# A Qualitative Analysis of Teachers' Understandings of the Epistemic Aims of Education

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## Abstract

This study aims at exploring how educators understand knowledge within their practice. Epistemology, or theory of knowledge, has played a significant role in the conceptual development of educational theory and practice. The extent to which educational theories have actually shaped teachers' attitudes toward knowledge and teaching practices remains unclear. The purpose of this study was to address two related questions: (1) to what extent does *theoretical knowledge* affect teachers' understandings of knowledge and its function in education, and (2) what experiential factors shape teachers' understandings of knowledge and its role within educational practice? Date collection focused on participants descriptive responses to semi-structured interview questions. Findings of this study indicate that teachers' philosophical understanding of knowledge when applied to education, are difficult for teachers' elucidate. Experience combined with indirect theoretical influences shape teachers' understandings of the function of knowledge and related educational epistemology.

**Keywords:** Virtue Epistemology, Belief, Intellectual virtue, Knowledge, Personal epistemology

## 1. Introduction

Epistemology, or theory of knowledge, has played a significant role in the conceptual development of educational theory and practice. Consider, for example, the sheer number of research methodologies available to scholars. Craig Kridel (2010) identifies forty-nine distinct research paradigms employed by educational scholars. Many of these can be wrought together into new amalgamations (p. xvi). The field is now rife with competing visions of curriculum—its form, function, and nature—and these visions are rooted in very particular epistemological assumptions. Perhaps the most prominent of these is constructivism. The upshot is that theories of knowledge have—if not explicitly, certainly tacitly—trickled down into curricula of teacher education programs. Yet, the extent to which these theories have actually shaped teachers' attitudes toward knowledge and teaching practices remains unclear. This epistemological diversity is not restricted to teacher education programs and the field of curriculum studies. Indeed, a typical undergraduate education, regardless of major, will undoubtedly yield many exposures to competing ideological and philosophical claims about knowledge. Perry (1970) suggests that this complexity typically engenders epistemological transformation through four stages: dualism, multiplism, relativism, and commitment—each stage representing an increasingly complex epistemological orientation. Others (Jehng et al, 1993; Schraw et al 1995; Kuhn et al, 2000) eschew the notion of linear progression and favor a more multidimensional understanding of epistemological complexity. Studies investigating teachers' epistemological beliefs and the impact these attitudes have on pedagogical methods and student epistemology development have varied results.

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There is a general consensus among numerous researchers that teaching practices are directly influenced by teachers' beliefs specifically where the level of complexity of those beliefs results in different focuses in the classroom. Teachers with more complex beliefs tend to focus more on student-centered instruction and deeper thinking while teachers with less complex beliefs emphasize  testing and skill mastery (Brownlee and Berthelsen, 2006; Chan and Elliott, 2004; Haney and McArthur, 2002; Ozgun-Koca and Sen., 2006; Trumbell et al., 2006; Yang, 2005). A study conducted by Aypay (2010) on 341 Turkish undergraduate student teachers, revealed the value teacher education students place on teaching and learning is influenced by multiple factors. Results from a study conducted by Aypay (2010) indicated that different situations inclined the student teachers' processes and methods of teaching toward four different belief factors that were a combination of Traditional and Constructivist ideologies (p. 2600-2604). Like Aypay, results of a study conducted by Zheng (2013) reported "no single belief was totally independent of all other beliefs", meaning the relationship between teachers' epistemological beliefs and their pedagogical choices form a complex relationship (p. 339).  Several research studies highlight the impact of teachers' worldviews on their teaching practices reporting that teachers combine conceptions and adapt beliefs (Schommer Aikin, 2002, Olafson & Schraw, 2006, Aypay, 2010, Zheng 2013).  Many researchers have found that teachers' epistemological beliefs vary at times and ultimately form a complex and dynamic relationship that influences practices in the classrooms.  Studies that have focused on educators in Hong Kong have indicated that student teachers epistemological beliefs do not adapt across different domains.  Hong Kong student teachers believe that knowledge is subject to change but when it comes to teaching a majority of these students favor the constructivist notion of instruction (Cheng M., Chan., Tang, Cheng A., 2009).

