

Shifting Paradigms in Music Education Research (1953-1978):

A Theoretical and Quantitative Re-assessment

The mid-twentieth century marked the growing importance of research as an academic undertaking in music education. The extant literature on content analyses of research published in the *Journal of Research in Music Education* includes studies by researchers who have categorized and described research studies, including areas of topical interest, editorial board composition, and use of theoretical framework (Ebie, 2002; Humphreys & Stauffer, 2000; Miksza & Johnson, 2012; Yarbrough, 1984, 1996, 2002), and quantitative articles published in leading research journals in music education (Rutkowski, Thompson, & Huang, 2011; Schmidt & Zdzinski, 1993). Kuhn (1962) suggested the possibility of paradigmatic shifts in research, and Humphreys (2013) applied the notion of paradigmatic change to music education history. The purpose of the present study is to examine evidence of a hypothesized shift in the operative research paradigms in music education during the first quarter-century of the publication of the *Journal of Research in Music Education*, during the period, 1953 to 1978. This shift was from humanities-oriented historical and philosophical studies to scientifically-oriented psychological studies, from studies couched at higher levels of generality to more specific levels of analysis of the data, from studies geared towards broader contextual and institutional issues to those concerning the specific behaviors of students in music education. Our choice of this period hinges on its importance in establishing general expectations of the research enterprise in music education that persist to our time. Research in music education burgeoned after World War II and the *Journal of Research in Music Education* was instrumental in establishing and forwarding the importance of music education scholarship internationally.

Data for our analysis are drawn from the first 26 years of the *Journal of Research in Music Education* during its formative period from 1953-1978. In studies of the lifecycles of

musical organizations, Jorgensen (1986) found that an organization's formative and expansionary periods might extend to 25 years by which, in the absence of significant shifts or renewal, its subsequent course is more-or-less set. At the outset, organizations typically adjust as they clarify their objectives and procedures. The first 26-year period was chosen in order to meet that minimum of at least 25 years of data. The early years of the journal's publication under the editorship of Allen Britton, a leading scholar and historian of American music and music education, exemplified a humanistic approach to research in music education, and historical and philosophical articles were well represented in the journal (Britton, 1984; Humphreys & Stauffer, 2000). At the same time, research in the United States was marked by the growing influence of positivism, the belief that science was best situated to inform not only the natural world but social affairs. This change was recognized by philosophers at the time. For example, Langer (1967) situated her own philosophy in the context of what she saw as the "idols of the laboratory" and the reification of scientific investigation with its search for causality. We seek to document whether there was a move away from humanities-driven research as the preeminent paradigm in music education research towards scientific investigations of music educational phenomena during 1953 to 1978. Institutional changes in the composition and expertise of editors and editorial boards may have reflected and possibly contributed to this paradigmatic shift (Humphreys & Stauffer, 2000). In this case, Allen Britton remained the editor of the *Journal of Music Education Research* for much of this period and any changes transpired during his watch, albeit with a changing editorial board.

Our analysis traverses some of the same territory covered by Yarbrough (1984) although it differs from Yarbrough's study in important ways. Yarbrough's purpose was to categorize articles methodologically according to criteria used in preceding research (e.g., her references include the work of Britton, 1969; Cady, 1967; Choate, 1965; Jellison, 1973; Madsen & Madsen,

1970; Madsen & Yarbrough, 1975; Phelps, 1980; Reimer, 1965). Our study draws on heuristic models developed by Sidnell (1972) and Taylor (1975) published during the period covered by our investigation. While Yarbrough's focus was upon topics of research investigation, ours was not. Working with a longer time period and a larger number of articles than our present study, Yarbrough's interest was in describing categories of research published in the *Journal of Research in Music Education* using frequency counts and percentages of pages. We sought to establish relationships between the different research methods and facets used and examine the level of generality at which the research was cast. Yarbrough asserted an increase in quantitative research studies over the 30 years of her study, but questions related to the possibility of paradigmatic changes in research during the period were not examined. In seeking to better understand these changes, our analysis built on Yarbrough's work while going beyond it. Combining theoretical and statistical analysis, we took a different perspective on the changing nature of research in music education over this period than Yarbrough provided.

Rather than the generally descriptive thrust of extant content analyses of music education research cited in this study, and supported by Miksza and Johnson's (2012) observations on the paucity of heuristic models in music education research, our own study was guided by elements of models developed by Sidnell (1972) and Taylor (1975) adapted for music education by Jorgensen (1977). These models are now decades-old, and yet, neither of them has, to our knowledge, been examined critically in the music education research literature. We are interested in these models because: they reflect theoretical thinking during the time period covered by our investigation; they directly address certain matters largely overlooked by music education researchers in the interim; they offer theoretical perspectives that facilitated our investigation of the possibility of changing theoretical paradigms in music education. Sidnell's interdisciplinary model related particularly to research methods and the facets or "central variables" of music

education (p. 24), and Taylor's approach pertained to integrative levels of analysis in the social sciences and humanities. Sidnell's model is interesting especially because it reflects widely-held conceptual thinking in the time period covered by our investigation. Originally published in the *Bulletin of the Council for Research in Music Education* in 1972, this article was subsequently republished in the same journal in 1987 as part of a special issue devoted to a discussion of Sidnell's contributions to music education research. Sidnell's taxonomy was "provided to the editor" of the *Bulletin of the Council for Research in Music Education* in the late 1960s and circulated in Richard Colwell's "introductory research class" at the University of Illinois, Champaign-Urbana (Editor's note, Sidnell, 1987, p. 14). It was seen as an important contribution to research in music education but was not critiqued in the extant research literature of the time.

