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Personal and Reflective Epistemology in Pre-Service Teacher Education

Abstract: Teacher preparation programs aim to provide pedagogical skills for knowledge development and critical thinking. Yet teacher candidates themselves have views and understandings of the very nature of knowledge, or epistemology, which might inhibit or advance their development as teachers. This paper begins with an overview of Kitchener's (1983) model for cognitive processing and later work in epistemological development, *The Reflective Judgment Model* (1994, 2004). Next, a presentation of research in teacher candidate epistemology in Poland is compared with a study of teacher candidate perceptions in Singapore, both grounded by Kitchener's model of knowledge development. Finally, a comprehensive research review by Sleeter (2000) reveals the limitations of such studies in the application to historically under-served students and teachers of color in the United States.

Keywords: pre-service teacher preparation, reflective epistemology, comparison Poland, Singapore, USA

概要 (Jill Heiney-Smith: 职前教师教育中的个人反思和反思性认识论):

教师准备项目旨在为知识发展和批判性的思维提供教学技能。然而，教师候选人本身对知识本质或认识论有着自己的看法和理解，这可能会抑制或推动他们作为教师的发展。本文首先概述了 Kitchener (1983) 认知过程模式以及后来的认识论发展工作，反思性判断模式 (1994, 2004)。接下来，将波兰教师候选人认识论的研究与新加坡教师候选人认知的研究进行比较，二者均是以 Kitchener 的知识发展模式为基础。最后，Sleeter (2000) 的综合研究揭示了此类研究在应用于历史上被忽视的美国学生和非白人教师中的局限性。

关键词: 职前教师准备，反思认识论，比较波兰，新加坡，美国

Abstract (Jill Heiney-Smith: Persönliche und reflektierende Wissensbilanzierung in der zweiten Phase der Lehrerausbildung): Vorbereitungsprogramme für Lehrerinnen und Lehrer zielen darauf ab, pädagogische Fähigkeiten für die Wissensentwicklung und für kritisches Denken zu vermitteln. Aber LehramtskandidatInnen haben eigene Einsichten in die Natur des Wissens oder der Erkenntnistheorie, die ihre berufliche Entwicklung hemmen oder vorantreiben könnten. Dieser Artikel beginnt mit einem Überblick über Kitcheners (1983) Modell für kognitive Verarbeitung und die spätere Arbeit in der epistemologischen Entwicklung, „The Reflective Judgment Model“ (1994, 2004). Als nächstes wird eine Präsentation der Forschung in der Epistemologie von LehramtskandidatInnen in Polen mit einer Studie über die entsprechende Wahrnehmung von LehramtskandidatInnen in Singapur verglichen, die beide auf Kitcheners Modell der Wissensentwicklung basieren. Schließlich zeigt ein umfassender Forschungsbericht von Sleeter (2000) die Grenzen solcher Studien in der Anwendung auf historisch unterversorgte farbige SchülerInnen und LehrerInnen in den Vereinigten Staaten.

Schlüsselwörter: LehrerInnen-Ausbildung im Vorbereitungsdienst, reflektorische Erkenntnistheorie, Vergleich Polen, Singapur, USA

Резюме (Джил Хейни-Смит: Личностная и отражающая сбалансированность знаний во второй фазе подготовки учителей): Подготовительные программы для учителей нацелены на то, чтобы передать педагогические умения в отношении увеличения знаний и критического мышления. Но кандидаты на должность учителя имеют собственное понимание природы знания или теории познания, которые могут препятствовать их профессиональному развитию или ускорять его. Данная статья начинается с обзора модели Киченера (1983) для когнитивной переработки и дальнейшей работы с эпистемологическим развитием, „The Reflective Judgment Model“ (1994, 2004). Далее сравнивается презентация исследования в эпистемологии кандидатов на должность учителя в Польше с исследованием соответствующего наблюдения за

кандидатами на должность учителя в Сингапуре, которые базируются на модели Киченера в отношении увеличения знаний. В заключении обширный исследовательский отчет Слитера (2000) показывает границы подобных исследований в применении к исторически необеспеченным цветным школьникам и учителям в Соединенных Штатах Америки.

