

# **The Design of a Knowledge Based Survey Scheme for Quantifying and Propagating Diversity Skills in Science and Technology**

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## **DIVERSITY EDUCATION AT COTA:**

During the past few years, Drs. Kissick and Khan have been promoting diversity at Kansas State University's College of Technology and Aviation (COTA. The authors have detailed their efforts in this endeavor through three recent conference proceedings [1-3]. They have stated their objectives in this promotional effort, and have studied the compliance of their program with two different sets of diversity competencies [4-5] that have evolved separately. Briefly put, the authors have primarily concerned themselves with helping science and technology students develop diversity skills, not just in response to the stipulations of regulatory bodies like Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC of ABET), but also from a deeply felt need to help students succeed in the increasingly diverse workplace.

It is important to point out that while the cultural and ethnic diversity of faculty, staff and students play a crucial role in the multicultural training of students, and while every step must be taken to increase underrepresented groups on campus, such diversity is also a function of geographic realities. Unfortunately, COTA is disadvantaged with regard population diversity at the current time and a heavy reliance has to be placed on campus events and classroom learning in achieving stated goals in this area.

As an example of teaching diversity within the classroom one might consider a course on ethics. Such a course is certainly capable of reinforcing concepts of social responsibility and as such is a viable platform for promoting multicultural awareness. Similarly a business course might be able to sell the importance of cross-cultural communication through some related globalization issues. Many other examples could have been cited, but in each case it is the instructor that decides whether or not to draw appropriate linkages and confer sufficient emphasis to diversity topics. While it is true that a student's exposure to diversity subjects is dependent on the inclinations of the teachers involved, it has also been observed that at COTA a significant portion of the faculty do participate or encourage participation in diversity programs (2003 survey shows about 20-25% [1]). Outside the classroom, such events as international food fairs, panel discussions, guest speakers, multicultural movies etc. all play a role in creating an atmosphere that fosters openness and tolerance on campus.

The typical science and technology student will take fewer humanities and social science courses, and will have less exposure to diversity concepts (especially in the last two years of undergraduate work before joining the workforce). The authors have grappled with this problem and have created a discussion group that focuses on the mechanics of teaching diversity skills within the science and technology classroom. This paper describes and justifies the use of a new scheme to promote diversity throughout the college using a dual-purpose survey aimed at providing diversity education and gauging student attitudes towards diversity. This is a work in progress and will be run in the Fall of 2004, pending the approval of the Committee on Research Involving Human Subjects at K-State.

**THE SURVEY IN BRIEF:**

Fig. 1 below is a diagrammatic representation of our scheme. First a “statement” is made

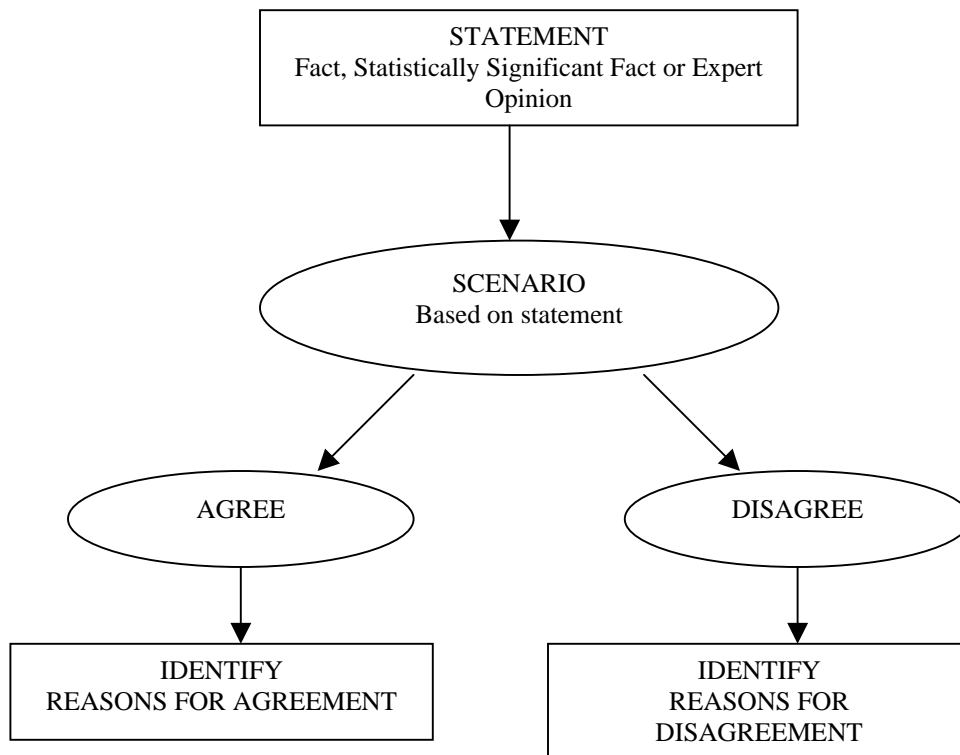


Fig. 1. The Survey Scheme

regarding some diversity issue. The statement is solidly supported by statistical data, by a statement of fact or by an expert opinion. Following the “statement” a “scenario” is cooked up. This scenario will usually describe a situation which calls for judgement to be made based on the information contained in the statement (A logical extrapolation of the facts or knowledge provided). Students taking the survey are then asked as to whether or not they agree with the judgment provided in the scenario. If the person taking the survey