Sidnell (1972, pp. 23, 24) categorized music education research into four types of research methodology: historical, descriptive, experimental, and philosophical research around logical considerations of "what was," "what is," "what can be," and "what should be" (p. 21). For him, historical research draws on scholarship in the fields of history and musicology and is concerned with documenting, reconstructing, and analyzing the lives and contributions of people, events, and movements in music education in the past (and the wider society of which it is a part). The notion of descriptive research was defined as simply that—research designed to describe or elucidate the present state of affairs, e.g., status studies and case studies. Such work was seen to have a quite practical benefit in illuminating present realities and potentially benefitting policy decisions in music education by generating and analyzing data that could justify policy initiatives. Experimental research follows protocols established in the sciences and attempts to examine matters of causation; it involves the conducting of experiments or the testing of hypotheses statistically by way of establishing universal laws that cover these phenomena.

Philosophical research is predicated on western philosophy grounded on a system of symbolic logic; philosophers examine normative questions pertaining to the field of music education.

Sidnell (1972, pp. 23, 24) describes these research methods as follows:

Historical research is defined as systematic inquiry of the record of [hu]mankind as it relates to the processes of music education. The historical method is used by all disciplines and is particularly adaptable to research in musicology and studies of the evolution of educational processes. Descriptive research embraces a broad category of studies primarily associated with the present status of individuals, events, social institutions and other forms of human activity. Case studies of human behavior and its change; growth and development research; sociological studies of communities and collective human action; are also examples of descriptive research. Experimental research is thought of as investigations where the experimenter exerts controls over variables or accounts for uncontrolled variables which affect behavioral changes in human beings. The manipulation of variables is accomplished to subject a theory, model or hypothesis to a trial situation. Philosophical research deals with ideas or systems of ideas relating to human thought and conduct. As a research procedure in music education, philosophic inquiry can identify appropriate goals and patterns of achievement for learners.

Another component of Sidnell's (1972, p. 24) model concerned "process variables" that together constitute the "process of music education." Notwithstanding this processual emphasis, his categories are drawn structurally and functionally. For him, music education requires: "a learner," "a teacher," "an interaction between learner and teacher," "material for instruction," and "an instructional setting" (p. 24). These aspects become his classification of five "central variables of music education" that he labeled "the teacher, the learner, the interaction of the teacher and the learner, the content of instruction, and the environment of instruction" (p. 24).

Jorgensen (1980) later reworked Sidnell's central variables into her own theory of musical instruction, adding the category of music and using, instead, the terms teaching, learning, instruction, curriculum, and administration, respectively. Still, Sidnell's classification of process variables was used in our study because it was established during the time period covered in this investigation and we sought theoretical frames representative of the time we were studying. We relabeled this dimension simply as facets of music education.

Had Sidnell's model been tested philosophically, various problems may have been noted regarding research methods and facets of music education. His categories are not mutually exclusive and employing his taxonomy is not as straightforward as his own classification of several randomly chosen studies implies (Sidnell, 1972, p. 25). Regarding the research methods, historical research can also be seen to be descriptive. For example, in writing biographies of leading music educators, rather than undertake a penetrating theoretical analysis of people and their work, researchers may simply excavate the details of their subjects' lives and contributions to music education. There may be little critical interpretation of the meaning of the events portrayed within a broader historical context. It is sometimes difficult to separate the various facets of music education concerning the teacher, learner, interaction of teacher and learner, content of instruction, and instructional environment. How one categorizes a particular study in terms of these facets requires a close inspection to determine where the weight of evidence falls. This reality, as Yarbrough (1984) correctly notes, gives rise to ambiguity in interpreting the data. Still, Sidnell seems to rely (at least implicitly) on "theoretical types," constructions that are only imperfectly realized in the phenomenal world (Jorgensen, 1981). Although Sidnell's model is a reasonable theoretical approach when examining social events, it yields somewhat ambiguous results when applied to the classification of research methods and facets of music education.