Ключевые слова: *подготовка учителей на стажировке, отражающая теория познания, сравнение Польши, Сингапура и США*

Introduction

Kitchener's (1983) work on cognitive processing is the anchor to many future studies aimed at examining how older adolescents and adults make decisions when faced with conflicting problems. These complex problems abound in schools, where educators make daily decisions without comprehensive evidence or data that will promise positive outcomes. For example, zero-tolerance discipline policies were designed to diminish school violence and make classrooms safer, based on data of in-classroom behavior disruptions. Evidence pointed to removal of students and strict adherence to policies for various kinds of incidents. Yet these policies unintentionally targeted underprivileged students, mostly students of color who were removed from the classroom and into a different kind of violence on the streets (Wilson, 2014). How do schools develop the "right" behavior policies? Who says what is "right" and "just?" Questions like these are at the heart of epistemological research, and cognitive processing is just one element of how we think about the construction and acquisition of knowledge.

Kitchener partnered with King (1994, 2004) to provide further research on the cognitive processing model, ultimately developing the Reflective Judgment Model for Epistemic Cognition. This model begins with Kitchener's (1983) initial work on how individuals make decisions based on evidence and the strength of an argument. She argues that this happens in three levels, the "cognition" level, in which individuals compute, memorize, read and perceive, the "metacognitive level" in which individuals begin to monitor their own progress in level one, and the "epistemic cognition" level, in which individuals are able to consider the "limits of knowing, the certainty of knowing, and the criteria for knowing (Kitchener, 1983, p. 222). Level three is the foundation of critical thinking and it allows the individual to make interpretive judgments and wrestle with hard questions.

The Reflective Judgment Model (King & Kitchener, 1994, 2004) builds on these initial levels of cognitive processing to show how individuals develop their ability for critical thinking, in developmental stages. The developmental progress can be summarized as pre-reflective, quasi-reflective, and reflective, articulated in seven stages. In the pre-reflective stage, decisions are made through authority and with total certainty. In the quasi-reflective stage, there may be elements of uncertainty and some evidence, but little understanding of how this leads to a conclusion. In the reflective stage, individuals can make judgments based on evidence, available data, and reasonable certainty. They can defend their points of view by drawing attention to their own thinking, and adapt and revise thinking when new evidence is presented (King & Kitchener, 1994, 2004).

This body of research provides a conceptual frame for educational psychology and research, and is particularly relevant to the development of pre-service teachers. As Zdybel (personal communication, September, 2016) argued in a presentation on epistemological reflection in contemporary teacher training, King & Kitchener's model of cognitive processing can be directly applied to the developmental process of pre-service teachers. They start in the cognition phase, making instructional decisions right out of curriculum and lesson plans, move to the metacognitive stage, where they begin reflecting on their own teaching practice and what they might want to adapt, and hopefully move to the epistemic stage, where they develop the ability to think deeply about the needs of their students and match them to their own instructional strengths and resources. Zdybel's (2016) research connects cognitive processing theories to personal epistemology, exploring how the pre-service teacher's self-knowledge can develop into instructional knowledge. As a com-

plement to this contemporary work in Poland, the following articles examine epistemology and the development of pre-service teachers in two other global contexts.

Article Reviews, Key Points and Analysis

Chai, Khine & Teo (2006) conducted a study on epistemological beliefs of pre-service teachers in Singapore. Building on the work of King & Kitchener (1994, 2004), the researchers designed a Likert-type survey aimed at examining how pre-service teachers' beliefs about the nature of knowledge translate into their developing practice. Because Singapore's Ministry of Education started emphasizing constructivist-oriented teaching practices in 1997, the researchers assumed some level of sophistication from the participants. What they found was a surprising combination of belief in the uncertainty of knowledge, along with a reliance on the "expert."

