

DOCUMENT RESUME

SE 020 816

ED 125 892

AUTHOR  
TITLE

Glass, Lynn W.  
An Analysis of Science Teacher Education Graduates  
from Three State Universities Currently Employed  
Full-Time in Nonacademic Positions. Abstract and  
Selected Tables from a Study.

PUB DATE  
NOTE

Apr 76  
12p.; Paper presented at the Annual Meeting of the  
National Association for Research in Science Teaching  
(49th, San Francisco, California, April 23-25,  
1976)

EDRS PRICE  
DESCRIPTORS

MF-\$0.83 HC-\$1.67 Plus Postage.  
\*Career Change; Careers; Educational Research;  
\*Graduate Surveys; \*Occupational Surveys; Science  
Education; \*Science Teachers; \*Teacher Education;  
Vocational Followup  
\*Nonacademic Positions

IDENTIFIERS

ABSTRACT

This study was designed to determine the career profiles of all science teacher graduates during the three study years from the Iowa Regents institutions. A questionnaire was mailed to each graduate, and responses were categorized into one of nine career profile patterns. An examination of the end point of each career pattern indicated that: 54 percent of the graduates currently are employed full-time in an academic position, 30.6 percent are employed in nonacademic positions, 9.8 percent are employed part-time, and 5.2 percent are not employed. A separate questionnaire was used to collect information on the graduates in nonacademic positions. Chi-square tests of significance were used on most of the 60 questionnaire items to identify those factors, skills, competencies, and experiences judged to be important by the respondents in terms of their current nonacademic positions. (MH)

\*\*\*\*\*  
\* Documents acquired by ERIC include many informal unpublished \*  
\* materials not available from other sources. ERIC makes every effort \*  
\* to obtain the best copy available. Nevertheless, items of marginal \*  
\* reproducibility are often encountered and this affects the quality \*  
\* of the microfiche and hardcopy reproductions ERIC makes available \*  
\* via the ERIC Document Reproduction Service (EDRS). EDRS is not \*  
\* responsible for the quality of the original document. Reproductions \*  
\* supplied by EDRS are the best that can be made from the original. \*  
\*\*\*\*\*



ED125892

U S DEPARTMENT OF HEALTH,  
EDUCATION & WELFARE  
NATIONAL INSTITUTE OF  
EDUCATION

THIS DOCUMENT HAS BEEN REPRO-  
DUCED EXACTLY AS RECEIVED FROM  
THE PERSON OR ORGANIZATION ORIGIN-  
ATING IT. POINTS OF VIEW OR OPINIONS  
STATED DO NOT NECESSARILY REPRESENT  
OFFICIAL NATIONAL INSTITUTE OF  
EDUCATION POSITION OR POLICY

Abstract and Selected Tables From A Study Entitled:

An Analysis of Science Teacher Education Graduates  
From Three State Universities Currently Employed  
Full-Time in Nonacademic Positions

Lynn W. Glass  
Iowa State University  
Ames, Iowa 50011

Forty-ninth Annual Meeting of the  
National Association For Research in Science Teaching  
Sir Francis Drake Hotel  
San Francisco, California  
April 22-25, 1976

020 8/6

## Abstract

Seldom do institutions of higher education conduct follow-up studies of their graduates in sufficient detail to permit them to analyze the strengths and weaknesses of the institutions' curriculum in terms of the graduates' current employment. The study reported herein was designed to analyze the responses of 173 science teacher graduates from the 1964-1965, 1969-1970, and 1973-1974 school years. All respondents received their baccalaureate during one of the above study years from either Iowa State University, The University of Iowa, or the University of Northern Iowa.

The first objective of the study was to determine the career profiles of all science teacher graduates during the three study years from the Iowa Regents Institutions. A questionnaire was mailed to each graduate and responses (75.0% return, N = 173) were categorized into one of nine different career profile patterns. An examination of the end point of each career pattern indicates that: 54.3% of the graduates currently are employed full-time in an academic position, 30.6% of the graduates currently are employed full-time in nonacademic positions (positions other than teaching, administration or academic support positions in an elementary-secondary or collegiate institutions), 9.8% of the graduates currently are employed part-time, and 5.2% of the graduates have never been employed since receiving their science teaching certificate.

