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ABSTRACT

A study was conducted at Mercer County Community College (MCCC), in New Jersey, to compare the perceptions of full-time faculty and administrators of the impact of selected societal factors on the college and provide MCCC with a theoretical basis for implementing its strategic planning model. A survey inventory of 34 societal factors was constructed, including such issues as funding in higher education, declining enrollments, technological change, and business needs, and distributed to 47 administrators and 90 full-time faculty at MCCC. The inventory asked respondents to rank each issue from not important to most important and to provide information on their gender, number of years at MCCC, and current rank or title. Study findings and recommendations included the following: (1) the total absolute percentage (TAP) difference between faculty and administrator perceptions exceeded 33.3% on 27 items using a 5-choice scale and on 31 items using a 3-choice scale; (2) the TAP difference between responses by males and females exceeded 33.3% for 10 items on both the 5-choice and the 3-choice scales, indicating that gender was more influential than employee category in perceptions; and (3) based on the analysis it was recommended that college-wide projects begin with surveys of affected employees, that equal gender representation be sought in project committees, and that outside input be sought in any project process. Contains 56 references and the survey inventory. (BCY)

A COMPARISON OF FULL-TIME FACULTY MEMBERS AND ADMINISTRATORS WITH RESPECT TO THEIR PERCEIVED IMPACTS OF SELECTED SOCIETAL FACTORS ON MERCER COUNTY COMMUNITY COLLEGE

by

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Mercer County Community College

March, 1993

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Abstract

The purpose of this study was two-fold: (a) to compare the perceived impact which full-time faculty and administrators believe selected societal factors have on MCCC and (b) to use MCCC's full-time faculty members and administrators as a representative sample of the same at northeastern county colleges which have the same profile as MCCC. Do full-time faculty and administrators have different perceptions? Is gender a more influential variable than is employee category?

A survey inventory of 34 items (societal factors) was constructed. Forty-seven administrators and 90 faculty members responded to the survey. Each item and the responses to it were considered a separate case.

Descriptive analysis found Total Absolute Percentage (TAP) agreement at a 66.67% level (a) for employment category in 27 cases (interval scaling) and 31 cases (nominal scaling), and (b) for gender in the same 24 cases using nominal and interval scaling. Gender was found to be a more influential independent variable than employment category.

Assuming the faculty members and administrators at MCCC to be a representative sample of the population of faculty members and administrators in northeastern county colleges, an inferential analysis was conducted. The analysis found few cases of significant difference (at the .05 level) in perceived impact responses: (a) for employment category, two cases using chi-square and four cases using the F-test, and (b) for gender, eight cases using chi-square and nine cases using the F-test.

Three recommendations flow directly from this study. First, a college-wide project should begin with a survey of the affected employees which can be used as an initial database for the project. Second, in establishing a project committee, it is more important to ensure a close-to-equal gender representation than a close-to-equal employment-category representation. Third, to randomize the influence of hidden, internal biases, outside input must be made an essential part of the project process.

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INTRODUCTION

The full-time faculty and administrators at Mercer County Community College (MCCC) do not believe that they share the same perceptions with respect to the societal factors which are impacting the college. Each group believes that it has the correct view, and the other group does not. This tension between the full-time faculty and administrators has the potential for undermining the implementation of an effective strategic planning model at the college.

Further, outside of a strong sense of mutually-exclusive "groupness" between the full-time faculty and administrators, there is no evidence of either group having a monopoly on reality or even a difference of opinion with respect to the societal factors impacting the college. In short, the belief of real differences in perception may be groundless, at least from an objective point of view.

Purpose

The primary purpose of this study is to compare the perceived impact which full-time faculty and administrators believe selected societal factors have on Mercer County Community College (MCCC). The secondary purpose of this study is to use the full-time faculty and and administrators at MCCC as a sample of the population of full-time faculty and administrators at northeastern county colleges and to conduct an inferential analysis of the data collected.

Definitions

1. A "selected social factor" is represented by a descriptive phrase used as an item on the survey instrument. For the purposes of this study, a survey item is considered synonymous with the societal factor which it describes (item "a" = societal factor "a").

2. "Perceived impact" is considered a unit of measurement and is defined as the response made by a respondent to a survey item.

3. Full-time faculty are those employees with academic rank who hold ten-month or twelve-month contracts and have teaching schedules.

4. Administrators are those employees who compose the President's Management Group. To be a member of this group, an employee has to have an annual or multi-year contract and hold the title of coordinator, director, assistant dean, associate dean, dean, or vice president.

Importance to MCCC

The results of the study give the college an excellent starting point for implementing its strategic planning model. They provide the basis for a rational selection of members for the External Futures Committee (EFC) and the initial directions for EFC activity (environmental scanning and investigation).

Also, the study provides two important side effects. As an activity approved by the President of the College, it reinforces senior administrative support for the strategic planning process. Further, the implementation of the study communicates the importance of the the strategic planning project to full-time faculty and administrators and motivates interest and engagement in the project.

Importance to Higher Education

The study is important on two levels. First, it focuses on the closeness of fit between the perceptions of full-time faculty and administrators with respect to societal factors impacting a northeastern, community college. In my search of current literature, I found no research studies on this socio-educational phenomenon.

Second, the study has operational or managerial importance. The results of this study will provide the following:

1. A valid and reliable method for the development of a list of societal factors perceived by full-time faculty and administrators to have varying impacts on the college. Such a rigorously developed list

can serve as an initial guide to the environmental scanning phase of strategic planning,

2. A relevant distribution of factors (employment category and gender) for the selection of committee members. Most models of strategic planning in higher education involve committees of one sort or another; therefore, ensuring the representation of differing outlooks to produce the best possible holistic view of a college's situation is essential.

HYPOTHESES

The societal factors used in the study are operationally defined as the thirty-four items on the survey instrument. Each item (societal factor) is considered mutually exclusive from the other items.

Hypotheses for Descriptive Analysis

For the purposes of descriptive analysis, the research hypotheses are as follows and cover each of the thirty-four survey items (societal factors) as an independent observation:

1a. For each survey item taken independently, the total absolute percentage (TAP) difference in perceived-impact responses between the full-time faculty group and the administrators group will exceed 33.33%.

