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ABSTRACT

This inquiry was conducted to examine influences on perceptions of survey subjects regarding ideographic characteristics of the subjects, incentives to enhance mail returns, and multiple requests for information. A mail survey sent to 297 former education students from a large university produced responses from 48.3% of the sample. The ideographic characteristics considered were date of graduation and level of work experience; the incentives considered were receipt of a newsletter and/or receipt of 25 cents mailed with the survey. Analysis of returns showed: (1) sampling former students across level of teaching experience and year of graduation did not result in a response bias to an instrument seeking perceptions on topics of general professional interest to teachers; (2) using incentives did not introduce a response bias; (3) receipt of a university newsletter did produce a higher response ratio, but receipt of a small monetary incentive (25 cents) did not; and (4) using multiple mailouts to increase the number of responses did not affect response patterns across mailout requests. (Author/JGL)

Influence of Subject Characteristics, Incentives and Multiple Mailouts on Survey Responses

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Abstract

This inquiry was conducted to examine potential influences on perceptions of survey subjects regarding characteristics of the subjects, incentives to enhance mail returns and multiple requests for information. A mail survey sent to 297 former students produced responses from 48.3 percent of the sample. Analyses of returns yielded the following results:

1. Sampling former students across level of teaching experience and year of graduation did not result in a response bias to an instrumert seeking perceptions on topics of general professional interest.
2. Using incentives to increase the number of responses to a survey did not introduce a response bias, although using a small monetary incentive (25 cents) was nonproductive in this inquiry.
3. Using multiple mailouts to increase the number of responses did not result in differences in response patterns across mailout requests.

A variety of techniques for enhancing survey returns can be found in the literature of marketing, sociology, political science and education. These techniques include pre-contacts (advanced notification of the upcoming survey), multiple and intensive follow-up correspondence to non-respondents, hand stamped postage and personalized cover letters, and the use of incentives both monetary and nonmonetary (Armstrong, 1975; Dillman, 1978; Furse, Stewart & Rados, 1981; Heberlein & Baumgartner, 1978; Huck & Gleason, 1974; Tollefson, Tracy & Kaiser, 1984; Zusman & Duby, 1984). Yet Jackson and Schuyler (1984) have reported mixed results through their application of techniques thought to enhance returns. To illustrate, they reported: fewer responses were remitted when "cute" reminders were sent rather than businesslike requests and when instruments were mailed in April rather than February; no difference in responses occurred when expensive stationary was used compared to photo copied letters, when items were mailed bulk rate rather than first class, or when surveys were mailed to arrive on Wednesday rather than Saturday; more responses occurred when reminders which included a new instrument were sent.

The prepayment of monetary incentives is thought to be a powerful technique for motivating mail survey participation. Armstrong (1975) and Linsky (1975) reported monetary incentives have consistently resulted in higher response ratios (ratio of individuals surveyed who complete and return instrument divided by total number of subjects surveyed). Additionally, the most cost-effective amount of money to offer is considered to be a

quarter, yet greater response ratios have resulted from one dollar incentives. Further, monetary incentives have been found to be most effective when enclosed with the first mailing rather than promised upon receipt of the completed questionnaire (Armstrong, 1975). Finally, although there is concern that the use of monetary incentives introduces bias, there is no evidence to support this potential problem (Nederhof, 1983; Zusman & Duby, 1984).

The present study which incorporates elements from survey research reported previously has attempted to extend this literature through examining potential influences on perceptions of subjects regarding ideographic characteristics of subjects, incentives to enhance returns, and multiple requests for information.

While the preceding description delineates the purpose of the study, research questions were phrased to guide the inquiry process. These questions include:

1. Does the date of graduation and level of work and experience influence the perceptions of respondents?
2. Do incentives influence the response ratio and the perceptions of respondents?
3. Do perceptions of subjects who responded to an initial request differ from perceptions of subjects who responded to a second request for information?

Methods

This survey was conducted during the 1985 spring semester. Typically, information gathering from former students is an iterative process within the College of Education occurring in conjunction with program development. Due to the high level of

activity in program development, five surveys have preceded this mail survey during the past decade that is, 1974, 1977, 1978, 1982 and 1983. The 1978 and 1982 efforts sought information on graduate curricula while the remaining three surveys addressed undergraduate curricula.

