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It is with pleasure that we inaugurate the reprint of the entire seven volumes of The Quarterly Journal of Music Teaching and Learning. The journal began in 1990 as The Quarterly. In 1992, with volume 3, the name changed to The Quarterly Journal of Music Teaching and Learning and continued until 1997. The journal contained articles on issues that were timely when they appeared and are now important for their historical relevance. For many authors, it was their first major publication. Visions of Research in Music Education will publish facsimiles of each issue as it originally appeared. Each article will be a separate pdf file. Jason D. Vodicka has accepted my invitation to serve as guest editor for the reprint project and will compose a new editorial to introduce each volume. Chad Keilman is the production manager. I express deepest thanks to Richard Colwell for granting VRME permission to re-publish The Quarterly in online format. He has graciously prepared an introduction to the reprint series.

Teachers In The Study Of Music Teacher Education: Finding Voices

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I dislike the term “research,” as I believe that it has a high alienation value. Those who “do it” are alienating, as they generally set themselves apart from the rest of us with an image of themselves as somehow anointed. Their role is that of the teller, the prophet. We, on the other hand, as teachers are to await word and heed their messages. Those messages are also generally alienating, as they are most often not particularly meaningful in the understanding and actual practice of music teaching, nor are they often even interesting.

Given the limits of time and the state of our literature, this article is an attempt at being neither comprehensive nor coherent; rather, it is an attempt to be provocative, in keeping with the spirit of *The Quarterly Journal of Music Teaching and Learning*.

Significant moments in human experience and learning have been characterized as being of the “ah-ha” variety. (For most of us, “ha-ha” moments are equally important but in a different way. Students tell me that there is a third type which is also momentous—the “oh-no”). A recent study of the pedagogical

knowledge development in undergraduate science teacher education students includes an account of an “ah-ha” moment for one student: “I remember having a very profound experience of suddenly really under-

standing, when our biology teacher asked us what the most important difference between a pig and a marigold was. And there we sat, all of us soon to be teachers with our academic qualifications, and we had no answer. The teacher had to explain: The marigold makes its own food, the pig has to steal its food! Thus, plants produce their own food and that of others mainly out of sun, air, and water. Everything fell into place. But why all those years at school learn-

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ing by heart for homework and exams, when this was what it was all about?” (Tronstrom cited in Marton, 1989, p. 17).

I had a similar “ah-ha” experience with respect to really understanding the world of educational research when I read Lagemann’s (1989) article in a recent issue of the *History of Education Quarterly*. In it, Lagemann states that “one cannot under-

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stand the history of education in the United States during the twentieth century unless one realizes that Edward L. Thorndike won and John Dewey lost" (Lagemann, 1989, p. 185). Because this thesis is central to the provocation I offer you, here is the *Reader's Digest* version of Lagemann's account of Dewey's life and the influence of Charles Judd and Edward Thorndike, along with her argument for the win/loss statement.

Dewey Versus Thorndike: An American Legacy

Dewey completed his doctoral studies in philosophy at Johns Hopkins in 1884 at the age of 24. During his first faculty position at the University of Michigan (1884-1894), he began to take an interest in education. It seems that Dewey's wife, Harriet Alice Chipman, once a student in his classes and fellow boarder at a rooming house, played a central role in spawning this interest (another behind-every-good-man story?). She was a social activist with a zest for living. Dewey—described as bookish, introverted, and "so shy and stiff in the classroom that [he] would stare at the ceiling while talking [his] thoughts in nonstop monotones" (Lagemann, 1989, p. 191)—was vitalized by her and grew to share her commitment to social reform. His devotion to their family was also at the heart of his work in education.

While Dewey's study of and contributions to education began during his tenure at the University of Michigan, it was at the University of Chicago as chairman of the Philosophy Department (1894-1904) that his ideas came to life. The University of Chicago at that time was characterized as "a creative community" with strong academic programs in a variety of areas that enjoyed a high level of collegial exchange and support throughout. This was fertile territory for Dewey, who believed in the connectedness of learning; particularly strong links were forged among the departments of philosophy, sociology, and the natural sciences.

Dewey's conception of education and educational inquiry was most completely realized in the University Elementary School (also called the Laboratory School or the Dewey School). Founded by Dewey in 1896,

the primary mission of the school for students was "to secure a free and informal community life in which each child will feel that he has a share, and his own work to do" ("The University Elementary School," 1897, p. 75). The school itself provided a vehicle for the study of education by all those involved: professors, teachers, and administrators. Each had a particular perspective to bring and a contribution to make.