Outside music education, during the selfsame period, sociologists were developing notions of different generalities at which research in the social sciences might be cast. They sought to solve their own difficulties regarding the degree to which scientific investigations could explain human social behavior and the challenges of applying scientific approaches to the study of social phenomena. The idea of hierarchies of progressively interconnecting systems had been invoked much earlier by Auguste Comte (1868) but the idea enjoyed renewed popularity in the mid-twentieth century and Taylor was among those to mine it for the social sciences. Taylor's (1975) concept of integrative levels of analysis suggested that phenomena might be examined at various levels of specificity at which the analysis is cast, each one of which is nested within the next higher hierarchical level. He used the term "integrative levels of analysis" to conceive of hierarchical levels of generality of analysis, in which the higher levels included those beneath them. Thus, the physiological level is located respectively within the psychological, institutional, socio-cultural, and historical, as each successive layer is couched at an increasing level of generality. For example, analyses cast at the socio-cultural level of analysis include physiological, psychological, and institutional levels. One moves from the most specific physiological level on to the progressively more general psychological, institutional, and socio-cultural levels, respectively. Taylor mined this idea for the social sciences and Jorgensen (1977) made the case for its possibilities in music education. Each integrative level of analysis might be represented by a discipline or disciplines that emerged around it. Sidnell did not make this connection. As one dimension of his model, he referred, instead, to the various disciplines that undergird music education, namely, education, musicology, psychology, philosophy, anthropology, and history.

Mapping the integrative levels of analysis dimension onto Sidnell's (1972) typology of research methods may seem, at first glance, to overlap. For example, the historical integrative

level of analysis overlaps history as a research method in music education. Still, this overlap is already evident in Sidnell's (1972) model where the historical research method in one dimension overlaps in certain respects the discipline of history in another. Sidnell's distinction between the application of particular research methods and the disciplines that give rise to them or with which they are associated is worth testing. In this study, our interest in the changing levels of generality in music education research over the period 1953-1978 prompted us to replace Sidnell's taxonomy of disciplines with our own integrative levels of analysis derived from Taylor. We also questioned the relationship between the research method employed and the level of generality at which the research is cast.

Incorporating Taylor's idea of integrative levels of analysis in our own heuristic model allowed us to refer to foundational disciplines indirectly while also recognizing the systems approach exemplified by physiological, psychological, institutional, socio-cultural, and historical integrative levels of analysis that were in vogue during this period. This approach proved useful in examining evidence of the changing generality of music education research questions that drove research published in the *Journal of Research in Music Education* during the period. Jorgensen (1977) referenced Taylor's approach in arguing for the need to examine music educational phenomena throughout the range of possible levels of generality. Later, Fiske (1997) recognized this problem for music education research in a response offered at the Third International Symposium for the Philosophy of Music Education in Los Angeles, California, on May 28-31, 1997. Fiske noted that music education research falls over the spectrum of differing levels of specificity and generality, and researchers may disagree with the validity of each other's work because their research falls at different levels of generality. For example, a psychological researcher may fail to see the import of work couched at the higher level of generality at which a philosopher may cast the analysis, and vice versa. Fiske (2008)

subsequently applied these ideas in his psychological, sociological, and philosophical analysis of musical understanding. Beyond these somewhat scattered references, however, questions concerning these differing levels of generality and specificity of research arising out of the use of various foundational research traditions in music education were not critically addressed or contested during the period under examination. We have not found evidence of a widespread self-reflexive stance on the implications of these different levels of generality in the published research literature in music education during this time.

We use the term paradigm broadly in the sense of a world-view, perspective, theory, concept, or pattern of a particular phenomenon. Paradigms are theoretical constructs. They are often thought of comparatively, for example, comparing research paradigms in the humanities and sciences. The differing levels of generality at which research is cast and the research traditions and practices in fields that comprise the humanities and the sciences illustrate different beliefs, norms, and values. In the phenomenal world, paradigms may not present in “pure” theoretical form, and one may find similarities and differences in the ways in which research is conducted in the frame of the humanities and the sciences. Examining the possibility of shifting research paradigms over time requires taking account of trends and specific indicators of the presence of these paradigms. As such, one is examining indicators of the paradigm rather than the paradigm itself. Evidence of changing paradigms in music education research are useful indicators of what counts as important research in the field, what the mind-set driving research practice is, and which particular beliefs, values, and practices are emphasized at the same time as others are de-emphasized, marginalized, or excluded.

Research Questions

In order to test quantitatively the question of whether there was a shift in the paradigms of music education research during the period 1953-1978, our specific research questions

focused on indicators that when taken together might provide evidence of these changes. Three primary research questions were followed by four secondary research questions. These questions were as follows:

1. Is there a statistically significant correlation between the volume year and the research method used in articles published in the *Journal of Research in Music Education*, 1953-1978?
2. Is there a significant correlation between the volume number and the facet of music education in articles published in the *JRME*, 1953-1978?
3. Is there a significant correlation between the volume year and the integrative level of analysis in articles published in the *JRME*, 1953-1978?
4. Are there significant relationships between the research methods, facets of music education, and integrative levels of analysis in articles published in the *JRME*, 1953-1978? This question can be divided into three sub-questions.
5. Are there significant correlations between the research methods employed?
6. Are there significant correlations between the facets of music?
7. Are there significant correlations between the integrative levels of analysis?