The second major objective of the study was to collect information on the members of the study sample that currently were using their science teacher preparation for full-time nonacademic employment. These graduates

held full-time occupations in eight of the nine major occupational divisions of the Dictionary of Occupational Trades.

Information from the full-time nonacademically employed graduates was collected on a 69 item questionnaire which sought to answer the following questions:

1. What skills and competencies obtained in the science teacher education program by graduates of one, five, and ten years ago were used to secure and to function in employment in nonacademic fields?
2. What factors led each science teacher graduate of one, five, and ten years ago to accept employment in nonacademic fields?

Over two-thirds of the science teacher graduates currently employed in nonacademic positions indicate that work experiences gained after completing the teacher education program were the single most important experience in preparing them to secure and to function in their current nonacademic positions. Experiences in the teacher education program were ranked least out of a list of six possible choices.

Location of employer (48.4 percent), opportunity to use special abilities or aptitudes (46.7 percent) and opportunity to exercise leadership (45.2 percent) were factors most often cited as highly important in determining acceptance of current nonacademic employment.

Information gathered in this study is being utilized as input into the science teacher education curriculum development process in each of the three Regents Institutions. Since the institutions are diverse in their nature (a land-grant institution, a state university, and a former teachers' college)

the data should be of value to teacher educators in other institutions of higher education who are concerned about their science teacher preparation curriculum in terms of graduates who find the science teacher preparation program a liberal arts option with a vocational choice.

Table 1

## Distribution of Subjects by Teaching Major and Year.

| Teaching Major              | Number of Study Subjects |           |           | Total | (percent) |
|-----------------------------|--------------------------|-----------|-----------|-------|-----------|
|                             | Study Year               | 1964-1965 | 1969-1970 |       |           |
| Agriculture                 | 15                       | 44        | 26        | 85    | (2.0)     |
| Art                         | 39                       | 62        | 74        | 175   | (4.0)     |
| Business Education          | 39                       | 49        | 39        | 127   | (2.9)     |
| Distributive Education      | 4                        | 14        | 4         | 22    | (0.5)     |
| Driver Education and Safety | 0                        | 2         | 3         | 5     | (0.1)     |
| Elementary Education        | 245                      | 535       | 522       | 1,302 | (29.9)    |
| English                     | 72                       | 163       | 105       | 340   | (7.8)     |
| Guidance and Counseling     | 2                        | 3         | 0         | 5     | (0.1)     |
| Home Economics              | 69                       | 130       | 118       | 317   | (7.3)     |
| Journalism                  | 0                        | 6         | 2         | 8     | (0.2)     |
| Foreign Language            | 32                       | 75        | 46        | 153   | (3.5)     |
| Mathematics                 | 71                       | 88        | 76        | 235   | (5.4)     |
| Music                       | 16                       | 40        | 58        | 114   | (2.6)     |
| Physical Education          | 61                       | 116       | 132       | 309   | (7.1)     |
| Psychology                  | 3                        | 8         | 14        | 25    | (0.6)     |
| Natural Sciences            | 45                       | 75        | 53        | 173   | (4.0)     |
| Social Studies              | 52                       | 158       | 87        | 297   | (6.9)     |
| Special Education           | 7                        | 35        | 46        | 88    | (2.0)     |
| Speech                      | 32                       | 36        | 33        | 101   | (2.3)     |
| Librarian/Media Specialist  | 10                       | 36        | 5         | 51    | (1.2)     |
| Industrial Arts             | 21                       | 49        | 57        | 127   | (2.9)     |
| Nursery-Kindergarten        | 48                       | 5         | 21        | 74    | (1.7)     |
| Other                       | 4                        | 17        | 7         | 28    | (0.6)     |
| No major listed             | 49                       | 78        | 56        | 183   | (4.3)     |
| Total                       | 936                      | 1,824     | 1,584     | 4,344 | (100.0)   |

Table 2

Distribution of Science Teacher Graduates  
by Sex and Year.

| Study Year      | Number of Science<br>Teacher Graduates |           | Total       |
|-----------------|--|-----------|-------------|
|                 | Male                                   | Female    |             |
| 1964-1965       | 33                                     | 12        | 45          |
| 1969-1970       | 49                                     | 26        | 75          |
| 1973-1974       | 30                                     | 23        | 53          |
| Total (percent) | 112 (64.7)                             | 61 (35.3) | 173 (100.0) |

