DOCUMENT RESUME

ED 472 815 SP 041 345

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TITLE Evaluating the Diverse Constructivist Beliefs of Early Childhood, Elementary, and Middle School Education Majors.

PUB DATE 2002-10-00

NOTE 14p.; Paper presented at the Annual Meeting of the Mid-Western Educational Research Association (Columbia, OH, October 18, 2002).

PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)

EDRS PRICE EDRS Price MF01/PC01 Plus Postage.

DESCRIPTORS *Constructivism (Learning); *Early Childhood Education; Elementary Education; Higher Education; *Methods Courses; Middle Schools; Preservice Teacher Education; Student Teacher Attitudes

ABSTRACT

This study evaluated the tendency toward positive beliefs about constructivism for teacher candidates at one university's teacher education program, identifying differences in the beliefs about constructivist learning between early childhood, elementary, and middle school teacher candidates who had taken early childhood methods courses and those who had not. Student teachers responded to 27 prompts written to represent personal beliefs about the importance of various items to early childhood education (e.g., differences in student interest, differences in student development, active exploration, informal conversation with adults, social skill development, isolating curricular areas, and working alone). Results indicated that respondents in all of the teacher groups had tendencies toward positive beliefs about constructivism. For seven items that indicated a tendency toward constructivism, most of the mean responses suggested that teacher candidates placed the value of an item as very or extremely important to early childhood education. The item with the lowest means of the seven addressed student-directed learning. (SM)

Evaluating the Diverse Constructivist Beliefs of Early Childhood, Elementary, and Middle School Education Majors

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A paper presented at the 2002 Annual Meeting of the Mid-Western Educational Research Association: Columbus, OH

October 18, 2002

Introduction

Teacher education programs today strive to provide opportunities for teacher candidates to develop an understanding of constructivism. Although there are varying specific definitions and interpretations constructivism is clearly grounded in a knowledge base of learning theory from cognitive psychology (Hausfather, 2001). Furthermore, implications for educational practice have derived from constructivist theory including the role of prior knowledge to learning, the importance of multiple forms of knowledge (i.e. content and procedural), and the social nature of learning (Leinhardt, 1992). The assumption made by the researchers of this study is that teacher candidates must have positive beliefs about constructivism to implement components of constructivist learning into their educational practice.

In response to the increasing emphasis on incorporating constructivist learning into childhood education, university teacher education programs must provide opportunities for teacher candidates to develop positive beliefs about constructivist learning. In an effort to broaden teacher candidates' beliefs and understanding an emphasis on constructivist learning theory and its application have been incorporated into early childhood education courses at a Mid-Western university. The purposes of this research were to evaluate the tendency toward positive beliefs of constructivism for teacher candidates in the teacher education program and to identify any differences in beliefs about constructivist learning between teacher candidates that have taken early childhood methods courses and those that have not.

Theoretical Perspectives

The education reform movement began in 1983 and has spawned changes in the practices in American schools. One such change is the rebirth of constructivist strategies and philosophy, which has encouraged teachers to rethink their current approach to teaching (Vermette, 2001). These new approaches to teaching and learning are needed to promote student thinking and to respond to

state standards and benchmarks, and standardized tests. As a result of identifying principles from cognitive science and research, such as constructivist theory, teachers are better prepared to educate their students through high-quality learning experiences (Olsen, 2002). Much of the impetus for constructivism as an educational movement stems from a reaction to the over-reliance in classrooms on rote memorization (Lipman, 1991).

Many critics of education insist the most important goal of school should be to teach children how to think and solve problems. Some school curricula have been based on learner-centered constructivism to promote students who can function successfully in real-world contexts. Students need to actually "do" to understand and learn (Iran-Nejad, 1995). Children in constructivist classrooms actively engage in knowledge construction, including knowledge of rules and their importance in a classroom community. Rule creating and rule discussions promote children's moral reasoning "Prosocial behavior (rule making, group problem solving, co-operative work or play) leads to advances in social-moral reasoning, which in turn provides better reasons for engaging in social behavior" (Castle & Rogers, 1993, p. 78). Constructivist teachers foster student autonomy and initiative, encourage higher-level thinking, ask open-ended questions, and provide dialogue and first-hand experiences. The following is an adaptation of Vermette's (2001) general outline of constructivism:

C is for connections. Students establish connections between new information and prior understanding.

O is for options. Students are often given choices and options in assignments.

N is for negotiation. Teachers need to allow students the opportunity to actively research and manipulate information as they work to negotiate a personal meaning.

S is for scaffolding. The support and assistance teachers provide for students as they interact with new information. Scaffolding can take the

form of questions, prompts, suggested tasks, available resources, challenges, and classroom activities.

T is for time. In traditional school models, time is held constant. When students are given time to explore interesting and relevant problems they can create meaningful connections and higher standards.

R is for rubrics. Rubrics are statements that describe different levels of accomplishments for a specified outcome and the best of them are developed jointly with students.

U is for understanding. Students need to engage in deep processing of ideas and they need to explain the material to others to reach student understanding, no just
coverage of the material by the teacher.