ends up agreeing, we then try to identify his or her reasoning through a second multiple-choice question. If more than one choice applies, we will ask the person to select the most important consideration. If the person taking the survey disagrees with the decision, we will then seek to find the reasons for disagreement.

#### WHAT THE SURVEY ACCOMPLISHES:

The survey accomplishes the three things listed below,

- I. It informs the surveyed with important facts, statistics or expert opinions about diversity issues. A simple statement concerning bilingual people in Table 1, for instance, can be very illuminating to those who carry a negative image of this group. People may find the only rational response to this tidbit of knowledge is to get rid of the some harmful stereotype that they have clung to in the past. On the other hand, the bias may be so deep that they may dismiss the statement as outright propaganda, in which case this activity fails to impact the level of diversity friendliness of such individuals. It does however (upon further probing) tell us why such individuals could not believe this information.

The selection of the “tidbit” of diversity information needs to be done with care as any random statement (however solidly grounded in fact, statistics or expert opinion) will not further the diversity cause. The authors chose an example that will show the bilingual background as an asset (for those who may not know). The importance of the statement above cannot be undersold in a society where a significant portion is bilingual. Many other such *high-impact positive* “statements” can be converted into survey questions that promote diversity, such as statements concerning skin color, national origin, culture, etc.

- II. If one accepts this information and agrees with the rational extrapolation of this info, we can then identify the reasons with the second question (why do they agree?). This question is just as important as the first and it tells us why someone may choose to agree or strongly agree with the rational application of the statement (i.e. the “scenario”). These reasons will be useful information for those who are searching for more effective ways to promote diversity.
- III. If one disagrees with the information, their reasons for disagreement can be identified through another multiple choice question. This allows diversity promoters to further enhance their diversity program by trying to get rid of these misconceptions.

#### MECHANISM OF DELIVERY:

The survey will be administered using KSU-ONLINE as a tool. KSU-ONLINE is a web-based system with the capability to deliver online quizzes (or surveys in our case). Participating faculty will encourage their students to respond to the summary.

TABLE 1.	
Statement	There is empirical evidence that bilingual people are more creative and productive on average.
Scenario	Two candidates have been interviewed for the same position. Both candidates are equally qualified for the job.
Action based on statement	The bilingual person is hired. 1. Do you agree with the decision to hire the bilingual person? A. Strongly Agree      B. Agree      C. Disagree      D. Strongly disagree
	2. If your answer to question number 1 is A or B, why do you agree? (Select the best answer) A. The hiring decision is good for business. B. It is the ethical thing to do. C. It helps bilingual people. D. It makes up for past inequities.
	3. If your answer to question number 1 is C or D, why do you disagree? A. The hiring decision could be bad for business. B. This decision is bad for my race. C. It will force us to pick a candidate with whom we may not be comfortable D. It is designed to make up for past inequities.

#### SUMMARY AND FUTURE WORK:

A novel survey scheme for promoting diversity has been described. It is designed to provide knowledge to the surveyed and to identify ones attitudes toward diversity issues using a second set of questions. The benefits include imparting knowledge propagation to the surveyed and the measurement of the level of diversity friendliness (attitudes) of people taking the survey. The authors maintain that learning about attitudes will help tailor their diversity program to become more effective. As indicated earlier, this is a work in progress and the focus of this paper is the development of the survey only.

#### REFERENCES:

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5. McGown, J. (2002). Multicultural competency development: preparing students to live and work in a diverse world. Retrieved May 08 2003 <http://www.ksu.edu/catl/tilford/Competencies.htm>

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**Beverlee Kissick** earned three degrees from Kansas State University at Manhattan, Kansas: a B.S. in Sociology, MS in Curriculum and Instruction, and a Ph.D. in Educational Technology Library/Media. Beverlee is a Professor and Director of Libraries at Kansas State University at Salina where she has taught sociology. Beverlee taught at Virginia Commonwealth University, Richmond, Virginia, Fort Hays State University, Hays, Kansas, and in Kansas public schools. Kissick chaired the diversity committee at KSU at Salina for three years and has served on the President's Council on Multicultural Affairs and the Tilford Group at Kansas State University at Manhattan. Beverlee is known for her presentations on Practical Humanities.