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Modeling Instructional Best Practices: Pedagogy of College of Education Professors

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In light of increased accountability for K-12 student achievement, critics have questioned the quality of teachers and school principals as well as the university programs that prepare them for these roles (Lambert, 1996; Levine, 2005; Murphy, 1992). Regarding the preparation of teachers, critics have stated that education courses are vapid, impractical, segmented, and directionless (Glenn, 2000). Two national reports that have made recommendations for teacher redesign are noteworthy. The report of the National Commission on Teaching and America's Future, *What matters most: Teaching for America's future* (Lambert, 1996), found that teacher preparation education is thin and fragmented and recommended that universities reinvent teacher preparation. The Glenn Commission's report, *Before It's Too Late* (2000), called for the identification of exemplary teacher preparation programs to be held up as models for other programs to emulate.

Similar charges have been leveled against university preparation programs for school principals. A report by the Southern Regional Education Board (Fry, O'Neill, & Bottoms, 2006) stated, "Given the urgency for increased student achievement, it would seem that redesigning principal preparation programs around leadership practices that have a high impact on students' learning would be a high priority at every university. Yet, it is not" (p. 2). The No Child Left Behind (NCLB) Act of 2001 and research (Bottoms, O'Neill, Fry, & Hill, 2003; Cotton, 2002; Mazzeo, 2003;) substantiate both a

scant supply of talented candidates to lead schools and the importance of these individuals in improving student achievement.

For the past decade, university principal preparation programs have been under vigorous scrutiny. Levine (2005) claimed the quality of most preparation programs for school leaders ranged from “inadequate to appalling” (p. 24), and Hess and Kelly (2005) reported that principals are not mastering the skills necessary to lead school improvement and increase student achievement in the 21st Century.

As a consequence of these charges, some state departments of education mandated that state universities redesign teacher preparation and principal preparation programs to provide a plethora of authentic field experiences preparing students and candidates to assume their respective roles of teacher and school leader. The Louisiana Department of Education, for example, mandated that all state universities redesign their teacher preparation and principal preparation programs prior to the end of 2008, after which the former programs would not meet certification standards.

A critical role of teacher is, obviously, to use high quality instruction that reaches diverse learners and increases student achievement (Marzano, Pickering, & Pollock, 2001). Similarly, one of the most important roles of school principal is that of an instructional leader, one who not only recognizes and reinforces high quality teaching but also understands how to help the faculty employ instructional best practices and how to provide appropriate professional development to improve teachers’ classroom teaching (Cotton, 2002).

In order to fulfill such a responsibility, professional standards from the National Council for Accreditation of Teacher Education (NCATE) and the Educational

Leadership Constituent Council (ELCC) dictate that teacher preparation and principal preparation programs equip candidates with a repertoire of instructional best practices. Modeling has been demonstrated to be an effective teaching strategy (Bandura, 1971; Oser and Baeriswyl, 2001). Thus, modeling instructional best practices by the university professors who train pre-service teachers is an effective means of preparing them to implement high quality instruction leading to increased student achievement. Similarly, modeling instructional best practices by the university professors who train aspiring school principals is an effective means of preparing them to recognize and reinforce high quality instruction in their future role of instructional leader.

Research suggests that constructivism is an approach that improves student learning (Jensen, 1998; Lambert et al, 2002; Martin, 2009). Furthermore, the Mid-Continent Research for Education and Learning (McREL) performed a meta-analysis on various instructional practices and identified nine instructional strategies falling under the umbrella of constructivism that demonstrated significant gains in student achievement (Marzano et al, 2001; Marzano, 2003). The present study is focused on the use of those instructional best practices in the redesigned teacher and principal preparation programs at a southeastern university.

Theoretical Framework

Constructivism is a very broad learning theory rooted in the use of prior knowledge and personal experiences to form new knowledge, the connection of what is already known to new information, preferably completed in a social setting; and self-examination (Lambert et al, 2002). Constructivism is the umbrella learning theory that supports the use of instructional strategies in the present study.

Bruner (1960) describes three stages of learning: acquisition, transformation, and evaluation. According to Bruner, in the process of acquisition, the student usually learns information that “runs counter to or is a replacement for what the person has previously known implicitly or explicitly. At the very least it is a refinement of previous knowledge” (p. 48). By transformation, Bruner meant the ability to manipulate knowledge and apply it to new tasks. Constructivists recognize the importance of allowing students “to draw on what they know and reshape it in new and meaningful ways” (Lambert, et al, 2002, p.26).

Bruner (1960) proposed in his final stage that equally important to the act of learning is evaluation, or checking for understanding. The student, with the teacher’s help, determines if he or she is manipulating the new information to fit the task. Tomlinson and McTighe (2006) recognized the importance of self-assessment as well in their description of the teaching patterns of differentiated instruction by including the opportunities for students to self-assess and examine their metacognitive strategies.

Constructivists value the social aspect of learning and recognize that their students bring personal histories to the learning experience. In John Dewey’s estimation, “the only true education comes through the stimulation of the child’s powers by the demands of the social situations in which he finds himself” (Dewey, 1964, p. 472).