Subjects

A random sample stratified by year of graduation, was selected yielding 297 subjects. This sample represents 21.6% of the baccalaureate degree graduates (N=1375) from the Department of Educational Curriculum and Instruction at a large land grant university in the Southwest during a five year period (May 1980 through December 1984). The percent of male candidates during this period was 4.1%, and the percent of minority candidates was 3.2%. The corresponding percentages of male and minority candidates in the returns were 9% and 5.4%, respectively.

The number of subjects selected for this inquiry was based on the assumption of a response ratio of .5 yielding 148 completed instruments (297 * .5). A sample of this size would provide the statistical power of .56 assuming an alpha level of .05 and an effect size of .20 for the various statistical tests conducted in this investigation (Cohen, 1977 .

Instrumentation

One instrument requesting the subject's name, current address, year of graduation, current occupational status, and containing 43 Likert type items associated with pedagogical knowledge and skills was developed for this inquiry. Following these items, three additional questions were listed which sought

yes/no responses regarding a departmental newsletter. The instrument concluded with an open-ended item (additional comments). Instructions occurring immediately after the item requesting occupational status of the subject requested individuals not teaching to remit the instrument without responding to the Likert items. Figure 1 presents a portion of the items used in this inquiry. The Likert items were organized into seven content domains consistent with the skills deemed necessary by the 1984 Texas Administrative Code and Statutory Citations, Title 19, Part II (Texas Education Agency, 1984) that is, Instructional methods, strategies, media, technology (12 items); Classroom management (6 items); Measurement and evaluation (5 items); Needs of special populations (4 items); Curriculum planning: Scope and sequence of essential elements as specified in the state curriculum document (6 items); Legal and ethical aspects of teaching (4 items); Organization and management of schools (6 items). An alpha coefficient of internal consistency was determined for the 43 Likert items to be $\alpha = .93$. The Likert items sought perceptions about teacher preparation curricula in general, not the program the former student had experienced.

The instrument, printed on a single sheet of blue 110 lb index card stock, was folded in such a manner so the return address and postage label appeared on an external surface. The courier print font was used for the instrument with black ink. Subjects completing the questionnaire simply stapled or taped the folded instr nt and remitted it by mail. Recommendations of

Sudman and Bradburn (1982) regarding mail survey instruments were incorporated into the instrument's format.

Place figure 1 about here

Data Collection

Subjects for this inquiry were identified from graduation announcements beginning with the Spring 1980 commencement list and continued through the Fall 1984 commencement list. Subjects were randomly selected with parameters established by the year of graduation and number of graduates.

Addresses for these individuals were obtained from one of the following sources: departmental newsletter mailing list, records of inactive students held by the department and college, and the address file of the Association of Former Students. The departmental newsletter mailing list represented the most current source, since addresses in this list were updated following each newsletter mailout during 1985. Addresses obtained from the inactive student records were dated, reflecting the graduates' permanent address during their final semester in residence at the university. Similarly, the address list form the Association of Former Students was last updated in 1983. Concern for the accuracy of addresses drawn from these latter sources was well founded since 38 questionnaires were returned undelivered.

Because the influence of incentives on the response ratio was of interest in this inquiry, 40 subjects from the total sample were randomly selected to receive token monetary

incentives (quarters) with the initial survey request. Only two requests containing the quarters were returned undelivered. It was noted that 88 or 33.6 percent of the total sample had received one or more departmental newsletters. It was assumed the newsletters would serve to foster a stronger association between the former students and their Alma Mater thus encouraging a response to this request for information.

The initial mailout, consisting of a coverletter which emphasized the opportunity to influence teacher preparation curricula and a questionnaire, was placed in the mail Tuesday, April 23, 1985. A quarter was attached to the cover letter for those students selected to receive the monetary incentive. A sentence in their cover letters stated that the quarter was intended as a small token of appreciation for their assistance.