The article's literature review is robust and compelling, noting and summarizing the years of research on both epistemology as a general field of study, as well as epistemology focused specifically on classroom learning. Not surprisingly, several studies find that teacher beliefs are largely congruent with classroom practices, and can even "act as filters that bias teachers' practice and their own learning" (Kagan, 1992; Pajares, 1992; Richardson, 1996). In sum, the researchers argue that their review of the literature indicates a correlation between epistemological outlooks and students' engagement in learning. (Chai, Khine, & Teo, 2006).

The study was grounded in research questions aimed at exploring 1) the profile of epistemological beliefs of pre-service teachers in Singapore, and 2) the possible differences between gender and subject matter. While the study had a large sample size of 537, including 42.8% male and 57.2% female, and the researchers report adequate Cronbach alpha reliability scores for their factor analysis, the central flaw is a lack of reliability with the instrument used. Chai, Khine & Teo (2006) claim that the five point, 30 item survey is "drawn from" previous research, but they do not report any reliability scores or any of the item development procedures. This makes the statistically significant results somewhat questionable. The detailed reports of small differences between gender and subject area are described, but do not support or abandon previous study findings. Nevertheless, the researchers do not claim causality and simply argue that the results show that pre-service teachers in Singapore believe that learning takes effort and that learning processes, to encourage critical thinking and creativity, are important aspects of acquiring knowledge (Chai, Khine, & Teo, 2006).

One fascinating revelation of this study was the little variation among the beliefs held by the pre-service teachers participating in the survey. The researchers note the homogeneity of the culture, and of the centralized education of these students, which facilitates similar beliefs about teaching and learning. This point alone would be an interesting topic for a future comparative study, in which pre-service teachers from various cultures take the same survey about epistemology and teaching practice.

Unlike Chai, Khine & Teo's (2006) study in Singapore, or Zdybel's (2016) work in Poland, Sleeter's (2000) work consists of scholarly reviews of the research on epistemology in the preparation of historically underserved children in the United States. Appropriately, Sleeter begins by challenging the very definition of "research" in her review, noting that most research still positions White academics as the most "legitimate knowers" (Sleeter, 2000, p. 209). Sleeter takes on the usual questions in epistemological studies about the nature of knowledge, but with the goal of understanding how these diverse epistemologies have been used to examine multicultural teacher preparation.

Sleeter (2000) examined experimental, survey, observation, and interview data from a total of 119 works, mainly articles. She notes that collectively, this review addresses research in recruitment and selection of pre-service students, preparation in the pre-service curriculum, and broader insti-

tutional reform. Next, Sleeter explores the four epistemologies that frame most research in teacher education: positivism, phenomenology, narrative research, and emancipatory research. This narrowed her interest to examining assumptions of various epistemologies, the convergence within epistemologies, and how teacher preparation is influenced by this research.

Broadly speaking, Sleeter (2000) argues that her review of the research shows that that teachers of color bring a higher commitment and social justice-knowledge base to supporting students of color with academically challenging curriculum. She explores several studies between the years of 1970-1999 that demonstrate these findings, including Haberman's (1995) observations of urban teachers. Haberman's (1995) work identified seven attributes shared by all "star" urban teachers, including: persistence, willingness to work with authority on behalf of children or youth, ability to see practical application of principles and research, willingness to take responsibility for the learning of at-risk children, a professional orientation to teaching, ability to persist within an irrational bureaucracy, and expectation of making mistakes and learning from them. Sleeter's review of the research is succinct and organized. What follows are highlights from each of her sub-categories connected to epistemology in pre-service teachers, including Community-Based Cross-Cultural Immersion Experiences, Multicultural Education Coursework/Field Experiences, School-University Collaboration Programs and Mandates.