Vygotsky (1998) is known for his contribution to constructivism by insisting that “What the child can do today in cooperation and with guidance, tomorrow he will be able to do independently” (p. 202). Vygotsky emphasized the effect of environment and culture on learning, terming the relationship between a child’s psychological

development and the social reality in which he or she exists as the *social situation of development* (p. 198).

Bandura (1971) also emphasized the social aspect of constructivism or the necessity of shared inquiry in learning. According to Bandura, “In the social learning system, new patterns of behavior can be acquired through direct experience or by observing the behavior of others” (p. 3). In other words, direct experience is valuable in influencing behavior, but behavior is also influenced by example.

Various instructional strategies that are effective for learners have been identified that fall under the umbrella of constructivism. After a meta-analysis of various instructional practices, the Mid-Continent Research for Learning and Education (McREL) identified nine practices that showed average percentage gains in student achievement ranging from 22 to 45 percent (Marzano et al, 2001). Many of those practices are included in the present study, which focused on the use of the following strategies, or categories of instructional best practices: cooperative learning, higher order questioning, nonlinguistic representations or graphic organizers, and teacher behaviors such as advanced notice of assessments and assignments, the use of homework as reinforcement, analysis of assessment results to adjust instruction, timely feedback, and opportunities for student self-assessment (Marzano, 2003; Tomlinson & McTighe, 2006). Other pedagogical practices that were surveyed included the use of technology, differentiated instruction, and writing activities in the classroom; the provision of rubrics and extra help; and curriculum mapping and the setting of objectives aligned with both student needs and the curriculum.

The objective of the present study was to measure the perceptions of undergraduate and graduate students regarding their professors' use of instructional best practices.

Methods

In November, 2007, an instructional best practices survey was developed and administered to 15 graduate and undergraduate classes in the college of education in a southeastern university. The survey contained items requesting demographic information and items requesting students to rate the extent to which each instructional best practice was used by their instructor.

Sample

The survey was completed by 182 students enrolled in redesigned teacher and principal certification programs. One hundred sixty-four students were female (90.1%), 11 were male (6.0%), and 7 did not provide gender information. Demographic data indicates that the undergraduate students were exclusively Teacher Education students while the largest number of graduate students was in the Educational Leadership program. Additional examination of the demographics shows that 10 of the 11 male students were in a graduate level Educational Leadership course, and all of the undergraduate students were female.

Instrument

An instructional best practices survey was developed and identified 16 practices based on the findings of Marzano et al (2001), Marzano (2003), and Tomlinson and McTighte (2006). For each practice, the respondent was directed to indicate the extent of use within the class. The survey utilized a Likert-style format of 1-3, corresponding to

Never/Rarely, Occasionally, and Frequently. The purpose of a three-point scale was to pinpoint use or nonuse of instructional best practices rather than require judgments of gradations of use; therefore ratings of frequent or occasional use indicated use whereas ratings of never/rarely indicated nonuse. The alpha reliability estimate for the total scale was .84.

Results

The results show that the students believed their instructors were frequently using all of the various instructional best practices contained on the survey. Of the 16 practices contained on the survey, 13 were reported as being used frequently by over 70% of the students. The three practices that were reported as being used the least often were graphic organizers, curriculum mapping, and writing activities in the class. Although they were used least frequently, they were reported as being used at least on an occasional basis by over 80% of the students.

To further understand the perceived use of instructional best practices, an exploratory factor analysis was conducted to identify categories of practices. The analysis was conducted using principal components extraction and the number of extracted factors was based on eigenvalues greater than 1. The unrotated factor solution produced 4 factors; however, one factor did not have any instructional best practices loadings greater than .5. Because 9 of the 16 practices loaded on the first factor and unrotated solutions are generally difficult to interpret, a rotation technique was used to create a more interpretable solution.

All of the items in the analysis concerned instructional best practices, so it was possible for the resulting factors to be correlated. Therefore, as suggested by Field

(2005), subsequent factor analyses were conducted using oblique (direct oblim) and orthogonal (varimax) rotational techniques. Because the correlation matrix contained in the oblique rotation indicated weak correlations among the factors and the orthogonal technique produced a more interpretable solution, the practices were grouped on the basis of the varimax rotated solution. The results of the exploratory factor analysis are contained in Table 1.

Table 1

Instructional Best Practices Factor Solution using Varimax Rotation

Extent to which class instructor does/uses	Factor			
	1	2	3	4
Homework assignments to provide reinforcement	.717			
Time for students to give peer feedback	.682			
Extra help opportunities to students	.672			
Time for students to self-assess	.660			
Data to plan for future instruction	-			
Graphic organizers		.762		
Cooperative learning		.634		
Curriculum mapping		.562		
Differentiated instruction		.552		
Writing activities in class		.526		
Higher order thinking techniques	-	-		
Advance notice of assessments and assignments			.737	
Objectives aligned with student needs and curriculum			.685	
Rubrics			.608	
Timely feedback to students			.506	
Technology in the classroom to enhance instruction				.838
Percent Variance Explained	55.87	17.98	14.61	8.00

The four factors identified can be described as related to (a) student assistance, (b) classroom instruction, (c) assignments and grading, and (d) technology. Only two practices (higher order thinking techniques and using data to plan future instruction) did not have a loading above .5 on any factor. Collectively, the four factors accounted for

55.87% of the variance in the responses with the first three factors accounting for approximately equal amounts of variance.