Central to this study were the convictions that the learning environment should encourage inquiry to take place in naturalistic settings, provide a testing-ground linkage between scientific and social innovation, and find "ways to increase educational efficiency via the creation of a more cohesive, interrelated social system, in which teaching and learning would go on within and across a variety of institutions, and not be considered as narrowly defined, exclusive school functions" (Lagemann, 1989, pp. 199-200). Descriptions of rich intellectual exchange, focus on engaging questions of teaching and learning, and the energetic spirit of collaboration vividly portray Dewey's notion of educational inquiry.

Dewey left the University of Chicago under less than happy circumstances in 1904, eight years after the founding of the Laboratory School; apparently he either resigned under pressure or was fired. This marked the end of his firsthand involvement with matters of education. He spent the remainder of his teaching life in the Department of Philosophy at Columbia University.

The second figure in Lagemann's win/loss account is Charles Judd, who replaced Dewey at the University of Chicago. Judd had studied with Wilhelm Wundt at the University of Leipzig and sought to infuse the principles and methods of psychology into a new science of education. His definition of the scientific in education was in stark contrast to that of Dewey.

Although both Dewey and Judd thought experimentation was necessary in education, Dewey saw the school as the laboratory for education, and Judd saw it as nothing more than the place for implementing "real" laboratory findings. Whereas Dewey saw teachers and researchers as more alike than different, both wanting to be skilled students of education, Judd believed that the professional-

“What ‘won out’ was a largely implicit conception of education as a hierarchical enterprise much like a bee community, with administrative queens to be revered and waited upon, researcher drones to service these queens and take special pleasure and pride therein, and worker teachers to carry out the mindless, routine activities that support the basic needs of the whole.”

ization of education, and therefore the improvement of education, required that teachers and researchers fulfill distinct functions. Teachers should teach, in the process transmitting subject matter, organizing classrooms, and approaching children according to knowledge generated by researchers. In accord with these differences in function, Judd believed there should also be differences in gender—teachers should be female, and researchers, male; and differences in levels of education—teachers should not be required to pursue graduate training, researchers should possess the Ph.D. (the Ed.D. was not sufficient) (Lagemann, 1989, p. 205).

Consistent with his view of education as science and the need for professionalization, Judd reorganized the program and curriculum at the University of Chicago. The department of education was divorced from the philosophy department; faculty (only males) were hired to teach specifically and exclusively in the department of education; coursework in the history of education was deleted and replaced by “Introduction to Education” and “Methods of Teaching”; coursework in educational administration was designed to prepare administrators to manage the business of schools and to direct the activities of its workers, i.e., teachers. Among Judd’s crew were Franklin Bobbitt, Frank Freeman, Walter Dearborn. William Gray, William Reavis, G. T. Bushwell, Newton Edwards, Karl Holzinger and Leonard Koos, all of whom played prominent roles in the educational organizations and the journals of the day. The dominant theme in these professional conversations was the scientific management of schools; methodology given thereto was taken from the physical sciences through psychology:

The focus was on precise measurement of specific behaviors and the use of controlled conditions to verify scientific laws. These

laws, in turn, were intended to be prescriptive, i.e., they would define precisely what teachers must do in order to cause student learning. It was a science dedicated to control rather than making sense of the forms and processes of schooling and teaching (Doyle, 1992, p. 489).

Concurrent with this movement at the University of Chicago was the work of Edward L. Thorndike at Teachers College, Columbia University, which was the other major graduate school of education at that time. Thorndike’s work was closely aligned with and enhanced the direction of the Chicago school. He conducted a plethora of laboratory experiments using animals and then applied the results to people. Both Judd and Thorndike believed in “education as a technique for matching individuals to existing social and economic roles. They also shared hereditarian and racial determinist attitudes” (Lagemann, 1989, p. 212).

Most likely, Lagemann used Thorndike’s name in the win/loss statement because he and his work are more famous than Judd, thus making the *what “won out” over what* more readily apparent. What “won out” was a largely implicit conception of education as a hierarchical enterprise much like a bee community, with administrative queens to be revered and waited upon, researcher drones to service these queens and take special pleasure and pride therein, and worker teachers to carry out the mindless, routine activities that support the basic needs of the whole. Study of the enterprise has focused largely upon discrete and contextually independent characteristics and behaviors which can be linked to overall productivity and be selected or manipulated to increase that productivity.