Table 3

Distribution of Science Teacher Graduates by Career Profile and Year.

| Career Profile <sup>a</sup> | Number and Percent of Science Teacher Graduates |       |           |      |           |       | Total | Percent |
|-----------------------------|---|-------|-----------|------|-----------|-------|-------|---------|
|                             | 1964-1965                                       |       | 1969-1970 |      | 1973-1974 |       |       |         |
|                             | N   | %     | N         | %    | N         | %     |       |         |
| A1                          | 26  | 57.8  | 34        | 45.3 | 29        | 54.7  | 89    | 51.4    |
| A2                          | 1   | 2.2   | 2         | 2.7  | 2         | 3.8   | 5     | 2.9     |
| B1                          | 6   | 13.3  | 21        | 28.0 | 10        | 18.9  | 37    | 21.4    |
| B2                          | 3   | 6.7   | 10        | 13.3 | 3         | 5.7   | 16    | 9.2     |
| C1                          |   |       |           |      | 1         | 1.9   | 1     | 0.6     |
| C2                          |   |       | 3         | 4.0  | 5         | 9.4   | 8     | 4.6     |
| C3                          | 7   | 15.6  | 4         | 5.3  | 2         | 3.8   | 13    | 7.5     |
| C4                          | 1   | 2.2   | 1         | 1.3  | 1         | 1.9   | 3     | 1.7     |
| C5                          | 1   | 2.2   |           |      |           |       | 1     | 0.6     |
| TOTAL                       | 45  | 100.0 | 75        | 99.9 | 53        | 100.1 | 173   | 99.9    |

CAREER PROFILE CATEGORIZATION SYSTEM<sup>a</sup>

## A. Current Full-time Academic Employment

1. Full-time employment has always been in an academic field.
2. Full-time employment has included both academic and nonacademic fields.

## B. Current Full-time Nonacademic Employment

1. Full-time employment has always been in a nonacademic field.
2. Full-time employment has included both nonacademic and academic fields.

## C. No Current Full-time Employment Outside the Household

1. Full-time employment has always been as a homemaker.
2. No full-time employment since receiving a teaching certificate.
3. Has held full-time academic employment.
4. Has held full-time nonacademic employment.
5. Has held both full-time academic and nonacademic employment.

Table 4

Current Occupation of Science Teacher Graduates  
Expressed as a Percent of All Graduates for Each Study Year.

| Occupation                           | Percent of Science Teacher Graduates by Study Year |                     |                     | Mean Percent of Graduates |
|--------------------------------------|--|---------------------|---------------------|---------------------------|
|                                      | 1964-1965<br>(N=45)                                | 1969-1970<br>(N=75) | 1973-1974<br>(N=53) |                           |
| Education                            | 60.0   | 48.0                | 58.5                | 54.3                      |
| Professional<br>(science related)    | 8.9  | 9.3                 | 7.5                 | 8.6                       |
| Professional<br>(nonscience related) | 4.4  | 8.0                 |                     | 4.6                       |
| Clerical                             |  | 6.7                 | 3.8                 | 4.0                       |
| Sales-merchandising                  | 4.4  | 2.7                 | 5.7                 | 4.0                       |
| Industrial                           |  | 5.3                 | 5.7                 | 4.0                       |
| Farming                              | 2.2  | 4.0                 |                     | 2.3                       |
| Military                             |  | 5.3                 | 1.9                 | 2.9                       |
| Student                              | 4.4  | 5.3                 | 9.4                 | 6.4                       |
| Homemaker-unemployed                 | 15.6   | 5.3                 | 7.5                 | 8.7                       |
| TOTAL                                | 99.9   | 99.9                | 100.0               | 99.8                      |

Table 5

Distribution of Study Subjects Currently Employed in Nonacademic Occupations by Teaching Major and Year.