A second mailout was conducted three weeks after the original mailing (May 16, 1985) which excluded subjects whose questionnaires were returned undelivered. Other subjects who had not responded by that time were sent a follow-up packet which contained a letter explaining the importance of their response to program development and another copy of the questionnaire. Data received through June 17 were included in findings of this report although a closing date was not mentioned in the request.

It should be noted that we were aware of the potential difficulty of achieving a substantial return given the mailing date of the surveys and the brief period between the initial and follow-up mailings. The literature (Jackson & Schuyler, 1984) and our experience with past survey efforts both signaled

limitations with our data collection plans. Unfortunately, other projects and scheduled efforts delayed the planning and implementation of this inquiry until late in the spring semester.

Findings

The influence of demographic characteristics of subjects, incentives to enhance returns and multiple requests for information on perceptions of survey respondents are reported in these findings. A summary of the perceptions toward various knowledge and skills for a teacher preparation curricula that is, the content of the survey, can be obtained from the authors.

Survey responses were received from 125 former students or 48.3% of the 259 who were thought to have received questionnaires. Sixteen subjects who were not teaching heeded the instructions on the instrument and returned the survey completing only the biographic information. Since 38 undelivered requests were returned by the postal service, it is assumed that 12.8% (38/297) of the addresses were inaccurate. However, it is feasible that additional undelivered questionnaires were not returned because 7 of the 38 undelivered requests were received from the second mailout based on the postmark date.

The first mailing yielded 101 returns (70 returned instruments and 31 undelivered packets), while the second mailing resulted in 62 additional returns (55 returned instruments and 7 undelivered packets). This response ratio (.483) was lower and statistically different [$\underline{X}^2(4, \underline{N}=2697) = 30.28, \underline{p}<.001$] than previous mail surveys conducted with degree recipients, i.e.,

.63/1974, .63/1977, .58/1978, .60/1983 (Rosser & Denton, 1977; Denton, 1979; Denton et al., 1978; Garcia, Armstrong, Dockweiler & Wiseman, 1983). (The 1982 survey, alluded to earlier, was a telephone survey, thus the response ratio for that effort was not included in this analysis). The preceding mail surveys were conducted during the middle of the academic year (December-February) while the present effort was conducted later in the spring (April-May). Comparing the response ratios across the surveys conducted within the department, it appears that at least one contributing factor to the smaller response ratio was timing of the project. i.e., late spring (April-May). Thus one recommendation, ancillary to the findings associated with the questions of this inquiry, is to conduct mail surveys with former students during the middle stages of the academic year.

Another potentially adverse influence on the response ratio of this survey was having been asked to respond to previous surveys conducted by the department. Given the nature of earlier efforts, only the 1983 survey could have overlapped with the present survey. A chi-square statistic was applied to the returns from the current sample, grouped by year of graduation to determine whether the following response ratios across years were statistically different (.458/1980, .385/1981, .469/1982, .500/1983, .548/1984). The resulting chi-square statistic $\underline{X}^2(4, \underline{N}=297) = 2.72$, $\underline{p}>.70$ was not statistically significant indicating that for this inquiry, potentially overlapping survey requests from the same source was not a limiting factor.

The initial research question sought to determine the

influence of ideographic characteristics of subjects, i.e., date of graduation and level of work experience, on their responses. Responses to the survey items were converted to the following numerical values (5 = substantial emphasis, 4 = moderate emphasis, 3 = undecided, 2 = minimal emphasis, 1 = no emphasis) and stored in the university's mainframe computer for subsequent analyses by the SPSSX statistical package (SPSSX, 1984). As noted in the discussion of the sample, an alpha level of .05 was used as the criterion for statistical significance in this inquiry. Descriptive statistics and inferential tests (F ratios) of regression models were performed to compare perceptions of subjects responding to the instrument. Descriptive analysis revealed instances of missing data across the variables, thus the total samples for subsequent analyses were expected to vary. Given the unequal number of responses categorized by the variables, date of graduation (1980 = 20, 1981 = 13, 1982 = 26, 1983 = 21, 1984 = 29) and level of work experience (kindergarten = 16, elementary school = 49, middle or junior high school = 15, high school = 11, other = 18) a forward selection regression model with one predictor was used to provide inferential tests of perceptions across the 43 survey items. Date of graduation served as the independent variable for the initial set of regression analyses. These procedures were then repeated with level of work experience serving as the independent variable.