What is the legacy of this victory in our study of music teacher education? In the past ten years, at least five major syntheses of research related to music education and mu-

music teacher education have been completed (Boyle & Radocy, 1982; Colwell, 1985; Boardman, 1990; Colwell, 1990; Verrastro & Leglar, 1992). Each author has lamented the general state of our understanding through research, using words such as fragmented, sparse, unfocused, inadequate, methodologically uncertain, and not useful.

But what *have* we learned about ourselves in music teacher education? Entering students with higher grade point averages, high school ranks and SAT/ACT scores fare better in our college classrooms than students with lower scores. We can agree on the competencies these future teachers should have if we allow for long lists, and these competencies can be acquired through our college programs. Instructional arrangements found to be successful in teaching these competencies include simulation, microteaching, programmed instruction, observation analysis, self-evaluation systems, and videotapes.

Yet we have few clues regarding the relationship of these teacher competencies to student learning or the degree to which learning in college transfers to the school classroom or rehearsal setting as teacher behavior. Music teaching effectiveness can be predicted on the basis of grade point average, faculty ratings and, perhaps, personality characteristics if the criterion of effectiveness is observer judgment, but the picture clouds when student achievement is the criterion. With little more than heartfelt conviction as a basis, we or others have attempted to improve our hybrid programs by increasing the field-experience component, making entrance and exit requirements harder, and lengthening the total program of studies. (See box on this page.)

Despite over 200 reports of music education research presented each year in our professional journals, we have not managed

In short, what we have done—unwittingly, I suggest—is to become blind disciples of ways of thinking, studying, and talking about ourselves that are rooted in an elitist desire to control and the egocentric dream of creating the perfect machine. Thorndike's tools are ours: pre- and posttests, standardized tests, curriculum packages, treatments, and surveys. Judd's disdain for the human is ours, for students (whom he believed "had few, if any, 'personal needs' other than obedience to adults") (Lagemann, p. 205) or teachers, who Judd apparently believed aren't capable of much except following directions, and even then they can't be trusted.

through our research programs to make much sense of the forms and processes of schooling and teaching in music. This "ah-ha" for me is laced with the irony of Dewey's prominent place in our hearts and curriculum philosophy statements about what we do and why and how we do it.

Changing the Emphasis

The scientific paradigm has lost some of its glitter and unquestioned allegiance within the general educational research community in the past several decades.

That dream of finding out once and for all how teaching works or how schools ought to be administered no longer animates nearly as many of us as it once did. In its place we have substituted the much more modest goal of trying to figure out what's happening *here and now* or what went on *there and then*. This does not mean that we have given up trying to say things that are true from situation to situation or that we are no longer interested in generalizations. But the kind of truth in which more and more of us seem interested these days takes a very different form than it once did. As Geertz has pointed out, the change is not so much in our notion of what knowledge is as it is in what we want to know (Jackson, 1990, p. 7).

Additional methods being employed to address these questions rely heavily on histori-

cal, anthropological, ethnographic, philosophical, cognitive science, sociolinguistic, and artistic perspectives. As Kimble (1975) noted:

How far we have come in the past ten years; that the white rat and the pigeon no longer provide the majority of our data, that complex mazes are rarely used these days, that "mind" is no longer a dirty four-letter word (p. 613).

It has only recently been acknowledged in educational research that the primary participants in the educational process—students and teachers—have minds which function on their own and which play the lead roles in how teaching and learning proceed. How students come to understand or misunderstand what is being taught and what teachers know about students' thought processes and how this is accommodated for in teaching, for example, are of paramount importance in the realities of teaching and learning. In addition, general conceptions that teachers have of subject matter, students, learning, classrooms, and schools shape teaching in very particular ways. Systematic programs of study in the areas of both student and teacher cognition are being undertaken at schools such as Michigan State University's Institute for Research on Teaching. The University of Pittsburgh's Learning Research and Development Center is dedicated to the study of students' thinking in specific subject matter areas, and programmatic study in teacher thinking is being conducted at Stanford and Arizona State University.