Method

A three-dimensional heuristic model (See Figure 1) was constructed to guide a content analysis of 499 research articles published in the *Journal of Research in Music Education* (*JRME*) during the period, 1953 (v. 1, n. 1) - 1978 (v. 27, n. 4). The first dimension, *research methods*, was constituted of the four research methods defined operationally by Sidnell (1972), namely, historical, descriptive, experimental, and philosophical. The second dimension, *facets of music education*, consisted of the categories: the teacher, the learner, the interaction of the

teacher and the learner, the content of instruction, and the environment of instruction (Sidnell, 1972). The third dimension, *integrative levels of analysis*, consisted of physiological, psychological, institutional, socio-cultural, and historical levels (after Taylor, 1975, adapted by Jorgensen, 1977). Since Taylor's focus was upon empirical evidence, the relationship between philosophical method and philosophical integrative levels of analysis lay outside our present investigation.

Drawing on this conceptual model, all the articles published in the *JRME* over the period 1953 to 1978 were examined and categorized. Similarly to Sidnell's (1972) analytical approach, each article was classified using working definitions provided by Sidnell (1972) and Jorgensen's (1977) adaptation of Taylor's (1975) integrative levels. Author names and affiliations were clearly evident. A spreadsheet was systematically created that listed every article by author, title, number of volume, number of issue, number of pages, research methods, facets of music education, and integrative levels of analysis. These data were then aggregated and analyzed statistically in SPSS. At first, the journal included assorted articles such as conference reports and commentaries that were excluded from our sample. Although we did not evaluate the quality of the studies that were published between 1953 and 1978, to be included in our sample, we applied the criterion that each article must constitute an investigation of a phenomenon as an original research contribution to music education. Our sample size of $N = 499$ constituted all research articles published during 1953-1978. Drawn as they were from articles published in the preeminent music education research journal in the United States during the period, these data indicate the direction of research in the field over the period. This quarter century of data is delimited, in 1953, by the establishment of the *Journal of Research of Music Education*, and, in 1978, by a point after Britton relinquished the editorship to Robert Petzold in 1972, in accordance with our decision described above to include 26 years of data.

This content analysis was conducted as a philosophical and conceptual study in accordance with definitions for each category by Sidnell (1972) and Taylor (1975, adapted by Jorgensen, 1977). Rather than a scientific undertaking with anonymous coding, the journal issues were read in their original bound paper copies by the first author from the first to the last issues covered in our study. This reading provided the context of each volume (and issue) in publication order and the authors' names were clearly evident. The second author verified the number of research articles per volume. The principal test in this content analysis was for content validity, namely how each published study matched theoretical criteria delineated by Sidnell (1972) and Taylor (1975, adapted by Jorgensen, 1977). As with most published content-analyses, our study did not seek to control for researcher bias. The classification process itself was quite clear-cut in respect of Sidnell's model, since he provided operational definitions for each of his categories. Taylor's discussion of notions of integrative levels of analysis was quite general, and it was necessary to construct more specific indices of each level. Each research study was examined as a whole in respect to several guiding principles, which, when employed, enabled the categorization of integrative levels of analysis. These principles applied to music education are as follows: At the physiological level, one is interested in physical and chemical characteristics and responses to particular phenomena. The psychological level focuses on the expressed attitudes, beliefs, values, and behaviors of individuals engaged in or affected or impacted by particular phenomena. At the institutional level, the analysis is construed around the behavior of groups, organizational concerns, and how one institution relates to another. At the socio-cultural level, the interest moves to the wider society and the nature of the culture in which music education is situated. At the historical level, one asks questions that are cast broadly in terms of the past writ large. Historiography in this broad conception entails going beyond description, reconstruction, or even transformation of specific events, times, and places

to make sense of them within broader societal and cultural milieus viewed across the sweep of the historical record.

Contra the approach of simply counting numbers of articles, it was clear that since the journal size (in terms of total pages and number of articles) steadily grew (after an initial dip in the late 1950s) and then declined over the period, peaking around 1971 (see Figure 2 as an online supplement), the number of articles per volume needed to be controlled for in all correlations examining the volume year as a variable.

In terms of assessing the level of significance of statistical data in establishing trends and relationships over the period, a relatively stringent alpha level of .01 was set. Our data set allowed us to employ both partial and nonparametric statistics, and we preferred to focus only on those relationships that were most significant and thus exclude other relationships that were less compelling. This approach seemed most appropriate in examining evidence of possible paradigmatic change in music education research during the period 1953-78.

Results

Descriptive statistics for all variables per *JRME* volume number are presented in Table 1. For the four methods of research (historical, philosophical, descriptive and experimental), the highest means per volume for the time period studied (1953-1978) were found for descriptive ($M = 7.69, SD = 4.61$), indicating an average of seven to eight descriptive research studies, and experimental ($M = 6.23, SD = 5.52$), indicating an average of six experimental studies, published in each volume of the *JRME*. Lower means for the historical ($M = 3.27, SD = 2.43$) and philosophical ($M = 1.96, SD = 1.97$) methods are evident. See Figure 3 (an online supplement) illustrates the uses of these research methods over time.