None (0 of 43) of the regression tests for the date-of-graduation predictor were statistically different at the .05 alpha level. Conversely, the regression models with level of

work experience serving as the predictor yielded statistically different tests for 2 of 43 comparisons. That is, level of work experience accounted for variation among responses to the following pedagogical knowledge/skills: reading strategies for content areas [$F_{(1, 86)} = 16.3$, $p<.001$] with means ranging from 4.7 (teaching elementary school) to 3.5 (teaching high school); instructional applications of microcomputers [$F_{(1,88)} = 6.6$, $p=.01$] with means ranging from 4.7 (teaching high school) to 3.9 (teaching kindergarten).

Findings presented to address this research question suggest that the ideographic variables of subjects, year-of-graduation and level-of-work-experience, did not appreciably influence perceptions of subjects responding to this survey on curricula for teacher education.

Research question 2 asked whether using incentives to encourage responding to a survey request influences the response ratio and the perceptions of those who do respond to the survey request. As noted in the data collection section, incentives consisted of a newsletter and/or twenty-five cents. Table 1 provides a summary of the response ratios and statistical comparisons associated with incentives used in this inquiry. Establishing a communication network via newsletters mailed to former students enhanced the corresponding response ratio (.588) compared to the ratio of the no incentive condition (.434). The application of chi-square to these two conditions yielded a statistically significant test, $X^2(1, N=142) = 6.27$, $p<.02$).

In contrast to the statistical tests incorporating

newsletters, the chi-square test for quarters and no incentives was not statistically significant, $\underline{X}^2(1, \underline{N}=168) = 1.44$, $\underline{p}<.2$. However, an unexpected finding was the lower response ratio (.313) for the twenty-five cent incentive compared to the no incentive condition.

Place table 1 about here

Data analysis associated with the issue of different perceptions or response bias due to incentives produced no instances in 43 comparisons where the response patterns were sufficiently different to be statistically significant. Descriptive statistics and a forward selection regression model with the incentive condition serving as the independent variable were performed to yield these findings.

The final research question, questio 3, asked whether perceptions of subjects who responded to an initial survey request differed from perceptions of subjects who responded to a second request. Two of 43 comparisons were found to be statistically different when the responses were categorized by whether the return occurred in conjunction with the first or second request for survey information from former students. These comparisons were made with the same procedures that were used for the previous research question. Different responses occurred for the pedagogical knowledge/skills, reinforcement and praise [$\underline{F}_{(1,109)} = 5.1$, $\underline{p}=.03$], and leadership styles of administrators [$\underline{F}_{(1,109)} = 6.1$, $\underline{p}=.02$]. Greater program emphasis

(higher scores) were recorded for reinforcement and praise from responses to the initial survey request (means: 4.7-first mailout, 4.3-second mailout). However, for leadership styles of administrators, this phenomenon was reversed with greater program emphasis occurring for responses to the second survey request (means: 3.3-first mailout, 3.9-second mailout). An answer to research question three based on these findings is that perceptions of subjects were not markedly different whether they responded to an initial or second request for information on a mail survey.

Discussion

Educational decision makers often rely on mail surveys to gather information because this technique is adaptable to a population with wide geographic dispersion, and is relatively low cost especially when compared with personal interviews. An additional positive attribute is that mail surveys can be conducted in a relatively brief time interval. Yet attempts to use the mail questionnaire are often frustrating, because of the difficulty in motivating sufficient participation, especially from former students.

This inquiry was conducted to examine potential relations among ideographic characteristics of subjects, incentives to enhance returns, and multiple requests for information with the perceptions of respondents. Characteristics of subjects included year of graduation and level of teaching experience. These characteristics were used as categorical variables for a series of analyses associated with research question 1. The resulting

analyses yielded two statistically different item response patterns across 86 comparisons. The low percentage (2.3%) of statistically different items resulting from these analyses is less than the alpha level (.05) established for this inquiry. In other words, the statistically different items in these analyses could have occurred due to chance. Thus, findings from this inquiry indicate the date of graduation and level of work experience did not influence the perceptions of subjects regarding topics necessary for teacher preparation curricula. Generalizing these findings to the survey research literature must be done with caution because these findings are inherently linked to the content of the questionnaire. And although the content of the questionnaire is rather commonplace in teacher education, it certainly does not generalize to all mail survey instruments.

