A Study of Local Antecedents for College Choice: A Template for Administrators, Families, and School Counselors[*]

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Abstract

Patterns of classes, grades, and test scores were studied in 3 successive graduating classes of a midwestern suburban high school. Descriptive statistics indicate that the prestigious college group had the highest mean scores on 23 variables. Descriptive discriminant analysis revealed the most influential variables were cumulative grade point average and the total number of advanced courses taken. These data can be collected on a local template and used for future decisions among parents, students, and counselors. The roles of the school counselor, building principal, and superintendent all need to be aligned so that the appropriate authority and responsibility can be used to service parents and students in making educational decisions. In order for this role alignment to occur, leadership initiative must flow from the superintendent through the building principal to the guidance counselor. Administrators must be catalysts in ideation while working with the counselors to serve families in their community.

NOTE: This module has been peer-reviewed, accepted, and sanctioned by the National Council of Professors of Educational Administration (NCPEA) as a scholarly contribution to the knowledge base in educational administration.

The school counselor's ninth grade parent orientation presentation was interrupted by an abrupt question from an anxious parent in the audience. Although a bit perplexed, the counselor thought for a moment and

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replied, "Yes. If your daughter wants to get into a top university, she needs to take the most difficult classes and YES she needs to earn all A's."

The process of linking a child to a college is a metamorphosis which takes place over several years, requires complicated decision-making, and occurs between family and school. While college choice is of vital importance to the individual family, the family unit only does it occasionally. School counselors, on the other hand, quickly acquire hundreds of such pairings through their yearly workloads. In short, they have the expertise and experience to offer families salient assistance. The combination of parental need and counselor resources presents a great opportunity for partnership and the development of a family-centric school climate. It is a high visibility environment which affords the school counselor clear accountability possibilities through results-based documentation. As every counselor knows, however, there is risk with this reward picture. College/career counseling is very individualistic and time consuming. It is only part of the counselor's set of responsibilities. Navigating the swirling waters of parents, adolescents, teachers, university personal and regulations is a heroic task.

It seems unreasonable to expect that school counselors can initiate a new way of doing things by themselves. Administrators need to seize the initiative and became catalysts between the school and the home by marshalling the unique data stored within the school and revealing it to the parents and students as they make decisions about college attendance (Buckingham and Coffman, 1999). Armed with a conceptual framework, administrators – working with the school counselors - can lay out a procedure of collecting, analyzing, and disseminating salient information of a localized nature which can be very useful for their constituents.

What follows is a study of one high school's pattern of courses offered, courses selected, grades earned, test scores attained, and choice of higher education institutions. The purpose of this study was to develop a template of local school district data that could be used by families and school staff to assist student course selection and goal setting. The template would contain local data from the school district's past graduates and would profile the classes taken, grades earned, and test scores attained en route to various levels of colleges chosen by these graduates. Parents of elementary or middle school students could then use the template as a footpath to follow when presented with decisions about their youngster's future. They would also have bench marks of performance to apply to report cards and standardized test scores. The template would be effective if it could help answer parents' questions such as, "If I want my child to go to the local university, what classes did past graduates that went to that university take in ninth grade, what grades did they earn in those classes, and what test scores did they get on state standardized tests and college entrance exams?"

The study has several limitations. It should be noted that the study assumes that families have contemplated a range of possible colleges for their youngster's eventual matriculation. The study, therefore, is not about college choice per se but rather about parents studying the college choices of previous families whose children have already graduated. The study is not about career choice or selection of major fields of study both of which may influence choice of campus to attend. The family educational background and ability to afford higher education were also beyond the purview of this study. Finally, the study is not designed to reiterate the understood notion that high achievers in high school go on to college or that the best of the students go on to more prestigious schools. Rather, the statistical analyses are designed to question whether there are patterns of behavior that can be associated with decisions of past graduates that can be informative for future students in a localized community setting.

Review of Related Literature

Matriculation into the academic life at a university may appear to be a rite of passage for adolescents each fall but the origins of this process begin to take shape many years earlier. The choice of which school to attend pivots on such complicated variables as educational and occupational aspirations, academic attainment, institutional reputation, personal finances, and geographical considerations. The possibilities are infinite and the consequences are life-shaping so these decisions carry a great deal of weight for students and their families. Public school staff members serve in key positional roles and can offer vital contributions to the decision-making process. The review of literature which follows is shaped by the decision making and selection processes surrounding high school program development leading to college choice. Researchers have studied a variety of aspects surrounding the process including the steps involved, the context within

which the decisions are made, the secondary academic record, the impact of the educational staff, and the interaction of principals and school counselors.

