

he KCK Urban Academy: Creating Community Partnerships with Youth to Achieve Academic Excellence

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Abstract

Recruiting students into the science discipline proves to be a challenge, especially the recruiting of disadvantaged students. The KCK Urban Academy has a ten year record of bringing just such students to college. The academy has several programs including a math and science Saturday Academy and a Summer Residential Academy. Over 143 students have graduated from these programs and gone on to college since 2003-2009. Eighty-six of these students have chosen a STEM related field for their major, and thirty eight have attended KCKCC. This paper discusses this program, its mechanisms for funding, and plans for programming to retain the students once they are in college.

Introduction:

In 1999 Dr. David Klein met with Marcia Pomeroy to begin the involvement of KCKCC in the formation of a program called the Saturday Academy (SA). The SA was designed to take 30 students from the KCK School district (USD 500), and give them an enrichment program in math and science. Students would be transported from their schools on Saturday mornings to KCKCC, where they would spend 6 hours on the math and science curriculum developed. The goal as shown in [figure 1](#) was to develop a pipeline whereby students would complete the academy programming, attend undergraduate work, and move on to professional studies predominantly in the medical areas.

This program has now grown to be a middle and high school SA with 60 students selected from (7th and 8th grade) and 60 students selected from (9th-10th grade). The program serves mainly students from underserved populations for math and science and is comprised of 41 % African American, 37 % Latino, 19% Asian/Pacific Islander, and 3% Euro Americans. For a complete demographic breakdown see Appendix A.

The original SA has grown and become a part of a bigger program called KCK Urban Academy (KCKUA). The KCKUA includes the (SA), a Youth Leadership and Development Corps (YLDC), a Summer Science Residential Academy at KU Lawrence (SSA), and as of 2009 a Summer Camp Pathological program at the KUMC. These programs provide multiple opportunities for students to be involved in the Academy at different levels.

Each level of the academy program is designed to provide maximum interaction between students and support personnel. In addition, the support personnel are staggered so that there are multiple layers of individuals interacting within groups. The support personnel for the academy include student mentors who have attended the academy in the past, undergraduate and graduate students mentors, a community science professional, and faculty from USD 500 and KCKCC.

Figure 1. The goal of the KCKUA is to develop a pipeline whereby underserved populations of students select college and ultimately professional studies or work (e.g., students selecting to go to medical school). A key feature of the program is the feedback arrows whereby students in their undergraduate or professional studies return to the program in mentoring roles for the students.

The SA is a multi-level learning program. Students gain insight from their peer mentors who attended the academy in the past and from the undergraduate student mentors, who illustrate the success of having graduated and are now attending college. The peer mentors work in the small group activities right alongside the academy students. They share past insight and work to explain the curriculum activities to the academy students. They also work to aid in the operation of the academy by serving lunch, handing out

supplies, and designing the icebreaker activities. These mentor students are typically part of the YLDC after school program described below.

The undergraduate and graduate student mentors are given the responsibility to lead section components and help design curricular materials where they feel comfortable. This helps them to reinforce skill sets they are learning in college and apply their knowledge by teaching. They are available for high school and middle school students to discuss college preparation and how to succeed. These mentors are paid at a higher rate to help them with their college expenses and to allow them to keep involved in the project. Many of these mentors are past academy participants.

The community scientist and academy faculty design and lead the curriculum each year. The faculty are chosen mainly from USD 500 and KCKCC. Past community scientists have included two pharmaceutical scientists, an architectural engineer, a dentist (past KCKCC student), and a biologist. These individuals are chosen for their ability to teach, and to ensure that a diverse faculty body is maintained. Many of the faculty and all but two of the community scientists are minorities. This helps to show the students that their educational and professional dreams are achievable.

The faculty members who serve within the academy are helped by their work in the academy as well. The faculty are able to share teaching resources with each other and able to take curriculum pieces from the academy back to their classrooms. Several faculty members have utilized their work with the academy to help them in advancing their teaching careers. They have showcased their work in the academy in their educational coursework, and in their portfolios. In addition, KCKCC has been able to recruit several adjuncts to participate in the academy program. (See Appendix B for a list of current and past faculty of the academy.)