Sosu and Gray (2012) report "teachers' epistemological beliefs also could have an impact on student epistemological development and learning" (p. 90).  Although many research studies have reported student teachers' epistemological views may be changed or persuaded by programs or instructors who have ideologies different from their own beliefs further investigation concerning the influence of teachers' world views is needed (Johnston et al., 2001; Lidar et al., 2006; Louca et al., 2004; Marra, 2005). Despite the plentitude of literature on knowledge and its function in and application to education, it is unclear how pre-service and practicing educators actually make sense of knowledge with respect to teaching and learning. This generates a number of questions—two of which will be addressed in this study.  First, to what extent does a *theory of knowledge* (epistemological worldview) affect teachers' understandings of knowledge and its function in education? And, second, I consider the role of *experience* in the formation of teachers' understandings of knowledge.  Here I answer the question: what experiential factors shape teachers' understandings of knowledge and its role within education?  The purpose of this study, then, is to understand how teachers form and understand their unique perspectives on knowledge.

## 2. Methodology

### 2.1 Rationale

This study aims at understanding—that is, a rich and fully orbed account of how educators understand knowledge in their practice.  Sharan Merriam (2009) notes that the qualitative research paradigm is particularly well suited to finding meaning in human experience. She explains that "qualitative researchers are interested in how people interpret their experiences, how they construct their worlds, what meaning they attribute to their experiences" (p. 14). Indeed, understandings of this sort can only be achieved through close interaction with persons.  As such, this study employs a qualitative research methodology.

### 2.2 Sample

Two criteria were used in selecting a sample.  First, educators should have various degrees of theoretical knowledge.  Thus, I chose to interview three educators with varying degrees of academic training—one pre-service teacher (BA), one practicing educator (MA), and one assistant professor of education (PhD).  Second, I was concerned to find informants with varying degrees of public education experience. Fortunately, academic training corresponded with actual experience in the classroom—0 years, 3 years, and 5 years experience, respectively. Informants were located by word of mouth, and solicitations were made through email.

### 2.3 Data Collection

Data for this study were collected through one hour, semi-structured, interviews with each informant.  The goal of these interviews was to "make it possible for the person being interviewed to bring the interviewer into his or her world." (Patton, 2009, p. 279). In other words, these interviews aimed to make sense of each informant's theoretical understandings and educational experience—past and present.

To insure that each informant addressed roughly the same issues, an interview guide was constructed and revised with each interview. Informants offered no preference for where the interview should take place. Thus interviews were conducted at a local coffee shop and informed consent obtained to tape-record.

## 2.4 Data Analysis

These interviews were carefully transcribed and coded chronologically. Drawing from Coffey's (1996) insights on coding, I sought to "identify meaningful data and set the stage for interpreting and drawing conclusions" (p. 27). Thus, a first-pass reading and coding of the data was conducted. Here *units of meaning* were identified with little attention to how these units would fit together. Upon completion of the coding process, however, a second pass reading was given and these codes were assembled into four categories—articulation of concepts, purpose of education, personal educational experiences, and teaching and learning practices.

## 2.5 Positionality

At every point in the process of conducting this study, I was aware of my own subjectivity, theoretical biases, and (relatively) extensive knowledge of epistemology. This was especially true during the interview process where leading questions could have easily produced very different results—results in line with my thinking. I wanted to avoid this. Instead, I tried to adopt positionality much like Oran's. She writes (1998): "…for my first task is not to know where I am going, or to understand every step of the journey, but to accurately record the participants, events, and contexts along the way" (p. 27). Doubtless my own subjectivity entered the fray but not—I believe—in a particularly negative way. The purpose of this study was to address two related questions: (1) to what extent does *theoretical knowledge* affect teachers' understandings of knowledge and its function in education, and (2) what experiential factors shape teachers' understandings of knowledge and its role within educational practice? In broad terms, what I found was that no single category of experience or knowledge held discernibly greater sway over the formation of beliefs about knowledge. On the other hand, a certain ordering of these categories is possible and helpful. In fact, this discovery prompted me to rethink my initial intention to partition this study into to two categories: theory and practice. Instead, I discovered that several interrelated factors informed educators' beliefs about knowledge. In this section I provide a brief account of each of these findings. I then conclude the study with a general analysis of these findings. Here I offer a conceptual map of how these factors relate to one another. I conclude with some points for discussion and future research.