Wahl and Blackhurst (2000) traced the changing role of counselors in response to studies indicating early formation of career goals and occupational aspirations by elementary students and pre-adolescents. They advocate guidance programs that are developmentally appropriate, that actively dispel stereotypes and broaden possibilities, that are sensitive to cultural values, and that give pragmatic information about future options. Henderson (1999) proclaimed that a career guidance program should provide students with the tools to integrate awareness about themselves, potential careers, and post secondary education. Wahl and Blackhurst (2000) advocate alignment in planning among interests, abilities, achievement, and the educational preparation required for specific occupations.

Comprehensive high schools present many options for students in terms of available classes. Peterson, Long, and Billups (1999) reviewed studies concerning the process of students making course selection decisions. They found the process flawed in that students lacked the appropriate materials needed to make decisions. Students lacked accurate estimates of their own interests, abilities, values, and talents and had only vague understandings of their high school curriculum. Parents, too, sensed little knowledge and little control over the process. School counselors and the methods they employ can have a positive influence on the process.

Teasing out some patterns in this wide array of possibilities has been studied. For example, McClafferty and McDonald (2000) found that college plans do not simply happen by chance but must be fostered and encouraged. Previously, Alexander, Pallas, and Holupka (1987) observed a sequential series of "pipeline steps" to be included beginning with an ideation of a bachelor's degree, taking the right courses, taking the entrance exams, applying, and then enrolling in an institution of higher education. Berkner and Chavez (1997) discovered the successful completion of each additional step greatly increased the probability of the total process being successful. Hugo (2004) cited the conceptual importance of McClafferty and McDonough's (2002) principles of developing a college culture where students, educators, and families can work together in a structured way to improve decisions. Their nine principals included college talk, clear expectations, information and resources, comprehensive counseling model, testing and curriculum, faculty involvement, family involvement, college partnership, and overall articulation.

The relationship between the content of a student's high school transcript and eventual completion of a college degree has received attention by researchers. Adelson (1999) stressed the importance of coursework rigor and its role in preparing students for higher education. In his study of what increases one's chances of earning a bachelor's degree, he found that the academic intensity of the high school curriculum is the strongest factor in providing momentum towards earning a degree in precollegiate history. Specifically, the highest level of mathematics courses taken was cited as being predictive of future success. Adelson points out that not only do rigorous courses need to be offered but students need to be encouraged to take them, especially underrepresented student groups.

The impact of the secondary school guidance counselor on students has been the subject of research (Cabrera & LaNasa, 2000; Fallon, 1997; King, 1996; McClafferty & McDonough, 2002; Plank & Jordan, 2001). The positive impact counselors have is well-documented for students in general and is even more pronounced for students who are from under-represented populations or first generation college attendees. Hugo (2004) referred to the school counselor as the point-person in this process and the College Board (1986) said counselors are in a powerful position to have a significant impact on students.

The role of the professional school counselor has received comprehensive review through the American School Counselor Association's The ASCA National Model: A Framework for School Counseling Programs (2003). Such elements as individual student planning, use of data, student monitoring, use of time, and results-reporting to stakeholders all resonate with the aims of this study. Stone and Dahir (2007) encourage school counselors to implement data-driven comprehensive counseling programs and to engage in data-driven decision making. In addition, they call for counselors to participate in action research, collaboration with stakeholders, and effective use of technology. Such actions enhance the counselors' accountability quotient.

Specific attention has been brought to the role that school counselors play in coordinating the activities of school staff and the home. Several studies (Amatea & West-Oltunji, 2007; Amatea, Daniels, Bringman,

& Vandiver, 2004; Christenson & Sheridan, 2001) speak to counselors taking leadership roles in fostering a family-centric school climate wherein parents and professionals work together for the betterment of the child. Amatea and West-Oltunji (2007) warn of lack of time or energy for new activities as barriers to implementation and propose a renegotiation with the building principal for modification of responsibilities.

