

Arts Education and Instrumental Outcomes:
An Introduction to Research, Methods and Indicators

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Table of Contents

Context.....	3
Rationale for the Arts in Education.....	5
Qualitative Research.....	8
Introduction to Qualitative Research.....	8
An Illustrative Qualitative Study.....	9
Choice of subject.....	10
Theoretical framework.....	11
Research design/data gathering.....	12
Data analysis.....	12
Results.....	12
Other Illustrative Examples of Qualitative Research.....	15
Quantitative Research.....	18
Introduction to Quantitative Research.....	18
Experimental research.....	19
Quasi-experimental research.....	20
Illustrative example of quasi-experimental research.....	20
Research questions.....	20
Participants.....	20
Instruments.....	20
Materials.....	21
Procedures.....	21
Data analysis and results.....	21
Non-experimental research.....	23
Summary.....	24
Meta-Analysis and Research Reviews.....	24
Issues Related to Transfer of Arts Learning.....	24
The Arts and Academic Achievement: The Project Zero Meta-Analyses....	25
The Arts Education Partnership Review.....	28
Recommendations for Future Research: Indicators and Methods.....	31
Points for Discussion.....	33
A summary of topics raised in previous UNESCO meetings.....	33
A summary of topics raised in the qualitative section of this paper.....	34
Methodological Considerations – Qualitative Research.....	34
A summary of topics raised in the quantitative section of this paper.....	35

Methodological Considerations – Quantitative Research.....	36
Literature Cited.....	38
Additional Sources.....	45
Author Biographies.....	51

Context

This paper was prepared as a resource document in support of a three day UNESCO meeting of experts in the arts in education held in Hong Kong in January, 2004. This was intended as the last in a series of six regional pedagogical conferences focused on ways of introducing the arts into school curricula. Previous meetings were held between 2001 and 2003 in Grahamstown South Africa, Uberaba Brazil, Amman Jordan, Nadi Fiji and Helsinki Finland.

UNESCO's commitment to encourage the growth of arts education which is the motivation for this series of regional meetings was articulated by the Director General of UNESCO in an appeal issued in 1999.

At a time when family and social structures are changing, with often adverse effects on children and adolescents, the school of the twenty first century must be able to anticipate the new needs by according a special place to the teaching of artistic values and subjects in order to encourage creativity, which is a distinctive attribute of the human species. Creativity is our hope.

(UNESCO 2001, 40)

The appeal extended a special invitation to educators to find ways in which the arts could provide instrumental support to learning across school disciplines.

I invite teachers of all disciplines to pool their efforts and work towards breaking down the barriers between the teaching of scientific, technical, general, literary and artistic subjects. This interdisciplinary approach is fundamental to enabling young people to understand the universal nature of the world.

(UNESCO 2001, 41)

Each of the regional meetings addressed issues of particular urgency in that part of the world. Collectively, they provided a foundation for a proposed UNESCO World Conference of Arts in Education tentatively scheduled for 2005.

The meeting in South Africa produced a report entitled *Cultural heritage, creativity and education for all in Africa* (UNESCO 2001). This document strongly affirmed the necessity of providing all young people with an education in the arts. It emphasized the role of education in nurturing the creative capacity of every student. "It has therefore become essential to cultivate in each individual a sense of creativity and initiative, a fertile imagination, a capacity for critical reflection, a sense of communication and autonomy and freedom of thought and action – the whole based on moral and ethical values. A way must be found, through education for all, for these new educational needs to be met for all children and adolescents" (10-11) Of particular interest to African delegates was the incorporation of traditional, regional forms of expression such as African oral tradition, poetry and body language, into the arts education program. "In this way, introducing children to the arts via their artistic traditions and cultural heritage presents considerable advantages from all points of view, the most important being that the children are immediately given the possibility to create and be creative." (11-12)

The value of including popular and regional forms of expression along with classical, European artistic practices was also raised at the regional meeting held in Brazil. The main focus in the

papers and the working groups at this meeting of experts from Latin America and the Caribbean was the incorporation of the arts as separate subjects in the school curriculum, equal in status with more conventional subject areas. For example, in her paper, Celia de Castro Almeida (2001) described the role of the arts in the schools of Brazil where it has been a compulsory component in primary education since 1971. Almeida explained that the three basic themes in the arts component of the current national curriculum, established in 1996, are production, appreciation and contextualization. Other delegates provided similar information about the state of arts education in their countries. For example, in her paper, Nolma Coley-Agard (2001) provided an overview of the role of theatre arts in Jamaican schools since their introduction in the early 1950s. Coley-Agard described the systematic approach to drama in elementary and secondary schools in that country and outlined the formal training of drama teachers, there.