C is for collaboration. A powerful way to help make content meaningful is to have it shared, using the concept of "purposeful talk."

T is for technologies. Students have access to technology as an avenue for research and analysis.

V is for variety. Students have a variety of backgrounds. There are also a variety of instructional strategies compatible with constructivism. Students can demonstrate learning in a variety of ways. Constructivism focuses primarily on the process of learning rather than the product.

I is for intentional teaching. Constructivist teachers need to be intentionally aware of students' prior experiences, to intentionally organize materials and resources for student research and inquiry and intentionally monitor and assess student learning to determine if they are learning and meeting objectives.

S is for student-centered. Constructivism focuses on what the students do, not what the teacher does.

M is for motivation. Students are motivated by the relevance of what they are learning. In the constructivist class, a problem relevant to the lives of

the students is presented first and then they are motivated to learn information that will lead to a solution.

S is for standards. Constructivism does not mean that "anything goes" or that there are no standards being met. The best of the standards/outcomes call for students to be able to know and do.

Courses

Early childhood education majors and elementary/early childhood education double majors at the university of the study take three classes that are only required for these specific majors. The first course "Early Childhood Principles" is an introductory course that introduces students to the sociological and philosophical foundations of early childhood education. A field experience component is embedded in the course because the assignments require students to conduct research in early childhood classrooms. Second, "Development and Learning Through Play" emphasizes the theoretical and empirical perspectives that connect play to young children's learning and development. In addition, the students design and implement a play-based lesson and assessment for diverse learners. This sophomore level class includes fifteen hours of field experience in an early childhood classroom and technology is embedded in the course. The field experience component is also designed so that students observe children's play and implement intervention strategies that enhance children's learning and development through play. There are four major purposes in the third course "Early Childhood Curriculum" met through class work, discussion, a minimum of fifteen hours of field experience, and technology. These four purposes include:

1. To provide students the knowledge, skill and attitude of designing an integrated (developmentally and culturally appropriate) curriculum to meet the needs of young children.
2. To provide students an understanding of the ongoing (process-approach) connection between curriculum and assessment for young children.

3. To provide students the knowledge, skill and attitude of involving children, families, communities in curriculum and assessment of young children.
4. To provide students the knowledge, skill and attitude to analyze global issues in early childhood education and understand their own responsibilities to alleviate these problems.

The theoretical bases of this capstone course are individual constructivism (Piaget), social constructivism (Vygotsky), anti-bias curriculum (Derman Sparks), multicultural curriculum (Banks), cooperative learning, project approach (Katz), and developmentally appropriate practices (NAEYC). In summary, the early childhood faculty agree with the philosophy set forth by the National Association for the Education of Young Children that a high quality early childhood program is founded upon the strong theorectical principles of constructivism and developmentally appropriate practices. The faculty also believe that the classroom practices of practitioners need to be based on a culturally appropriate pedagogy and reflect a high sense of professional ethics toward children and their families.

Methods and Data Sources

This study was an evaluation study undertaken to assess teacher candidates' beliefs about constructivist learning after completing a program of study in early childhood, early childhood/elementary, elementary, or middle school education. The participants of the study were 74 teacher candidates enrolled in the student teaching semester and majoring in one of four areas: early childhood (EC) (n=5), early childhood/elementary (ECEL) (n=30), elementary (EL) (n=26), or middle school (MS) (n=13). The instrument used to gather data was a self-report inventory of beliefs based on a 5-point Likert scale (see Appendix A). Participants responded to 27 prompts written to represent personal beliefs about the importance of items to early childhood education using the following scale:

- 1 = not important at all
- 2 = not very important
- 3 = fairly important
- 4 = very important
- 5 = extremely important.

The prompts included items such as "It is _____ for children to learn through active exploration." The researchers selected items that represented a tendency toward constructivist or that represented a disconnect from constructivist beliefs (see Table 1). The survey was completed during a student teaching meeting a student teaching meeting held approximately two weeks prior to the beginning of the student teaching experience.

Table 1: Survey Items Selected for Analysis

Survey Item #	Tendency Toward Constructivism	Survey Item #	Tendency Away From Constructivism
3	*Differences in Student Interest:* It is ___for activities to be responsive to individual differences in interest.	5	*Isolate Curricular Areas:* It is ___ that each curriculum area be taught as a separate subject at a separate time.
4	*Differences in Student Development:* It is ___ for activities to be responsive to individual differences in development.	7	*Work Alone:* It is ___ for children to work silently and alone at seatwork.
6	*Student Self-Direction/Selection:* It is ___ for children to be allowed to select many of their own activities from a variety of learning areas that the teacher has prepared (blocks, centers, art, dramatic play, etc.)	12	*Workbooks/Ditto Sheets* Workbooks and/or ditto sheets are ___to an early childhood program.
9	*Active Exploration:* It is ___ for children to learn through active exploration.		
15	*Teacher Facilitation/Questioning:* It is ___ for the teacher to move among groups and individuals, offering suggestions, asking questions, and facilitating children's involvement with materials and activities.		
21	*Informal Conversation with Adults:* It is ___ for children to talk informally with adults.		
23	*Social Skill Developmemt:* It is ___ to provide many opportunities for children to develop social skills with peers in the child care program.		