Research question 2 addressed whether incentives enhanced the return of survey instruments and whether incentives influenced recorded perceptions. The findings of this inquiry were mixed regarding the use of incentives to increase response ratios. Individuals who had received newsletters from the department prior to receiving the questionnaire responded more often than those who had not received the departmental newsletter. Perhaps the mechanism at work in this case is salience, with those subjects who had received the departmental newsletter being aware of program development efforts through items in the newsletter, and thus understood the significance of their responses to the program development effort. This

explanation is consistent with the importance Heberlein and Baumgartner (1978) place on salience in motivating individuals to respond to mail surveys.

In contrast, the use of small monetary incentives (25 cents) in this inquiry resulted in a response ratio less than that of the no incentive condition. This finding is contrary to the work of Armstrong (1975) and Linsky (1975) who have reported that monetary incentives consistently enhance response ratios. Moreover research of Huck and Gleason (1974) who successfully used 25 cent incentives to increase mail survey responses, and successful efforts by Furse et al. (1981) and Zusman and Duby (1984) with 50 cent and one dollar incentives provide sufficient evidence that something was amiss in the present study. Evidently the 25 cent incentive was not viewed favorably by the majority of individuals receiving it in their packets. Perhaps inflation has devalued the quarter to the extent it is no longer considered a "reward" or token of appreciation as it was a decade ago.

On a more positive note, however, was the related finding from this inquiry that response incentives did not influence item response patterns. This finding is consistent with the work of Nederhof (1983), and Zusman and Duby (1984) who report no response bias due to the use of incentives to increase participation in mail surveys.

The final research question of this inquiry sought an empirically supported response to the concern whether differences in perception to the content of the questionnaire would occur

across requests for information. Results from this inquiry indicate that perceptions of former students were not markedly different across the initial and second requests for information. Similar analyses were not located in the literature reviewed.

Results of this inquiry support the wide application of mail surveys for a number of reasons. First, the stability of responses to topics of general professional interest across subject characteristics serves to emphasize the utility of mail surveys without exhaustively sampling all segments of a population. Second, using incentives to increase the number of survey responses does not tend to introduce response bias among subjects. Finally, multiple requests to increase the number of returns do not appear to affect response patterns across requests. These observations regarding subject characteristics, incentives, and multiple mailouts are offered as considerations for those planning to conduct a mail survey.

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TABLE 1

Influence of Incentives on Response Ratios of Subjects Mailed Questionnaires

Incentive Condition	Number of Responses	Number of Instruments Mailed[a]	Response	Chi square[b]	p
1. No Incentives	59	136	.434	---	
2. Newsletter	50	85	.588	6.39	<.02
3. Quarter	10	32	.313	1.44	N.S.
4. Quarter & Newsletter	6	6	1.000	6.27	<.02
Total	125	259	.483		

a Number adjusted due to the return of undelivered instruments.

b 2 x 2 Contigency table (designated reward condition compared with no incentives)

Skill/Knowledge	Program Emphasis My rating of the emphasis that should be placed on the following content/skills in education is: substantial emphasis	moderate emphasis	undecided	minimal emphasis	no emphasis
DOMAIN: INSTRUCTIONAL METHODS, STRATEGIES MEDIA, TECHNOLOGY					
1. Time management (academic engaged time of learners)	_____	_____	_____	_____	_____
2. Learner motivation	_____	_____	_____	_____	_____
3. Role of prerequisites (reviewing prerequisite learning)	_____	_____	_____	_____	_____
4. Intended learning outcomes (objectives)	_____	_____	_____	_____	_____
5. Learner guidance (cues to aid learning)	_____	_____	_____	_____	_____
6. Learner performance (application of new learning)	_____	_____	_____	_____	_____
7. Feedback (information on appropriateness of performance)	_____	_____	_____	_____	_____

Figure 1

Sample of Likert Items on Survey Instrument