The meeting of experts from held in Jordan in 2002 generated a wide range of recommendations on a variety of topics. These included a recognition of the need to agree on general terminology, the need to give Arts Education a central place in the school curriculum and the need to integrated the arts, especially, in basic education while, at the same time, ensuring the integrity of the different forms of the arts. Of particular interest was the issue of teacher education in all forms of arts education and the necessary evaluation of practicing arts teachers. One point which is of special relevance to the current paper was a statement on the need to “Reaffirm the necessity to encourage scientific research as regards the development of Arts Education curricula and teaching methods and to enhance creativity.” (UNESCO, 2002, 10)

The planning of an arts curriculum which incorporates the traditional culture of the region recurred as a theme in the meeting of experts held in Fiji in 2002. Participants in this meeting shared information on arts education practices in their own countries and worked collaboratively to generate ideas on how to maintain a strong element of Pacific Island culture in the content of arts education courses. This intent was articulated by the members of the drama education working party in their report to the conference.

A drama curriculum for the Pacific will recognize and respect local cultures and practices. The arts have played a significant role in Pacific Island cultural values and identify over many generations. The curriculum will acknowledge and respect this. In addition, the arts are of crucial economic value specifically in the Pacific region since they contribute to tourism and the spreading of island culture.

(Pacific Island 2002, 5)

Participants also discussed the importance of formal research in illustrating the instrumental uses of the arts in education as well as in promoting the highest standards in pedagogical practice. This is an issue that would later be taken up as a principal focus for the Asian meeting.

The 2003 conference in Finland adopted a unique focus. The issue of teaching the arts in a multicultural community had been addressed as an important side issue in a number of the earlier events. This meeting of experts from Europe and North America adopted this topic as the main focus of the conference. They addressed a theme of “How to use drama, theatre, dance, music and visual arts in young people’s education in collaboration with refugees and immigrants.” A particular aim was “to find new ways to benefit and learn from the peaceful coexistence with the different artistic and cultural backgrounds and knowledge that are presented by refugees and

immigrants in European countries, USA and Canada.” (Europe and North America 2003, 3) Discussions were based on the premise that because the arts emphasize the exploration of a diversity of methods and world views that they would be well adapted as media for promoting the acceptance of diversity in human relations.

The Asian meeting, held in Hong Kong, was intended to extend discussions on the importance of creativity while, at the same time, giving specific attention to the question of research in arts education. Organizers expressed an interest in promoting research into the quantifiable impact of the arts in education. The intended results of the meeting included “A practical method of evaluation of educational programmes in the field of Arts in Education.” (Asia, 2)

With a view to promoting this key objective, the background paper will cover three central questions.

- a. What are the characteristics of both quantitative and qualitative research?
- b. What are some illustrative examples of quantitative and qualitative research on the arts in education?
- c. What kinds of indicators can research provide to decision makers about the impact of arts in education?
- d.

The document will pay particular attention to studies that address possible instrumental outcomes of the arts in education.

Rationale for the Arts in Education

Educators have put forward two main justifications for including the arts in formal school curricula. One argument is intrinsic to the arts. It maintains that the arts are important components of human culture in and of themselves and that, as such, they ought to be included as school subjects on an equal footing with other cultural disciplines such as literature or history. The intrinsic argument can lead to either of two pedagogical approaches. On the one hand, an acknowledgement of the intrinsic value of the arts can lead to the adoption of the various disciplines such as dance, music, theatre and visual arts as academic subjects for the edification of all students as part of their preparation for future lives as culturally adept adults. On the other hand, recognition of the arts as important elements in the culture of the wider community can lead to a focus on skill development with a view to training talented youngsters to supply the world with a new generation of professional artists. Both of these approaches reflect the legitimate concerns of arts educators who may look upon a formal school program that omits a study of the arts as one that has failed to reflect the realities of society.

The second general argument in favor of incorporating the arts in school programs is instrumental. It advocates using the arts as an effective means of achieving the educational goals of the curriculum as a whole. This argument can similarly be subdivided into two major branches. One school of thought maintains that an experience of the arts can lead to the social, psychological and physical development of the child as a total person. It is variously claimed that a child who is exposed to the arts in school has the potential to become a more creative, imaginative, expressive, confident, self-reliant or critically thinking individual. In so far as the

school curriculum is intended to foster these characteristics, the arts can be seen to be of instrumental value to students and teachers. Another school of thought is more concerned with the potential of the arts to serve as pedagogical tools in the teaching of other academic subjects. Adherents to this view propose that the various arts disciplines, individually or in combination, can be applied to the teaching of concepts specific to subjects such as reading, numeracy and social studies at the basic level and literature, science and mathematics at the secondary level.

