The Effects of an Experimental Program on the Motivation and Self-Concept of Student Teachers

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Cette étude se penche sur les effets d'un programme expérimental qui porte sur la motivation des élèves-maîtres et l'image qu'ils ont d'eux-mêmes. Ce programme avait tout particulièrement pour but de mieux intégrer, dans la formation que reçoivent les futurs maîtres, théorie et pratique. Les résultats de l'étude démontrent que les élèves-maîtres qui ont participé à l'expérience, étaient, de façon significative, plus motivés et avaient une image d'eux-mêmes plus positive que les élèves-maîtres d'un groupe témoin.

Almost 45 years ago Willard Waller (1932) argued that the training of teachers could be greatly improved by creating a better balance between the theory presented in educational institutions and the practical application of that theory in the "dynamic social situation of the classroom" (p. 459). Specifically, he argued that student teachers required more productive time in schools and there needed to be a greater degree of integration between practice teaching and what was taught in teacher-training institutions.

Unfortunately, new programs which have been designed to improve the training of teachers have rarely been evaluated (Medley, 1973). In order to improve the education of teachers it is essential to gather empirical evidence which will indicate precisely what kind of programs are most effective. It is simply not good science, nor good practice, to recommend a way of training teachers without knowing how it affects those involved.

The present research provides an empirical evaluation of a new training program that was initiated at Memorial University of Newfoundland. This program was designed specifically to provide greater integration between what was observed and practised in schools and what was taught in the faculty of education. Thus, the basic question addressed by this research was whether student teachers who completed one year in an experimental program differed in any significant manner, in motivation to become teachers and in self-concept as teachers, from a control group of student teachers who completed one year in the regular teacher-education programs.

THE EXPERIMENTAL PROGRAM

Institutions designed for the training of classroom teachers have two important functions. The first is to provide the prospective teachers with the skills, knowledge, and intellectual resources necessary for functioning in the classroom. The second function is to initiate the socialization of student teachers into their prospective occupational role; that is, to initiate them into the role of "teacher." This socialization involves the development of motivation to become a good teacher as well as the development of a self-concept as a competent teacher.

There has been some empirical research on the skills, knowledge, and intellectual resources required by student teachers (Peck and Tucker, 1973) but there has been very little research on the motivation and the self-concept acquired by them. Yet, there are persuasive arguments that the motivation and the self-concept developed by people have important effects upon their performance in society. McClelland (1965), for example, argues that motivation influences an individual's thought and action in many different spheres of his life, particularly his occupational life. Moreover, LeVine (1969) notes that an individual develops an enduring self-concept which monitors all of his behavior. In terms of the present study this implies that the more highly motivated and self-respecting student teachers are, the better teachers they are likely to become in the future.

With this perspective in mind it may be argued that the most important task for a teacher-education program is to produce students with the motivation to become competent teachers and with self-concepts as competent teachers. Howard (1965), for example, argues that "a student needs to feel like a teacher before *any* of the professional course-work content will have real meaning for him" (p. 454). This implies that, for prospective teachers, the meaningfulness of their education is related to the degree of integration between what they observe and practise in the schools and what they are taught in the teacher-training institution.

In the 1974/75 academic year an experimental program of training teachers was initiated at Memorial University to provide a greater degree of integration between what student teachers observed and practised in the schools and what they were taught in the faculty of education. The experimental program was implemented within the structure of an existing education degree program. It was directed specifically towards student teachers in the primary and elementary routes rather than student teachers in the secondary route because of budget and personnel requirements. To be eligible for the program the student teachers had to have successfully completed at least one year of university. Thirty student teachers, in their second year of university, were enrolled in the program. The students were registered as a group in the same sections of five designated courses. Moreover, these sections were composed entirely of the student teachers in the experimental program.

