

The Application of Multidimensional Scaling to Advertising Education Programs

INTRODUCTION

S. J. Liebowitz phrased it aptly when he referred to the study of education as an “enjoyable form of navel-gazing for those within the given discipline” (Barry 1990). The study of advertising education is not only enjoyable but necessary given the changes in the industry. The data for the following study was originally collected in 1994 and presented at AEJCM in 1995. At that time, advertising programs were beginning to revise their curricula to reflect an IMC approach. Given these changes in advertising education, there was a need for a clear understanding of the structure of the advertising education market. The purpose of this study was to analyze the schools of education beyond traditional ranking studies. This research is reprinted here to provide a historical record of advertising education at the end of the twentieth century.

LITERATURE REVIEW

Any credible review of the advertising ranking education literature must begin with the prolific work of Billy Ross who has conducted extensive research on the *objective* dimensions of advertising education. Dr. Ross has used these data to rank schools by number of students, number of graduates, quantity of published research, and faculty/student ratios (Ross 1991, 1964-1994, 1965). *Where Shall I Go to College to Study Advertising* and other related publications by Dr. Ross offer clear summaries of objective data but lack an evaluation of the subjective dimensions of the schools. In fact, very little research has been conducted on advertising program *rankings* based on *subjective* attributes.

Only three studies (Watson 1989, Keenan 1991, Stout and Richards 1994) have ranked schools based on the perceptions or the *subjective* evaluations of survey respondents. In 1989, Kittie Watson published two ranking studies of the top-rated advertising doctoral programs in the *Association for Communication Administration Bulletin*. One survey reported the results of a survey administered to 300 members of the Association for Communication Administration.

The other study reported the results of a survey administered to 297 member of the Broadcast Education Association (Watson 1989).

In 1991, Kevin Keenan of the University of Maryland, College of Journalism surveyed academics regarding their school perceptions. He asked “Which three schools other than your own do you consider the very best undergraduate program in advertising?” Most recently in 1994, Patricia Stout and Jef Richards, both of the University of Texas, asked advertising practitioners to rank the top advertising graduate programs.

Taylor and Morrison (1994) proposed a visual model of advertising education that analyzed advertising programs beyond ranking reports. A theory versus practice continuum formed the horizontal line and a journalism versus business continuum formed the vertical line. The two scales together make a four-quadrant grid representing an advertising framework called the Advertising Education Model. Although illuminating, their research was a theoretical piece without research data.

RESEARCH QUESTIONS

Advertising education ranking reports as summarized above, provide a list of the “top of mind” schools in advertising education and a general idea how they compare to each other. While this simple ranking method may be the easiest way to collect school data, two questions remain unanswered:

1. Beyond numerical rankings, how are advertising programs positioned relative to each other?
2. Why are the schools positioned they way they are? That is, what are the dimensions or attributes that are used to make these evaluations?

The goal of this paper is to answer these two questions by placing the schools on a perceptual map and analyzing the location of each school. Like traditional school rankings, the evaluation of the schools in a perceptual map is based on the perceptions of the survey

respondents. Unlike the ranking reports, the perceptual map offers a rich visual representation of the nature of the overall education market.

Perceptual maps are a borrowed concept from the product positioning literature within the marketing discipline. Perceptual maps show how a product's image is positioned in the market relative to the competition. These visual diagrams are generated via multidimensional scaling (MDS). The idea of perceptual mapping is not new, but the application of this concept to advertising education is original.

METHOD

A questionnaire was used to collect MDS data for the perceptual map developed in this study. Similarity measures (proximity data) were gathered by asking respondents to rate perceived degree of similarity between schools. In addition, because one of the goals of this research was to identify the attributes that define an advertising program, non-attribute data was collected. That is, respondents were asked to make similarity judgments of schools based on the overall program not on specific program attributes. The respondent was not told what criteria to determine similarity.