The conviction that an exposure to the arts in school can benefit the personal and social development of children and adolescents has been widely accepted by educational theorists and authorities in many countries. A Canadian curriculum document supports this view by providing a substantial list of developmental areas in which the arts can be effective.

In arts courses, students develop their ability to reason and to think critically as well as creatively. They develop their communication and collaborative skills, as well as skills in using different forms of technology. Through studying various works of art, they deepen their appreciation of diverse perspectives and develop the ability to approach others with openness and flexibility. They also learn to approach issues and present ideas in new ways, to teach and persuade, to entertain, and to make designs with attention to aesthetic considerations. Participation in arts courses helps students develop their ability to listen and observe, and enables them to become more self-aware and self-confident. It encourages them to take risks, to solve problems in creative ways, and to draw on their resourcefulness. In short, the knowledge and skills developed in the study of the arts can be applied in many other endeavours. (Ontario 1999)

A similar perspective was expressed in a 1986 report by the Singapore Economic Committee. As reported by Sylvia Chong, this document advocated educating students “so that they may reach their maximum potential and also cultivate a creative and thinking society. It stressed the role of music and the arts in a broad-based education aimed at developing the ‘whole person.’” (Chong 1998)

Other educators are convinced that the arts can be used to teach other subjects in the school curriculum. For example, a document prepared for the United States Department of Education (Gary 1997) on “Enriching the Experiences of All Children as They Study Literature, History, Geography, Foreign Languages, Math, or Science” proposed that specialist teachers in the arts can “help classroom teachers make disciplines such as history or literature come alive and cultural comparisons meaningful. They can make the principles of geometry or symmetry more real, and they can sharpen the vision of science.” (Gary 1997)

Both the developmental and pedagogical approaches to the instrumental use of the arts in education have their origins in the Progressive Education movement of the late nineteenth and early twentieth centuries. Prior to the advent of this movement, education at the basic and secondary levels was concerned exclusively with rote learning. The student was regarded as an empty slate upon which the teacher was expected to impress specific quantities of knowledge through various forms of drill. It was considered the students’ moral duty to absorb this knowledge regardless of their relative abilities or personal learning styles.

The innovative thinkers behind Progressive Education observed that children learned more effectively if they were encouraged to experiment with learning objects in an interactive environment. They began to make use of forms of play including artistic activities to promote hands-on learning. The child's windows on the world of learning were the senses. Through the senses, the student could encounter, interact with and learn from elements in the environment.

John Dewey (1934) provided a philosophical foundation for the instrumental use of the arts in education. Dewey proposed that the aesthetic act was a condition of all forms of knowledge. He argued that, in earlier historical eras, art had been an integral aspect of community life and that, in recent history, people had erroneously placed art "on a pedestal" apart from everyday life. Dewey's theory hypothesized that art works served to idealize qualities found in common experience and that order (or form) was achieved through a natural process of adjustment to and growth in the environment. He saw a rhythm in the loss of integration with the environment and the recovery of that union and he identified this process as an essentially aesthetic event, one associated with emotion. The emotional element was instrumental in giving meaning to objects. He considered any experience of heightened vitality as "art in germ". The senses were the means by which people could participate directly in events external to themselves. For Dewey, "Science states meanings; art expresses them." (84) Art keeps alive the power to experience the common world in its fullness.

To some extent, the work of Herbert Read (1931) can be seen to parallel the philosophy of Dewey. Like Dewey, Read held that the arts should provide a basic framework for all education. Aesthetic education was, for Read, primarily the education of the senses. It was based on the communication of feeling.

In spite of recent efforts in some developed countries to reform education along more conservative lines, the effect of the Progressive Education movement continues to form the vital force behind contemporary educational systems. Reformers may wish to control the range of subjects in the curriculum and to make schools more accountable for delivering a standardized set of skills and knowledge, but no credible educational organization has proposed a return to rote learning. While theorists may disagree about the specific content of disciplines to be included in the curriculum, the educational world remains firmly committed to a child-centered approach to learning in which direct experience and an imaginative engagement in the curriculum are essential elements.

The continuing influence of Progressive Education is reflected in an appeal by the Director-General of UNESCO for the promotion of arts education and creativity at school as part of the construction of a culture of peace (UNESCO 1999) which included the following statement.

Today we are clearly and strongly aware of the important influence of the creative spirit in shaping the human personality, bringing out the full potential of children and adolescents and maintaining their emotional balance – all factors which foster harmonious behaviour. (UNESCO 1999, 40)

As long as educators continue to agree with these principles, there will be an important instrumental role for the arts in basic and secondary education.