For facets of music education, the content of instruction was by far the most popular topic under study ($M = 11.62, SD = 7.26$), indicating an average of 11 to 12 articles per volume over time. Much lower means were found for the number of articles per volume that addressed the environment of instruction ($M = 3.81, SD = 2.21$), the learner facet ($M = 2.19, SD = 1.83$), the teacher facet ($M = 1.35, SD = 1.35$), and last, teacher-learner interaction ($M = .23, SD = .59$). Large skewness and kurtosis statistics (> 1) indicate abnormal distributions, and a large standard deviation for the content facet indicates great variability around that mean. (An illustration of the dramatic difference in facets of published studies is seen in Figure 4, an online supplement).

For integrative level of analysis, the highest mean and standard deviation were found for the psychological level ($M = 10.92, SD = 7.99$), followed by the institutional level ($M = 6.31, SD = 3.88$). Extremely low means were found for the socio-cultural ($M = .85, SD = 1.29$), the physiological ($M = .77, SD = .99$), and the historical levels ($M = .42, SD = .64$) of analysis, indicating minimal representation in the *JRME* over the time period studied. Abnormal skews and kurtoses are evident, particularly for the socio-cultural integrative level of analysis, reflected in Figure 5 (an online supplement) where it can be seen that it was most highly utilized in the earliest years of the *JRME*.

While Figures 3 through 5 are revealing in terms of the ebbs and flows of the published research methods, facets, and levels of integrative analysis in the *JRME* from 1953 to 1978, the profiles for each of the three dimensions are closely aligned with the impressive growth and subsequent decline in the number of articles and pages over time (see Figure 2 as an online supplement), with the peak shown to occur around 1971. Table 1 confirms the large range of articles per volume (from 5 to 46) and pages per volume (from 43 to 438) over the time period. These two variables were highly correlated ($r = .98, p < .001$), which is to be expected, yet their correlations with the volume number are only moderately correlated ($r = .63$ to $.65, p < .01$) due

to the nonlinear relationship visible in the graphs; i.e., there is an initial decline followed by a steady linear climb peaking in 1971, followed by a sharp decline. Therefore, a decision was made to statistically control for the number of articles per volume through partial correlations for meaningful trend analyses of the research methods, facets, and levels of integrative analysis as required by the primary research questions, #1-3 (see Table 2). In addition, to guard against violations of statistical assumptions, such as the abnormal distributions found for some variables, nonparametric correlations were computed between all variables using SPSS 20 to address the secondary research questions, # 4-7 (see Table 3).

1. Is there a statistically significant correlation ($p < .01$) between the volume year and the research method used in articles published in the *Journal of Research in Music Education*, 1953-1978? (See Table 2)

When controlling for number of articles per volume, a moderately strong positive relationship was found between the volume year and the experimental method ($r = .70$, $p < .001$), contrasted with moderately strong inverse relationships with the historical ($r = -.69$, $p < .001$) and philosophical methods ($r = -.60$, $p < .001$). In other words, as time progressed from 1953 to 1978, experimental research increased significantly, while historical and philosophical research decreased significantly in the *JRME*. It is unclear whether these trends were due to the *JRME* rejecting certain styles of research, or whether certain research approaches were not published because they were not submitted for consideration.

2. Is there a significant correlation between the volume year and the facets of music education in articles published in the *JRME*, 1953-1978?

When controlling for number of articles per volume, a moderately strong negative relationship was found between the volume year and the environment of instruction facet

($r = -.69, p < .001$). This result provides evidence of the topic of the instructional environment significantly decreasing over the period of study.

3. Is there a significant correlation between the volume year and the integrative level of analysis in articles published in the *JRME*, 1953-1978?

When controlling for number of articles per volume, a strong positive relationship was found between the volume number and the psychological integrative level of analysis ($r = .84, p < .001$), while an even stronger but inverse relationship was found for the institutional integrative level of analysis ($r = -.88, p < .001$). This result shows that over the time period studied, the psychological level of analysis significantly increased, while the institutional level of analysis decreased (i.e., a lower level of generality increased over a higher level of generality).

- 4a. Are there correlations between the research methods employed and the facets of music education?

Five significant relationships were found. Two were revealed between the experimental method and the following two facets: the content of instruction ($r = .87, p < .001$) and the learner ($r = .66, p < .001$); and one was found between the descriptive method and the content of instruction ($r = .80, p < .001$). Positive correlations were also found between both the historical and philosophical methods and the environment of instruction ($r = .63$ and $r = .59, p < .01$, respectively.) These results suggest that the content of instruction topic was strongly associated with experimental and descriptive research methods, while the environment of instruction was more closely aligned with the historical and philosophical research methods.

- 4b. Are there significant correlations between the research methods employed and the integrative levels of analysis? (See Table 3)

A very strong positive relationship was found between the experimental method and the psychological integrative level of analysis ($r = .94, p < .001$), and moderately so with the

physiological level ($r = .52, p < .01$). The descriptive research method was also positively correlated with the psychological level of analysis ($r = .75, p < .01$).

Over that same time period, the historical method was strongly correlated with the institutional integrative level of analysis ($r = .82, p < .001$). Interestingly, the historical method was not found to be correlated with the historical integrative level of analysis, but this result is likely due to the small and abnormal distribution of that variable and warrants further research with a larger sample.