KCK Urban Academy Program Areas:

Saturday Academy-SA

The SA is an integrated math and science project based program that meets 12-16 times each year for 6-hours each time. The typical schedule ([see Table 1](#)) includes a continental breakfast, morning science/math activities, lunch, and afternoon science/math activities. Past academies included a multicultural piece such as poetry or art. However, funding constraints have limited the multicultural components to the ice breaker activities and monthly birthday celebration. Faculty meets at least 6 times prior to academy to develop curriculum. For past curriculum [see Table 2](#).

Table 1: A Typical Academy Schedule

8:30-9:00 am	Faculty Planning Session
9:00-9:45 am	Breakfast/Check In
9:45-10:30 am	Greetings/Icebreaker/Outline of Day
10:30-12:00 am	Science/Math Programming With Middle School or High School Group
12:00-12:30 pm	Lunch
12:45-2:30 pm	Science/Math Programming With Middle School or High School Group/Reflections
2:30	pm Dismissal

Table 2: Saturday Academy Themes

1999-2000	Inquiry Labs and Science Olympiad Projects
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2000-2001	Inquiry Labs and Science Olympiad Projects
2001-2002	General Science and Math Topics/Inquiry Based Labs
2003-2004	General Science and Math Topics/Inquiry Based Labs—KCKCC Science Fair
2004-2005	Science Fair project development for greater KC Science fair
2005-2006	Science Fair project development for greater KC Science fair
2006-2007	Science Fair project development for greater KC Science fair
2007-2008	Science Fair project development for greater KC Science fair
2008-2009	Genetics of zebra fish and plants
2009-2010	Green Buildings and Sustainability

Youth Leadership Development Corps--YLDC

The YLDC program is a multifaceted after school program that involves a Monday media project, after school tutoring, internships, and community gardens. These programs operate each afternoon Monday-Thursday. YLDC students receive after school tutoring in math and science one night each week. The students spend a day working either on internships or in the community gardens program. And, one night a week YLDC students serve as after school tutors/mentors.

The Monday media program involves HS students developing cable shows around HS student issues. The students come to KCKCC on Wednesdays, which are an early release day in the KCKPS. At the college they work with the Media Services department to develop their cable show programming. The students develop each segment, shoot the footage, and then work with Media Services to edit the segments for air on the college cable channel.

The community gardens are housed at 7 area schools in the KCKPS. The schools include: Argentine Middle, Northwest Middle, Rosedale Middle, Caruthers Elementary, ME Pearson Elementary, Quindaro Elementary, and Banneker Elementary. YLDC students helped to build the gardens, and work with Mark Manning throughout the school year to prepare for over 300 garden workshops (Appendix E for a recent flyer on the garden program).

The internship component occurs in conjunction with area medical facilities including the JayDoc Free Clinics, the Neis Clinical Laboratory, and Dykes Medical Library. YLDC students perform internship work at these facilities by serving as interpreters, learning to do clinical laboratory work, and performing library research work for Dykes Library. During the last two years this component of the grant has been minimized due to funding cuts. However, partners remain committed to working with the YLDC students as much as possible in the internship program.

Like the internships, the poetry portion of the YLDC program has been cut at this time. Called the Urban Transcendence Workshop this poetry segment has been a key component of the YLDC in the past. UT students performed at the Governor's Award for the Arts, the Declaration of Independence opening at Science City, the Gem Theatre, Just Off Broadway Theatre, "Culture Under Fire," the Starlight Theatre and more. At its height the UT project reached over 500 students each school year. J.C. Harmon and Wyandotte High School utilized the UT project in their language arts classes. A performance workshop for all UT students took place after school each Thursday at Sumner Academy.

The YLDC program is designed to develop the participating students into leaders. Students from within this group are peer mentors for Academy. They work hard to develop their skills as a worker and leader. In

keeping with this they are given the tools to develop themselves in the form of tutoring. They are also given a forum to express their views on a variety of subjects. They work carefully to develop their views and in doing so, they have a chance to have their voice heard.

Summer Science Academy--SSA

The summer academy is a residential stay at KU Lawrence. Approximately 36 students are accepted to the program each summer. Ten to twelve students from each upcoming grades 10th, 11th, and 12th are chosen for the program. The students selected will spend six weeks in the dormitory at KU and after returning to the metro complete 20 clock hours of internship in a medical professional's office setting.