Qualitative Research

Introduction to Qualitative Research

While quantitative research aims to measure the impact of the arts on student learning by testing the claims of its advocates through controlled, experimental methods, qualitative research methods may be applied in an effort to describe the impact of the arts in education within the heuristic world of arts education practice, a world in which random factors tend to impede the effectiveness of experimental design. Beginning with assumptions derived from the theoretical literature, researchers look directly into the arts classroom or community setting using methods that have been described by a variety of terms. They are especially interested in the development of theory through interpretive, inductive analysis of data. Edmund Short (1991) has identified five variations of qualitative research. They are ethnographic (including case study), narrative, aesthetic, phenomenological and hermeneutic forms of inquiry. To this list, I would add the term humanistic. Although Short includes action research as a separate form, I propose that it can be included under the general category of qualitative research because it shares key methods with the other variations of this form. As we shall see, decisions on action can emerge in the course of a qualitative study that was not originally intended to produce any kind of practical adjustment.

Originally developed by anthropologists to objectify the way they looked at cultural events and relationships, qualitative research has been adopted by arts education researchers who want to be able to reflect in their studies the complex, spontaneous and often non-verbal actions of teachers and students in various instructional models. They have a particular interest in examining the process of meaning making through the arts. Seminal to the application of qualitative methods in the context of the arts in education is the work of Robert Stake (1975) who argued that some pre-ordinate procedures for educational evaluation are “insensitive to the uniqueness of the local programme, or to the quality of the experience provided to the youngsters”. In an effort to introduce a sensitive approach to assessing a program of arts in education, Stake advocated a process of “responsive” evaluation which would orient more directly to program activities than to program intents. Stake’s work on this issue was paralleled by that of Malcolm Parlett and David Hamilton (1972) who proposed “Evaluation as Illumination” for the study of innovatory programs, as well as by that of Robert Witkin (1974) and Elliott Eisner (1979).

Thomas Barone (1997) expressed the motivation that has led many arts education researchers to follow qualitative methods focused specifically on the interpersonal and aesthetic experience of the arts.

Most of All, can we, who are interested in what the theatrical and other arts offer those children, imagine a research program that is not guided exclusively by scientific premises, principles and procedures but sometimes built upon a real appreciation of what art itself can provide? (Barone 1997, 114)

In a typical qualitative study, the researcher will spend a substantial length of time observing practical work and instructional interactions in an arts education setting, recording his or her observations in the form of detailed field notes. In addition to this direct observation, the researcher may interview teachers and/or school administrators, examine lesson plans and

support materials, interview students and/or their parents and conduct focus group discussions with selected participants. The researcher may make sound or video recordings or still photographs of lessons, performances, exhibitions or community events related to the program of arts education. An important outcome of such a study is a richly detailed description of the arts program and an articulation of the impressions of those involved as students, teachers, etc. The summary report may include extensive excerpts from statements made by participants in interviews, journals, working sessions or group discussions. In some cases, one of the participants (often the researcher in the dual role of participant observer) will make use of insights discovered at one stage of the study to initiate improvements to the program that will affect the outcome of a subsequent phase of the research. In such an instance, the study may be identified as action research.

An imperative of qualitative research is that the study must respond to the nature of reality as it emerges in the course of the research. This means that, if factors are discovered which diverge from the original aim, then the objective may have to be modified or altogether changed. The researcher is expected to begin the study with a specific purpose – an aspect of teaching or learning that is intended to be the focus of the study. However, implicit in the approach is an understanding that the dynamics of arts education practice are likely to produce unexpected themes and issues that the researcher cannot ignore when they appear. The researcher may find it necessary to respond by shifting the emphasis of the study onto the emerging theme either as a relevant side issue or as a major focus of the research.

Qualitative methods can be extremely flexible, allowing the researcher to effectively capture important aspects of the ephemeral life of an arts education program that might be overlooked in a controlled experimental study. They also permit considerable latitude to the researcher in reporting the insights provided by the study through a wide range of literary and theatrical devices, graphic images and artistic presentations. The strength of the methodology is its capacity to convey personal interaction, mood and aesthetic effect in a direct and vivid way. However, it is important to acknowledge that those same flexible methods effectively limit the general applicability of the findings of each study. Whereas a quantitative study will aim to make general statements that are supported by verifiable statistics and results that can be replicated in future studies conducted in other settings, qualitative research aims to present an in-depth portrait of a single, localized program, event or situation. This is not to suggest that qualitative studies lack rigor. Qualitative insights and conclusions can be validated by the extent and diversity of the researcher's data collection and by the systematic approach that he or she applies to analyzing the data. Researchers are expected to analyze and communicate their impressions using methodical, transparent procedures. The best qualitative research can be demonstrably as rigorous as the best quantitative research. The difference lies in the intended outcome of each approach.