Evaluation Set. Ideally, all schools offering degrees in advertising would be plotted on the map for a perfect representation of the advertising education market. Given the limitation of this approach, the goal was to select the maximum number of schools that could be reasonably evaluated in a questionnaire. Fifteen schools, which translates into 105 individual pair wise comparisons $(15(15-1)/2)$ seemed to be the maximum number of combinations a respondent could reasonably evaluate.

The 15 schools used in the stimulus set were selected based on a composite analysis of 9 different ranking reports published over the last ten years. The goal of the selection process was to use a variety of ranking reports to identify the 15 schools that accurately represented the advertising education market. Seven of the rankings listed the schools by objective attributes such as undergraduate enrollment, graduate enrollment, number of faculty, and publishing records (Ross 1991, Barry 1990, Soley 1988, Rotzoll 1984). The remaining two rankings were subjective opinion polls listing the "best" advertising programs as perceived by academicians

and practitioners (Keenan 1991, Stout and Richards 1993). The schools used as the stimulus set were the 15 schools with the most appearances on these rankings.

Sampled Set. The questionnaire was sent to the chair of the advertising department, program, area, etc. from the same 15 universities included in the evaluation set. It was assumed that this person would be the most knowledgeable about their own school relative to other competing schools. In addition, chairs generally have been in academia for several years and have acquired knowledge about other programs. Finally, because respondents would have a vested interest in the results of the research, they would be more likely to respond to the survey.

Procedure. The questionnaire was pre-tested with advertising faculty at the researchers' university. Layout and presentation changes were made based on the pretest evaluation. The 2-page self-administered questionnaire, cover letter and stamped, pre-addressed envelope were sent via US mail on March 15, 1994. A second mailing was sent on April 21. At the end of the data collection process, 13 out of the total 15 questionnaires were returned. Out of the returned 13 questionnaires, only 11 contained usable data. The final response rate was 73% or 11 surveys.

The MDS analysis was conducted using the ALSCAL (Alternating Least-Squares Scaling) multidimensional procedure within SPSS for Windows (Release 6.0). Frequency counts and means were run on questions from the respondent information section.

RESEARCH FINDINGS

Table 1 lists the coordinates for each of the 15 schools in the evaluation set. These coordinates were used to produce the MDS spatial map.

TABLE 1
Evaluation Set Coordinates

School	Dimension 1 Horizontal Axis	Dimension 2 Vertical Axis	School	Dimension 1 Horizontal Axis	Dimension 2 Vertical Axis
Alabama	-.6433	1.0894	Nebraska	-1.3137	.2695
Baruch	-.9409	-2.1524	Northwestern	.7609	-1.4004
Florida	.7103	.9374	San Jose State	-1.3160	-.5870
Georgia	1.0990	.5340	South Carolina	-.9152	.8506
Illinois	1.5664	.1882	Syracuse	-.0937	-1.1140
Louisiana	-1.1529	1.2071	Tennessee	.2475	.9912
Michigan	1.3344	-.2415	Texas	1.2146	.2971
Missouri	-.5558	-.8690			

Goodness-of-fit Measures. Overall, the stress and R-squared values for the aggregate matrix is .250 and .622, respectfully. This means that approximately 25% of the variance in the matrix can not be accounted for by the MDS procedure or that approximately 62% of the variance in the overall matrix can be accounted for by the MDS procedure. Although there is very little consistency in the research literature, Guilford suggests that an R-squared correlation of .60 or higher is acceptable (Guilford 1956). Using this benchmark, the overall configuration of this research project has an acceptable goodness-of-fit measure.