Thinking in the Classroom

While student thinking is a critical part of our understanding teaching and learning, I will focus on teacher thinking: what's being studied, what's being discovered and what it may mean—with one brief digression into student thinking. In a study designed to assess the effects of instruction in thinking skills with low-ability fourth graders, verbal protocols obtained through interviews were used to illustrate student thought processes. Students in both the control and experimental classes were given a word problem and asked to think aloud as they solved the problem. Here is one student's response:

29 students went on a field trip. Each van

could hold 8 students. How many vans are needed?

Alex's Response (Control Class)

Alex: You have to multiple 8×9 um, um, then you have to multiple 9 and 7. Then you have to multiple um, 8 and 2.

Interviewer: Tell me everything that you're thinking.

Alex: Um, then you have to multiple 7 and 2. Then you add 2, um, and you add 6 and 3. Then you add 6 and 1.

Interviewer: OK, are you done? Yes? What do you think the final answer is?

Alex: 14,992

Interviewer: OK, what were you thinking about besides the problem?

Alex: Um, the answer (Peterson, 1988, p. 10).

While this may be a "ha-ha" moment for us as music teachers, for the math teacher it is clearly an "oh-no." Alex's conception of the problem-solving process consists largely of just getting the answer. His idea of what is to be learned is not what the teacher has in mind, but it will be the predominant influence on what Alex actually learns. The misconceptions that students bring to or acquire in the classroom have been studied primarily in the areas of math and science. One common misconception held by many elementary students is, for example, that plants get their food from the soil rather than through photosynthesis. This and other misconceptions are often quite robust and can render students immune to teaching if the misconceptions are not recognized and directly (and meaningfully) confronted by the teachers. The pig/marigold incident is a case in point.

What do you suppose we'd find out if we asked:

1. A second grader to tell us about steady beat or high and low in music?

2. A seventh grader listening to the Bernstein *Mass* to tell us about where such a piece might be performed? Who would attend the performance? Why? What would the audience find most enjoyable or interesting about the performance? What in the music seems most important or attention-grabbing?

3. A high school band student looking at a familiar piece of ensemble literature to tell us about the style of the piece? The relationship of this part to the entire piece? The important expressive "controls" that help to make

the piece “work” and to be of interest?

Some of the work being conducted through Arts Propel is helping teachers come to know what students are thinking about regarding music they are composing, performing, or to which they are listening. Based on an ongoing conversation between teacher and students through student journals, teachers are becoming aware of new levels of sophistication of which students are capable and which they enjoy. Consequently, there is growing evidence that the quality of life in these music classrooms is improving through student liberation and teacher revitalization.

Knowledge Growth

Research specifically related to teacher thinking has encompassed a variety of issues and employed a diverse collection of methodologies. Calderhead (1987) suggests that such research is best characterized as exploratory, but that this study activity is united by “a common concern with the ways in which knowledge is actively acquired and used by teachers and the circumstances that affect its acquisition and employment” (p. 5).

Each researcher or research program has generally adopted a particular and unique terminology or taxonomy-like framework for conducting and reporting studies. This is somewhat confusing and in many cases is simply a continuation of the tradition of obfuscating legitimation in educational research.¹ What is illuminating and lucid about these studies, however, are the voices of teachers whose words give everyday, practical meaning to these taxonomies.

There are at least two general education research efforts that deserve thought. First is the work by Berliner (1990) in studying expertise in pedagogy. Through his study of expertise in fields such as chess and medicine, and extensive work with classroom teachers with varying degrees of experience, Berliner identified five stages in growth from novice to expert teacher related to the acquisition of pedagogical knowledge, i.e., “knowledge of classrooms—their management and their organization for the promotion of learning” (Berliner, 1990, p. 3). He offers 14 propositions about expertise in the

pedagogical domain. Here are glimpses of several.

First, experts excel mainly in their own domain and in particular contexts and rely upon automatic routines. Support for these propositions is provided from a variety of standpoints. Achieving expertise takes a long time, for example, and therefore sets practical limits on the number of areas in which expertise can be gained. The 10,000 to 20,000 hours of play completed by chess experts translates to 10 years of college, studying one subject for 40 hours a week. For teachers it is estimated that at least five years of teaching experience are required for the attainment of expertise.