An Illustrative Qualitative Study

An exemplary qualitative study dealing with the impact of the arts in education was reported by Laura A. McCammon and David Betts of the University of Arizona (McCammon and Betts, 1999 and 2001). This study, entitled, *Helping Kids to "Imaginate": The story of drama education in one elementary school*, won a prestigious research award presented by the American Alliance for Theatre and Education in 1999. What makes this study particularly

interesting as an example for other researchers is the way it combines case study research with action research elements in one, continuous, study.

Unlike a quantitative study, this research was not concerned with pre-tests and post-tests nor did it rely on other elements typical of an experimental design. Its purpose was not to prove the impact of the arts on education but rather to describe changes in teaching and learning drama that took place at a single elementary school during the course of the study. This included a review of an extensive process of in-service activities designed to help the teachers at this school to integrate the arts into their teaching that had taken place prior to the beginning of the research. The main focus of the study was divided between two components. The first was a rich description of the culture of the school and its effect on teacher's capacity to adopt new teaching methods and the impact that the arts lessons had on students, teachers and the school community. The emphasis was on giving a reliable description of the impact from the perspective of the participants rather than on trying to quantify the impact according to external criteria. The second component of the research was the description of a staff development program that was established to meet teacher needs that were identified earlier in the case study.

Choice of subject

Because qualitative research aims to provide a rich description of one, specific arts education setting or program, the choice of a subject for the research is very important. It is customary for researchers to select a setting or program that has been identified as exceptional in some way so that the results of the study will have the potential to provide insights that may be of use to other educators. In the case of the study by McCammon and Betts, the school chosen as the site of the study was exceptional because it had been the subject of a number of teacher development projects in theatre education over the course of six years prior to the commencement of the study.

These activities had included a lengthy period during which a specialist theatre educator was employed as an artist-in-residence at the school. After concentrating at first on helping students produce performance pieces, the artist-in-residence began to work with teachers to help them make connections between his theatre lessons and the general school curriculum. He taught the teachers a variety of ways to approach theatre education including theatre games and story theatre. He observed that, after teachers had become familiar with his approach they began to see connections between theatre activities and the other subjects that they taught. Following the normal practice of reporting qualitative research, McCammon and Betts quoted extensively from the individuals whom they interviewed. With regard to the in-service work he conducted, the artist-in-residence was quoted as saying, "Integration involves familiarizing a teacher with the aesthetic discipline of an art form then showing how to intersect it with some on-going activity involving another academic discipline I have thought up until now that you had to teach the full art discipline to the children before you could start making the integrated leaps. You do not. You can follow the interest of the learners." (6)

In addition to the on-going work of the artist-in-residence, the school had been featured in two previous studies related to the arts including an Arts Integration Program which featured a system of peer mentoring in which teachers at the school who were experienced in working with the arts assisted others who were less experienced. So, the selection of this particular school as

the site for the current study was influenced by the program's extensive exposure to arts education that had been provided to its teachers over a considerable period of time. The school had been identified as an example of an institution with a longstanding engagement in the arts. Of particular interest, was that fact that, out of all the schools involved in the Arts Integration Program, this one had the largest number of teachers volunteering to take part in the program. There appeared to be something special about the school that was worth investigating.

McCammon and Betts set up a case study in the school intending to examine its culture to determine what aspects may have led such a large number of teachers to volunteer to participate in arts based approaches to learning. This was the primary focus of the study although, like all qualitative studies, this one was open to respond to any important issues that might emerge.

Theoretical framework

It is essential that any case study be informed by a theoretical framework that can guide the researchers in the design of their research and in the interpretation of their findings. In the case of the study by McCammon and Betts, the theoretical issues that were of particular interest concerned the culture of schools, arts mediation of learning and drama/theatre as a learning medium. Concerning the culture of schools, the researchers took note of the work of several theorists including Sarason (1982) who pointed out that "changes in schools, especially the implementation of new teaching methodologies, are problematic because of the pervasive norms of teacher autonomy, independence, practicality, non-intervention, and self-reliance inherent in the culture of schools," (McCammon and Betts, 11) and Bird and Little (1985) among others who showed that "the traditional norms of teaching can be replaced with the norms of collegiality and shared work through careful support from outside personnel" (11) particularly when the teachers were committed to common goals.

Regarding arts mediation of learning, McCammon and Betts relied on the work of Vygotsky (1978, 1986) which suggested that concept formation is a process that is mediated by signs and that art can mediate learning because art provides signs through which students can conceptualize the emotional aspects of life. They were also influenced by Kozulin (1990) who theorized that sources of mediation in the generation of higher mental processes can include "material tools, symbolic systems or the behavior of another human being" (McCammon and Betts 13) including arts products and performances. Through reference to these and other sources, McCammon and Betts provided a theoretical context for their expectation that the arts may have an impact on education in their selected setting.