| Teaching Major              | Number of Study Subjects |           |           | Total | (percent) |
|-----------------------------|--------------------------|-----------|-----------|-------|-----------|
|                             | 1964-1965                | 1969-1970 | 1973-1974 |       |           |
| Agriculture                 | 8                        | 21        | 8         | 37    | (7.0)     |
| Art                         | 9                        | 5         | 6         | 20    | (3.7)     |
| Business Education          | 5                        | 9         | 8         | 22    | (4.1)     |
| Distributive Education      | 0                        | 2         | 0         | 2     | (0.4)     |
| Driver Education and Safety | 0                        | 0         | 3         | 3     | (0.6)     |
| Elementary Education        | 5                        | 34        | 45        | 84    | (15.5)    |
| English                     | 3                        | 20        | 12        | 35    | (6.5)     |
| Guidance and Counseling     | 0                        | 1         | 0         | 1     | (0.2)     |
| Home Economics              | 5                        | 17        | 22        | 44    | (8.1)     |
| Journalism                  | 0                        | 1         | 1         | 2     | (0.4)     |
| Foreign Language            | 1                        | 12        | 10        | 23    | (4.2)     |
| Mathematics                 | 14                       | 15        | 12        | 41    | (7.6)     |
| Music                       | 3                        | 3         | 9         | 15    | (2.8)     |
| Physical Education          | 2                        | 13        | 27        | 42    | (7.7)     |
| Psychology                  | 0                        | 2         | 3         | 5     | (0.9)     |
| Natural Sciences            | 7                        | 17        | 8         | 32    | (5.9)     |
| Social Studies              | 7                        | 30        | 22        | 61    | (11.3)    |
| Special Education           | 0                        | 0         | 1         | 1     | (0.2)     |
| Speech                      | 6                        | 7         | 6         | 19    | (3.5)     |
| Librarian/Media Specialist  | 2                        | 2         | 0         | 4     | (0.7)     |
| Industrial Arts             | 5                        | 13        | 9         | 27    | (5.0)     |
| Nursery Kindergarten        | 1                        | 0         | 1         | 2     | (0.4)     |
| Other                       | 1                        | 3         | 1         | 5     | (0.9)     |
| No major listed             | 3                        | 6         | 3         | 14    | (2.6)     |
| Total                       | 87                       | 233       | 217       | 537   | (100.0)   |

Table 6

Experience Necessary To Qualify For Current Nonacademic Positions  
As Perceived By Science Teacher Education Graduates.

| Area of Experience  | Number | Respondent Evaluation of<br>Experience Importance, percent |                       |                         |                       |
|---|--------|--|-----------------------|-------------------------|-----------------------|
|   |        | Highly<br>Important  | Somewhat<br>Important | Somewhat<br>Unimportant | Highly<br>Unimportant |
| Major subject field   | 30     | 30.0   | 20.0                  | 16.7                    | 33.3                  |
| Minor subject field   | 27     | 11.1   | 33.3                  | 14.8                    | 40.7                  |
| Teacher education   | 30     | 10.0   | 36.7                  | 16.7                    | 36.7                  |
| General education   | 30     | 16.7   | 46.7                  | 13.3                    | 23.3                  |
| World of work prior to<br>completing teacher<br>education program | 29     | 24.1   | 41.4                  | 17.2                    | 17.2                  |
| World of work after<br>completing teacher<br>education program    | 27     | 40.7   | 29.6                  | 7.4                     | 22.2                  |

Table 7

Factors Influencing Science Teacher Education Graduates  
To Accept Full-time Nonacademic Employment

| Factor  | Number | Respondent Evaluation of Factor Importance, Percent |                    |                      |                    |
|---|--------|---|--------------------|----------------------|--------------------|
|   |        | Highly Important                                    | Somewhat Important | Somewhat Unimportant | Highly Unimportant |
| 1. Opportunity to use special abilities or aptitudes        | 30     | 46.7  | 33.3               | 13.3                 | 6.7                |
| 2. Opportunity to earn a large salary                       | 32     | 21.9  | 34.4               | 21.9                 | 21.9               |
| 3. Opportunity to be creative & original                    | 32     | 37.5  | 25.0               | 21.9                 | 15.6               |
| 4. Social status and prestige                               | 31     | 12.9  | 32.3               | 22.6                 | 32.3               |
| 5. Opportunity to work with people                          | 32     | 37.5  | 37.5               | 12.5                 | 12.5               |
| 6. Opportunity to work with things rather than people       | 32     | 12.5  | 18.8               | 28.1                 | 40.6               |
| 7. Freedom from supervision by others                       | 32     | 28.1  | 25.0               | 28.1                 | 18.8               |
| 8. Greater opportunity for advancement                      | 32     | 34.4  | 31.3               | 15.6                 | 18.8               |
| 9. Opportunity to exercise leadership                       | 31     | 45.2  | 29.0               | 16.1                 | 9.7                |
| 10. Opportunity to help and serve others                    | 31     | 41.9  | 25.8               | 25.8                 | 6.5                |
| 11. Adventure   | 31     | 29.0  | 25.8               | 25.8                 | 19.4               |
| 12. Opportunity to work with adults rather than children    | 32     | 21.9  | 18.8               | 28.1                 | 31.3               |
| 13. Felt better prepared for current position than teaching | 31     | 9.4   | 12.5               | 40.6                 | 34.4               |
| 14. Location of the employer                                | 31     | 48.4  | 25.8               | 6.5                  | 19.4               |
| 15. Dissatisfaction with prior educational experiences      | 32     | 28.1  | 15.6               | 12.5                 | 43.8               |
| 16. Retirement, health care and other benefits              | 32     | 15.6  | 25.0               | 21.9                 | 37.5               |