Table 2 shows the level of instructor use that was reported by students when practices are organized by category. The results suggest that students perceived that instructors were frequently utilizing student assistance practices and practices related to assignments and grading. Technology was also being reported as a frequently used practice. However, the level of use of classroom instructional practices appears to be more diverse and substantially lower than practices in the other three categories. Because the type of instructional practice that is used in a classroom is often dependent upon the lesson being presented, the level of use for these practices can be expected to be lower. Therefore, a more realistic measure of the use of these practices would be based upon the combined responses for Frequently and Occasionally (or an examination of the Never/Rarely responses). When these responses are combined, the results indicate a more realistic picture of use versus nonuse rather than frequency of use.

Table 2

Student Reported Level of Instructor's Use of Instructional Best Practices by Category

Extent to which instructor does/uses...	Never/Rarely	Occasionally	Frequently	n
Student Assistance				
Homework assignments to provide reinforcement	15 (8.3%)	45 (24.9%)	121 (66.9%)	181
Time for students to give peer feedback	9 (5.0%)	42 (23.2%)	130 (71.8%)	181
Extra help opportunities to students	12 (6.7%)	30 (16.7%)	138 (76.7%)	180
Time for students to self-assess	9 (5.0%)	48 (26.5%)	124 (68.5%)	181
Classroom Instruction				
Graphic organizers	40 (22.2%)	67 (37.2%)	73 (40.6%)	180
Cooperative learning strategies	3 (1.7%)	36 (20.0%)	141 (78.4%)	180
Curriculum mapping	33 (18.6%)	66 (37.3%)	78 (44.1%)	177
Differentiated instruction	15 (8.3%)	46 (25.3%)	120 (66.3%)	181
Writing activities in class	10 (5.6%)	70 (38.9%)	100 (55.6%)	180
Assignments and Grading				
Advance notice of assessments and assignments	2 (1.1%)	20 (11.0%)	159 (87.8%)	181
Objectives aligned with student needs and curriculum	3 (1.7%)	19 (10.5%)	159 (87.8%)	181
Rubrics	9 (5.0%)	32 (17.7%)	140 (77.3%)	181
Timely feedback to students	6 (3.3%)	22 (12.2%)	152 (84.4%)	180
Technology				
Technology in the classroom to enhance instruction	8 (4.4%)	33 (18.2%)	140 (77.3%)	181

While the results indicate that students believed the majority of the instructional best practices surveyed were used frequently by their instructors, they also suggest that the instructors are using all of the practices occasionally or more frequently. The implication is that students in redesigned teacher preparation and principal preparation programs at this southeastern university are being exposed to instructional best practices.

The redesigned programs at this southeastern university also address the charges made by Glenn (2000) regarding teachers' ability to implement high quality instruction

and by Hess and Kelly (2005) regarding principals' ability to recognize and reinforce high quality instruction. Professors in the redesigned programs in the present study model the use of instructional best practices, thus helping pre-service teachers and aspiring school principals develop a repertoire of instructional best practices leading to student achievement.

Limitations

Limitations of the study included class size and number of classes. Class size ranged from 4 to 23. Consequently, larger classes may have had an undue influence on the overall percentage of usage reported. The number of classes is also a limitation because, when averaging across classes, one class with very high ratings can have a strong influence on the overall average for that particular practice. Another limitation is that the study was conducted at only one university.

Recommendations

Several recommendations are deemed appropriate to the study. (1) For future study, carefully select the classes to be surveyed, with particular attention to educational technology courses since those appear to be different from the other two program areas. (2) Attempt to get an equal number of classes from each program at both graduate and undergraduate levels. (3) Extend the research to include several state universities with redesigned teacher and principal preparation programs. (5) Include a definition or brief description of each best practice so that students understand exactly what they are rating. (6) Survey education majors in different phases of their program to track their development of a repertoire of instructional skills.

Educational/Scientific Importance of the Study

The study of redesigned college of education programs has received little attention to date, and the present study provides a snapshot of undergraduate and graduate perceptions of its effectiveness, specifically with regard to the instructional strategies used. The present study indicated that professors in the redesigned teacher and principal preparation programs do use instructional best practices in their classes and are therefore modeling high quality teaching. It can be inferred that pre-service teachers will add these instructional best practices to their pedagogical repertoire. Likewise, candidates for the school principalship will not only be able to recognize high quality instruction but also be able to provide struggling and new teachers with appropriate pedagogical methods as a future instructional leader. The study also confirms the rationale underlying the current emphasis on authentic field experiences in both redesigned teacher and principal preparation programs; that is, the modeling of instructional practices and the hands-on experiences with those practices are approaches for learners to construct their own repertoire of pedagogical skills.

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