They also provided a theoretical basis for their assumptions regarding drama/theatre as a learning medium. For example, they cited McCaslin's (1996) definition of creative drama as a form of improvisation and referred to the contemporary debate about the use of the terms drama (often reserved for participant centered activities) and theatre (often used to distinguish a separate arts discipline). Central to McCammon's own work with the teachers was a blending of three philosophical positions derived from the teachings of Dr. Lin Wright at Arizona State University in which drama/theatre education had the potential to incorporate developmental, discipline-based and integrative approaches. The researchers cited a range of educational thought on the issue to support the kind of practice they featured in their study.

Research design/data gathering

The gathering of data in a qualitative study normally involves a range of methods designed to record the impressions of the researcher and to elicit detailed responses from participants in the program. The study gains credibility according to the diversity of data sources examined, the thoroughness with which data are collected from these sources and the methodical way in which data are analyzed. To achieve a high level of credibility for their study, McCammon and Betts employed a methodology termed “focused data collection” which refers to the gathering of data through participant observation. Principal data was collected through interviews conducted by McCammon with most of the “key stakeholders” (16) – the teachers, the principal, and the artist-in-residence. The researchers also interviewed three groups of students and Betts conducted telephone interviews with some parents of these students. Interviews were conducted according to a set protocol in which each group of students and each adult respondent was asked the same open ended questions. Questions focused on the respondent’s feelings about being involved in theatre lessons and their perceptions on how and why the arts integration program worked and how they had been changed by the project. They also elicited the participant’s view on the arts and his or her perception of the school climate.

The interviews were supplemented by observations made in teacher meetings and of demonstration lessons led by qualified specialists. In some cases meetings were tape recorded for future reference. The researchers also made use of demographic information about the school and school district as well as historical documents. Most interviews were recorded and transcribed.

An essential step in the course of any study involving the collection of data from human subjects is submission of a research proposal for ethical review. The current study was approved by both the University of Arizona and the school district. Adult respondents consented to be interviewed and parents consented to their own and their children’s interviews.

Data analysis

Qualitative researchers need to follow an orderly and meticulous process in the analysis of their data to ensure that key themes are noted and documented in the final report. McCammon and Betts analyzed interview transcripts, field notes and documents to determine key concepts. They were able to attach values to the categories that were embedded in the organization of the interview protocols. In the course of this analysis, assertions were formulated. Then the data were searched again to confirm or disconfirm evidence. The artist-in-residence was involved in evaluating the results of the researcher’s analysis and these comments were incorporated in the research report.

Results

The researchers began their study with an interest in the apparently high level of support in the school for the theatre education program. What they were able to demonstrate, as a result of their analysis, was that their initial assumptions about the school culture were confirmed. Specifically, there was a high level of collegiality at the school and teachers readily looked to the experienced teachers for leadership in this new learning. The teachers reported that they had profited from the theatre activities and had found them beneficial for their students. In addition

to these anticipated results, researchers found that there was a need for further intervention to support the continuation of the program.

In reporting their results the researchers included extensive excerpts from interviews to demonstrate how the positive school culture was manifested. For example, in explaining the collegial atmosphere among the staff, one of the teachers made the following statement.

We usually talk about the kids and what we are doing We do a lot of sharing in the building, new things that we are doing. If we get something that is really fun and exciting in the classroom we want to share with teachers and maybe share ideas so that they can do it if they want to. (McCammon and Betts, 22)

Teachers reported that the theatre lessons had enabled them to become more confident and more comfortable at taking appropriate risks in the classroom. They were enthusiastic about the contributions of the artist-in-residence.

Teachers gave credit to the school principal for promoting a positive climate in the school. When asked how he would describe his role in the school, the principal articulated a supportive approach.

I think my role as principal is of creating conditions where people can grow and become more effective. I see it in that regard of providing that opportunity for the teachers to look at something and say this is worthwhile, it's challenging. (McCammon and Betts, 26)

Teachers remarked on the positive impact of the theatre program on their students. Among the benefits noted were improved self-confidence and communication skills as well as better listening and attention skills. Several teachers reported that their students had made connections between the theatre lessons and their classroom activities. One teacher reported improvements in her second grade reading program.

I think I see a difference when the children are reading. I'll say "Now remember your emotions" and that comes from the arts And another thing, I say to the children when someone comes in to talk to us, "Let's show them what a good audience we are." So the vocabulary, the emotions, the audience idea . . . it does have a direct bearing. (McCammon and Betts, 40)

The artist-in-residence also observed a range of benefits in the children's learning particularly in the area of social conduct, communication, cooperation and conflict resolution.