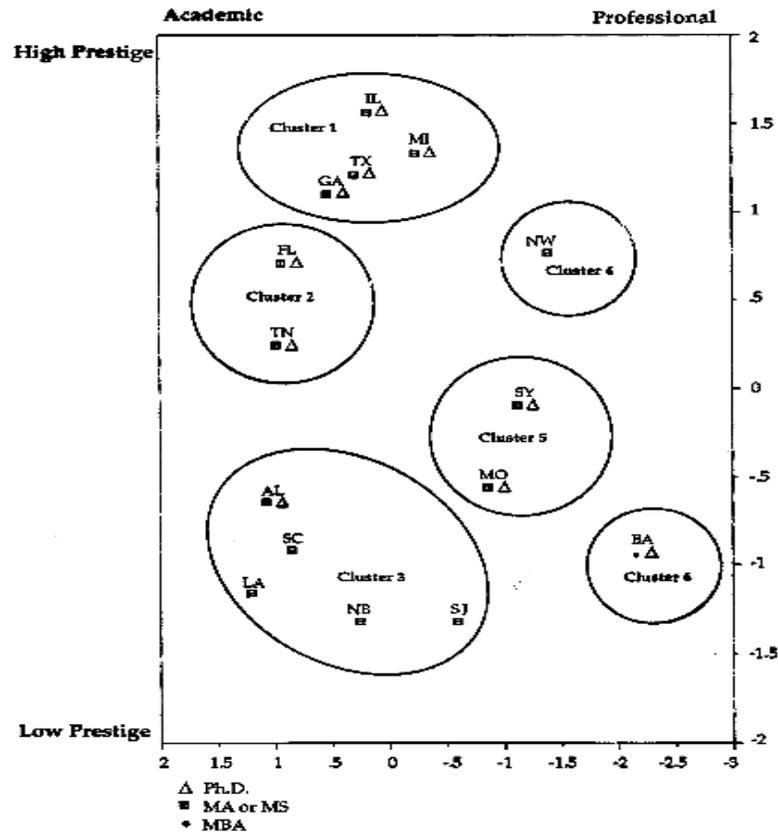
Profile of Respondents. As expected, department chairs have extensive teaching and research experience at a wide variety of schools. Many of the respondents have taught at two or more universities prior to their current appointment. More than 90% of the respondents have Ph.D.'s with degrees from 9 different schools. The majority of the doctorate degrees are in Communication or Mass Communication. All respondents reported over 11 years experience in education. Given this extensive educational background, the sample appears to be well versed and knowledgeable about the advertising education market.

INTERPRETATION

Multidimensional scaling created the map, but the MDS process does not directly identify the two dimensions of the space. The actual interpretation of the configuration map must be done outside the MDS procedure. As recommend by Doyle (1973), the interpretation offered in this paper uses a certain degree of intuition and visual analysis.

Figure 1 is a visual representation of the MDS coordinates for each school presented in Table 1. The standard MDS dimension labels (Dimension 1 and Dimension 2) have been renamed to reflect the researchers' interpretation of the map. The vertical dimension is now called "Low-High Prestige" and the horizontal dimension is labeled "Academic-Professional." Finally, the schools that are grouped together are circled to form clusters.

FIGURE 1
Map Interpretation



School Codes

AL = University of Alabama	LA = Louisiana State University	SJ = San Jose University
BA = Baruch College, CUNY	MI = Michigan State University	SC = University of South Carolina
FL = University of Florida	MO = University of Missouri	SY = Syracuse University
GA = University of Georgia	NB = University of Nebraska	TN = University of Tennessee
IL = University of Illinois	NW = Northwestern University	TX = University of Texas

Vertical Axis Interpretation (Top to Bottom)

After careful review of the configuration, the most apparent pattern is the ordering of schools from top to bottom. Schools appear to be positioned down the configuration in a general descending order of prestige. The subjective “prestige” dimension is composed of three factors:

1) Academic publishing record; 2) School ranking reports; and 3) Availability of graduate education.

1) Academic publishing record. Because the quantity of publications is such an accepted measure of academic quality (Hexter 1969), a school’s publishing record (Barry 1990, Soley

1988) is the first measure to support the “prestige” dimension. All of the top four schools in the configuration -- Illinois, Michigan, Texas and Georgia -- are also the schools with the highest productivity record. Schools at the bottom of the perceptual map - Alabama, South Carolina, Louisiana State, Nebraska, and San Jose State - are not listed on publication productivity summaries. Table 2- Publication Productivity Summary, lists schools by amount of publication activity as reported by Barry (1990) and Soley (1988). Clearly, there is a direct relationship between publication record and the vertical position of each school on the map.