The curriculum of the program is multifaceted and consists of math/science instruction, multicultural instruction, language arts, computer instruction, field trips, and Kaplan college test preparation. Students are kept in their grade level groups for the math/science instruction each day. A typical day is broken into three hours of morning math/science instruction, followed by lunch and afternoon Kaplan programming. Afternoons and evenings are also spent in developing the multicultural and poetry pieces of the curriculum. The photo montage present in the math science watering hole was the multicultural component for the 2007-2008 SSA (see Appendix F.). Computer instruction is tied into all levels of instruction, so that students make use of technology throughout the summer program. Additionally, students spend time shadowing undergraduate students taking coursework at KU. In addition to the residential experience of the SSA, students receive a \$750.00 stipend and for the first 8 years they received a refurbished computer. The computer came with internet connection via phone and technical support for a year. The computer portion of the summer academy has been removed since high school students are given an Apple laptop each for use in their High School.

Science and math faculty from the Saturday Academy are selected each year for the summer program. The selected faculty are divided into teams of two, to prepare a section of the curriculum for presentation. They develop their instruction into a two week block that will then be taught to each grouping of students in the morning instruction. They meet with a KCKCC science faculty member to discuss their curriculum design and to develop ideas for hands on activities. Most years the program is aligned to NIH curriculum materials. There are typically six curriculum development meetings of all participating faculty so that they can share what they have developed, with the other teams. The final development session is to perform all laboratory activities that will be carried out in the summer program.

Thus, they experience firsthand the college environment. The success of this program can be gauged by looking at the graph in [figure 2](#), and the impact statements as shown in appendix C and D. As the graph indicates almost 100 % of the high school graduates who participated in the SSA component of the KCKUA since 2003 are attending college. This group is the main group within the KCKUA that is tracked for college attendance. Sixty percent of these students are pursuing degrees in STEM fields.

Figure 2. Summer Science Residential Academy Impact 2003-2009. A graph of total high school graduates from the SSA since 2003.

Personnel

Figure 3. All Academy personnel are working around the theme of scientific teaching partnerships. The partnerships tie the personnel to each other, and place them all on the same level. Each participant is expected to work to make the programming a success. Each person has a specific role and without them the Academy suffers.

The key philosophy to the academy is that we treat each other with respect and try to learn from each other. All individuals involved in the academy are to be fully immersed in the program so that they benefit from all aspects available. Thus, all members are expected to participate in the academy activities, share their insights, and reflect on the project components being completed. As the individuals come together in this microcosm each comes with a specific role, but all come with the same purpose. The purpose is to build the academy experience into a scientific partnership where all players contribute and learn ([see figure 2](#)).

Academy Students

The students are the key personnel for the academy microcosm. Their role is to develop a deeper appreciation for science and math as they complete academy components. Additionally, they work to develop partnerships with their peers, the mentors, and the faculty so that they can succeed in their educational goals. When academy programming is occurring students know they have to be engaged and taking advantage of the opportunities they are being given.

The students see the academy as a means for their success. They try extremely hard to attend each Saturday and put forth effort into learning about the science or math curriculum being taught. By working as teams on the curriculum projects they are able to foster relationships where they can share their insights with their peers and their faculty leaders. Since all students are working toward this there is much less posturing about trying to be cool and avoid learning. All of the students were selected for the academy. They are aware that there are other students who were interested and didn't get accepted to the program.

Selection into the program requires that students have at least a 2.75 GPA. The student applications are sent in by counselors, district teachers, parents of past graduates, and by other students. Preference is given to siblings and relatives of past academy students. All students must make a commitment to be a part of the academy program. They are allowed two absences for the SA and are required to be present for the entire SSA.

HS Student Mentors

There are between 6-8 high school mentors who serve as peer tutors within the Academy. Students selected for these positions have completed the Saturday Academy, and most likely one of the other program activities. These mentors will be paid for their working in the Academy. This pay will be at a significantly higher rate than the student stipends of the Academy. The pay serves to help the mentor students with their financial obligations, and introduce them to the responsibilities of a job. During instruction these peers work side by side with academy students on the curriculum. HS Mentors are given specific tasks including: set up, serving lunch, taking attendance, and assisting academy faculty. Student mentors feel a sense of accomplishment and pride as they work to help their peers in the academy to succeed.

