering after the beginning of the semester could access the lessons that took place prior to their arrival. The tutorials could serve as refresher for all students and would serve to support the mission of long-term sustainability.

Scaling up the Digital Arts Workshop has offered opportunities to more students to connect with higher educational resources and to have positive experiences as they engage in digital arts education. The program is moving toward long-term sustainability by utilizing existing resources and connecting students to existing programs at the university level. In addition to improving support for entering higher education, the potential exists to increase the depth of instruction in computing concepts as well as expanding the breadth of participation.

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REFERENCES


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Visioning Your Opportunities
MC² Digital Arts Workshop Exhibition

Thursday, May 14, 2009
10:30 am – 5:30 pm

University of Cincinnati
Tangeman University Center
Clifton Campus

The Digital Arts Workshop is a partnership between the Cincinnati Arts and Technology Center and Mentoring for Connections to Computing (MC²), a National Science Foundation Broadening Participation in Computing initiative. Support provided by NSF grant #0634473

Clock Tower
Paul Thomas, Dater High School, 2009