2a. For each survey item taken independently, the total absolute percentage (TAP) difference in perceived-impact responses between males and females will exceed 33.33%

As descriptive analysis does not support the use of a null hypothesis, the alternative hypotheses are as follows:

1b. For each survey item taken independently, the total absolute percentage (TAP) difference in perceived-impact responses between the full-time faculty group and the administrators group will not exceed 33.33%; i.e., the total absolute percentage (TAP) agreement will exceed 66.67%.

2b. For each survey item taken independently, the total absolute percentage (TAP) difference in perceived-impact responses between males and females will not exceed 33.33%; i.e., the total absolute percentage (TAP) agreement will exceed 66.67%.

These research-alternative hypotheses sets (1a and 1b; 2a and 2b) will be used to analyze the closeness of fit between the perceived-impact responses of each employment group and gender group to each of the thirty-four survey items (societal factors).

Hypotheses for Analysis of Significant Difference

For the purposes of testing the level of significant difference between independent variable groups (using MCCC full-time faculty and administrators as a sample of the northeastern population of county college full-time faculty and administrators), the research hypotheses are as follows:

3a. For each survey item taken independently, there is a significant difference at the .05 level of significance between the perceived-impact responses given by the full-time faculty group and the administrators group as determined by the Pearson's chi-square test (or Fisher's analysis of variance).

4a. For each survey item taken independently, there is a significant difference at the .05 level of significance between the perceived-impact responses given by males and females as determined by the Pearson's chi-square test (or Fisher's analysis of variance).

The null hypotheses are as follows:

3b. For each survey item taken independently, there is no significant difference at the .05 level of significance between the perceived-impact responses given by the full-time faculty group and the administrators group as determined by the Pearson's chi-square test (or Fisher's analysis of variance).

4b. For each survey item taken independently, there is no significant difference at the .05 level of significance between the perceived-impact responses

given by males and females as determined by the Pearson's chi-square test (or Fisher's analysis of variance).

These research-null hypotheses sets (3a and 3b; 4a and 4b) will be used to test the possibility of significant difference between the the perceived-impact responses of each employment group and gender group to each of the 34 survey items (societal factors).

Limitations and Assumptions

A general limitation of the study lies in the usability of the data and findings for projective purposes. MCCC is a comprehensive, northeastern, open-door community college. It is twenty-five years old under its present name and leadership, but is firmly rooted in the foundation of its predecessor institutions Trenton Junior College and the Trenton School for Industrial Arts. The majority of its full-time faculty and administrators where employed during the 1970s; thus, most employees who participated in this study can be considered senior professionals with a long history of activity within the college. Therefore, the data and findings of this study are most applicable to community colleges who share most of the characteristics described above.

One important assumption has been made in the study: the response categories created for the study are assumed to form an interval scale. This assumption was made so that the Pearson chi-square findings could be checked through the use of a more sensitive inferential test, the Fisher analysis of variance. While statisticians tend to reject the use of interval scaling with social categories, sociologists have successful used this technique in studying social perceptions. This point of difference will be discussed further in the "Literature Review" section of this report.

LITERATURE REVIEW

To support the study, a review of literature was completed in the following areas: (a) current thinking in and applications of strategic planning, (b) faculty

and administration perceptions and relations, and (c) issues of methodology. The findings of this review are summarized below in separate sections.

Strategic Planning

It is obvious now that the United States is undergoing massive, socio-cultural change (Hughes, Frances, & Lombardo, 1991; Naisbitt & Aburdene, 1990; United Way Strategic Institute, 1989; Johnston & Packer, 1987). To meet these fast-moving challenges, higher education has had to scrap its traditional, long-range planning model which focuses almost exclusively on institution-orientated decision-making in favor of a strategic planning model (Nutt & Backoff; Heath, 1988). This new model focuses on identifying societal factors (challenges and opportunities) and institutional resources (strengths and limitations) and joining them together to form a preferred, future scenario (plan) as a guide for institutional action over a given number of years (Groff, 1991; Handy, 1990; Groff & Cope, 1986; Collier, 1981).

The keys to the successful implementation of the strategic planning model (process) are (a) full support from the President and senior administration and (b) participation of the entire college community in the process (Groff, 1991; Sagini, 1991). Many colleges which have moved to strategic planning have developed "blue ribbon" committees (Landis, 1991; Miselis & Updegrove, 1990; Thomas, 1990).

This approach puts into jeopardy the necessary second criteria of successful implementation: acceptance of and buying into the plan by the college community (Landis, 1991). No matter how open or active or significant committees are, there is no guarantee that their finished work will be acceptable to their respective college communities (Sagini, 1991; Dickson & Garber, 1990; Hudgins, 1990; Pennsylvania College of Technology, 1990). In stark reality, good strategic plans developed in this fashion are in minimal use or remain gathering dust on the shelf (Bolge et al, 1991; Groff, 1991; Magelli, 1990; Penrod & Dolence, 1990).

Faculty and Administration

There has been very little research done

concerning the perceptions and relations between full-time faculty and administration (administrators). What does exist are exhortations and plans for faculty and administration to work together (Parnell, 1990; Hines, 1988). For example, a review of the Community, Technical, and Junior College (AACJC) Journal issues from December/January 1989-90 through August/September 1992, netted only eleven articles which addressed, in some fashion or another, faculty and administration relations: two on cultural diversity (Kappner, 1990-91; Harris, 1989-90), six on leadership for the future (Deegan, 1992; DeHart, 1992; Lapin, 1992; Angel & DeVault, 1991; Baker, Roueche, & Gillett-Karam, 1990; Magelli, 1990), two on affirmative action concerns (Hernandez, 1992; Andrews & Marzano, 1990-91), and one on staff development (Spear, 1991). Of the eleven articles, only those on diversity and affirmative action hinted at a difference in perception between administrators and full-time faculty members.

There are, however, a few pieces of research which have produced findings from which certain, relevant information can be drawn. Ellen Milosheff (1990) identified the following job satisfaction variables in her study of community college, full-time faculty members: "adverse financial condition of the institution [negative impact], intellectual quality of the institution and perception of department and departmental colleagues ... [and] time spent on in-school activities [negative impact] (p.17). Malcom Hill's (1983) research indicates that substantial participation in routine duties has a negative effect on job satisfaction among community college, full-time faculty members.

To exasperate full-time faculty further, the latest financial crisis in higher education is forcing administrations to demand that faculty do more with less and to hire more part-time faculty (Lazerson & Wagener, 1992; Mooney, 1992; Hines, 1988). Amidst this turmoil, the federal government and state governments are pressing for more performance audits from colleges and their faculties (Jacobson, 1992; Winn, 1992).

