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The Effects of Teacher Training On Pre-Service Elementary Education Majors' Conceptual Framework of Reading

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What is known about the training of teachers? Does training make a difference? If training makes a difference, what type of training? What variables influence the training? What guarantee is there that training will transfer to the actual teaching situation? These are questions that were asked before, during and after the studies presented in this article. The purpose of the studies was to investigate whether a reading methods course and/or student teaching can influence an individual's conceptual framework of reading.

Vacca, Vacca and Gove (1987) define a conceptual framework of reading as an individual's belief about how students learn to read. They maintain that an individual's conceptual framework of reading lies "... on a continuum between concepts that reflect bottom-up models of reading and concepts that reflect top-down models of reading" (p. 16). Their research defines teachers with bottom-up and top-down conceptual frameworks in the following manner:

Teachers who have a bottom-up conceptual framework believe that students must decode letters and words before they are able to derive meaning from sentences, paragraphs, and largest text selections.

Teachers who hold [a top down] framework consider reading for meaning an essential component of all reading instructional situations. Therefore, they feel that the majority of reading/language arts instructional time should involve students in meaningful activities in which they read, write, speak and listen (p. 20-21).

An individual's conceptual framework of reading may fall anywhere on the continuum between these two extremes. A belief system that falls between these two extremes may reflect an interactive model. "Interactive models suggest that the process of reading is initiated by formulating hypotheses about meaning *and* by simultaneously decoding letters and words" (p. 16). The studies presented here investigated the belief systems prospective teachers hold toward teaching reading, and the effects of a reading methodology course and student teaching on these belief systems.

Study one

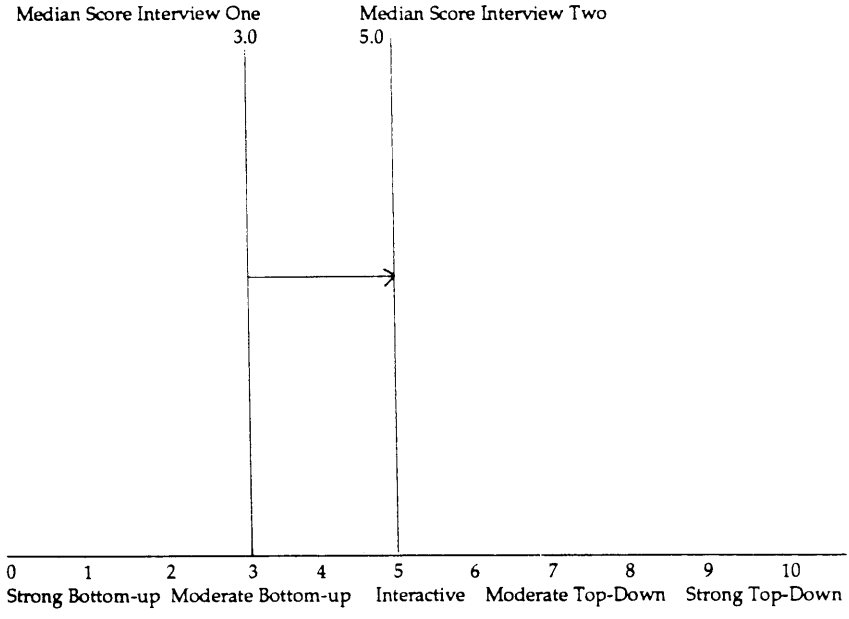
Methods and materials. The subjects for the first study were 94 elementary education majors who were enrolled in a course entitled "Elementary School Reading Teaching Strategies." The subjects were divided among four sections of the reading course taught by three different instructors. The three different instructors used the same text, course outline, course requirements and evaluation scale during the semester the study was in progress. All three instructors focused on a top-down model of reading; however, all three models of reading — top-down, bottom-up and interactive — were introduced to the students. A variable that was not controlled was the teaching style of each of the instructors.