Table 6

Experience Necessary To Qualify For Current Nonacademic Positions  
As Perceived By Science Teacher Education Graduates.

| Area of Experience  | Number | Respondent Evaluation of<br>Experience Importance, percent |                       |                         |                       |
|---|--------|--|-----------------------|-------------------------|-----------------------|
|   |        | Highly<br>Important  | Somewhat<br>Important | Somewhat<br>Unimportant | Highly<br>Unimportant |
| Major subject field   | 30     | 30.0   | 20.0                  | 16.7                    | 33.3                  |
| Minor subject field   | 27     | 11.1   | 33.3                  | 14.8                    | 40.7                  |
| Teacher education   | 30     | 10.0   | 36.7                  | 16.7                    | 36.7                  |
| General education   | 30     | 16.7   | 46.7                  | 13.3                    | 23.3                  |
| World of work prior to<br>completing teacher<br>education program | 29     | 24.1   | 41.4                  | 17.2                    | 17.2                  |
| World of work after<br>completing teacher<br>education program    | 27     | 40.7   | 29.6                  | 7.4                     | 22.2                  |

Table 7

Factors Influencing Science Teacher Education Graduates  
To Accept Full-time Nonacademic Employment

| Factor  | Number | Respondent Evaluation of Factor Importance, Percent |                    |                      |                    |
|---|--------|---|--------------------|----------------------|--------------------|
|   |        | Highly Important                                    | Somewhat Important | Somewhat Unimportant | Highly Unimportant |
| 1. Opportunity to use special abilities or aptitudes        | 30     | 46.7  | 33.3               | 13.3                 | 6.7                |
| 2. Opportunity to earn a large salary                       | 32     | 21.9  | 34.4               | 21.9                 | 21.9               |
| 3. Opportunity to be creative & original                    | 32     | 37.5  | 25.0               | 21.9                 | 15.6               |
| 4. Social status and prestige                               | 31     | 12.9  | 32.3               | 22.6                 | 32.3               |
| 5. Opportunity to work with people                          | 32     | 37.5  | 37.5               | 12.5                 | 12.5               |
| 6. Opportunity to work with things rather than people       | 32     | 12.5  | 18.8               | 28.1                 | 40.6               |
| 7. Freedom from supervision by others                       | 32     | 28.1  | 25.0               | 28.1                 | 18.8               |
| 8. Greater opportunity for advancement                      | 32     | 34.4  | 31.3               | 15.6                 | 18.8               |
| 9. Opportunity to exercise leadership                       | 31     | 45.2  | 29.0               | 16.1                 | 9.7                |
| 10. Opportunity to help and serve others                    | 31     | 41.9  | 25.8               | 25.8                 | 6.5                |
| 11. Adventure   | 31     | 29.0  | 25.8               | 25.8                 | 19.4               |
| 12. Opportunity to work with adults rather than children    | 32     | 21.9  | 18.8               | 28.1                 | 31.3               |
| 13. Felt better prepared for current position than teaching | 31     | 9.4   | 12.5               | 40.6                 | 34.4               |
| 14. Location of the employer                                | 31     | 48.4  | 25.8               | 6.5                  | 19.4               |
| 15. Dissatisfaction with prior educational experiences      | 32     | 28.1  | 15.6               | 12.5                 | 43.8               |
| 16. Retirement, health care and other benefits              | 32     | 15.6  | 25.0               | 21.9                 | 37.5               |