4c. Are there correlations between the facets of music education and the integrative levels of analysis?

The psychological level of analysis was found to be significantly related to two of five facets: the content of instruction ($r = .93, p < .001$) and the learner ($r = .71, p < .001$). The institutional level of analysis was found to be related to the environment of instruction facet ($r = .78, p < .001$). These results suggest that the content of instruction was primarily analyzed at the psychological integrative level of analysis, while the environment of instruction was primarily investigated at the institutional level.

5. Are there correlations between the research methods employed in articles published in the *JRME*, 1953-1978?

Significant correlations were found between the descriptive and experimental research methods ($r = .59, p < .01$), suggesting a moderate overlap between the number of descriptive and experimental studies published in the *JRME* during the time period.

6. Are there correlations between the facets of music education?

Two significant ($p < .01$) positive correlations were found between the facets of research: one between the content of instruction and the learner facets ($r = .58$) and, not surprisingly, one between the teacher and teacher-learner interaction facets ($r = .53$).

7. Are there correlations between the integrative levels of analysis?

No significant relationships were identified between the integrative levels of analysis, suggesting that these levels may be conceptually independent.

Discussion of Results

All research articles ($N = 499$) published in the *JRME* from its inception in 1953 through 1978 were included in our sample. Due to the limited sample size of journal volumes investigated in this study ($N = 26$), and to the even more limited number of articles falling into the individual subsets of research method, facet, and level of analysis, conservative approaches to data analysis were exercised. Even so, the results should be interpreted with caution. Notably, however, some statistical results are so strong as to draw our attention to them as revealing and important about the publications of the *JRME* from 1953 to 1978, particularly those that are highly significant and strongly correlated.

The primary questions of this study were concerning the relationships between the *JRME* volume number ($N = 26$) over the years 1953 through 1978 and the research method, facet, and level of integrative analysis used in 499 research articles published during that time. The strongest and most highly significant ($p < .001$) results of this study show that there are indeed negative relationships over time between the volume year and the institutional integrative level of analysis ($r = -.88$), the environment of instruction facet ($r = -.69$), the historical ($r = -.69$) research method, and to a slightly lesser degree, the philosophical ($r = -.60$, $p < .01$) research method. Conversely, the strongest positive relationships were found between the volume year and both the psychological integrative level of analysis ($r = .84$) and the experimental method ($r = .70$).

Viewed generally, these findings support the proposition that music education research during this period reflected shifting paradigms. Our evidence suggests that these moved from philosophical and historical approaches that represented a greater role for the humanities and studies cast at higher integrative levels of analysis towards psychologically-oriented experimental research that represented a scientific focus with studies cast at lower integrative levels of analysis. Also, our evidence supports the claim of a shift in the facets of music education investigated, away from the environment of instruction which was associated with the more general institutional level of analysis, in favor of the content of instruction which was strongly associated with the more specific psychological integrative level of analysis.

We do not make the claim of causality, namely, that either a change in research methods, or facet of music education, or integrative level of analysis, brought about changes in the others. Rather, our results demonstrate that all three changed over the period 1953-1978. These concomitant changes support the proposition that the research paradigms in music education changed during this period. Beyond this, we cannot go.

Implications for Further Research

Our findings have several important implications for further research. First, this study illustrates the importance of theoretical or heuristic models in providing the basis for a greater depth of analysis in empirical research than that otherwise possible. Rather than focusing on simply reporting interesting descriptive details, for example, those apparent in Figures 2-5, our analysis also opens interesting trend analyses that, while we regard these conservatively, merit further investigation using a more stringent content-analysis methodology and more powerful statistical procedures than those possible in the present study. Moreover, broadening the time

period to include analyses of the *JRME* after 1978 may provide evidence of subsequent paradigmatic shifts in music education research.

Second, our findings support the usefulness of experimental philosophy in music education research (Knobe, Buckwalter, Nichols, Robbins, Sarkissian, & Sommers, 2012; Knobe & Nichols, 2008). Experimental philosophy is a comparatively recent interdisciplinary approach that uses scientific approaches to test philosophical propositions. Rather than rely solely on logical argument, philosophers test their propositions empirically. For example, a philosopher might address normative questions concerning a paradigmatic shift in music education research without necessarily testing empirically the crucial assumption that a shift actually occurred. Experimental philosophers propose that conjoining science and philosophy provides a broad approach to philosophical and empirical problems, and the empirical testing of philosophical assumptions and propositions has an important place in philosophical argument. While our objective in this study was empirical rather than a philosophical, and we did not conduct an experiment under controlled conditions, we subjected our assertions regarding a possible shift in the paradigms governing music education research during the period, 1953 to 1978, to a trend analysis grounded in theoretical models and statistical analysis of empirical data. In so doing, we demonstrated the usefulness of plowing ground between philosophy and empirical research. We also showed the imperative of a rigorous theoretical framework for empirical research in music education cast at differing levels of generality.