In addition to their course load, which was the same as that of students in the regular programs, these students spent at least one afternoon a week, throughout the academic year, observing and practice-teaching in the various schools in the St. John's area. Each student teacher was assigned to a specific school and to a specific supervising teacher but had ample opportunity to observe in other classrooms. This allowed the student teachers to participate in the establishment of the classroom environment at the beginning of the year and to see how this environment developed and changed throughout the year. Moreover, it allowed the student teachers to play a legitimate role in the classroom activities. They were integrated into the school program as active participants rather than simply as "student teachers" who participated in the classroom activities for a two- or three-week period during practice teaching. The amount of time they spent in the schools allowed them to know many of the pupils and teachers on a personal basis. As a result, they not only participated in the regular classroom activities, but also participated in such things as field trips, sports days, and staff meetings.

The professors who participated in the experimental program consciously attempted to relate the knowledge, skills, and intellectual competencies they were attempting to teach with the experiences the student teachers were having in the schools. For example, readings and discussions were geared to what was actually happening in the classrooms. Furthermore, lessons were planned in the university classrooms and then tried out in the school classrooms. Discussions about these lessons took place both before and after they were implemented. Sometimes these discussions involved the majority of student teachers while at other times they involved as few as one student teacher. On a few occasions university classes were cancelled so that both student teachers and professors could observe special classroom demonstrations or visit innovative educational institutions in the city. Professors who taught the curriculum and instruction courses also spent a considerable amount of time assisting their students in their classroom activities. They observed them and made suggestions about how they might develop their teaching competencies.

The whole program was organized and administered by the division of student teaching, who kept close contact with each of the student teachers and each of the classroom teachers. Student teachers were assigned advisors who assisted them if they had any difficulties. Furthermore, the division organized four meetings between all of the student teachers and all of the professors involved in the program. They also organized two general meetings between student teachers, teachers, and professors. Discussions took place in these meetings about the difficulties that were encountered in the program as well as about methods and suggestions of maintaining a high level of integration between what was taught in the university and what was practised in the classroom situation.

The experimental program differed significantly from the regular programs. As we have already noted, the most important difference was that for the students in the experimental program there was a greater degree of integration between their university courses and their practical experiences in the schools. In the regular programs student teachers completed their second-year courses before they engaged in student teaching. That is, the students completed their theoretical work before their practical work and as a result there was little integration between the two aspects. Furthermore, there was little liaison between their professors and their supervising teachers. Beyond this, students in the experimental program spent significantly more time in the schools than students in the regular programs. Students in the experimental program spent at least 60 hours in the classroom setting during the academic year, plus two weeks in regular practice-teaching sessions at the end of the academic year. Except for occasional visits, student teachers in the regular programs went to the schools only during their regular practice-teaching sessions. Finally, student teachers in the experimental program received considerably more individual attention than student teachers in the regular programs. Not only were they assigned advisors, which was not so for other students, but their university classes were approximately half as large as the classes for other students.

In sum, the importance of the experimental program was that it provided what Willard Waller (1932) perceived as being fundamental almost 45 years ago. Specifically, an attempt was made to lead student teachers to systematically integrate what they learned at the university with what they observed and practised in the schools.

METHOD

Sample

The majority of second-year education students were informed about the experimental program during registration in the first week of September 1974. As a result, 30 student teachers agreed to participate. Twenty-seven of these completed questionnaires at the beginning of the academic year, September 1974, and again at the end of the academic year, April 1975.

For a control group, 50 student teachers were randomly selected from the roster of second-year student teachers who were not registered in the experimental program. All of these student teachers completed questionnaires at the beginning of the academic year and 34 of them also completed questionnaires at the end of the academic year. We were unable to locate 16 of these students at the end of the academic year and, as a result, their responses were not included in the formal analyses. However, preliminary analyses on the data provided by the first questionnaire illustrated that the 34 students who completed both questionnaires were an unbiased sample of the original 50 students.

In breakdowns of the samples, by age and sex, we observed significant

differences between the two groups. The students in the experimental program were significantly younger than the students in the regular programs ($t = 4.34, p < .05$). Furthrmore, there was a greater percentage of females in the experimental program than in the regular programs $^2= 3.84, p < .001$).

These differences indicate that the student teachers who participated in the experimental program were not a random sample of second-year education students. This may imply that any effects may be due to the initial differences between the two samples. But, as we observe later, there were no significant differences between the two groups on the pre-experimental analyses. That is, the mean motivation and self-concept scores, as computed on the data obtained from the September questionnaires, were very similar. We argue that this is more important than the differences noted on a couple of background characteristics. Nevertheless, because the students were not randomly assigned to the experimental and control groups and because 16 students in the control group did not complete the final questionnaire, results of the study must be interpreted with caution.