From the evidence above, it can be concluded that full-time faculty members at community colleges are suffering, to some extent, from job stress and a decline in job satisfaction (Leatherman, 1992; Milosheff, 1990; Hutton & Jobe, 1985; Hill, 1983). The

question now is, "What does the full-time faculty think about the administration?"

A good indicator of the relationship between full-time faculty and administrators at public, two-year colleges is the faculty perceptions recorded in The Chronicle of Higher Education Almanac: (a) 36.3% of the faculty rate participation in committee or other administrative work as an important goal, (b) 8% of the faculty believe that they are rewarded for good teaching, (c) 15.8% of the faculty believe that "the administration is open about its policies," (d) 49.5% of the faculty agree that administrators consider them when making policy, (e) 29% of the faculty see "development of leadership ability among faculty" as a high priority at their colleges, and (f) 52.4% of the faculty view cost-cutting as a top priority at their colleges (University of California at Los Angeles Higher Education Research Institute, 1992). From these findings, it would appear the relationship between full-time faculty and administration is not as good as it could be. At the very least, it is plausible to assume, for the purpose of scientific investigation, that faculty perceptions and the perceptions of administrators may be dissimilar on a number of issues.

Regretfully, there is no research on administrators which matches what has been done on full-time faculty. Nonetheless, there are two, very interesting pieces of research on full-time faculty members and administrators. In one study of faculty and chairpersons, it was found that faculty were very much interested in participatory leadership. This interest coupled with the lack of well-defined responsibilities for the chairperson and the strain of dealing with "equally qualified" peers on the part of the chairperson were the causes of ineffectiveness and low morale (Murray, 1992). Supporting these findings, another study, which focused on academic leadership and the issues of stability and stress, found that both administrators and faculty members tended to cloak ongoing stressful situations and incidents of disorganization with institutional images of control and stability (Neumann, 1990). This study implies that two realities exist coterminally in academe: an internal, routine reality and an image reality (facade) (Neumann, 1990). While both the Murray study (1992) and the Neumann study (1990) were on four-year colleges, in the absence of similar studies at

community colleges, their usefulness as a guide to this study will have to be assumed.

Lastly, there is some evidence that suggests that gender could be an important consideration in inter- and intra-group relationships in academe, specifically with faculty and administrators. Although the Milosheff study (1990) cited above did not find any significant differences in job satisfaction tied to gender, an earlier study did (Locke, Fitzpatrick & White, 1983). Also, other studies have found gender differences in certain aspects of job satisfaction (Fedler, Counts, & Smith, 1984; Buhmeyer & Hunt, 1982).

Further, numerous position statements have been published with respect to observed or assumed differences in gender perception. An excellent, current, and professional example of such a position statement is proffered by Denise K. Magner (1992) in her proposal of gender balance in the makeup of scholarly panels (p.A15-16). The evidence from the studies cited above, together with the gender position statements which have been made by many professional women in higher education, supports, at the very least, a modest attempt to address possible gender differences in any study of group perceptions.

Issues in Methodology

The data gathering method chosen for this study is a close-ended survey instrument. In survey research, data analysis is based on a determination of the type of scales into which the independent and dependent variables plausibly fit (Best & Kahn, 1989; Freeman, 1965). If the variable scales to be compared are nominal, then nonparametric statistical tests are used (Edwards, 1967; Siegel, 1956). In model survey research, the independent variable is considered nominal and the dependent variable(s) is considered interval (Isaac & Michael, 1990; Freeman, 1965). If the dependent variable can be plausibly assumed to form an interval scale, then parametric statistical tests are used (Best & Kahn, 1989; Freeman, 1965). Parametric tests are more powerful (better to use) than are nonparametric tests (Johnson, 1984; Edwards, 1967; Siegel, 1956).

There is a somewhat long-standing difference of

opinion between statisticians and social scientists with respect to the application of parametric tests (Johnson, 1984; Freeman, 1965). Mathematically, parametric tests can be used only if the dependent variable forms a scale with a true zero point and equal intervals (Johnson, 1984; Edwards, 1967). To statisticians, there are three types of possible scales: nominal, ordinal, and ratio (Johnson, 1984; Freeman, 1965).

To social researchers, there are two types of scales: nominal and interval (Isaac & Michael, 1990). If a researcher has a variable to which he/she has assigned numerical values, he/she assumes an interval (ratio) scale and tests the resultant data with parametric statistics (Best & Kahn, 1989; Freeman, 1965).

The use of parametric statistics in survey research has utility in inferential analysis (Edwards, 1967). Parametric analysis is more sensitive to significant differences or the lack of the same than is nonparametric analysis (Edwards, 1967; Siegel, 1956). For example, a requirement of the Pearson chi-square test (the most often used nonparametric test) is that each cell must be filled. In many cases, this pre-requisite requires the collapsing of variable values (intervals) into a small number of categories (Naiman, Rosenfeld, & Zirkel, 1972; Edwards, 1967). Such a necessary manipulation of the data may lead to an inflation of the chi-square score; i.e., a Type I error (Johnson, 1984; Freeman, 1965). A conservative approach to analyzing data which can be viewed as either nominal or interval is to use both parametric and nonparametric analyses and to compare the results.

Descriptive analysis is an essential part of useful research (Isaac & Michael, 1990). It is produced by rendering dependent variable values comparable and then proceeding to evaluate the relationship of said values by independent variable categories or populations (Best & Kahn, 1989; Freeman, 1965).

In research using parametric analysis, the "means" and standard deviation are commonly used in descriptive analysis because the calculation of these measures is required to compute parametric tests (Johnson, 1984). Still, these measures are not as

useful in understanding nominally-based data (data for which the independent variable(s) is/are nominal in nature) as are variation ratio and ratio difference which are often referred to as percentage analysis (Johnson, 1984; Freeman, 1965). Simply, "means" and standard deviation are not very sensitive descriptive tools and have the added disadvantage of having little meaning for those who do not have a strong statistical background (Isaac & Michael, 1990; Edwards, 1967).

METHODOLOGY AND PROCEDURES

Survey Instrument

The instrument for this study was constructed in four steps.