Because the building principal controls and directs the school counselor's job description implementation, the working relationship between the school principal and the school counselor is important and has been studied by several researchers (Burnham & Jackson, 2000; Miles-Hastings, 1997; Ponec & Brock, 2000). Role definition and assignment of duties can alter time spent on students' college planning. Erford (2003) concluded that counselors have many responsibilities and can not do everything for all students.

With the heavy demands placed on school counselors' time, and with the complexities involved with the decisions surrounding course selection and eventual college choice, any suggestions for focused simplification should be welcomed. Therefore, it is important to examine tools that can be used to expedite the process and improve decisions made. Principals can also utilize their positional authority to align the communication functions of the school so that the adoptions of new procedures are launched with appropriate scope and volume. Likewise, superintendents can lend needed support at the district level by encouraging and supporting building efforts. Regardless of the ideation origin, change requires the coordination of implementation and that requires the active and aligned participation of superintendent, principal, and school counselor.

Methods

Conventional wisdom holds that smart kids who achieve well in high school go to more prestigious colleges and universities. This study was not designed to validate that axiom. Rather, the study was aimed at developing a template of locally relevant metrics that could be used by school personnel and families in decision-making regarding course selection, goal setting, and college/career choice. The study sought patterns of previous graduates that would give guidance to upcoming elementary and middle school families in simple, local, and sustainable data-based information. Such patterns were sought across already existing archival data bases in the school district studied. The data were housed in siloed sets, however, and the gathering of variables required the meshing of several insulated data bases. For example, the classes taken, grades earned, and rank in class data were on the school's scheduling software; the test scores earned and demographic data were on the district's permanent record files; and, the career planning and intended college of choice data were in counselor files. Assembling data from diverse sources into a single new data base, or template, requires administrative clout and direction.

Sample

The high school in this study is located in the suburb of a large mid-west metropolitan area. The students come from a wide range of middle class homes and are diverse in ethnic and racial background. Each of the four grade level class sizes range from 225 to 300 students and the school size is about 1100 students. A total of 612 students were in the original data file, but 172 were unusable due to missing data. Therefore, the current study used the data based on the remaining 440 students. The students in the sample were 60% female and 40% male.

Data Files and Measures

Beginning with the Class of 2001, the school district began tracking its high school students' records for five years through to the Class of 2005. Data was also collected from the middle three classes (2002, 2003, and 2004) concerning college choice. The group membership was defined by college choice. College choice data was gathered directly from students in the spring of their senior year and indicate where the student intended to go to college that fall. The 64 colleges and universities chosen were placed into four categories reflective of degree of prestige according to the rankings by U.S. News and World Report publication. The four categories are: (a) no colleges, (b) community colleges, (c) mid-level colleges, and (d) prestigious colleges. The number of students identified for each category was 108 for no colleges, 88 for community colleges, 151 for mid-level colleges, and 93 for prestigious colleges. Twenty three variables used to examine the differences among the four groups are listed in Table 1. Descriptions of the variables are as follows. The courses were credit-bearing classes offered by the high school during the years of the study as listed in the course description catalog. The courses are grouped by instructional department (i.e., art, English, foreign language, math, science, and social studies). A particular set of courses has been identified as the most rigorous classes that students

could take at each grade level. The number of courses passed accumulates towards the necessary total of 22 needed for graduation in this particular school. Letter grades are earned on a semester basis for each class taken. They are converted to numerical scale, tallied, and a grade point average is computed. These averages are then placed in ordinal sequence and a resultant list of student rank-in-class is established. A letter grade of A is worth 4 points, a B is worth 3 points and so forth. Grades earned in designated honors classes generate bonus points. In this study, attention is drawn to both yearly and total 4-year grades and rank-in-class data. Test scores cover subject matter content as assessed at various grade levels through the state's assessment system (SAS).

Analyses

Descriptive statistics (means and standard deviations) were used to examine differences in the aforementioned 23 variables among the four groups of college choice. A descriptive discriminant analysis (Huberty & Barton, 1989) was then used to determine significant variables in distinguishing among the four groups. The sample sizes were large enough to suggest that the normality assumption was met for discriminant analysis. The homogeneity of variance-covariance assumption was checked by examining the ratio of the largest cell variance to the smallest and sample sizes (Tabachnick & Fidell, 2001). The sample sizes were relatively similar (i.e., within a ratio of 2 to 1 or less for largest to smallest cell size) and the ratio of variances was 6 or less across the four groups, suggesting that the homogeneity of variance-covariance assumption was met. Statistical Package for Social Science software 13.0 was used for analysis.