## 3. Theorizing about Knowledge

The ability to articulate a theory of knowledge, perhaps unsurprisingly, tended to correlate with each respondent's level of education. Informants were asked to articulate their theoretical understanding of knowledge, which entailed defining it and aligning themselves with a particular theoretical framework.

### 3.1.1 Jay Jay

A newly hired assistant professor of education was particularly adept at articulating his position. Speaking in precise language with numerous pauses—presumably to get just the right phrasing—he explicated for long stretches. Frequently he would ask to "back up" and re-clarify what he'd said before. When asked to say something about his theoretical orientation, he seemed to take pride in the fact that his views originated in political science and philosophy. He also repeatedly made reference to his research in civic education, likely the result of having only recently entered the professoriate. Despite his ability to skillfully articulate his views on civic education, he was surprisingly uncomfortable addressing specific questions about knowledge. For example, when asked to define knowledge stuttered and stopped and became quite incomprehensible until settling on "knowledge appears to be more data-driven." This seemed to congeal his thoughts and he proceeded to discuss knowledge as a requisite for civic responsibility—again, in the context of his research agenda. Jay was undoubtedly practiced in academic discourse and well versed in his area of expertise, but was far less comfortable speaking on matters he did not understand well. Nor did he find aligning himself with a particular theoretical framework worthwhile.

### 3.1.2 Matt

Matt took different path. He is a stylish and good-looking man of 34 years, and an English teacher at a large collegiate high school. He speaks eloquently with just a touch of irony and smiles readily. We seemed to hit it off immediately and did quite a lot of laughing over the course of the interview.

I was surprised, however, when asked to describe his understanding of knowledge.  Without hesitation he replied, "Justified true belief"—which most epistemologists accept as the basic working definition of knowledge. I inquired about this and he explained that his undergraduate degree was in philosophy.  He further shocked me by his unwillingness to elaborate.  While not explicit, it was clear that he thought a philosophical discussion on knowledge was a fruitless endeavor with respect to education.

### 3.1.3 Betty

Betty, an optimistic and well-spoken preservice teacher of 22 years, was willing to elaborate.  Like Jay, she linked knowledge to facts: "Knowledge…well, I think my first thought would be just the…facts you know…is knowledge."  She did not stop there, however, and went on to elaborate on the importance of understanding (instead of knowledge), stating that "[I] think I'd go deeper with wisdom and understanding—not to give that person the joy of being called knowledgeable unless they were wise and they were thoughtful in way."  When asked to elaborate on what understanding meant to her, she said, "I think, having an understanding has to do with…experience and kind of looking at things just from a broader scope—understanding how things work, how maybe things change or work out."  It was clear that she believed (academically, perhaps) knowledge was important for education, but insisted that other epistemic goods like wisdom and understanding trumped it.  When asked if she aligned with a particular educational epistemology, e.g., constructivism, postmodernism, critical theory, etc., she required help defining them.  In the end, she found worthy aspects in each but did not commit to one or the other.

### 3.2 Findings

These philosophical discussions about the theory of knowledge yielded an interesting result.  While Betty and Jay were willing to talk about knowledge, and Matt was resistant, all seemed to find other—more practical—issues more important.  Indeed, the tenor of these conversations, which is difficult to reproduce textually, was one of disconnection. To put it differently, theoretical knowledge seemed to have little direct connection to these persons' actual classroom philosophies.  That said, like all our beliefs, at minimum they have indirect influence on our thinking.  In the following section I consider how each informant understands the purpose of education.

## 4. The Purpose of Education

Over the course of these interviews it became clear that each informant was articulating a "purpose of education"—that is, particular understandings of the goals and ends of education.  In many cases this was the product of trying to describe their understandings of epistemology.  In fact, what emerged were four distinct goals of education—skill, knowledge, understanding, and wellbeing.  As I show a little later, this category is central to understanding how educators think about knowledge (and other epistemic goods).