KCKCC/Undergraduate Student Mentors

There are 3-4 undergraduate student mentors for the program. These students have graduated from high school and are now completing undergraduate degrees in the metropolitan area. The undergraduate mentor provides a successful role model to the HS/MS students and can discuss the college experience with the academy students. These mentors have the task of assisting academy faculty in their completion of the curriculum pieces of the program. They are directly involved in instruction of academy students and may lead a program piece on occasion. They are responsible for knowing the curriculum materials and being able to present the material to academy participants. Their assigned duties will include: faculty support, leading academy students when faculty are called away to other program needs, maintaining the Academy code, and answering academy student questions about their college experience. Most of the undergraduate mentors have completed an academy experience and desire to give back to the community through the program.

Medical/Graduate Student Interns

Medical students have been used most years of the Academy. These mentors are chosen from first or second year students at KUMC. Their role is to serve as faculty for the academy. These interns work with the faculty and director of the program to develop curriculum materials, serve as 'faculty assistants' in the program, and aid in making the medical connections to the curriculum. Due to their academic work loads they are under, the interns are not expected to take on a full faculty role. They will have a group of students assigned to them for the Academy. They will lead this group with little oversight from the academy faculty. Again these students will share their educational goals, plans, and achievements with other academy participants.

Academy Faculty

The academy faculty is mainly comprised of district 500 teachers and some faculty from KCKCC. Additionally, a professional scientist from the community is sought to help in providing a real world perspective to the academy program. Most of the faculty has been with the program for over 4 years. Several have participated since the inception of the academy program. The faculty see themselves as role models to the students and as a community of integrated teachers. Past teachers have gone on to serve as district principals, district fellows, counselors, and exemplary classroom teachers. The academy not only helps them to develop the students, but it helps them to develop themselves professionally. The faculty is stretched by the ever changing curriculum of the academy programs. Each year a new SSA and a new SA curriculum are developed and different faculty take leadership roles in developing the hands on curriculum to work the students. This collaborative approach has truly developed the faculty into friends who can rely on each other for help, despite their being at a variety of schools in the district.

Academy Director and Associated Staff

The director position is key to the success of the Academy. A director is needed to coordinate all aspects of the KCKUA and each programming piece the Academy. The director serves as the main contact between parents, faculty, students, district personnel, and transportation personnel. For each program the director ensures that the students will be in attendance, have transportation to and from the event, and that programming in the KKUA, reflects the students' needs and achievements.

The role as main contact for 120 students is a daunting task. Several of the KCKUA students live in extended family situations. Therefore, their contact information is often changing. Their ability to interface with the director cannot be overstated. This interfacing requires holding student orientations, parent breakfasts during academy components, and just making families feel welcome. Aside from working with students and families, the director is interfacing with district personnel and the partner organizations: KCKCC, KUMC, Storytellers Inc, Internship Businesses, Youth Friends, and related groups. Making these partnerships work requires constant interaction with personnel at each organization.

The director also serves as the main fundraiser for the Academy each year. This requires developing key marketing materials, keeping track of evaluation materials, tracking of students, and developing partnerships with area stakeholders. Each year countless photographs are taken of the various academy events. These photographs serve to document the Academy story and when placed with key student work and evaluation pieces they serve as a portfolio showcasing the program.

The director requires a staff to help to keep the KCKUA operational. The staff helps in taking and uploading the photographs, submitting invoices, transporting students, tracking student performance in the program and in the school district, and in countless other capacities.

As shown in [figure 2](#) the SSA is the main group tracked for college entrance. The main reason for this has been that the graduating seniors in the SSA are still in KCKUA programming. Tracking students from the SA has posed more of a problem. The main reason for this is due to the fact that these academy students are involved in the 9th and 10th grade. However, a mechanism is now being developed to track students from the middle school academy forward. Additionally, work is being done to correlate the number of KCKUA components a student participates in and their likelihood of attending college.

This paper has served to provide a sketch of the KCKUA. More detailed information and yearly evaluation of individual academy pieces can be found at the program website: (<http://www.kckurbanacademy.net>).