Interview instrument and design. At the beginning and end of the semester, students were given the "Conceptual Framework of Reading Interview: Form A, Pre-service Teachers" (Vacca, et al., 1987). This interview helps a preservice or inservice teacher see "... how specific practices are theoretically related" (p. 23). The interview required the subjects to respond to a series of questions such as: "Suppose a student is reading orally in your class and makes an oral reading error. What is the first thing you will probably do? Why?" (p. 18). After the subjects responded to a total of 10 questions each, their responses were coded by checking them against sample responses in the "Guidelines for Analyzing the Conceptual Frameworks of Reading Interview" (pp. 485-488). The "Guidelines" were validated in a study by Gove in 1981 (p. 17). Each response was coded as *bottom-up* (BU), *top-down* (TD), or *not enough information* (NI) to determine which conceptual framework category was appropriate (p. 17). The columns were tallied and each student was categorized as *strong top-down, moderate top-down, moderate bottom-upon,* or *strong bottom-up.* The specific procedures for using the "Conceptual Framework of Reading Interview" were taken from Vacca, et al. (1987, pp. 17-22). An ordinal scale was devised to use in place of the nominal scale because more data can be collected using an ordinal scale. On the ordinal scale students were given the rank of *one* if they gave one top-down response, a rank of *two* if they gave two top-down responses, etc.

The reliability of the ranking criteria was determined by taking a random sample of 30 interviews and having them coded by two reading educators who were also instructors of the reading methods class. Reliability was determined by using the Spearman *rho* correlation coefficient. Reliability was considered significant at the .01 level.

Figure 1

Continuum of beliefs: Study One



Results. In the first study 94 students were matched on pre- and post-interviews. The Wilcoxon *t*-test was used to test the null hypothesis: there is no difference in the conceptual framework of reading, of the population of elementary education majors, after taking a reading methodology course. In this study the hypothesis of no difference was rejected; there was a significant change in the conceptual frameworks of these subjects. Figure 1 shows a very obvious shift to the right of the median scores, between interview one and interview two. At the beginning of the semester the median rank was 3 (*moderate bottom-up*) and after the semester the median rank

was 5 (*interactive*). The course seems to have altered the belief systems of the subjects. Adding to the descriptive analysis are some interesting differences and similarities of responses that occurred between interview one (pre-methods course) and interview two (post-methods course). In several instances subjects were found to be using "buzz" words more frequently in the second interview. An excellent example of a buzz word term that was used was "whole language." The use of the term, *whole language,* however, was not always backed up with the instructional strategies subjects suggested. Subjects would indicate whole language and individualized instruction as goals of instruction; however, with regard to vocabulary instruction would state that *all* vocabulary needed to be introduced prior to reading because of the need for correctness — subjects were basically contradicting themselves. There were also misconceptions among subjects as to what they were taught to do in a particular situation. In response to the question of *what would you do if a student made an oral reading error* (Vacca, et al., p. 18), Subject A responded:

> *Interview one — "Correct the student."*
> *Interview two — "I would have corrected the student in the past... due to information in class I know better... correct error in private."*

Basically, Subject A is still concerned with correctness in the second interview response. This subject gave no indication of using more holistic strategies such as *Don't correct if the error doesn't affect the meaning of the passage* or *If the error affects the meaning of the passage, ask students to reread the passage, tell the students the word, and ask "Does that make sense?"* (p. 486). The subject probably did not get the information for the response in interview two from class; the subject may have gotten the information from field experience. The following scenario is proposed, concerning Subject A's response, based on many observations of field experience

students. Subject A, using the strategy proposed in interview one, *correct the student,* found out that either she was constantly correcting students and/or that her corrections embarrassed the students, so she began correcting them in private. The strategy reinforced itself because the subject no longer felt uncomfortable in an oral reading situation. The problem with this strategy is that it completely isolates the word from meaningful context. The positive side of this strategy is that the subject was no longer interrupting the flow of reading. Subject A did change from a rating of 2 on the first interview to a rating of 6 on the second interview. Subject A's bottom-up beliefs on interview two dealt with correctness. Goal questions regarding ongoing activities in the classroom, however, revealed more top-down beliefs. There seems to be a dichotomy between goals and practice.