TABLE 2
Publication Productivity Summary

Barry (1990)	Soley (1988)
1. University of Georgia	1. University of Texas
2. University of Illinois	2. University of Georgia
3. University of Texas	3. Michigan State University
Michigan State University	4. Arizona State University
5. New York University	5. New York University
6. University of South Carolina	6. Baruch College
7. Arizona State University	7. University of Illinois
8. Baruch College, CUNY	8. Northwestern University
9. Southern Methodist University	9. University of Wisconsin
10. Columbia	10. University of Houston
Wharton	

2) School ranking reports. Additional conclusions were confirmed by comparing the positions of schools on advertising education ranking surveys (Watson 1989, Keenan 1991, Stout and Richards 1993) and the position of schools on the perceptual map. All of the ranking surveys (see Table 3) report the same *general* school clusterings found on the configuration map. Specifically, Illinois, Georgia, Texas, Michigan, and Florida are all ranked on previous surveys in the top quarter of the lists *and* positioned in this MDS map in the top quarter of the perceptual space.

TABLE 3
Opinion Survey Summary

Watson (1989)	Keenan (1991)	Stout and Richards (1994)
1. Illinois	1. Illinois	1. Northwestern
2. Georgia	2. Texas	2. Texas
3. Texas	3. Florida	3. Michigan State

4. Missouri	4. Michigan State 5. Northwestern 6. Georgia 7. North Carolina 8. South Carolina 9. Missouri Tennessee	*4. Syracuse *4. Missouri *6. Harvard *6. Pennsylvania *6. Thunderbird *6. Wisconsin * tied
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3) Availability of graduate study. Finally, the availability of graduate education (MA, MS, and Ph.D.) is considered a function of prestige because the authors assume that schools offering graduate education will have a better-qualified faculty. In addition, the availability of graduate education is a straightforward way to classify schools into groups.

A review of Table 4 below confirms that school offering all three levels of education are at the top of the map while schools only offering MA’s or only BA’s are located towards the bottom of the map. The one exception to this observation is Northwestern, which is located in the top half of the map with only a MA advertising degree program. Perhaps the fact that Northwestern only offers graduate advertising education explains why the school is located higher on the prestige scale than other schools that offer all three levels of academic degrees.

TABLE 4
Advertising Schools by Degree Offerings

BA, MA, Ph.D.	BA and MA	MA only	BA only
Illinois Michigan Texas Georgia Florida Tennessee Syracuse Missouri Alabama Baruch	South Carolina Louisiana State Nebraska	Northwestern	San Jose State

Horizontal Axis Interpretation (Left to Right)

The second apparent pattern in the configuration is the positioning of schools from left to right on the horizontal axis. In general, the schools on the left side of the configuration appear to be schools with academic and scholarly objectives. Schools on the right side of the map appear

to be programs that emphasize professional preparation. In this interpretation, the division between a scholarly research and professional preparation is based on the following three factors:

- 1) Academic publishing record; 2) Academic versus professional master's program; and
- 3) Communication versus business master's program

1) Academic publishing record. Again, the schools fall in a generally predictable pattern from left to right based on their academic publication record. The schools with the highest scholarly publication record are located on the academic or left side of the configuration (Barry 1990, Soley 1988). It makes intuitive sense that schools that emphasize scholarly research have the greatest number of publications in academic journals. It also makes intuitive sense that the schools that emphasize professional preparation would have more publications in trade or consumer publications. Because this study focuses on academic literature, no data were collected regarding publishing outside the academic arena. The authors acknowledge that schools such as Northwestern on the right or professional side of the configuration undoubtedly have impressive publication records in the trade and consumer press.