The participants of the study were diverse in their cultural background, prior educational experience, and gender.

Results

Descriptive statistics were conducted to calculate mean scores and standard deviations for the responses to survey items by each of the four groups of teacher candidates in the study (EC, ECEL, EL, and MS). Analysis of Variance (ANOVA)

were conducted for the survey items to determine the existence of differences in the responses to survey items by each of the four groups of teacher candidates. The results of the ANOVA procedures indicated that there were no significant differences found among the responses of the four groups to survey items. Therefore, the discussion of results will emphasize the descriptive statistics calculated on the survey items analyzed for each of the four groups of teacher candidates (see Table 2).

Table 2: Mean Responses to Survey Items by Group

Survey Item	Group	*N*	*M*	*SD*
Differences in Student Interest:	EC	5	4.40	.55
	ECEL	30	4.73	.45
	EL	26	4.39	.75
	MS	13	4.23	.60
Differences in Student Development:	EC	5	4.80	.45
	ECEL	30	4.67	.66
	EL	26	4.46	.58
	MS	13	4.62	.51
Student Self-Direction/Selection:	EC	5	3.80	.84
	ECEL	30	4.23	.97
	EL	26	3.69	.73
	MS	13	3.46	1.20
Active Exploration:	EC	5	5.00	.00
	ECEL	30	4.73	.69
	EL	26	4.69	.55
	MS	13	4.77	.44
Teacher Facilitation/Questioning:	EC	5	4.80	.45
	ECEL	30	4.53	.82
	EL	26	4.73	.53
	MS	13	4.54	.88
Informal Conversation with Adults:	EC	5	4.80	.45
	ECEL	30	4.43	.86
	EL	26	4.15	1.05
	MS	13	4.39	.65
Social Skill Developmemt:	EC	5	4.80	.45
	ECEL	30	4.87	.43
	EL	26	4.62	.57
	MS	13	4.54	.52
Isolate Curricular Areas:	EC	5	2.00	.71
	ECEL	30	1.97	1.00
	EL	26	1.73	.72
	MS	13	2.00	.58
Work Alone:	EC	5	4.00	.71
	ECEL	30	2.80	.85
	EL	26	2.92	1.02
	MS	13	2.92	.76
Workbooks/Ditto Sheet:	EC	5	2.00	.71
	ECEL	30	1.90	.80
	EL	26	1.88	.82
	MS	13	2.38	.96

Discussion of Results

The mean teacher candidate responses to the survey items indicate that teacher candidates in all groups (EC, ECEL, EL, and MS) have tendencies toward positive beliefs of constructivism. For the seven items that indicate a tendency toward constructivism, a majority of the mean responses indicated that teacher candidates placed the value of each item as very or extremely important to early childhood education. Interestingly, the item with the lowest means of the seven addressed student-directed learning. Further exploration into the reasons why teacher candidates responded that student-directed learning is fairly to very important would be valuable. For the three items that indicate a tendency away from constructivism, a majority of the mean responses indicated that teacher candidates placed the value of each item as not very important or not important at all to early childhood education. The exception is the mean response from the early childhood group to the item addressing the importance of children learning to work alone. Again, further exploration into the reasons why early childhood teacher candidates responded in that way would be valuable.

It is somewhat surprising that there were not significant differences in the groups. The mean survey responses support the premise that teacher candidates entering the student teaching semester at the university where the study was conducted have appropriate beliefs about constructivist learning regardless of whether or not they participated in early childhood courses. One limitation of the survey was the request for the respondent to consider early childhood programs when assigning value to the items. It could be that teacher candidates at all levels (early childhood, elementary, and middle school) have positive beliefs about constructivism for early childhood programs, but may not hold the same values for elementary or middle school programs. Furthermore, while the survey items were focused on beliefs, merely believing in a theory does not ensure that one will

implement aspects of that theory into education practice. Additional research is warranted to examine whether or not constructivist beliefs vary when teacher candidates are asked to consider elementary and middle school education as well as early childhood education. It would also be valuable to examine teacher candidate behavior in a classroom setting to determine alignment of beliefs with actual educational practice.

Conclusion

As teacher education programs continue to look for opportunities to improve teacher candidate knowledge and understanding of constructivist learning, determining the impact of courses on the broadened perspectives of teacher candidate beliefs becomes more important. Additionally, with calls for a "back to basics" movement in parts of the country constructivism has come under scrutiny by those who view it as placing too much emphasis on student empowerment with a lack of focus on content (Baines & Stanley, 2000). As a result, it is critical for teacher educators to focus on helping teacher candidates develop a complete understanding of constructivism. The results of this study are encouraging for teacher educators at the university of the study. The results indicate that teacher candidates in the program have developed at the very least a basic positive view of constructivism. It would be useful to further explore the impact of specific courses and specific learning experiences within those courses on teacher candidate beliefs and behaviors as they relate to constructivism.

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