Results

The means and standard deviations of the four groups for 23 variables are shown in Table 1. Overall, the highest mean scores were found for the prestigious college group, followed by mid-level college group, no college group, and community college group. Specifically, the prestigious college group had the highest mean scores on all but two variables, Art and Social Studies department credits. Further examination of the grade point average by grade level across years revealed that in each group and in each class there was a drop off of grade point average between the ninth and tenth grades. The pattern then reversed and each succeeding set of grades were higher then the previous year from tenth to eleventh grade and from eleventh to twelfth grade. The highest grade point averages were achieved in the twelfth grade for all groups in each class which indicates strong finishes by the students, as well.

Table 1

Means and Standard Deviations on the Variables for Four Groups

	No Colleges(N =108)		Community Colleges(N = 88)		Mid-Level Colleges(N = 151)		Prestigious Colleges(N = 93)	
Variable	M	SD	M	SD	M	SD	M	SD
Total number of advance courses	9.10	3.51	8.05	2.75	11.29	4.25	15.03	4.07
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GPA cu-mulative	2.73	0.63	2.56	0.55	3.09	0.55	3.61	0.43
Total earned credits cumula-tive	24.93	1.55	24.75	1.30	25.49	1.46	25.78	0.97
Department credits total	20.45	3.56	19.83	3.71	20.42	3.4	20.80	2.86
SAS Math	579.65	64.74	553.20	63.83	586.53	59.65	645.60	64.56
SAS Reading	565.83	50.21	553.77	47.78	577.66	56.73	599.97	56.88
SAS Sci-ence	563.72	54.86	536.38	44.68	562.75	49.14	586.54	52.47
SAS Writing	538.28	26.91	536.73	28.20	547.01	29.76	566.59	37.08
SAS Social Studies	520.72	34.13	508.70	27.22	526.49	28.00	540.39	28.45
Art cred-its	2.41	1.91	2.54	1.86	2.87	1.93	2.16	1.26
English credits	4.02	0.60	4.01	0.52	4.14	0.75	4.23	0.56
Foreign Lan-guage credits	2.40	1.03	2.35	1.07	2.88	0.90	3.30	0.67
Math credits	3.23	0.60	3.06	0.62	3.32	0.63	3.67	0.54
Science credits	3.08	0.77	3.02	0.66	3.41	0.82	3.82	0.72
Social Studies credits	3.80	0.88	3.74	0.85	3.75	0.72	3.78	0.84
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GPA Year 1	2.76	0.67	2.51	0.68	3.12	0.60	3.58	0.43
GPA Year 2	2.56	0.75	2.39	0.64	2.95	0.62	3.52	0.45
GPA Year 3	2.79	0.67	2.54	0.64	3.06	0.62	3.66	0.46
GPA Year 4	2.87	0.72	2.83	0.64	3.24	0.62	3.71	0.56
Earned credit Year 1	6.40	0.92	6.19	0.57	6.55	0.62	6.60	0.38
Earned credit Year 2	6.49	0.61	6.35	0.66	6.71	0.41	6.82	0.33
Earned credit Year 3	6.36	0.64	6.43	0.63	6.52	0.47	6.64	0.31
Earned credit Year 4	5.56	0.94	5.79	0.82	5.71	0.76	5.72	0.67

Table 1

Results of the discriminant analysis yielded three separate discriminant functions to distinguish among four groups. Of the three functions, function 1 had the largest canonical correlation (R= .652) followed by function 2 (R= .316) and function 3 (R= .275), suggesting that function 1 is the most important discriminator. The squared canonical correlation (R_c^2) indicated that for function 1, 41% of the variance was accounted for by the groups. Only 10% and 8% of the variance was being accounted for in functions 2 and 3 by the groups, respectively. All three tests of discriminant functions were found to be statistically significant at p < .05. The corresponding effect size, measured by calculating 1 - Wilks's Lambda, was .52 for functions 1 through 3, .17 for the test of functions 2 through 3, and .08 for function 3. By convention (Cohen, 1988, p. 25), the effect sizes for the test of functions 2 through 3 and function 3 were judged to be either negligible or small, thus, functions 2 and 3 were not used in the interpretation of the predictors.