2) Academic versus professional master's program. In general, undergraduate advertising degree programs have a professional orientation while doctoral programs have a research emphasis. Some master's degrees are research based and require a thesis. Other master's degree programs are professionally oriented and require a professional report. A few schools offer the option of a master's degree in either track (Ross 1991). Applying these observations to the perceptual map, it appears that the schools on the right side of the configuration emphasize professional education and schools on the left offer more scholarly or academic graduate advertising education.

3) Communication versus business masters program. All of the schools in the stimulus set except for Baruch College are located in schools or colleges of journalism or communication. Northwestern emphasizes business applications, although it is located in a School of Journalism. Baruch and Northwestern, the two schools offering a business orientation, are located on the right, professional side of the configuration along with Syracuse, Missouri, and San Jose State.

For this reason, advertising programs with a business or professional orientation are located on the right side of the configuration, while advertising programs in schools of communication offering more academic degrees are located on the left side of the map.

Clusters

Beyond horizontal and vertical positioning of schools, six distinct clusters of stimuli are apparent. Below is a discussion of each of the clusters.

Cluster 1: *Top Tier Advertising Schools*. University of Illinois, Michigan State University, University of Texas, and University of Georgia are clustered together at the top of the figure on the left side of the configuration. Given their relative position, these schools appear to be the most prestigious academic research schools in the evaluation set. All of these schools offer three levels of advertising education and have impressive publishing records (Barry 1990, Soley 1988).

Cluster 2: *Second Tier Advertising Schools*. University of Florida and University of Tennessee are both located in the top half of the configuration but below the first cluster of schools. Both schools offer three levels of advertising education, but do not enjoy the publishing records of the first tier schools (Barry 1990, Soley 1988).

Cluster 3: *Third Tier Advertising Schools*. University of Alabama, University of South Carolina, Louisiana State University, University of Nebraska, and San Jose State University are all loosely grouped into this third tier of advertising programs. Out of this cluster, only University of Alabama offers a doctoral degree. All of the schools except San Jose State University offer master's level education (Ross 1993). San Jose State is the only university on the west coast offering a BS degree in advertising. None of the schools are ranked in publication productivity studies (Barry 1990, Soley 1988).

Cluster 4: *Integrated Marketing Communication Education*. Northwestern University is the only school located in the IMC (Integrated Marketing Communication) cluster. Medill is different than the other programs because it offers an integrated approach to advertising. The curriculum is grounded in business and marketing practice. In the perceptual map, Northwestern

is in the upper half of the vertical prestige scale and located on the right professional education side of the configuration.

Cluster 5: *Advertising within Professional Schools of Journalism*. University of Missouri and Syracuse University are appropriately clustered together. Both schools have a strong print and electronic professional journalism tradition. This cluster is located on the right, professional side and in the lower half of the perceptual configuration. Perhaps the reason for the relatively low prestige rating of the two schools is that advertising faculty, not journalism faculty, completed the evaluation of the programs. In addition, opinions from Missouri and Syracuse were not included in the survey because completed surveys were not received from the two schools.

Cluster 6: *Business Advertising Education*. Baruch College, CUNY was the only business school in the sample. It is the only school accredited by The American Assembly of Collegiate Schools of Business (AACSB) rather than The Accrediting Council on Education for Journalism and Mass Communications (ACEJMC). In addition, Baruch is the only program to offer an MBA, rather than a Master of Science, Master of Arts or a Master of Mass Communication (Ross 1991). Appropriately, Baruch is isolated in the far lower right hand corner of the configuration.

In summary, this spatial map suggests that the perception of advertising programs is more complex than the simple ordinal format suggested by ranking reports. The configuration in this paper reveals that the underlying structure of the advertising education market has several school groupings. Schools are clustered together according to their perceived prestige. The top schools have a more research emphasis and offer doctorate education. Lower tier schools do not have prolific publishing records and only offer master's level education. Schools are also clustered together based on their philosophical approach to advertising education. Schools with an academic and communication emphasis are group separately from schools with a business or professional orientation.

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