Although our research questions in this study were empirical, triangulating empirical results to test more general theoretical propositions put the weight of our analysis on demonstrating the consonance between various more specific propositions noted in the results above. Such an approach assists in relating theoretical discourse to experimental and statistical analysis conducted at lower levels of generality and vice versa. It offers an approach for

philosophers to test theoretical propositions with reference to empirical evidence and to provide either a basis for a philosophical argument or evidence useful to it. It also provides an example of how empirical researchers might think of their work more broadly and theoretically. It further points towards the usefulness of construing research in music education and undertaking studies of a particular phenomenon at different integrative levels of analysis.

Third, heuristic models of music education such as that by Sidnell, point to specific areas that merit additional research. Figure 4 (an online supplement), for example, shows that the content of instruction was the most studied variable and the interaction between teacher and student was the least studied variable during 1953-78. These differences, together with those in the research methods and integrative levels of analysis, point to aspects that merit further study. During the period 1953-78, a developing bias in music educational research toward psychologically-driven research and away from investigations at higher levels of generality drawing on historical, anthropological, philosophical, and sociological roots constituted a potential loss to the field. We would hope to see research undertaken across the entire spectrum of the field and reflective of all of these aspects rather than a comparatively narrow band of interests and perspectives.

Fourth, much hangs on the validity of the particular heuristic model(s) used. Sidnell's approach invites the development of a sophisticated and definitive taxonomy of research methods in music education. From our current perspective, Sidnell's categories of research methods are simplistic. Thinking of just four types of research method ("what was," "what will be," "what is," and "what should be") as does Sidnell (1972, pp. 6, 7), puts considerable weight on the descriptive category, and privileges some research methods, e.g., historical and philosophical, over others, e.g., musicological, sociological, anthropological, and so forth. The same is true of his classification of central variables of music education. Jorgensen's (1980)

extension of Sidnell's music educational commonplaces includes music, reformulates the learner and teacher dynamically as learning and teaching, thinks of the interaction of teachers and students as instruction, regards the material for instruction more dynamically as curriculum in which people also interact with that material, and conceives of the environment for instruction as administration, or, specifically, as the organization of an instructional environment. This approach has been used in an analysis of metaphorical models in music education (Jorgensen, 2011) and provides a useful frame in which to view music education in terms of its practice. Concerning Sidnell's classification of disciplines, substituted in this study by Taylor's (1975) integrative levels of analysis adapted by Jorgensen (1977), a more sophisticated and systematic approach is needed not only to the problems raised by different integrative levels of analysis but to the development and fragmentation of sub-disciplines, cross disciplines, and specialties in the various foundational disciplines in music education during subsequent decades. Notwithstanding efforts to communicate across disciplines (Colwell & Richardson (2002), the fragmentation of research effort can make communication difficult at a particular integrative level of analysis or across disciplines at comparable integrative levels of analysis. Researchers may disagree on the meaning of terms that are used and tested. This reality requires a sophisticated and systematic mapping of disciplines and their sub-fields for music education research. It also suggests that when working up literature reviews in cross-disciplinary fields such as music education, it is important to search broadly across various literatures beyond music education in order to reconcile the various conceptions of terms being used and develop terms appropriate to music education. Given the pluralistic nature of music education, the notion of a universal taxonomy may be elusive, even if desirable. Theorists might posit, instead, multiple models in various dimensions that go beyond Sidnell's three-dimensional schema. It seems clear that music

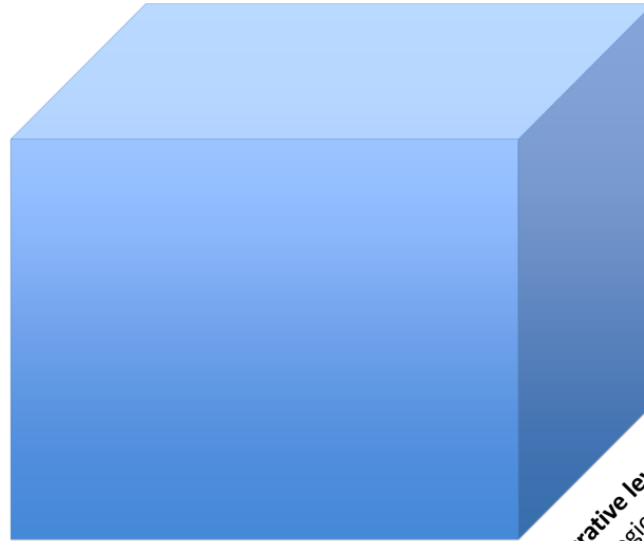
education research would benefit from more systematic thinking about the field than has been the case in the past.

Fifth, further research is merited into the reasons for the paradigmatic changes in music education research that are indicated during the period, 1953-1978. Our analysis stops short of explaining the cause for this shift from a more humanities-driven to a more psychologically-oriented approach, and from more general to more specific levels of analysis. It opens a nest of important philosophical questions concerning whether this shift benefits music education research and what other conceptual approaches need to be taken. Beyond the empirical evidence, our analysis constitutes a case study for combining the interests of philosophy and statistics in music education research. It suffices, here, to demonstrate empirically an apparent shift in the theoretical perspective that guided research in music education. The story of how this shift came about and what its ramifications are for a philosophy of music education research must await further analysis.

