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PRESERVICE TRAINING FOR SCIENCE TEACHING
AND THE SUBSEQUENT CLASSROOM PRACTICES
OF TEACHER-GRADUATES

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
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ABSTRACT

This study has investigated the effects of a massed and a spaced preservice programme of science training on the subsequent classroom practices of the graduates of these programmes after they had spent 6 months as year-one teachers.

The investigation was conducted in 2 phases. Phase 1 entailed an examination of the training presented to the preservice teachers and the instructional behaviours used by the science lecturers during the presentation of training. Phase 2 involved an examination of the classroom practices of the teacher-graduates.

The sample for the first phase of the study comprised 5 science lecturers and 120 preservice teachers. For Phase 2 the sample comprised 20 volunteer teachers from the earlier sample, 7 of whom had received spaced curriculum training over a period of 2 years (group 1) and 13 of whom had received massed curriculum training over a period of 6 weeks (group 2).

Information gathering techniques included direct observation and audiorecording of the curriculum training sessions and the subsequent science lessons of the 2 groups of teachers, as well as structured interviews and a questionnaire. A system developed by Adams (1965) was used for the analysis of the teaching patterns of both science lecturers and teacher-graduates.

The results of the study revealed that both groups of teachers:

- (i) indicated that they were using 47 competencies presented during preservice training with a "high" mean level of success;
- (ii) attributed their capability to use such competencies to preservice training, and
- (iii) reported that the use of these competencies had a "high" mean level of influence on their overall level of success as science teachers.

The results also revealed that of the 6 teaching patterns with which they were compared, the averaged teaching patterns of both groups of teachers resembled mostly the actual teaching patterns of their respective lecturers. Moreover, on an individual basis:

- (i) the (averaged) functional patterns of 15 of the 20 teachers resembled the averaged functional patterns of their respective lecturers; and
- (ii) the (averaged) structural patterns of 18 of the 20 teachers resembled the averaged structural patterns of their respective lecturers.

From this it was concluded that the teachers modelled the teaching patterns of their lecturers.

In addition to such findings the following conclusions were drawn from the study:

- (i) Both massed and spaced enquiry-oriented, science curriculum training did appear to be effective means for ensuring teacher-use of competencies provided during preservice training.
- (ii) Positive transfer of training did appear to have resulted from programmes of training with the same objectives of the syllabus which the graduates of these programmes subsequently used.
- (iii) Preservice training in science teaching did effect positive teacher attitudes towards the teaching of science.
- (iv) Preservice training in science teaching did appear to influence the teachers' own perceptions of how elementary science should be taught.
- (v) Role modelling did appear to be an effective means of promoting specific teaching behaviours in teachers.
- (vi) Although teacher-perceptions of the recommendations of their lecturers did appear to influence their own concepts of how science should be taught more than the actual behaviours of their lecturers, the behaviours of their lecturers did appear to have influenced their own teaching patterns more than their own recommendations.
- (vii) The teachers' ability to control pupils during science classes did appear to have the highest level of influence on their overall level of success as science teachers.
- (viii) The teachers' own knowledge and understanding of science did appear to be less influential on their science teaching success than was their own ability to teach whatever science they knew.

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