Another interesting set of interviews occurred with Subject B. Subject B, in response to the question that asked *what type of activities should the majority of instructional time be spent on* (p. 18), responded:

> *Interview one — Language experience.*
> *Interview two — Phonics is important because it helps you decode words.*

Subject B went from a rating of 5 on interview one to a rating of 4 on interview two. Subject B's response in interview two is interesting because phonics is not stressed in methods classes but language experience activities are stressed. Phonics is basically taught in the methods classes as a strategy to use when context does not help you determine a word that is necessary to meaning. Students are also shown how to teach phonics within meaningful reading situations (e.g., language experience stories, repeating favorite stories). Students are also shown research as to how students learn conventional spelling and phonics rules through their

inventive spellings. It is difficult to ascertain why this change in Subject B's instructional goals took place. One reason might be that the subject had heard the term "language experience" from some previous experience or class and wrote it down as a response without thinking whether or not the methodology would be used.

Another possible scenario for Subject B's change in instructional goals comes from observations of students and comments students have made concerning language experience activities attempted during their field experience. Students commonly state that their first experiences with language experience activities are a failure. Common complaints are: "The students keep shouting out," "I couldn't control the students," "Students fought over which ideas were to be included in the story," "I couldn't get the students to respond," "The story didn't make sense," etc. In most of these cases, the students have only tried one type of language experience activity — the group dictated language experience story. Some students who make initial negative comments will continue trying to hone their skill in using language experience activities; others will not, assuming it is a strategy that does not work well in the reality of the classroom. The students who do not try to use language experience activities seem to define language experience activities narrowly and see something wrong with the strategy rather than with their implementation.

Subject C indicated in the first interview a "teach as I was taught" philosophy. Subject C stated that "If a child doesn't know a word I would have him sound out the word, and possibly assist him... Those are the types of strategies I learned with and I think I'm okay." This response excerpted from Subject C's interview was a response to two interview questions similar to *What would you do if a student didn't*

know a word in oral reading? and *What do you think are the most important instructional activities?* (Vacca, et al., p. 18). In response to the first question in interview two, the subject responded: "I would let the child continue the rest of the sentence." The subject also suggested using context. In response to the second question the subject retained bottom-up views. Subject C stated "I would start out with very basic things and work up to more difficult (letters and words — word recognition)." Subject C went from a rating of 1 to a rating of 2. Subject C's responses also suggested that prior school experiences may be a variable to consider in teacher training.

The majority of subjects did change their bottom-up perspectives about teaching reading. There were some drastic changes between interview one and two. For example, Subject D went from a rating of 0 to a rating of 9. In interview one, Subject D indicated that word recognition and word knowledge were the most important activities in which to engage students. In the second interview, Subject D stated:

> *I will utilize the strategies suggested in the Language Experience Approach for teaching my students to read. I will use a continuous strategy of reading to the students, group dictated stories, creative writings and Directed Reading Thinking Activities. I believe there should be a lot of student teacher interactions. I believe students' interest should be considered and utilized to encourage independence...*

It is apparent from this study that the reading course did have some effect on changing the subject's perspective about teaching reading. The question that arose next was *Will this change in perspective survive student teaching?* The answer to this question was investigated in Study Two.

Study two

Methods and materials. In this study 60 students who student taught immediately after Study One were asked to fill out an interview sheet. All the student teachers were placed in elementary schools within a 30-40 mile radius of the university. University supervisors made a minimum of four visits to individual sites. No feedback was obtained from university supervisors unless they were part of this study. There was also no control over the placement of student teachers so any change in conceptual frameworks may be due to a variety of variables.

Interview instrument and design. The interview instrument used in this study was the same as Study One — the "Conceptual Framework of Reading Interview: Form A, Pre-Service Teachers" (pp. 18-19). Of the original 60 students contacted, a total of 24 interviews were returned. The interview scores of this subsample, prior to and after student teaching, were compared. The low response rate, however, may have biased the findings because the beliefs held by respondents may not be beliefs held by non-respondents.

Results. The null hypothesis to be tested was: *That there is no difference in the conceptual framework of reading, of elementary education majors, after student teaching.* This null hypothesis was tested against the directional alternative hypothesis: *the conceptual framework of reading of elementary majors will change towards a more bottom-up conceptual framework of reading.* The results of the Wilcoxon test were that the null hypothesis was accepted and the directional hypothesis rejected. There was no difference in the conceptual framework of reading, of elementary education majors after student teaching. In order to get a clearer picture of the change in this subsample, the interviews of these 24 subjects prior to and after the reading methodology course were tested.