### 4.1.1 Jay

Jay described the purpose of education in terms of producing responsible citizens.  In fact, this theme is threaded throughout all his talk of theory.  At two points, however, he explicitly mentioned the epistemic purpose of education—but not solely in terms of knowledge. Rather, in language strikingly similar to Betty, he explained that, "I think that knowledge is less my concern than is understanding. I mean, if a student understands…if they understand a subject then they have knowledge."  When asked to elaborate, he explained that knowledge is conceptually too weak to capture what a society should produce in its student-citizens.  Collective understanding, however, seemed to capture the essence of what he envisions for students.

### 4.1.2 Matt

Matt had a clearly defined vision of the purpose of education.  Without question, he viewed the cultivation of *skill* as the greatest educational outcome.  He was quick to caution, however, that classroom-goals (producing skill) are directly tied to the environment he teaches in.  Although the school is comprised of college-bound students (most classes are dual credit) many of these are from minority backgrounds and/or first generation college students.  He explained that, "they're all…or the majority of them are from poor backgrounds.  So I am teaching them how to win in the system that is set before them."  In evocative language he explains how he does this.  "If I teach them to self-feed they can go graze however they want.  They will be truly able to…to ingest whatever info packet they get, but also go out and graze at a thousand buffets."  For his student, having a certain skill set was logically prior to the possession of knowledge.

### 4.1.3 Betty

Given her other remarks about the knowledge and understanding, it is certain the Betty believes that these are important aims of education. However, when asked to describe the purpose of education she argued passionately for wellbeing—a term that denotes both physical and emotional health. For Betty, this involves "keeping [students] healthy—crying with them, just listening to them talking, getting involved in whatever is going on in their lives." To this end, she believes that educators need wear many hats. "You're a clown. You're a cheerleader. You're all these other things."

### 4.2 Findings

It is clear that educators hold quite different position on the aims of education. In this case knowledge, understanding, skill, and wellbeing each made an appearance. Thus, prima facie, we can conclude that teachers have different pedagogical priorities with respect to the purpose of education. Interestingly, though, an analysis of these categories yields a serendipitous result: each of these "aims" is discussed by Aristotle: *episteme* (knowledge), *phronesis* (understanding), *techne* (skill), and *eudaimonia* (well being). The first three, in fact, are the necessary conditions of the latter—wellbeing. Perhaps this is sheer luck, or perhaps Aristotle was on to something. Regardless, it seems clear that each of these purposes of education is commensurate with each other.

## 5. Educational Experiences

The preceding categories—*theoretical knowledge* and the *purpose of education*—deal much more explicitly with informants' opinions and beliefs about knowledge and other epistemic goods. Thus they tended to be less connected with actual experience. In the remainder of this paper I shift my focus to informants' acts of meaning making through experience.

### 5.1.1 Jay

Jay seemed particularly happy to talk about his education—particularly his undergraduate experience. "I think that the liberal arts environment at the school I went to in particular also had a strong influence on me just because I was able to see the interdisciplinary qualities and nature of that kind of environment." Jay mentioned interdisciplinary studies on several occasions. When I asked him what he meant, he explained that well roundedness is a mark of quality education. His most enlightening observations, however, came via his discussion of his academic advisor. When asked to explain how his mentor helped him, Jay told a number of stories extolling the man's intelligence, hard work, compassion for students, and scholarship. "I could not say enough about the man, and he's the reason I went to grad school, and a major reason why I finished my PhD." Jay explained—with a good measure of pride—that he and his mentor have since become "close friends."

### 5.1.2 Matt

Matt's education background was far less focused. "I was homeschooled, Christian evangelical private schooled, Catholic schooled, public schooled, and Montessori schooled." When I asked him how this shaped who he is today, he cryptically replied, "I have been through a lot of educational models." His facial expression and the tone of his voice suggested slight bemusement, and perhaps a measure of cynicism about educational models altogether. In fact, cynicism seemed to touch a lot of his remarks. One particularly illuminating example emerged in his discussion of honors chemistry: "I had an honors chemistry teacher who came in first day—who said, 'Honors chemistry. Alright. Look everybody; we don't have to make a big deal of this. Nobody stress out. Listen, when I give you your test, you'll be able to use your notes, use your book, and use your friends. Are we clear? Alright, everybody relax. Here we go.' I got an A in chemistry; I know zip chemistry." Matt clearly held this person in disdain. I asked if he'd had any teachers or professors who were "good teachers." He seemed to realize that he had only been making negative remarks at this point. He was quick to note that his philosophy professors and two history professors at university were excellent. Asked why, he cited their command of the material, ability to communicate it well, and the respect they engendered in their students.

