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ABSTRACT

The effectiveness of grade point average (GPA) as a predictor of elementary school teaching performance during student teaching and after graduation was examined. Measures of student achievement, attitudes, and teaching ability, as reported by student teaching supervisors and by school principals where the graduates are employed, were compared for two groups of students: (1) those with grade point averages above 3.5 (A=5.0), and (2) those with GPA below 3.5. Students below 3.5 were found to be seriously deficient in basic subjects. Students with higher GPA were rated higher on measures of attitudes, teaching performance, classroom management, and overall teaching ability. The authors recommend that the standard requiring junior year education majors to maintain a GPA of 3.5 should be continued as a method of screening potential teachers. (Author/MV)

# An Evaluation of Changed Inputs on Outcomes in Teacher Education Curriculum

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An Evaluation of Changed Inputs on Outcomes in Teacher Education Curriculum

## I. Introduction

Since 1941, the College of Education of the University of Illinois has admitted into its elementary teacher program only students who have an overall grade point average (GPA) of 3.500 (A=5.0) or higher at the beginning of their junior year. Due to a number of social forces, the adequacy of a fixed GPA as a predictor of teaching effectiveness has been sharply questioned. In the inital planning of this study (in 1970), a search of the literature uncovered seventeen studies,[1] the overwhelming majority of which demonstrated little; if any, relationship of an undergraduate's GPA to success in teaching. However, for a number of methodological reasons, these results must be treated with caution. Subsequently the College of Education at Chicago Circle suspended the 3.5 GPA regulation for four years and conducted its own evaluation of the changes effected by shifting the criteria for admission to the program. This report presents the major findings of the evaluation.

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[1]The 17 studies include: Somers (1923), Whitney (1924), Ullman (1931), Breckinridge (1931), Anderson (1931), Bossing (1931), Phifips (1935), Odenweller (1936), Kriver (1937), Sandiford (1938), Hult (1945), Jones (1946), Luis (1946), Shephard (1956), Swain and Talmage (1967), Walberg (1967), Pigge (1968).

2. Sample

During a period of three years, 181 students were admitted to the College of Education with GPAs under 3.50 and above 2.99 (hereafter referred to as the "below 3.5 group"). From the students already enrolled in the College who met the 3.5 requirements at the beginning of this study, a random sample was drawn to serve as a contrast group. These 46 students were followed through the entire study (hereafter referred to as the "above 3.5 group"). The above and below 3.5 groups of students followed the same program, attended the same classes and did student teaching in the same schools. They were not identified by group affiliation in any way (except, to the evaluators).

3. Data Collection

Information regarding various aspects of students' academic ability, attitudes toward the University, teacher performance ratings, employment and other baseline data were gathered for all students. Some of these data were available from the College files, others were obtained by administering examinations and questionnaires. Two separate examinations obtained from the Educational Testing Service, the Survey of College Achievement (SCA) and the College University Environment Scales (CUES) were administered to all students in the study. Letters were sent to former students requesting employment information. Seventy-one percent of these former students responded to the inquiry. Letters were mailed to the school principals of all former students who responded that they were currently teaching full-time. Ninety-seven percent of all principals completed the teacher evaluation forms sent to them. However, since rating forms were received only for currently employed students who responded to our inquiry,

principal ratings are only available for 29% of the total sample.

4. Description of Variables

Three categories of variables were examined in this study and are outlined below:

A. Academic Achievement

1. Group Status (above and below 3.5)
2. SCA Scores (English composition, natural science, mathematics, humanities and social science-history)
3. Grade Point Averages (all-University and Education)
4. Selected Education Course Grades

B. Teaching Success

1. Employment Status (current full-time employment, current full or part-time employment, teaching employment at some time)
2. Student Teaching Ratings[2] (31 items, mean total rating, 5 factors: teaching performance and classroom management, professional qualities, personal qualities, interpersonal relationships and organization)
3. Principal Ratings[2] (27 items, mean total rating, 2 factors: teaching performance and professional qualities, and personal qualities)

C. Other

1. Course withdrawals (number of education and non-education courses which a student withdrew from)

[2]Factor analyses of items were computed to simplify and refine the data. The results of these analyses and an explanation of how factors were developed are reported in the Office of Evaluation Research's Preliminary Report of the 3.5 Study, (1974).