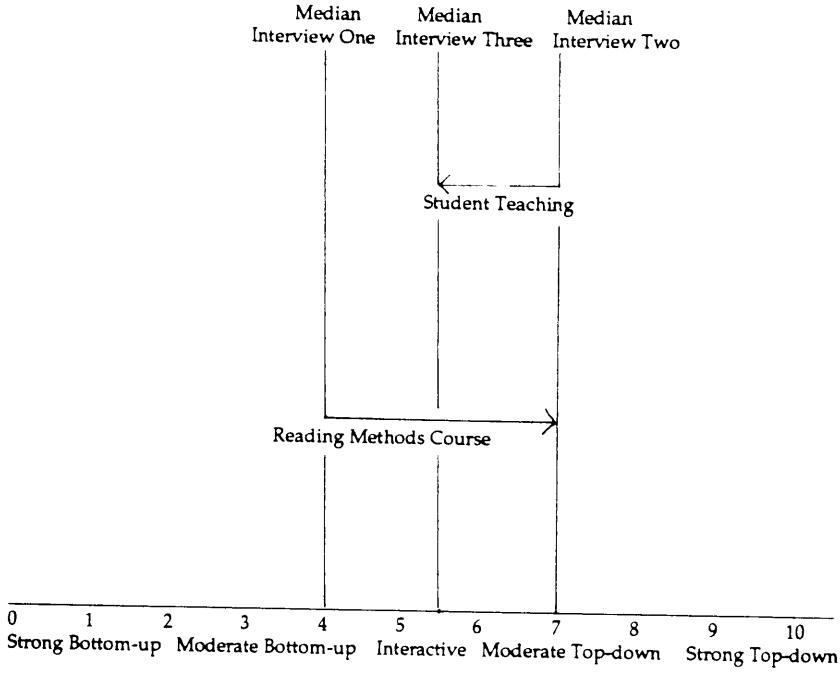
The hypothesis was the same as Study One. The results indicated that there was no difference in this subsample's conceptual framework of reading after the reading methods course. So neither the reading course nor student teaching had a statistically significant effect on these subjects' conceptual framework of reading. As with Study One, descriptive analysis added further information as to what occurred over the student teaching semester. A shift in beliefs can be observed in Figure 2.

The median rank for interview one was 4 (*moderate bottom-up*), for interview two the median rank was 7 (*moderate top-down*), and the median rank for interview three was 5.5 (*interactive*) — exactly equidistant between the median ranks of interviews one and two. This shift back towards the middle seems to indicate the abdication of at least some top-down beliefs for more bottom-up beliefs. As with Study One, there are some interesting statements made by the subjects on interview one (pre-reading course), interview two (post-reading course; pre-student teaching), and interview three (post-student teaching). Subject A's beliefs seem to have been affected by the environment. In response to the question regarding a teacher's response to oral reading errors (p. 18), the subject responded in the following manner:

> *Interview one — Ask the class if anybody can help this person out.*
>
> *Interview two — I would ignore it. By calling attention to it you make the student feel more self-conscious and it slows down the flow of the story you are reading orally.*
>
> *Interview three — correct them, because that's what I've been trained to do and have become used to it.*

Figure 2

Continuum of beliefs: Study Two



With regard to the subject's statement in interview three, the way the teacher was trained in reading class was to ignore the error, don't interrupt the flow of the reading unless the error disrupts the comprehension of the passage, and then ask if what they just read makes sense. So, obviously the subject was trained to correct oral reading errors during student teaching, not during reading class. This response of correcting oral reading errors probably had substantial ecological congruence (Copeland, 1980); it was an acceptable response to both the cooperating teacher and the students. The students were used to being corrected. The cooperating teacher

probably modeled the behavior and now the subject has "become used to it." This will probably be a difficult habit to break. Subject A's ratings were 4, 10 and 8 on the three interviews respectively.