During this experience, teachers come to know students and classrooms in very particular ways. They develop images and routines which serve as a basis for their understandings and actions. Stripped of particular contexts, expert teachers are frustrated and unable to teach as well as they would like. In one study, during which novice and expert teachers presented a lesson to an unfamiliar group of high school students, all of the expert teachers openly expressed anger at the limitations that the lack of context—their *own* students in their *own* classrooms socialized to *specific* routines and expectations—placed on their teaching performance. One expert teacher commented:

My expectations when a kid comes into my classroom for math is that he has pencil and paper ready at all times, because I make them take notes, just as you do in social studies. They have practice problems and this is kind of tough ‘cause I don’t know what was the routine these kids were used to, you know?... You know, with the kids that are used to your routine, you can stand up and talk for 15 or 20 minutes, and by your questioning techniques, and by having them work with guided practice at their desks [you keep them working]. But these kids didn’t know me, and they didn’t know the way that I operate, that all are supposed to participate, and why, and that they’re all supposed to be on task [constantly] (Berliner, 1990, pp. 12-13).

Another dimension on which experts differ from novices is in their representation of problems and situations. When given sample educational scenarios, experts’ responses included the use of labels and application of

principles and task analysis, and thought patterns not usually found in the responses of novice teachers. As one example, Berliner cites a study in which novice and expert teachers were asked to respond to the educational problem of "Mark, an 8-year-old Asian boy with severe learning deficits who likes mathematics and science and who has strong interests in computers" (Berliner, 1990, p. 16). Novice remarks included "Mark seems like a very talented individual with many diverse interests" and "Mark should be encouraged by his teacher to continue his science experiments and work on the computer" (p. 17). The expert responded with "Mark's needs can be broken into three broad areas: academic enrichment, emotional adjustment, and training to cope with his handicap" (Berliner, 1990, p. 17).

A second study directed at teacher thinking is the Knowledge Growth in Teaching Project at Stanford University. Lee Shulman, project director, has outlined his own taxonomy of knowledge types; one is briefly discussed here. *Pedagogical content knowledge* refers to the subject-matter knowledge for teaching, i. e., "for the most regularly taught topics in one's subject area, the most useful forms of representation, the most powerful analogies, illustrations, examples, explanations, and demonstrations—in a word, the ways of representing and formulating the subject that make it comprehensible to others" (Shulman, 1986, p. 9). Also considered as pedagogical content knowledge is teachers' understandings of students' subject-matter learning. While questions related to how teachers plan, organize, and manage during teaching have been studied for some time, questions about what is taught and how it is taught are rare. These questions draw our attention to studying how one moves from being an "expert student," one who understands a subject well, to become a "novice teacher," one who selects meaningful content and transforms it in ways comprehensible for students.

Strategies being employed to study this sort of knowledge growth are primarily field-based, heavily qualitative, and require rigorous and difficult analysis in order to begin to make sense of what's happening. Teachers-to-be are studied through techniques such as

intellectual biography, which relates to experiences with subject matter prior to college; college coursework completed; the intellectual conceptions personally held of the discipline or subject matter; and how these eventually unfold in teaching.

A bit of sense in this knowledge growth process in the field of English literature may illustrate an emerging pattern in what literature teachers select to teach and how it is taught. In one of the Stanford studies (Grossman, Reynolds, Ringstaff, & Sykes, 1985), researchers identified a continuum of three orientations to the presentation of literature in the classroom: text, context, and reader. Teachers who employ a text orientation in the study of literature often move through literature chronologically (period, author, genre) and stress literary analysis of selected works. Context-oriented approaches to literature draw from an outside field to render the literature meaningful, e.g., history, psychology, philosophy. The reader orientation stresses personal meaning in the texts drawn from students' own life experiences. These orientations apparently change for some teachers, given experience and the differing characteristics of students.

Some similar work related to music teaching is being conducted at the Elementary Subjects Center, Institute for Research on Teaching at Michigan State University. Findings related to how expert music and art teachers conceptualize their disciplines, for example, reveal that most agree "that there is [no] one 'right way' to conceive or approach their disciplines, or that there is [no] inherent visible 'structure' which would be recognizable to all in their fields" (May, 1990, p. 9). Moreover, music teachers struggled with identifying key concepts and the sequence in which these should be encountered by students. Most believed several concepts should be taught simultaneously and successively revisited in different works. Theme planning and interdisciplinary teaching were forwarded as good vehicles for curriculum integration.