2. Transfer Status (is or is not a transfer student)

3. CUES ratings[2] (7 scales, 22 factors)[3]

5. Data Analysis and Interpretation of Results

A. Differences Between Above and Below 3.5 Groups

To examine the differences between the above and below 3.5 groups, t-tests were performed on all study variables. Since the student's grade point average determines whether the student is in the above or below 3.5 group, as expected, the above 3.5 group had significantly higher University and education GPA's. The same is true of all other academic achievement variables. The above 3.5 group scored significantly higher on all five SCA tests. When institutional mean norms for SCA second-semester college sophomores, men and women combined (established by ETS), are compared to the 3.5 tudy results, the differences between the above and below 3.5 students are even more striking.[4]

Table 1. SCA Percentile Ranks for Total Sample, Above 3.5 and Below 3.5 Groups

| | English | Science | Math | Humanities | Social Science |
|---|---|---|---|---|---|
| Total | 15.6 | 28.8 | 21.6 | 49.8 | 23.3 |
| Above 3.5 | 62.5 | 63.1 | 40.7 | 75.3 | 55.6 |
| Below 3.5 | 10.4 | 19.9 | 16.6 | 43.3 | 15.6 |

[3]ETS proposed 7 scales for 100 items. For an additional 60 items, the evaluators computed a factor analysis. Twenty-two significant factors were discerned.

[4]ETS norms are for all university students rather than only Education students. However, one can assume that any resulting bias would occur for above and below 3.5 students alike.

Thus, the above 3.5 group ranks higher than the national average on all measures with the exception of math scores. The below 3.5 group ranks far below the national average on all SCA measures. Since the SCA measures "...knowledge of factors and concepts, ability to perceive relationships, and understanding of basic principles in the liberal arts" (ETS, Survey of College Achievement Preliminary Technical Manual, 1969, p.7), the below 3.5 group can be considered seriously deficient in these areas. One should consider the implications of certifying as teachers individuals who are deficient in knowledge of basic subjects.

Above 3.5 students were graded significantly higher in one of the student teaching practicum courses and approached significance ($p < .06$) for a second practicum course. The superior grades of the above 3.5 group raise serious concern regarding the below 3.5 group's teaching ability.

On 11 of the 31 items on the student teaching rating form, the above 3.5 group was rated significantly higher. When a total mean score of all 31 items was calculated, the above 3.5 group again was found to be rated significantly higher. In addition, on 2 of the 5 factors--organization, and teaching performance and classroom management--the above 3.5 group was rated significantly higher. One can conclude that the cooperating teachers (who are responsible for rating student teachers) judge the above 3.5 group to be significantly better teachers than the below 3.5 group.

On only 2 of 27 principal ratings, were above 3.5 students rated significantly higher than the below 3.5 students. However, the lack of difference appears to be a function of uniformally high ratings for all teachers and the small number of students for which this information was available.

The above 3.5 group has far more positive attitudes and perceptions of the University. On 16 of the 29 CUES scales, the above 3.5 group rated the University significantly more favorably.

The withdrawal rate of above 3.5 students from non-education courses is significantly less than the below 3.5 students, but there is no difference between the number of education course withdrawals. Thus, it appears that the below 3.5 group adds somewhat to the administrative costs of the University, but not specifically to the College of Education.

No significant differences were found on any of the employment variables. This might be considered troubling due to the above stated findings that below 3.5 students are deficient in general knowledge and are rated lower by cooperating teachers. Does the fact that the below 3.5 individuals are certified lead principals to believe that they are as qualified as the above 3.5 group? Can principals detect differences, so obvious in the evidence presented here? Employment rates suggest they cannot.

B. Prediction of Student Teaching Ratings

A series of stepwise regression analyses were performed with the student teaching rating mean total and five factors (teaching performance and classroom management, professional qualities, personal qualities, interpersonal relationships, and organization) as dependent variables and group status, transfer status, education GPA, University GPA, SCA scores, education and non-education course withdrawals and CUES scales

as independent variables. From these equations, significant predictors were selected. These were then entered into a second multiple regression equation to determine the most significant predictors. Table 2 below reports the most significant predictors and the corresponding t-values found for the student teaching rating total and the five factors. Starred predictors are those which were crossvalidated by random half-samples.