### 5.1.3 Betty

Betty grew up in home full of educators. Her father was an administrator for over twenty years and her mother spent thirty years teaching high school English.

She explained that growing up in this environment shaped her understanding of education from an early age. "Well, growing up with educators for parents, knowledge was always highly regarded." She was particularly grateful that her parents encouraged her to join University Interscholastic League (UIL). "So I got started in that in like…second grade…in spelling and in graded writing. So, yeah, I think that shaped how I care about education a lot, because it put it on a competition scale. And I really wanted to win; I wanted to show that being good in school was cool." She went on to extol the virtues of "nerd talents and that "the town I was in had never seen, I guess, intelligence kind of heralded…." Much like Jay, Betty is driven by a sense of purpose, by goals and plans.

## 5. 2 Findings

In each case, informants understood their present educational perspectives in terms of their pasts. Indeed, it became increasingly clear that education has shaped who they are today. Even Matt, who spent a significant portion of our interview deriding "lazy" educators, was quick to point out that his passion for teaching and compassion for students is rooted reaction against these negative experiences. Jay and Betty also understood their present educational responsibilities in terms of academic backgrounds. In short, it seems that past experiences both shape and direct how teachers understand education—more specifically, the purpose of education.

## 6. Teaching and Learning

In each interview informants also spent time discussing their teaching experiences and thoughts on learning. In this section, I consider how these experiences contribute to their understanding of knowledge and its place in their pedagogy.

### 6.1.1 Jay

Jay seemed somewhat board with the topic of teaching and learning. This was a surprising result given his occupation—an assistant professor of education. Regardless, I successfully steered the conversation back to teaching on several occasions and two notable points emerged. First, Jay explained that he loved to engage students in discussion, and explained that the best learning occurred through skillful guided discussion. He then explained that his goal for students—that is, what he wants them to achieve—understands. "It's what you do to find out what…you start with your question and you discuss until you find…not necessarily find the answer…until you've delved deeper into the issue—until you've developed at least understanding." When I asked where knowledge fit into these discussions, he explained, "knowledge is less my concern than is understanding. I mean, if a student understands…if they understand a subject then they have knowledge." Knowledge, then, seems to be constitutive of understanding. The second point concerns "question asking." Jay was insistent that the greatest skill he learned in undergraduate, and a skill he tries to instill in his students, is the ability to ask perspicuous questions. Taken together, discussion and question asking were at the heart of Jay pedagogy—for himself and for his students.

### 6.1.2 Matt

Matt is an incredibly skilled teacher. This much is obvious within minutes of talking with him. He takes his duties seriously, deeply cares about his students, and has extraordinary communication skills. But he is also a little skeptical. He tells the following story: At the high school level you're given all these books like…how to be a treat teacher, and the 101 demonstrations of great education, how to teach like a champion. [Laughs] You know it's all these people with PhDs; they all make books…one of the funniest things I've seen lately is in how to teach like a champion. They're trying to…they're trying to elucidate and sort of…maybe triangulate on how to behave yourself in the classroom. And it was funny because at one point they just threw in this sentence that says: "either you got it or you don't! [Laughs] When I agreed that this seemed to invalidate the premise of the book, he agreed and explained that good teachers are born not made. He seemed to second-guess himself then elaborated, "there is a certain degree to which you can be tutored into good teaching practice." When I asked him about his own classroom strategies he offered several interesting examples and reiterated that his goal is the cultivation of skill. He seemed to believe that the possession of skill—in his case the ability to read carefully and write well—would enable students to better themselves.