Step 1. Phrases describing societal factors (items) were gathered from a societal factors survey developed by Dr. Kenneth E. Varcoe, National Lecturer for Nova University's Programs for Higher Education, and five national studies (Huges, Frances, & Lombardo, 1991; Naisbitt & Aburdene, 1990; Parnell, 1990; United Way Strategic Institute, 1989; Johnston & Packer, 1987). Seventy-eight items were identified.

Step 2. A panel of judges was convened: two senior administrators, two full-time faculty members, and two research associates. Three of the panel members were female, and all members were employed by MCCC.

Thirty-one items were selected by the majority of panelists. An additional three items, two being selected by all the female panelists and one being selected by all the male panelists, were added to the survey instrument as these items may measure a possible gender bias. In total, 34 mutually exclusive items were selected for inclusion in the survey instrument.

Step 3. The survey instrument was drafted using a Likert-type format with a numerical scale. For each item, five choices were available: "1 2 3 4 5." These choices were defined in the "directions as: 1 = no importance, 2 = little importance, 3 = some importance, 4 = considerable importance, and 5 = extreme importance.

An introductory statement of purpose and request for gender and current title/academic rank information were added to complete the draft instrument.

The draft instrument was submitted to two, secondary-school English teachers for their review. Their edits were included in the second draft of the instrument.

Step 4. The second draft of the instrument was given to the panel of judges for their final comments. The judges agreed (a) that all elements of the instrument were clearly stated and mutually exclusive and (b) that the layout of the numerical values in front of each item with their definitions stated only in the directions section of the instrument would promote "equal interval" thinking among respondents as they selected their responses. The second draft was finalized as the survey instrument. A copy appears in the Appendix.

Sample

At the time of the study, MCCC had 113 full-time faculty members and 49 administrators. Of the 113 full-time faculty members, 110 had teaching schedules and three were on sabbatical.

The survey was given to the administrators who attended a randomly selected meeting of the President's Management Group. Forty-seven of the 49 administrators were present and completed surveys, producing a return rate of 95.9%. Of the 49 administrators in the population, 20 (40.8%) were female and 29 (59.2%) were male. Of the 47 administrators in the responding group, 18 (38.3%) were female, 28 (59.6%) were male, and 1 (2.1%) was unknown (did not provide gender data).

Administering the survey to full-time faculty presented a logistical problem. This problem was solved by selecting academic division meetings as the administration point. The survey was given to the full-time faculty members who attended their academic division meetings on a randomly selected day.

On the day the survey was administered, 90 of the 110 full-time faculty members were present and completed surveys, producing a return rate of 81.8%.

Of the 110 full-time faculty members teaching during the semester of the study, 46 (41.8%) were female and 64 (58.2%) were male. Of the 90 full-time faculty members in the responding group, 42 (46.7%) were female, 44 (48.9%) were male, and 4 (4.4%) were unknown (did not provide gender data).

The number of respondents for both populations fell within the minimum limit for inferential purposes in survey research (Viladas, 1982; Kish, 1965). Further, the size of the responding groups met the N-case sizes required for a 95% level of confidence as determined by the Krejcie and Morgan formula: (a) the minimal limit for a population of 110 is 86 (78.2%) and (b) the minimum limit for a population of 49 is 44 (89.8%) (Isaac & Michael, 1990).

Tabulation

A record was created and numbered for each respondent. In each respondent's record, his/her perceived-impact response to each of the 34 items was recorded and employee category and gender (or unknown) was noted. Interesting, there were no "blanks" left on any item, i.e., respondents made perceived-impact choices on all items.

Standardized data sheets were used to collate individual responses to each item by employee category and gender category. These data sheets were used to provide data for computer-based inferential analysis programs. Additionally, these sheet were used to prepare percentage data sheets for computer-based percentage (descriptive) analysis programs.

Analysis

To test the descriptive hypotheses (the 34 research-alternative hypotheses sets) of the study, raw data was refined into percentages and placed in cross-tabulation tables. Two tables were constructed for each survey item by employment category and gender: (a) one table using a five-choice interval scale for the dependent variable and (b) another table using a three-choice nominal scale for the dependent variable.

For each item table, an absolute total percentage

difference between the paired, perceived-impact intervals (categories) was calculated by each independent variable.

Illustration: Item "a"

	Response 1	Response 2	Response 3
Males	25%	25%	50%
Females	50%	25%	25%
Difference:	-25%	0%	+25%

In this illustration, the total absolute percentage (TAP) difference between the two samples (genders) is 50%. In calculating the total absolute percentage (TAP) difference, minus signs are dropped and all differences are added together.

To test the inferential hypotheses (the 34 research-null hypotheses sets) of the study using Pearson's chi-square test, the raw data was collapsed into the following categories: (a) little to no importance, (b) some importance, and (c) considerable to extreme importance. As a result, each item was tested in a 2x3 table with 2 degrees of freedom. Using the two-tailed chi-square table, significant difference at a .05 level is defined as any value equal to or greater than x = 5.99.

Because of certain limitations inherent in the Pearson's chi-square test, the inferential hypotheses, also, were tested using Fisher's Analysis of Variance test (F-test). Although the degrees of freedom vary for the two, independent variables (1,135 for employment category and 1,130 for gender), F-test tables consider any degree of freedom (numerator or denominator) as approaching infinity after 120.

As the F-test is structured as a one-tailed test and a two-tailed test is appropriate for the hypotheses in this study, some mathematically manipulation is required. The simplest conversion formula is to double the probability of the F-test result to address the negative tail of the distribution curve (Edwards, 1967). Accordingly, to use the F-test as a two-tailed test at a .05 level of significance, the critical value for the F-test must be taken from the F-distribution assigned to a .025 level of significance (Edwards, 1967; Johnson, 1984). The critical value for the F-test in this study is 5.02. Any F-score equal to or

greater than 5.02 will be considered significant at the .05 level of significance.

Limitations and Assumptions

A strong limitation in using Pearson's chi-square test is that there must a certain number of responses in each dependent variable category (table cell). Some nonparametric test experts set the minimum number of theoretical frequencies required in each cell at five. Others accept a theoretical frequency of one in some cells as long as at least eighty percent of the cells have frequencies of five or more. To meet this limitation, intervals "1" and "2" were collapsed into one category (little to no importance) and intervals "4" and "5" were collapsed into one category (considerable to extreme importance).