HEURISTIC MODEL

Research methods: historical, descriptive, experimental, philosophical (after Sidnell, 1972)

Facets of music education: teacher, learner, interaction of teacher and learner, content of instruction, environment of instruction (after Sidnell, 1972)



Integrative levels of analysis: physiological, psychological, institutional, socio-cultural, historical (after Taylor, 1975 and Jorgensen, 1977)

Figure 1. Heuristic Model

Table 1

Descriptive Statistics for Articles per Volume from 1953 to 1978 (N = 26 volumes)

Variable	Range	Mean	SD	Skewness	Kurtosis
Number of Articles	5 - 46	19.192	10.060	.923	.824
Number of Pages	43 - 438	186.577	92.417	.865	.944
Historical Method	0 - 9	3.269	2.426	.788	-.051
Philosophical Method	0 - 7	1.962	1.969	.943	.342
Descriptive Method	0 - 18	7.692	4.611	.389	-.373
Experimental Method	0 - 18	6.231	5.523	.829	-.251
Teacher Facet	0 - 5	1.346	1.355	1.085	.792
Learner Facet	0 - 8	2.192	1.833	1.254	2.713
Teach/Learn Interaction	0 - 2	.231	.587	2.510	5.324
Content Facet	0 - 30	11.615	7.256	.583	.269
Environment Facet	0 - 8	3.808	2.209	-.050	-.779
Physiological Level	0 - 3	.769	.992	1.036	-.058
Psychological Level	0 - 29	10.923	7.990	.496	-.469
Institutional Level	0 - 15	6.308	3.876	.533	-.280
Socio-cultural Level	0 - 6	.846	1.287	2.751	9.956
Historical Level	0 - 2	.423	.643	1.286	.669

Table 2

Partial Correlations between Volume Number and All Research Method, Facet, and Integrative Level of Analysis Variables (N = 26 volumes/499 articles)

Variable	Volume Number
Historical Research Method	-.690***
Philosophical Research Method	-.599**
Descriptive Research Method	-.003
Experimental Research Method	.700***
Teacher Facet	-.018
Learner Facet	.225
Teacher/Learner Interaction Facet	.052
Content of Instruction Facet	.466
Environment of Instruction Facet	-.690***
Physiological Integrative Level of Analysis	.359
Psychological Integrative Level of Analysis	.839***
Institutional Integrative Level of Analysis	-.876***
Socio-cultural Integrative Level of Analysis	-.266
Historical Integrative Level of Analysis	-.309

Note: ** = $p < .01$; *** = $p < .001$

Table 3

Spearman Correlations Between All Method (M), Facet (F), and Integrative (I) Variables (N = 26 volumes/499 articles)

	MExp	MPhil	MHist	FTch	FLrn	FT/L Int	FCont	FEnv
MDesc	.591**	.081	.232	.265	.469	.005	.799***	.480
MExp		-.224	.045	.419	.661***	.275	.870***	.054
MPhil			.427	.069	-.268	.047	.080	.585**
MHist				.316	.174	.031	.259	.633**
FTch					.337	.531**	.312	.112
FLrn						.090	.580**	-.024
FT/L Int							.061	.158
FCont								.300

Note: Note: ** = $p < .01$, *** = $p < .001$

Note: MDesc = Descriptive Method, MExp = Experimental Method, MPhil = Philosophical Method, MHist = Historical Method, FTch = Teacher Facet, FLrn = Learner Facet, FT/L Int = Teacher/Student Interaction Facet, FCont = Content Facet, FEnv = Environment Facet

(table continues)

Table 3 (continued)

Spearman Correlations Between All Variables (N = 26 volumes/499 articles)

	IPhys	IPsych	IInst	ISoc	IHist
MDesc	-.044	.747***	.574	-.078	.050
MExp	.521**	.941***	.102	-.234	-.247
MPhil	-.029	-.138	.444	.411	.455
MHist	-.072	.114	.822***	.015	.139
FTch	.159	.402	.337	-.085	.098
FLrn	.141	.708***	.217	-.428	-.182
FT/L Int	.488	.149	.059	.089	-.117
FCont	.286	.930***	.410	-.174	-.062
FEnv	.003	.132	.781***	.271	.184
IPhys		.299	-.235	.119	-.307
IPsych			.226	-.315	-.186
IInst				.004	.252
ISoc					-.052

Note: ** = $p < .01$, *** = $p < .001$

Note: MDesc = Descriptive Method, MExp = Experimental Method, MPhil = Philosophical Method, MHist = Historical Method, FTch = Teacher Facet, FLrn = Learner Facet, FT/L Int = Teacher/Learner Interaction Facet, FCont = Content Facet, FEnv = Environment Facet, IPhys = Physiological Integrative Level of Analysis, IPsych = Psychological Integrative Level of Analysis, IInst = Institutional Integrative Level, ISoc = Socio-cultural Integrative Level, IHist = Historical Integrative Level.

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