Community-Based Cross-Cultural Immersion Experiences

Sleeter (2000) notes a research gap on the efficacy of cross-cultural immersion programs connected to good teaching. After reviewing several self-reported studies, Sleeter argues that cross-cultural immersion experiences do "seem to transform pre service students and ground them in contextually relevant knowledge" (p. 217), however she wonders how this knowledge transfers to other contexts. "Are graduates of programs that include community-based immersion experiences good teachers in culturally different communities? Good according to whom, and on what criteria? Do such programs have a stronger impact than other interventions?" (p. 217). Sleeter questions the use of positivistic studies when these basic questions are so central.

Multicultural Education Coursework/Field Experiences

In this section, Sleeter (2000) examines research data from many different program designs that include multicultural coursework during field experiences, or field experiences coupled with courses taught in community settings. Among many studies, Sleeter claims that three studies reported a positive change in pre-service students (although notably, she did not explore what "change" meant). Bondy et al. (1993) examined the effects of a course that examined achievement of poor and minority compared to White middle-class students along with teaching strategies designed to break that cycle. Sleeter reports, "This course was coupled with a field experience in which students tutored in public housing neighborhoods. Bondy et al. found a significant impact of participation in the course and field experience taken together" (p. 218). Again, Sleeter did not explore what the "significant impact" was, but the reader can infer a change in beliefs about students and a more sophisticated valuing of their cultural knowledge.

School-University Collaboration Programs

Sleeter explores the fascinating results of the Teacher Corps programs established in the 1970s, noting that Teacher Corps graduates were more likely than the controls (non Teacher Corps graduates) to make instructional choices such as developing culturally relevant curricula and building on community resources in teaching, that produced gains in reading achievement and attendance.

These findings support the proliferation of school/university partnerships in teacher preparation programs, which Sleeter suggests are flawed.

An intuitive logic suggests that teachers will be better prepared when universities and schools collaborate than when universities control the process of preparing teachers. At the same time, since most school professionals are white, pairing universities with schools does not replace teacher preparation for white professionals. The lens of positivism could help to show whether such a model can produce any consistent results (p. 221).

Mandates

Sleeter (2000) underscores all of the previous research by noting the top-down mandates that are designed with the intention of supporting children, but often lacking real support in the schools to make them effective. An example is the National Council for the Accreditation of Teacher Education (NCATE), which requires that teacher education programs include multicultural coursework and fieldwork. The lens of epistemology is once again useful in this discussion, allowing for the emergence of questions such as, who says that a teacher is culturally relevant? How do we measure cultural competence of a white teacher in an urban setting? Sleeter argues that a positivistic approach could offer a systematic framework for answering this question, but that so far, it has not done so.

Discussion and Conclusion

In her presentation on epistemological reflection in contemporary teacher training, Zdybel (2016) argued that self-observation and self-knowledge is a keystone in a teacher's professional development. Zdybel shared drawings from undergraduate pre-service teachers that demonstrated their understanding of how knowledge is developed and transmitted. King & Kitchener's (2004) model of cognitive processing allowed an interpretive lens for the levels that the student drawings might reveal, from cognitive, to metacognitive, to epistemic. This framework was similarly used in Chai, Khine & Teo's (2006) study to analyze how pre-service teachers in Singapore thought about knowledge development. The products are wildly different, a drawing and a 30-item Likert scale survey, yet the findings do reveal similarities. Zdybel's students in Poland appear to be on a journey of understanding what "knowledge" means and how it might progress. One drawing showed an elaborate machine-like fantasy world, where inputs and outputs each occupied a specific place. According to the researchers, the students in Singapore were more homogeneous in their responses but did show an understanding of the uncertainty of knowledge. Sleeter's (2000) work extensively examines the myriad institutional mechanisms that act as barriers to the study of epistemology itself, arguing that bias and representation in the research inhibits our ability to make claims.

All of this research has great relevance to the development of pre-service teachers. Regardless of the research design and methodology, data collection processes and research questions, teacher educators want to know what theoretical frameworks will help to advance and develop the actual practice of our emerging professionals. Building upon research in the wide field of epistemology and considering models of cognitive processing can help teacher educators around the globe to ask important questions, and ultimately design educational experiences that enhance learning for students and teachers alike.

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