So what happens is the theatre becomes a life tool for them. So that they are able to process lots of different ways for them to be able to present themselves in the classroom and to each other. It facilitates an ease, an openness that really helps them in their expression everywhere. (McCammon and Betts, 41)

The children, themselves, found the arts to be a motivating and educational process. As one fourth grade student said when asked what he had learned from the theatre activities, "*I've learned that you need self-control, energy and cooperation.*" (45) A fifth grade student explained that the theatre lessons were instrumental in encouraging him to read. He said, "*Theatre helped me because I used to always when I got home – I used to watch a movie on HBO or Cinemax and now I just like sit down usually and read a book instead, because now I can*

picture whatever I want to instead of just having the picture laid out to me. So now I read more.” (52)

Parents who were interviewed were extremely positive about the arts activities in which their children took part. One noted that the arts could benefit children with various learning styles and, another, that folk songs could teach social studies and numeracy.

In addition to the anticipated results in this study, researchers came across some unexpected results. In spite of the positive impact that teachers and students attributed to the theatre lessons, it became clear to the researchers that, in the particular year during which they collected their data, there were weaknesses in the peer mentoring component of the arts program. Researchers also noted that the level of reflection about the theatre lessons had decreased substantially among teachers during the data collection period. Teacher meetings focused exclusively on logistical arrangements. There also appeared to be a breakdown in the collegiality that had previously characterized the innovative work of these teachers. The problems in peer mentoring, reflection and collegiality were accompanied by a corresponding decline in the use of theatre with other subjects.

Because the highly valued program of theatre education appeared to be at risk of failure, the researchers modified their research design to enquire of teachers why they were stopping their involvement with the program and what might keep them in it. What they learned was that while most teachers continued to feel committed to the program, some were feeling overwhelmed by other demands on their time and energy. Teachers reported that elements needed to sustain their participation included a reduction of meetings and other demands, the introduction of new lesson ideas and an increased involvement by the specialist teacher. These responses were consistent with the findings of an earlier study at the same school and with the theoretical literature that informed the current study.

At this point, the study shifted in structure from a purely descriptive case study to an example of action research. The researchers and the artist-in-residence took advantage of the insights provided by the study at that point to develop a course of action aimed at stopping the erosion of the arts program and at reinforcing its impact in the school. Their solution, a measure that was implemented by McCammon, was a course for teachers in the school, designed to bolster the arts program while, at the same time, providing participants with in-service credit recognized for salary purposes by the school district. The aims of the 30 hour course were to enable teachers to

- *Use drama/theatre in their own classrooms*
- *Work as part of a collaborative team to plan integrated curriculum*
- *Coach other teachers, and*
- *Reflect on their classroom practice* (McCammon and Betts, 73)

The course was scheduled for after-school hours so that it would supplement, rather than replace, the contributions of the artist-in-residence.

In the course, McCammon introduced different drama methods than those used by the artist-in-residence, while also revisiting the lessons provided by the artist-in-residence. The research report described the content of the in-service course and documented the reflections of teachers who participated in the course. Researchers also interviewed students to determine if the course

had made any difference in the inclusion of theatre in the curriculum. Although participating teachers appeared to regain their enthusiasm for the arts program and students reported an apparent increase in theatre activities in their classes, the peer-mentoring element of the program appeared to decline again after the conclusion of the in-service course. Teachers who were committed to using theatre in their teaching lamented the loss of this collegial element. In the context of one, particular school, the study confirmed the conditions needed for curriculum reform that had been articulated in the theoretical literature.

In summary, this exemplary study exhibits the key components that characterize qualitative research – the careful selection of a subject (in this case a school with a demonstrated commitment to the arts), a clearly articulated initial focus of enquiry, a substantive theoretical foundation, a diversified and methodical approach to the collection and analysis of data, an openness to emergent themes and issues and a method of reporting results that reveals the complexity of the human environment and that respects the voices of all participants. Beyond this, the study illustrates how the findings of a qualitative study can form the basis for practical intervention to solve a problem or pursue a recognized goal.

Other Illustrative Examples of Qualitative Research

The qualitative methods exemplified in the study by McCammon and Betts have been used by researchers to examine a wide range of issues arising in arts education programs around the world. Several notable examples are cited in the valuable compendium "Critical Links: Learning in the arts and Student Academic and Social Development" available through the internet (<http://aep-arts.org/>).