The next two subjects' interviews were interesting because of additional knowledge about their student teaching placements. This included first-hand knowledge about the cooperating teachers, classroom environments, and school. Subject B rated the same on both interviews one and two; a rating of 4 was given on each interview. With regard to the question concerning the most important instructional activities (p. 18), Subject B responded in the following manner:

> *Interview one — Activities that deal with sounds and word pronunciation would be most important to me. Once the child has these basic tools, they can become more independent which is the primary goal of reading.*
>
> *Interview two — The most important strategies and activities to use in teaching students to read would be ones that help them become independent readers. Through the use of context clues, phonics skills and word structure knowledge, a child is able to make educated guesses. I also like the analytic approach used in most phonics activities. When students are first given the examples, it makes sense so the learning sticks.*

After student teaching, the subject responded to the same question in the following manner:

> *Interview three — Pre-reading activities. Try to bridge the gap between the material to be read and the student's personal experiences and backgrounds.*

Subject B received a ranking of 7 after student teaching. In the classroom where the subject was placed the basal reader was used only half of the time. When the basal was used, the

student teacher (Subject B) was required to supplement with stories from the same author or books on the same subject. The responses to the basal stories and related literature came in the form of creative writing, art, and music activities; no worksheets were used. Many student-authored stories or reports were always displayed in the classroom. When the students were not using basals, they were reading tradebooks, doing research in the library, or engaged in some type of cooperative learning activity. In the case of Subject B, it appears that the reading class had little effect on changing her conceptual framework; however, the student teaching experience did modify her beliefs. Subject C was not only observed during student teaching, but also during field experience, which was completed the semester prior to student teaching.

Subject C ranked 4 on the first interview and 3 on the second interview. Knowledge of Subject C's field experience sheds some light on the first two rankings. Subject C had severe management problems, and every time the subject was required to do any type of experience where students would read and write their own stories, the subject had difficulty motivating and managing the group. It was a continuous effort to keep worksheets out of the subject's hands. The subject maintained that the students liked the worksheets, were comfortable with worksheets, and that worksheets were easier to use than asking students to do anything imaginative. The subject was then placed, for student teaching, in a classroom where the following activities took place: continuous basal round robin reading; two-three worksheets to be done after workbook pages; no free reading time, etc. It comes as no surprise that Subject C received a rank of 1 on the third interview after student teaching. It cannot be proven statistically that the subject was influenced by the teaching environment; intuitively, however, this assumption seems to have some validity. In summary, Subject C's interview rankings went from a

4 (pre-reading class) to a 3 (post-reading class) to a 1 (post-student teaching).

Subject D is a subject who changed beliefs drastically over the course of the reading class and remained constant after student teaching. The subject's rankings for interviews one, two and three were 1, 8, and 8 respectively. An example of Subject D's responses to the question regarding the instructional activities in which students should be engaged the majority of the time (p. 18) are:

> *Interview one — Phonics; processing word meanings. They need to develop these basic skills in order to be successful readers later.*
>
> *Interview two — I believe in the multi-sensory approach to reading... because it exposes children to listening, reading, speaking and writing, which should all be an integral part of the reading process.*
>
> *Interview three — Hands on activities (learning centers, computers for story writing) enhance their oral and silent reading (skills are important to a point but children need practice actually reading).*

For the purpose of this study, there was no knowledge of this subject's student teaching experience. However, there is knowledge of the subject's field experience. Subject D's are stated as integrated reading, writing, speaking and listening activities. The students in Subject D's group wrote and performed plays from stories and wrote ads and recorded them on tape, etc. Subject D was very successful with these activities and this success may have served as reinforcement for doing these types of activities.

In summary, through Study One, it was determined that the reading methodology course had a statistically significant effect on the subjects' conceptual framework of reading. These results have to be interpreted carefully, however,

because of the lack of a control group. In Study Two, it was determined that neither the reading methodology course nor student teaching had a statistically significant effect on a subsample's (24 subjects) conceptual framework of reading. What may be more interesting to note from Study Two, though, is the shift in median ranking from 4 (*moderate bottom-up*) to 7 (*moderate top-down*) to 5.5 (*interactive*). Even though the subsample may not be representative of the entire sample, the shift in ranking after student teaching makes one question the effectiveness and transfer of knowledge from teacher training in the long run.