In collapsing dependent variable categories care must be taken in following a scientifically reasonable course of thought. In this case, the assumption is that it is reasonable to move from a five-part scale to a three-part scale by maintain the mid-point category and collapsing the extreme sets of categories on either side of the mid-point into themselves. This assumption creates an additional limitation. By collapsing intervals into categories to meet the requirements of the chi-square test, certain real population variations may be masked or certain false population variations may be created. In the first case, a Type II error results. In the second case, a Type I error results.

To control for such results, the F-test was used in this study as a comparative measure. As a parametric test, the F-test is very sensitive to real population variations and is not limited by the requirements which must be met by the chi-square test.

Lastly, the remaining assumption which has been made in designing and executing this study is a prima facia acceptance that the perceived-impact choices offered to respondents (dependent variable values) form an interval scale and can, therefore, be analyzed by the F-test. In this study, the comparative analysis permitted by using both the chi-square test and F-test should control for the individual weaknesses (limitations and/or assumptions) associated with each test.

Review of Operant Definitions

Term	Definition
Item	A description of a societal factor which stands for said factor.
Perceived-Impact Scale	The numerical scale (1 to 5) used in the survey instrument to describe the importance of an item (societal factor).
Perceived-Impact Response	A respondent's choice of one of the intervals (1 to 5) on the perceived-impact scale of a given item (societal factor).
TAP Difference (between independent variable sub-populations or population categories	The sum of all absolute percentage differences found by interval or category for a given item.
TAP Agreement (between independent variable sub-populations or population categories	The remainder from the subtraction of the TAP difference from one hundred percent (100.00%).
Five-Choice Interval Scale (same as perceived-impact scale defined above)	1 = no importance 2 = little importance 3 = some importance 4 = considerable importance 5 = extreme importance
Three-Choice Nominal Scale (is an adjusted version of the perceived-impact scale)	1&2 = little to no importance 3 = some importance 4&5 = considerable to extreme importance

RESULTS

Descriptive Analysis

Of the 34 survey items to which perceived-impact responses were made, TAP difference between the responses of the full-time faculty members and the responses of the administrators exceeded 33.33% (a) on seven items using the five-choice interval scale analysis and (b) on three items using the three-choice nominal scale.

The specific items by number and TAP differences appear in Table 1a. Items are listed by number in the Appendix.

Table 1a: Items for Which the TAP Differences in Perceived-Impact Responses Between Full-Time Faculty Members and Administrators Exceeded 33.33%

ITEM Number	--- TAP Difference Using a --- Five-Choice Interval Scale	Three-Choice Nominal Scale
19	36.03%	36.03%
22	47.90%	47.90%
30	46.19%	46.19%
3	43.22%	
10	39.67%	
16	40.24%	
28	40.38%	

On the five-choice interval scale, the total absolute percentage difference between full-time faculty responses and the responses of administrators did not exceed 33.33% on 27 items. For the three-choice nominal scale, the TAP difference between the two populations did not exceed 33.33% on 31 items.

The specific items by number and TAP differences are shown in Table 1b. Items are listed by number in the Appendix.

Table 1b: Items for Which the TAP Differences in Perceived-Impact Responses Between Full-Time Faculty Members and Administrators Did Not Exceed 33.33%

ITEM Number	--- TAP Difference Using a --- Five-Choice Interval Scale	Three-Choice Nominal Scale
1	16.69%	8.13%
2	26.76%	10.40%
4	19.20%	19.20%
5	24.33%	23.76%
6	27.52%	25.67%
7	31.02%	31.02%
8	21.18%	11.91%
9	22.27%	21.42%
11	10.02%	10.02%
12	10.78%	9.36%
13	23.64%	12.43%
14	16.41%	12.43%
15	21.13%	16.69%
17	22.46%	10.87%
18	32.43%	11.21%
20	31.39%	15.04%
21	18.25%	15.41%
23	18.01%	13.38%
24	24.30%	24.30%
25	15.93%	15.93%
26	15.08%	13.76%
27	24.54%	6.38%
29	18.20%	11.39%
31	21.89%	11.58%
32	11.39%	5.06%
33	28.98%	27.85%
34	32.67%	11.35%
3		18.11%
10		25.67%
16		19.76%
28		28.42%

Because the literature search summarized above uncovered some indications that gender could be an influential independent variable, the full-time faculty and administrator respondents were regrouped into

populations by gender (males and females). The results of the response analysis by gender are given below.

Of the 34 survey items to which perceived-impact responses were made, the TAP difference between the responses of males and the responses of females exceeded 33.33% (a) on ten items using the five-choice interval scale analysis and (b) on the same ten items using the three-choice nominal scale.

The specific items by number and TAP differences appear in Table 2a. Items are listed by number in the Appendix.

Table 2a: Items for Which the TAP Differences in Perceived-Impact Responses Between Males and Females Exceeded 33.33%

ITEM Number	--- TAP Difference Using a --- Five-Choice Interval Scale	Three-Choice Nominal Scale
4	62.78%	62.78%
5	48.89%	37.22%
15	40.00%	40.00%
16	51.11%	51.11%
17	57.22%	45.00%
18	50.00%	42.22%
22	38.33%	38.33%
28	65.56%	65.56%
29	41.67%	38.89%
31	35.56%	35.56%

On the five-choice interval scale, the TAP difference between male responses and female responses did not exceed 33.33% on 24 items. For the three-choice nominal scale, the TAP difference between the two populations did not exceed 33.33% on the same 24 items.

The specific items by number and TAP differences are shown in Table 2b. Items are listed by number in the Appendix.

Table 2b: Items for Which the TAP Differences in Perceived-Impact Responses Between Males and Females Did Not Exceed 33.33%

ITEM Number	--- TAP Difference Using a --- Five-Choice Interval Scale	Three-Choice Nominal Scale
1	11.67%	5.00%
2	17.78%	17.78%
3	22.78%	7.22%
6	26.67%	26.67%
7	22.22%	22.22%
8	32.22%	31.67%
9	30.56%	30.56%
10	16.11%	4.44%
11	27.22%	9.44%
12	27.22%	15.00%
13	31.11%	14.44%
14	31.11%	31.11%
19	15.00%	15.00%
20	28.89%	10.00%
21	21.67%	21.67%
23	30.00%	27.78%
24	30.00%	30.00%
25	26.67%	26.67%
26	21.67%	21.11%
27	21.67%	21.67%
30	23.33%	23.33%
32	7.78%	7.22%
33	26.67%	26.11%
34	23.33%	21.67%

Dividing the respondents of this study by employee category (full-time faculty members and administrators), and then by gender (males and females) produced TAP differences in perceived-impact responses which exceeded 33.33% for only a few survey items. For both independent variables (employee category and gender), the TAP differences exceed 33.33% for three common items. When the respondents were divided by gender, TAP differences above 33.33% were found for seven additional items. Another four, different items had TAP differences in responses over 33.33% when the respondents were divided by employment category.