Conclusions

So what sense are we to make of these initial illuminations of teachers and their teaching? In the biggest sense, I believe that we

must recognize the complexities and particularities that characterize teaching and remain mute in our efforts to create tidy training manuals of “what works” for music teacher education and music teaching practices. We will not come to understand the real us until we want to know “what’s happening *here and now* or what went on *there and then*” and ask the questions that will lead us to that knowledge. This is not a denial of the worth of all research that has been conducted to date and which has often employed positivist perspectives in the search for rules. We have identified some general “principles” that seem to apply to many situations, and this sort of inquiry does yield one kind of understanding. This approach, however, has not allowed us, as Boardman urges, to “look inward” (1990, p. 740).

A second and equally important sense is the understanding that asking these questions must be an everyday affair in the lives of teachers and teacher educators. In this we can recoup some of what has been “lost” in educational research. Dewey held that each of us should be adequately moved by our own ideas and intelligence. In teaching, we need to reflect on our practice and integrate what we learn into emerging theories of teaching and learning. As such we are “to be both consumers and producers of knowledge about teaching, both teachers and students of classroom life” (Cochran-Smith & Lytle, 1990, p. 4).

Note

1. Harry Broudy (1988), a longtime philosopher-friend in music education, recognizes taxonomies are inevitable and integrally linked with ownership and image. “A taxonomy is a career investment: Love me, love my taxonomy” (p. 178). He also believes that any taxonomy with more than three divisions is the result of poor analysis.

References

- Berliner, D. (1990) *Characteristics of experts in the pedagogical domain*. Paper presented at the International Symposium: Research on Effective and Responsible Teaching, University of Fribourg, Switzerland.
- Boardman, E. (1990) Music teacher education. In W.R. Houston (Ed.), *Handbook of research on teacher education* (pp. 730-745). New York: Macmillan.
- Boyle, D. & Radocy, R. (1982) Music education. In H. Mitzel (Ed.), *Encyclopedia of educational research*, Vol. 3 (pp. 1287-1299). New York: Macmillan.
- Broudy, H. (1988) Commentary. In C. Fowler (Ed.), *The Crane Symposium: Toward an understanding of the teaching and learning of music performance* (pp. 176-179). Potsdam, NY: Potsdam College of the State University of New York.
- Calderhead, J. (1987) Introduction. In J. Calderhead (Ed.), *Exploring teachers' thinking* (pp. 1-19). London: Cassell.
- Cochran-Smith, M. & Lytle, S. (1990) Research on teaching and teacher research: The issues that divide. *Educational Researcher*, 19 (2), 2-11.
- Colwell, R. (1985) Program evaluation in music teacher education. *Bulletin of the Council for Research in Music Education*, 81, 18-62.
- Colwell, R. (1990) The posture of music education research. *Design for Arts in Education*, 91 (5), 42-52.
- Doyle, W. (1992) Curriculum and pedagogy. In P. Jackson (Ed.), *Handbook of research on curriculum* (pp. 486-516). New York: Macmillan.
- Grossman, P., Reynolds, A., Ringstaff, C. & Sykes, G. (1985) *English major to English teacher: New approaches to an old problem*. Paper presented at the meetings of the American Educational Research Association, Chicago, IL.
- Jackson, P. (1990) The functions of educational research. *Educational Researcher*, 19 (7), 3-9.
- Kimble, G.A. (1975) Required reading for the profession [Review of E. Hilgard & G. Bower, *Theories of learning* (4th ed.). *Contemporary Psychology*, 20 (8), 613-614.
- Lagemann, E.C. (1989) The plural words of educational research. *History of Education Quarterly*, 29 (2), 184-214.
- Marton, E. (1989) Towards a pedagogy of content. *Educational Psychologist*, 24, 1-23.
- May, W. (1990) Teaching for understanding in the arts: The elementary subjects center at Michigan State University. *The Quarterly*, 1 (1&2), 5-18.
- Peterson, P. (1988) Teachers' and students' cognitive knowledge for classroom teaching and learning. *Educational Researcher*, 17 (5), 5-14.
- Shulman, L. (1986) Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15 (2), 4-14.
- The university elementary school: History and character. (1897, May 21). *University Record* 2.
- Verrastro, R. and Leglar, M. (1992) Music teacher education. In R. Colwell (Ed.), *Handbook for research in music learning and teaching* (pp. 676-696). New York: Schirmer Books.