Table 2 presents the structure coefficients for variables with loadings of .50 and above in function 1. Structure coefficients are bivariate correlations between each independent variable and the function, without accounting for the shared variance between the independent variables. The higher the absolute value of the coefficient, the greater the discriminating power of the predictors on the dependent variable. Only variables with loadings of .50 and above were interpreted for this study. The structure coefficients suggested that the two most significant variables contributing to the group difference were Grade Point Average (GPA) cumulative and total number of advance courses taken. Also, GPA Year 1, 2, 3, and 4 and SAS Math appeared to contribute to the group difference.

Table 2

Structure Coefficients

Variable	Structure Coefficients
GPA cumulative	0.79
Total number of advance course taken	0.76
GPA Year 2	0.74
GPA Year 3	0.73
GPA Year 1	0.70
GPA Year 4	0.60
SAS Math	0.55

Table 2

In function 1, the group centroid was the highest for the prestigious college group (1.44), followed by the mid-level college (.14), no college (- .68), and community college (-.94) groups. This suggested that Function 1 distinguished the prestigious college group substantially from the community college and no college groups. The mid-level college group was slightly more close to the prestigious college group than the no college and community college groups. In conjunction with the results of the structure coefficients, this implied that the GPA cumulative and total number of advance courses taken contributed most substantially to distinguish the prestigious college group from the other three groups. That is, students who had high GPA and took many advanced courses were more likely to choose to go to prestigious colleges than the other three groups. In addition, students who earned high GPA in each year and earned high scores on SAS Math were more likely to choose to go to prestigious colleges than the other three groups. The results of the descriptive statistics showed that in the above identified variables, the prestigious college groups had the highest mean values, followed by the mid-level college, no college, and community college groups (see Table 1).

Summary and Discussion

The purpose of this study was to develop a template of variables which could be used by parents and students to assist in high school course selection and performance goal setting given the level of college they pine. Variables chosen for the study commonly exist in the nation's high schools. The results revealed patterns of difference among the four college choice groups on 23 variables included in the data collection template. The prestigious college group had the highest mean scores on all variables with the exception of the variables earned art department and social studies department credits. Results of the discriminant analyses indicated that students eventually choosing more prestigious colleges took more difficult classes, earned higher grades, and scored better on state tests than their high school classmates. It also indicated that they launched their high school careers with very strong starts in ninth grade and sustained that high level of academic accomplishment each and every year.

This information is important for families to know as their children approach upper elementary school and begin to make differential curricular decisions. Achievement begins to count in ninth grade and it stays documented permanently in school records. Those future students wanting matriculation to elite colleges need to achieve from the start of their high school careers. They then have to sustain those strong starts throughout their four years. It was interesting to note that the prestigious college group had the lowest mean scores on the earned credits in art classes. Students in the other groups signed up for art classes in place of the hard sciences courses found in the most rigorous classes variable. Acknowledging the importance of art in our culture, educators might explore ways of increasing opportunities for top students to also take more art courses in high school.

The template, as shown in Figure 1, displays the array of data that can be collected to aid decisions. The structure of the model template can serve as an effective filter through which school districts can capture and use archival data. The data can be accumulated over time as classes are chosen, grades are earned, and test scores are achieved. This posits all relevant data into a record that can be shared by all stakeholders. It can be easily updated yearly so it can retain its currency and relevancy for users. School counselors and

administrators can be trained constituents. Families can then make more informed and timely decisions concerning the academic planning and goal-setting for their children's high school careers. The simplicity of the template and its portability of application permit universal adaptation to local school needs. Parents would then have clear, local data for guidance as opposed to obscure state or national trend indicators. School counselors and school administrators, therefore, can be armed with a tool of high utility.

While the high school counselor's answer cited in the study's opening paragraph was correct, the answer now can be supported in a very scholarly and locally relevant fashion. After answering, "Yes. If your daughter wants to get into a top university, she needs to take the most difficult classes and YES she needs to earn all A's.", the following powerful statement could be added: "Depending on the type of college you want your child to attend, here are the classes taken, grades earned, and test scores attained by previous graduates who attended those colleges."