The specific items by number and TAP differences are shown in Table 3. Items are listed by number in the Appendix.

Table 3: Items for Which the TAP Differences in Perceived-Impact Responses on the Five-Choice Interval Scale Exceeded 33.33%

ITEM Number	Males and Females	Full-Time Faculty and Administrators
16	51.11%	40.24%
22	38.33%	47.90%
28	65.56%	40.38%
4	62.78%	
5	48.89%	
15	40.00%	
17	57.22%	
18	50.00%	
29	41.67%	
31	35.56%	
3		43.22%
10		39.67%
19		36.03%
30		46.19%

Inferential Analysis

Using Pearson's chi-square test, a significant difference between the perceived-impact responses of full-time faculty members and those of administrators in the study at a .05 level of significance was found for two of the 34 survey items: item 22 "Rising cost of education" and item 30 "Social mobility problems." The F-test identified a significant difference between full-time faculty and administrator responses at the .05 level for four items: (a) item 7 "Increasing consumer demands," (b) item 10 "Employee pay and job advancement issues," (c) item 19 "Access to higher education," and (d) item 22 "Rising cost of education."

The chi-square scores and F-test scores measuring the perceived-impact response difference between full-time faculty members and administrators for each

survey item appear in Table 4a. Items are listed by number in the Appendix.

Table 4a: Results from Inferential Tests of Significant Difference Between Full-Time Faculty Responses and the Responses of Administrators by Item (Societal Factor)

Item Number	Chi-Square Scores	F-Test Scores	Item Number	Chi-Square Scores	F-Test Scores
1	2.20	0.12	18	1.66	2.73
2	0.52	0.08	19	4.61	5.09
3	1.96	2.87	20	1.27	0.15
4	1.59	0.85	21	0.91	0.01
5	1.81	0.80	22	11.37	7.51
6	2.72	0.11	23	0.66	0.53
7	3.61	5.64	24	2.93	3.66
8	0.57	0.03	25	2.28	1.03
9	2.83	0.14	26	2.85	0.97
10	2.66	5.18	27	0.22	0.25
11	0.99	0.99	28	2.88	4.26
12	0.28	0.37	29	0.82	0.71
13	0.91	2.29	30	7.18	0.26
14	0.93	0.33	31	0.46	0.19
15	2.13	0.10	32	0.29	0.08
16	3.19	0.52	33	2.74	1.94
17	1.96	0.21	34	0.52	0.07

To investigate the possibility of significant differences based on gender, the respondents who took part in the study were grouped into male and female populations. Their perceived-impact responses by item (societal factor) were then re-analyzed by gender.

Using Pearson's chi-square test, a significant difference between the perceived-impact responses of males and females in the study at a .05 level of significance was found for eight of the 34 survey items: (a) item 4 "Increasing numbers of refugees and illegal immigrants," (b) item 14 "Demographic changes," (c) item 15 "Financial aid for students," (d) item 16 "Student retention," (e) item 17 "Rising unemployment and underemployment," (f) item 22 "Rising cost of

education," (g) item 28 "Environmental/ecological concerns," and (h) item 31 "Politics/political unrest."

The F-test identified a significant difference between male and female responses at the .05 level for nine items. Seven of these items were the same as those uncovered by the chi-square test: items 4, 14, 15, 16, 17, 22, and 28. The two items found with significant differences in responses on the F-test only were item 18 "Child care needs of working parents and adult students" and item 29 "Sexism and racism."

The chi-square scores and F-test scores measuring the perceived-impact response difference between males and females for each survey item appear in Table 4b. Items are listed by number in the Appendix.

Table 4b: Results from Inferential Tests of Significant Difference Between Male Responses and Female Responses by Item (Societal Factor)

Item Number	Chi-Square Scores	F-Test Scores	Item Number	Chi-Square Scores	F-Test Scores
1	1.22	0.20	18	5.98	8.23
2	1.44	1.09	19	0.82	0.64
3	0.59	1.27	20	0.66	1.08
4	19.20	24.61	21	3.36	2.12
5	5.13	4.40	22	9.27	9.57
6	2.84	3.06	23	2.63	2.80
7	2.47	3.79	24	5.94	4.40
8	3.61	3.55	25	2.75	3.61
9	3.24	2.49	26	2.34	1.24
10	0.11	0.02	27	1.71	1.81
11	1.41	1.89	28	14.21	13.72
12	1.63	1.27	29	5.82	7.78
13	1.76	4.17	30	2.31	2.42
14	9.56	7.25	31	6.88	3.57
15	7.80	10.73	32	0.87	0.21
16	11.17	12.14	33	2.89	3.46
17	9.18	17.11	34	2.01	3.34

Grouping the respondents of the study by two independent variables (employee category and gender) and conducting two inferential tests on the

perceived-impact responses for each independent variable by item uncovered significant differences in responses for a total of 14 survey items. When respondents were divided by employee category significant differences in perceived-impact responses were found in five items. When respondents were divided by gender significant differences in responses were found in ten items. In only one item (item 22) was a significant difference in responses found in both independent variable grouping and by the use of chi-square and F-test.

The specific items by number and significant difference scores on the chi-square and F-test appear in Table 5. Items are listed by number in the Appendix.

Table 5: Significant Differences (At the .05 Level of Significance) Found Between the Perceived-Impact Responses of Respondents by Independent Variable by Item

	- Chi-Square Scores -		-- F-Test Scores --	
Item Number	Employee Category Samples	Gender Samples	Employee Category Samples	Gender Samples
22	11.37	9.27	7.51	9.57
30	7.18			
7			5.64	
10			5.18	
19			5.09	
4		19.20		24.61
14		9.56		7.25
15		7.80		10.73
16		11.17		12.14
17		9.18		17.11
28		14.21		13.72
18				8.23
29				7.78
31		6.88		

DISCUSSION

The purpose of this study was two-fold: (a) to provide MCCC with a basis for initiating a strong strategic planning effort and (b) to use MCCC's full-time faculty members and administrators as a representative sample of the same at northeastern county colleges which have the same profile as MCCC. The descriptive analysis supports purpose "a" and the inferential analysis supports purpose "b."