Discussion

There is a concern about the transfer of training and in particular the reversion of some subjects to more bottom-up theoretical positions. The bottom-up theoretical position is one that translates into instructional practices that require the teacher to be a technician rather than a professional. Duffy and Ball (1986) state that "... the technician uses the science of instruction in relatively inflexible ways..." (p. 165). Instructional strategies that represent a bottom-up theoretical position would maintain that the smallest units of written language must be mastered prior to introducing larger units. On the other hand, the top-down theoretical position is one that translates into instructional practices that require the teacher to be a professional. "...The professional adapts scientific knowledge to meet the shifting demands of the instructional situation" (Duffy and Ball, 1986, p. 165). Teachers with a top-down theoretical position tend to choose among alternatives, and teach children to choose among alternatives, in the reading process. The top-down theoretical position translates to teachers making many more instructional decisions. Duffy and Ball (1986) maintain that "reading educators are particularly attracted to the concept of instructional decision making" (p. 164). They give two reasons for this attraction:

> *One lies in the complexity of reading and of reading instruction. Reading educators believe that reading is not a one-dimensional skill that can be taught with scripts. Instead, reading involves a variety of cognitive processes, abilities, skills and affective conditions which lead to a variety of outcomes... When the complexity of reading interacts with the complexity of students, a variety of potential instructional alternatives becomes possible... The second reason why reading educators are drawn to the decision making model is their belief that teachers are professionals rather than technicians (p. 165).*

The relationship between theoretical position, decision making and professionalism may be futile if teachers do not make decisions based on their beliefs. The variables, beyond instruction in the reading methods course, that had an effect on the subjects in these studies were prior school and student teaching experiences. The role of prior school experiences was not as obvious a variable — however, it warrants some attention. A statement made by Subject C in Study One identified prior school experience as a variable that had influence. Subject C indicated that "to teach as you were taught" was an acceptable instructional decision. Barnes (1987) documented the influence of prior school experience and stated that:

> *The preconceptions and images of teaching that prospective teachers bring to their formal study of teaching frequently remain unexamined in traditional teacher education programs and persist in spite of exposure to contradictory models (p. 14).*

It could be an assumption from the findings of Study One that the role of prior school experience had been sufficiently dealt with because of the significant change in the subjects' conceptual frameworks. When the findings of Study Two, however, are taken in concert with Study One certain

questions arise. For example: "Does the classroom environment in which the subjects were placed for student teaching more closely parallel their prior school experiences and thus reinforce these prior experiences as a possible knowledge base for instructional decision making?" and "Did prior school experiences have anything to do with the reversion to more bottom-up beliefs after student teaching?" or "Was there a more complex series of variables responsible for the reversion of beliefs (i.e., prior school experiences, the classroom environment and/or the cooperating teacher)?" The effect that the student teaching experience had on the subjects in Study Two was a reversion to more bottom-up beliefs about teaching reading. Copeland (1980) states that this may be attributed to ecological incongruence. Copeland describes the ecological system of the classroom in the following manner.

> *...patterns of teaching and learning behavior are part of an interrelated ecological network in the classroom and the exhibition of some types of behaviors "fit into" that network while other behaviors do not (p. 195).*

Using the idea of ecological congruence or incongruence, an understanding of the reversion to bottom-up beliefs in Study Two begins to emerge. Subjects in the study who entered their student teaching assignment reflecting more top-down beliefs may not have had their beliefs reinforced. More specifically, if these beliefs were not part of the ongoing instruction in the classroom they would not have been modeled or reinforced by the cooperating teacher. This ecological incongruence may have caused subjects to abandon their beliefs. On the other hand, if the subjects' beliefs were congruent, they would have been reinforced. Findings of Study Two indicate, however, that the ecological incongruence supposition may have been the more common situation. Copeland suggests that to overcome this problem

we need to train students to have "a clearer and more integrated understanding of the realities present in classrooms" (p. 194). Copeland further suggests that classes in which student teachers are placed should be "more congruent with the skills we wish them to practice" (p. 198).

Cohn and Gellman (1988), with regards to student teachers, state "... that the ability to analyze one's own teaching is a crucial inquiry skill needed to continue growth..." (p. 6). As teacher educators we too must continue to inquire in order to grow. To tell our students to question, to inquire and then not to model this behavior ourselves creates a credibility problem. In order to address the problem of transfer of training, as identified by the studies presented, we must first look to ourselves and analyze our own teaching and take responsibility for finding some of the answers. We cannot expect our students to do what we ourselves are unwilling to do.

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