Procedures

As the reader understands from the above discussion a quasi-experimental research design was used. This design is identified by Campbell and Stanley (1966) as "the nonequivalent control group design" (p. 47). This means that the experimental and control groups may not be random samples of the same population. Nevertheless, the design is one that is often used in educational research because of the difficulty of randomly assigning students to different situations.

In following the procedures outlined by the general design, questionnaires were distributed to the students in both the experimental and regular programs during the first week of classes in September. Furthermore, a second questionnaire was distributed during the last week of classes in April. The first set of questionnaires was distributed to both groups in their university classroom settings. The second set, however, was distributed differently. The students in the experimental program received their questionnaires in their university classrooms while the students in the control group received their questionnaires by mail.

Both the first and second questionnaires asked the students to identify themselves, give important background information such as age and sex, and complete sets of items designed to measure their motivation to become a teacher and their self-concept as a teacher. Each questionnaire took approximately 20 minutes to complete.

The Dependent Variables

For this study, the two dependent variables, motivation and self-concept, are of immediate concern. The measure of motivation to become a teacher was constructed by summing four Likert-like items which asked each

student to indicate his desire to become a teacher, the amount of work he was willing to do in order to become a teacher, the importance of becoming a teacher, and his evaluation of teaching as a profession. These items were factor analyzed and they all loaded on a single principal axis (see Nunnally, 1967, p. 315). Furthermore, the alpha reliability coefficient for this variable was .87 (see Cronbach, 1951). This illustrated that the items composed a single reliable measure of motivation to become a teacher.

The measure of self-concept as a teacher was constructed from five items on a semantic differential (see Osgood et al., 1957; Osgood, 1962; Walberg, 1967). The semantic differential had nine original items but the factor analyses of these items illustrated that a more parsimonious and meaningful scale may be constructed from the five items which loaded on the first factor. These five items were: Pleasant–Unpleasant, Nice–Awful, Active–Passive, Happy–Sad, and Fair–Unfair. The loadings on this factor were all over .52 and the alpha reliability coefficient for this variable was .82. It was, in fact, a conceptually meaningful scale, which provided a reliable measure of the student teacher's self-concept as a teacher.

RESULTS

In the present study we hypothesized that there were no differences between the two groups for their mean scores on motivation and self-concept at the end of the 1974/75 academic year. We tested the null hypothesis because it seemed possible that the experimental program, with all of its additional work and pressures, may either enhance or inhibit the development of motivation and self-concept of the student teachers involved.

Nevertheless, since the assignment of student teachers to each of the two groups was not random, our mode of analysis, and our interpretation of the results, depends upon the similarity between the two groups on the pre-experimental tests (Campbell & Stanley, 1966, p. 48). Table 1 presents the mean scores and *t*-values for both dependent variables in September 1974. Here we observe that the students in the experimental program had slightly higher mean scores than the students in the regular programs. However, the differences between the two groups are not significant.

Table 1 / Mean Scores and *t*-Values for Motivation to Become a Teacher and Self-Concept as a Teacher – September 1974

Dependent Variables		Experimental Program	Regular Programs	*t*-Values
1. Motivation to become a teacher	Mean	17.96	16.91	
	S.D.	2.38	3.33	1.44
2. Self-concept as a teacher	Mean	22.15	21.19	
	S.D.	2.48	2.42	1.49

Furthermore, it is important to note that the scores for motivation to become a teacher may have ranged from a low of 4 to a high of 20 and the scores for self-concept as a teacher may have ranged from a low of 5 to a high of 25. From the means reported in this table it is obvious that the student teachers in both the experimental and regular programs had high motivation and high self-concepts.

Now that we have illustrated that there are no significant differences between the two groups on the pre-experimental tests it is possible to turn our attention to the post-experimental tests. These results are presented in table 2. Here we observe significant differences between the two groups for both dependent variables. That is, on both motivation to become a teacher and self-concept as a teacher the students in the experimental program had significantly higher mean scores than students in the regular programs.