Analysis of Significant Difference

Given the limitations of inferential analysis, it will be discussed first. Considering the 34 items of the survey as mutually-exclusive cases, Research Hypothesis 3a was supported in only two cases using Pearson's chi-square test and in only four cases using Fisher's analysis of variance test (F-test). Null Hypothesis 3b was supported in 32 cases using Pearson's chi-square test and in 30 cases using the F-test. Research Hypothesis 1a and Null Hypothesis 1b address employment category (faculty group versus administrative group) as an independent variable.

Considering gender as an independent variable, Research Hypothesis 4a was supported in eight cases (items) using Pearson's chi-square test and in nine cases using the F-test. Null Hypothesis 4b was supported in 26 cases using Pearson's chi-square test and in 25 cases using the F-test.

The use of two tests for significant difference (chi-square and F-test) was an effective procedure for uncovering all possible significant differences. In testing the effect of employment category on perceived impact-responses (hypothesis set 1a and 1b), the F-test identified significant differences in three cases (items 7, 10, and 20) concealed by the collapsing of intervals into categories. The use of category analysis by chi-square uncovered a significant difference in one case (item 30) which was not visible in the five-interval scale analysis.

In the analysis of significant difference using gender as an independent variable, both tests (chi-square and F-test) showed significant differences in the same eight cases (items 4, 14, 15, 16, 17, 22,

and 28). The F-test identified significant differences in perceived impact-responses in two cases (items 18 and 30) which were masked by category analysis, and significant difference was found in the chi-square analysis of perceived impact-responses in one case (item 31) which was not found significant by the F-test.

Descriptive Analysis

Inferential analysis can only address the statistical possibility that the MCCC sample of full-time faculty members and administrators reflects the thinking of the total population of full-time faculty members and administrators at similar institutions. Descriptive analysis is needed to explore fully the like and unlike thinking of the faculty members and administrators at MCCC for the purpose of developing an in-house approach to strategic planning. For this part of the study, TAP difference and agreement in group impact-responses were assessed per case (item) for the independent variables of employment category and gender.

Considering employment category as an independent variable, TAP difference in perceived-impact responses supported Research Hypothesis 1a in three cases (items) using a three-choice nominal scale and seven cases (items) using a five-choice interval scale. The Alternative Hypothesis 1b which focuses on TAP agreement was supported for 31 cases using a three-choice nominal scale and for 27 cases using a five-choice interval scale.

Using gender as an independent variable, TAP difference in perceived-impact responses supported Research Hypothesis 2a in 10 cases (items) using a three-choice nominal scale and the same 10 items using a five-choice interval scale. The Alternative Hypothesis 2b which focuses on TAP agreement was supported in 24 cases (items).

CONCLUSIONS

The descriptive-analysis results of the study show a high degree of agreement between the faculty group

and administrative group with respect to their summed, perceived impact-responses in the majority of tested cases (items). A TAP difference exceeding 33.33% was found in only seven out of 34 cases, using the five-choice interval scale; only three of the seven cases exceeded the 33.33% limit in the three-choice nominal scale. Replacing employee category with gender as the independent variable produced more cases with a TAP difference exceeding 33.33%, but again, these cases amounted to only ten (items) out of 34.

Simply put, there does appear to be support for the contention that higher education professionals, whether they be faculty members or administrators and females or males as social groups, generally tend to share the same, perceived impact-responses on a majority of societal factors (external threats and opportunities).

Another important conclusion supported by the analyses is that, while there are few differences in responses among employment-category groups and gender groups, gender appears to be more influential than employment category. Higher education professionals appear to share more common ground as faculty members and administrators than they do as men and women. Interestingly, the female group generally differed from the male group in rating societal factors which directly affected the health and welfare of individuals as being considerably-and-extremely important.

Societal Factor Rated as Considerably-or-Extremely Important	Percent Female	Percent Male
Increasing number of refugees and illegal immigrants (4)	51.67	22.22
Financial aid for students (15)	86.67	66.67
Student retention (16)	86.67	61.11
Rising unemployment and under-employment (17)	85.00	62.50
Child care needs of working parents and adult students (18)	65.00	44.44
Environmental concerns (28)	71.67	38.89

Additionally, the study produced a list of societal factors which the majority of respondents in each independent-variable group (faculty and administrators; males and females) perceived as having a considerably-and-extremely important impact on MCCC. This list provides an excellent basis upon which to begin a strategic planning process at the college.

Below are the societal factors which at least 55% of the respondents in each group identified as having considerably-and-extreme important impact on the college (ADM=administrators, FAC=faculty, MAL=males, and FEM=females).

Societal Factor	Percentage of ADM/FAC	MAL/FEM
Funding of higher education (1)	91%/96%	93%/94%
Declining enrollments (2)	77%/72%	78%/69%
Lack of adequate student preparation in high school (3)	72%/81%	80%/76%
Employee pay and job advancement issues (10)	64%/77%	70%/72%
Technological change (11)	87%/82%	87%/82%
Industry and business needs (13)	85%/79%	85%/78%
Demographic changes (14)	79%/74%	85%/69%
Financial aid for students (15)	79%/74%	87%/67%
Student retention (16)	70%/74%	87%/61%
Rising unemployment/under-employment (17)	72%/74%	85%/63%
Access to higher education (19)	55%/73%	70%/63%
Decline in effective leadership (20)	64%/61%	63%/60%
Rising cost of education (22)	64%/88%	90%/71%
Recognition of cultural diversity (25)	68%/62%	72%/58%

Societal Factor	Percentage of ADM/FAC	MAL/FEM
Increasing competition for goods/jobs (26)	70%/63%	72%/61%
Weak economy/lowering standard of living (32)	62%/61%	63%/60%
Changing job requirements in the workplace (34)	72%/67%	73%/63%

Inferential analysis supports the above conclusions as projected outcomes for the population of full-time faculty members and administrators at colleges similar to MCCC. The use of both the chi-square test and F-test uncovered very few cases of significant difference. However, gender showed more control in defining group differences than did employment category.