	Grade 9	Grade 10	Grade 11	Grade 12	Cumulative
Grade Point Average					
Coursework					
State Assessments					
Language Arts					
Math					
Science					
Social Studies					

Table 3

Figure 1. Individual student academic performance template

Implications for School Leadership

Choosing correct high school courses, earning appropriate grades, and scoring well on standardized tests are all ingredients that secondary students mix together with occupational aspirations to determine if and where they will go to college. It is a very complicated process that has yearly, crucial decision-making points beginning in the middle grades and continuing through high school. This study advocates the infusion of locally generated data to aid in the decision-making process. Traditionally, school officials framed their responsibility to the realm of providing general information to families and allowing the family unit to make such decisions. The authors believe that a much more proactive stance must be assumed by the professional team of counselor-principal-superintendent. Such initiative would bode well for enhancing perceptions of school leadership throughout the community. It would also fulfill the thematic parameters set forth in the ASCA national model (2003) of leadership, advocacy, collaboration and teaming, and systemic change. The professional school counselor can use this data-based tool to enhance stakeholder decision-making in a systemic fashion to achieve results-driven benefits for each child.

The counseling department needs the support and encouragement of the building principal. The principal needs the vision and the direction of the superintendent. The superintendent must initiate, motivate, and monitor the process by setting expectations and then reinforcing desired behavior through evaluative

procedures. In this manner, they can work together in mutually satisfying partnerships with families to induce better educational decisions for future graduates.

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Appendix

A. MOST PRESTIGIOUS COLLEGES

The American University, Washington D.C.

Florida State University, Tallahassee, FL

Michigan State University, East Lansing, MI

New York University, New York, NY

Northwestern University, Evanston, IL

The Ohio State University, Columbus, OH

University of Miami, Coral Gables, FL

University of Michigan, Ann Arbor, MI

United States Naval Academy, Annapolis, MD

University of Southern California, Los Angeles, CA

University of Tennessee, Knoxville, TN

Wayne State University, Detroit, MI

B. MID LEVEL COLLEGES

Abilene Christian College, Abilene, TX

Adrian College, Adrian, MI

Albion College, Albion, MI

Alma College, Alma, MI

Ashland College, Ashland, OH

Ball State University, Muncie, IN

Central Michigan University, Mt. Pleasant, MI

Chicago State University, Chicago, IL

College of Charleston, Charleston, SC

College of Wooster, Wooster, OH

Defiance College, Defiance, OH

Dillard University of New Orleans, New Orleans, LA

Eastern Michigan University, Ypsilanti, MI

Endicott College, Beverly, MA

Florida A&M University, Tallahassee, FL

Florida Institute of Technology, Melbourne, FL

Gannon University, Erie, PA

Grand Valley State University, Allendale, MI

Harding University, Searcy, AK

Hillsdale College, Hillsdale, MI

Hope College, Holland, MI

Kalamazoo College, Kalamazoo, MI

Kettering University, Flint, MI

Lawrence Technological University, Southfield, MI

Lincoln University, Jefferson City, MO

Marshall University, Huntington, WV

Middle Tennessee State University, Murfreesboro, TN

Middleton University, online

Morgan State University, Baltimore, MD

Northern Michigan University, Marquette, MI

Oakland University, Rochester, MI
Saginaw Valley State University, University Center, MI
Tennessee State University, Nashville, TN
University of Detroit Mercy, Detroit, MI
University of Northwestern Ohio, Lima, OH
Western Michigan University, Kalamazoo, MI
C. COMMUNITY COLLEGES
American Music and Drama Academy, New York, NY
Art Institute of Colorado, Denver, CO
Art Institute of Pittsburgh, Pittsburgh, PA
Baker College, Auburn Hills, MI
College for Creative Studies, Detroit, MI
Columbus College of Art and Design, Columbus, OH
Illinois Institute of Art, Chicago, IL
Kirtland Community College, Roscommon, MI
Macomb Community College, Clinton Township, MI
Marymount Manhattan College, New York, NY
Monterey Peninsula College, Monterey, CA
Mott Community College, Flint, MI
Oakland Community College, Bloomfield Hills, MI
Ohio Technical College, Cleveland, OH
Rochester College, Rochester Hills, MI
Specs Howard School of Broadcast Arts, Southfield, MI