Table 2. Significant Predictors of Student Teaching Ratings Mean Total and Five Factors

| | Mean Total Rating | Performance & Management | Professional Qualities | Personal Qualities | Inter-Personal Relationships | Organization |
|---|---|---|---|---|---|---|
| Education GPA | 5.98* | 6.34* | 5.45* | 5.61* | 5.35* | 5.53* |
| SCA Humanities | | | | | | -2.14* |
| CUES Univ. Facilities | 2.59 | 2.70 | 2.68 | | 2.98* | 3.02 |
| CUES Univ. Personnel & Policies | -2.05 | -2.08 | | | | |
| CUES Opportunities for Personal Enrichment | | | -3.22* | | -3.56* | |
| Non-education Withdrawals | -2.25 | | -3.13* | | | |

Upon examining the above, one finds that education GPA is the only independent variable which consistently predicts the student teaching rating, and these results have been crossvalidated. In addition, for all six dependent variables, education GPA is the strongest predictor of all the independent variables. The next most potent predictor is CUES Univer-

sity Facilities. Thus it appears that a higher education GPA and a more favorable perception of University facilities best predict higher student teaching ratings.

C. Prediction of Employment

Similar regression analyses were performed with the three employment variables as dependent variables and group status, transfer status, education GPA, University GPA, SCA scores, education and non-education course withdrawals, CUES ratings, and student teaching total and factor ratings as independent variables. Results are reported in Table 3.

Table 3. Significant Predictors of Employment

| | Employment at Some Time | Current Employment | Current Full-Time Employment |
|---|---|---|---|
| S.T.** Performance & Management | | 3.16* | |
| S.T. Personal Qualities | 3.08* | | 3.91* |
| CUES Campus Morale | -2.13 | | |
| CUES Awareness | 2.50 | | |
| CUES Practicality | | -2.25 | |

*Starred predictors are those which were crossvalidated by random half-samples.
**S.T. = Student teaching rating.

No clearcut patterns of employment predictors emerge from the above. However, it appears that student teaching ratings and attitude towards the University have some relationship with future employment.

D. Student Teaching Grades as Predictors

As a final examination of grades as predictors of teaching success, grades in student teaching practicum courses were added to the regression equations presented in Tables 2 and 3. Course grades in the practicum courses are found to be significant predictors of the student teaching total rating and four of the five student teaching rating factors. In all cases, these predictors are crossvalidated. An examination of the stepwise regression analyses showed that these course grades in effect substituted for CUES variables and the $R^2$'s were larger when the practicum grades were included. Thus the evaluators conclude that grades are the most potent and stable predictors of student teaching ratings.

## 6. Summary and Conclusions

The overwhelming evidence in this study indicates that grades do indeed differentiate between higher and lower teacher competency and ability. Above 3.5 students have a much broader knowledge base in many fields including English, Science, Math, Humanities, and Social Science-History; they are rated higher as student teachers, and they have a more positive attitude towards the University than do below 3.5 students.

A high education GPA is the single best predictor of student teaching ratings, followed by grades in student teaching practicum courses and positive perception of University facilities. Employment in the teaching field is best predicted by a wide range of variables, most of which significantly correlate with University and education GPA's.

The evaluators therefore conclude the following:

1. A fixed GPA of 3.5 is an extremely accurate predictor of teaching effectiveness.

2. Since students with a below 3.5 average are seriously deficient in several broad areas of knowledge, they should not be certified as teachers.

3. Since employers' screening does not appear to differentiate between those who are better qualified and less qualified, the University has some responsibility to do screening in the pre service program. We suggest one factor in screening be GPA.

In view of the above, the evaluators recommended that below 3.5 students not be admitted to the College program in the future. In a time when fewer teaching positions are available and competency of teachers is mandatory, it is the College's responsibility to train and certify the best teachers possible. The College can best achieve this goal by concentrating its time and resources on above 3.5 students.