IMPLICATIONS

For colleges which exhibit the same major characteristics as does MCCC, the results of this study point to three, guiding, action orientations for the selection of project or committee members. First, the evenness of gender representation on the project or committee is more important than the evenness of employee-category representation.

Second, collecting and analyzing focused opinion data before the start of a project or committee deliberations is an effective and efficient approach to providing project or committee members with a solid basis ("common ground") from which to begin their work. opinion data, also, will point out "uncommon ground." Such data support critical thinking. Without it, important considerations may be lost in project and committee meetings through oversight, fatigue, or the oratorical ability of a "detracting member."

Third, since it can be assumed that college employees will achieve agreement with respect to identifying and interpreting a majority of items under consideration, projects or committee work which require the development of innovative plans (fresh ideas and

orientations) should include some members from outside the college. These outside individuals can be expert consultants, professionals "from other walks of life," community residents acting as community-at-large members, or end-product users (consumers).

Additionally, the research design and methodology of this study has several important implications. Too often an artificial line is drawn between what is considered to be scientific research and practitioner (or action) research. The design and methodology of this study fits the rigor of scientific parameters as well as provides results for decision-making and action orientation. Such exploratory research is an essential base for effective and efficient action and resource development. If more of it were done, the results would be a growing body of pertinent, scientific research for higher education practitioners and futurologists.

Lastly, the methodology of this study should be considered as a model for further action research. The use of multiple methods of analysis is essential for such exploratory research. Studying the data with both nominal-scale analysis and interval-scale analysis provided a richer picture of group differences and an important double-checking of results. Using Total Absolute Percentage (TAP) analysis with cross-tabulation provided a clear and focused picture of summed differences and agreements between independent-variable groups. The use of multiple analyses does provide an additional measure of validity and reliability testing which can offer the practitioner a clear measure of confidence in the research results.

The opinion research described herein is easy to do and should become a standard tool in colleges which have Institutional Research offices. Constructing a scientific survey instrument is not as difficult as most practitioners are lead to believe. Further, survey research in a college can use a census model, thus avoiding technical problems inherent in random sample selection. Survey results are as good as the college president's commitment to the research. If the president supports the research, response rate is not a problem. Lastly, the statistical procedures and tests needed to complete such research are available in most statistical software packages and can be easily worked by the research professionals at the college.

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OPINION POLL ON THE IMPACT OF CURRENT SOCIETAL FACTORS

The purpose of this poll is to ascertain which societal factors MCCC faculty members and administrators believe are the most critical in determining the future of Mercer County and MCCC. Your participation is very much appreciated. Thank you.

Robert Bolge

Directions

The items listed below are some of the "critical social factors or issues" which experts believe will determine the future course of American society. Using the key printed below, please circle the number beside each factor which best expresses your feeling about the importance of the factor.

Key: 1 -- no importance
2 -- little importance
3 -- some importance
4 -- considerable importance
5 -- extreme importance

CIRCLE ONE					
1	2	3	4	5	Funding of higher education (1)
1	2	3	4	5	Declining enrollments (2)
1	2	3	4	5	Lack of adequate student preparation in high school (3)
1	2	3	4	5	Increasing numbers of refugees and illegal immigrants (4)
1	2	3	4	5	Rise in unionism (5)
1	2	3	4	5	Taxpayer revolt (6)
1	2	3	4	5	Increasing consumer demands (7)
1	2	3	4	5	Pressure from special interest groups (8)
1	2	3	4	5	Rapid obsolescence of equipment (9)
1	2	3	4	5	Employee pay and job advancement issues (10)
1	2	3	4	5	Technological change (11)
1	2	3	4	5	Accountability of employers and employees (12)
1	2	3	4	5	Industry and business needs (13)
1	2	3	4	5	Demographic changes (14)
1	2	3	4	5	Financial aid for students (15)

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Key: 1 -- no importance
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CIRCLE ONE

1	2	3	4	5	Student retention (16)
1	2	3	4	5	Rising unemployment and underemployment (17)
1	2	3	4	5	Child care needs of working parents and adult students (18)
1	2	3	4	5	Access to higher education (19)
1	2	3	4	5	Decline in effective leadership (20)
1	2	3	4	5	Increasing government controls (21)
1	2	3	4	5	Rising cost of education (22)
1	2	3	4	5	Special needs of African Americans and Hispanic Americans (23)
1	2	3	4	5	Special needs of senior citizens (24)
1	2	3	4	5	Recognition of cultural diversity (25)
1	2	3	4	5	Increasing competition for goods and jobs (26)
1	2	3	4	5	Needs of poor people/poverty (27)
1	2	3	4	5	Environmental/ecological concerns (28)
1	2	3	4	5	Sexism and Racism (29)
1	2	3	4	5	Social mobility problems (30)
1	2	3	4	5	Politics/political unrest (31)
1	2	3	4	5	Weak economy/lowering standard of living (32)
1	2	3	4	5	Changes in family cohesion/family life (33)
1	2	3	4	5	Changing job requirements in the workplace (34)

PLEASE COMPLETE THE BACKGROUND INFORMATION BELOW

Gender: _____ Female _____ Male

Number of years at MCCC _____

Current Title/Rank _____

Thank you, again, for participating in the project

LIST OF SOCIAL FACTORS (SURVEY ITEMS)

Item #	
1	Funding of higher education
2	Declining enrollments
3	Lack of adequate student preparation in high school
4	Increasing numbers of refugees and illegal immigrants
5	Rise in unionism
6	Taxpayer revolt
7	Increasing consumer demands
8	Pressure from special interest groups
9	Rapid obsolescence of equipment
10	Employee pay and job advancement issues
11	Technological change
12	Accountability of employers and employees
13	Industry and business needs
14	Demographic changes
15	Financial aid for students
16	Student retention
17	Rising unemployment and underemployment
18	Child care needs of working parents and adult students
19	Access to higher education
20	Decline in effective leadership
21	Increasing government controls
22	Rising cost of education
23	Special needs of African Americans & Hispanic Americans
24	Special needs of senior citizens
25	Recognition of cultural diversity
26	Increasing competition for goods and jobs
27	Needs of poor people/poverty
28	Environmental/ecological concerns
29	Sexism and Racism
30	Social mobility problems
31	Politics/political unrest
32	Weak economy/lowering standard of living
33	Changes in family cohesion/family life
34	Changing job requirements in the workplace