Table 2 / Mean Scores and *t*-Values for Motivation to Become a Teacher and Self-Concept as a Teacher – April 1975

Dependent Variables		Experimental Program	Regular Programs	*t*-Values
1. Motivation to become a teacher	Mean	19.11	17.15	
	S.D.	1.48	2.86	3.46**
2. Self-concept as a teacher	Mean	23.08	21.45	
	S.D.	2.12	2.86	2.48*

*$p < .01$ (two-tailed). **$p < .001$ (two-tailed).

In the final statistical comparison the mean change, from September to April, in both dependent variables were computed for both groups of student teachers. These calculations reveal that on the motivation scale the students in the experimental program had a significant increase in their mean scores of 1.15 while the students in the regular programs had a non-significant increase in their mean scores of 0.24. Likewise, on the self-concept scale the students in the experimental program had a significant increase in their mean scores of 0.93 while the students in the regular programs had a non-significant increase in their mean scores of 0.26.

At face value these may not seem like very large differences. But, in terms of the ranges of each variable we may note that for the experimental group this represents an increase in motivations of 7.2% and an increase in self-concept of 4.7%. At the same time, for the control group it represents an increase in motivation of 1.5% and an increase in self-concept of 1.3%. From this perspective these differences may be considered to be quite substantial especially when we consider that one of the important functions of teacher education programs is to increase both motivation and self-concept.

CONCLUSION

The present research certainly seems to lend support to Willard Waller's (1932) suggestion that the training of teachers could be greatly improved by creating a better balance between the courses required in educational institutions and the amount and type of supervised practice teaching. This research suggests that the amount of productive time a student teacher spends in school and the integration between what is observed and practised there and what is taught in education institutions has a significant effect upon the development of his motivation to become a teacher and his self-concept as a teacher.

The findings presented in this study are consistent with the findings of previous research (Brim, 1966; Corrigan & Griswold, 1963; Horowitz, 1968). The fact that previous research efforts were often one-shot case studies while this research was at least quasi-experimental makes our findings slightly more conclusive. Nevertheless, because the student teachers were not randomly assigned to the two groups it may be argued that those in the experimental group were more committed to the program than those in the control group. While this argument may have some validity it must be noted that the students chose to participate in the program before they had very much information. In fact, the decisions were made during registration. Furthermore, if the results were due to differences in commitment we should have also observed significant differences on the pre-experimental test.

This program had at least two other results which may be noted. First, participation in the program forced student teachers, teachers, and professors to think of teacher education as being an integration of the theoretical and the practical rather than as a theoretical component followed by a practical component. More specifically, it forced professors and teachers to interact and co-operate in the training of student teachers. This resulted in the teachers becoming more aware of new theoretical advances in education and the professors becoming more aware of the practical problems which may inhibit the utilization of these advances in the classroom. As a result of this type of interaction the program was continually adjusted. Quite often the suggestions for adjustment came from the student teachers, who became more responsible for their own education.

Second, as a result of their extensive classroom experience the student teachers were able to decide, on more rational grounds, whether they would continue with their training in education. It may be important to note that all of the students decided to continue, but the opportunity was at least provided for them to opt out before they became locked into teaching as a career.

Even though we have been able to show that there are important effects

for the student teachers in the experimental program in comparison with the student teachers in the regular programs, we still have not isolated the specific factors which caused the observed results. Nevertheless, with the present study in mind we are in a better position to design further research which would examine the effects of some of the more specific factors. For example, we need to know the independent effects that practice-teaching and interaction with both professors and classroom teachers have upon the motivation and self-concept of student teachers. Furthermore, we need to know whether the effects produced by these factors are maintained or whether they wash out after a certain period of time.

Without knowing the specific factors which caused the student teachers in the experimental program to increase their motivation and self-concept we are unable to recommend particular changes for teacher-education programs except that providing greater integration between the theoretical and practical aspects seems to have some beneficial results. Nevertheless, it may be almost impossible to institute this type of program into the training of large numbers of student teachers without significant modifications. The almost unlimited access that the student teachers in the experimental program had to both teachers and professors would certainly be impossible to ensure if the program included a large number of student teachers.

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