### 6.1.3 Betty

Betty is the least experienced educator, having only completed required classroom observations for her coursework in education. Despite her familiarity with teaching via her parents, she seemed quite nervous about "becoming a teacher." The bulk of our conversation concerned her time spent observing teachers in local school. She was dismayed by the lack of respect students show the teacher, and questioned whether she would do any better.

She was especially concerned about having to assert herself.  "I was like,  'Oh gosh, I'm going to have to be a drill sergeant in the classroom!' I don't want to be that."  She went on to explain that she picked up a few tips along the way.  Then, however, she told me that she thought she would probably leave the teaching profession after a few years, calling it a "season." This was disappointing.  She's a bright and skilled communicator and clearly cares about her (future) students.  I told her that the profession would miss her.

## 6.2 Findings

The teaching and learning philosophies of these teachers derived from several locations, some of which have been discussed thus far—the purpose of education, educational experiences, and (indirectly) theoretical understandings.  What is striking about this category, however, is that captures how theory and various kinds of experience come together to shape practice.  This is true of these educators' views on learning, but even more explicit in their teaching practices.  Teaching, as a cognitive activity involving numerous decision points, necessarily entails reckoning with oneself—what one believes, how those beliefs were formed, and how one will act upon them.  These beliefs are, in turn, brought to bear in the course of instructional activity.

## 7. Results

Concerning my first question-- to what extent does *theoretical knowledge* affect teachers' understandings of knowledge and its function in education—it seems that a theoretical understanding of epistemology does not *directly* shape teacher practices? The findings of this study indicate that teachers do not find it difficult to apply a philosophical understanding of knowledge to education, nor did they find the topic particularly enjoyable. Instead, they repeatedly made efforts to discuss practical matters. This generally took the form of discussing the purpose of education—the second category discussed.  Here respondents offered several aims of education, including the acquisition of knowledge, understanding, and skill, as well as promotion of students' health and wellbeing.  Three of these purposes fall within the realm of "epistemic goods," that is, mental states with epistemic significance.  As such, is it reasonable to conclude that—despite their collective unwillingness or inability to articulate a clear theory of knowledge for education—these persons are concerned about epistemology in a non-theoretic mode.  The fourth purpose, well being, could reasonably be interpreted as an outcome of attaining the three epistemic goods—vis a vis, Aristotle. My second research question—what experiential factors shape teachers' understandings of knowledge and its role within education—crystallized through a consideration of the final two categories: educational experience and teaching and learning. I found that prior educational experiences played a significant role in how educators understand themselves *as educators*, and this tended to frame their teaching and learning practices—the final category.  Here I found that there is an important relationship between all categories—a sort of reciprocity or inter-penetration. Thus, concerning the second question, it seems to be the case that experience combined with indirect theoretical influence shapes teachers understandings of the function of knowledge and related epistemic goods in education.

## 8. Implications

Theoretical acumen and previous experiences shape our understanding of the function of knowledge in education.  The findings of this study raise an important question: Would greater attention to epistemology in teacher education and doctoral programs have salutary results? Aaron Pallas (2001) has suggested that education programs have failed to prepare future scholars for the *epistemological diversity* that characterizes contemporary theory.  I would extend his argument to elementary and secondary teachers who deal directly with students.  Pallas notes, "Experienced researchers and novices alike find it hard to keep up with the cacophony of diverse epistemologies" (p. 6). The problem is that the scope of theoretical diversity available to novice educators and seasoned scholars alike is often overwhelming and universities often give too little attention to adequately training these persons in basic epistemology. As a result, researchers are often initiated into particular theoretical camps and remain uninformed with respect to the philosophical underpinnings of other perspectives. In other cases they are given a cursory scan of the major frameworks and thus have only a skin-deep grasp of any given epistemology. A fact that is certainly true of k-12 teachers.  Pallas argues that this is problematic because research is founded on one's epistemological assumptions, and that an adequate understanding of these presuppositions is "central to the production and consumption of educational research" (p. 6). In other words, one understands and capacity to produce creative research hinges on an ability to identify and understand epistemological commitments. Moreover, the ability to meaningfully communicate with those outside one's traditions entails an understanding of their epistemological commitments.

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