Among studies described in this document is one by Martha C. Mentzer and Bonni B. Boswell (1995 as reviewed by Karen Kohn Bradley 2002) which looked at the effect that a movement poetry program had on the creativity of 2 children with behavioral disorders. In this study, data was collected through anecdotal recordings by 2 trained observers, the evaluation of sessions using observational checklists, open-ended questionnaires conducted with 4 staff members and 2 observers and an analysis of the children's own original poems. The researchers concluded that the program did have an impact on the children's creative response to varying degrees and on their interest in poetry. One child acquired social behavior skills and one gained motor coordination skills. They both enjoyed the program. Because the study involved only 2 children, no attempt was made to generalize the findings. However, the results were suggestive of the possibility that children with behavioral disorders may gain significant educational benefits from a program combining poetry and movement.

Another study cited in the compendium also involved 2 children as subjects of an ethnographic case study. This research, by Jeffrey D. Wilhelm (1995 as reported by Terry L. Baker 2002) asked whether an experience with the visual arts could help reluctant readers to begin to enjoy reading. The 2 seventh grade boys, who had been identified as learning disabled and as reluctant readers, were led through a 9 week program in which they were helped to visualize stories through visual arts activities. The researcher concluded that, following the program, the boys were more sophisticated readers, that they were more motivated to read and that they were more active in interpreting the text rather than passively reading it. Again, because of the small sample number and the lack of an experimental design, the results of this study cannot be

generalized beyond the immediate setting of the research. However, the study suggests a correlation between the visual arts activities and the improvement in reading ability that invites further research of a more comprehensive and, possibly, experimental nature.

While most of the studies related to music in the compendium are quantitative, one significant qualitative study is described. This case study by Patrick Kariuki and Cindy Honeycutt (1998 as reviewed by Larry Scripp 2002) also took 2 students as its subjects. In this case, the researchers wanted to know if listening to music can help improve the writing skills of emotionally disabled youngsters. The study incorporated 4 time periods, each 4 weeks in length during which the boys took part in weekly writing assignments. During the second and fourth periods, the boys listened to music while completing these assignments. During the first and third periods the writing was done without music. The boys' writing was scored for technical skills, creativity and volume. The students were also observed while writing and were interviewed to elicit their reactions. It is suggestive that both of the children showed improvement in writing skills and volume while writing to music, that they appeared to be more focused and that their attitude toward the assignments improved while listening to music. Because of some ambiguity in the research methodology, it is impossible to eliminate the possibility of researcher bias in the results of the study and once again the small sample limits the general applicability of the study. However, future research could examine the same question with more careful controls.

The small sample sizes of these notable studies selected from the Critical Links compendium is indicative that qualitative research is particularly appropriate under conditions in which it would be impracticable to observe larger sample groups in sufficient detail to draw credible conclusions. However, qualitative methods are by no means limited to such a small sampling of subjects. By the same token, the predominance of American studies in the compendium is no indication that qualitative research is limited to American settings. Case studies, action research and other forms of qualitative research have been found useful in a large number of countries in various regions of the world, from Asia to Australia to Europe.

An example of Asian research in arts education that uses qualitative methods is a paper by Leslie Nai-Kwai Lo who looked at the use of amateur artists, particularly in the performing arts, to popularize the arts in the People's Republic of China. Basing conclusions on the observation of non-formal arts education activities in China and an extensive familiarity with related historical and descriptive literature, the researcher considers the developmental effectiveness of out-of-school arts education programs. Data gathering methods included content analysis of a wide range of Chinese written materials along with visits to a number of regions in China where participants of Mass Culture programs were conducted and where non-formal arts activities were observed. The study reveals several important and challenging issues facing the non-formal arts education system, such as the limiting effect of ideological control over course content, the lack of standards for student achievement, the lack of continuity endemic in a program that accommodates an inconsistent and fragmented student body, the lack of social recognition for non-credit courses, the tension between an assimilation of foreign artistic forms and a retention of indigenous forms and pedagogy and, finally, the inability of a skills-oriented pedagogy to nurture a broad cultural awareness.

Another Asian study, by Fanny Yuen-Fun Ng and Paul Morris (1999), uses a combination of qualitative and quantitative data to examine the music curriculum in Hong Kong secondary schools. To build a credible picture of secondary music education practice, the researchers reviewed the formal aims of the government curriculum and compared them to the perceptions of teachers responsible for delivering the curriculum. Through questionnaires and interviews, the researchers were able to show that, whereas the literature in music education was found to promote a balance of elements including activities related to creativity, performing and listening, the official syllabus in Hong Kong provided little guidance on this matter although it did indicate general support for a balanced program. In their questionnaire responses, the teachers agreed that a primary goal of music education was to enable students to appreciate music but they showed a lower level of agreement on the importance of helping students to develop composing or performing skills. The rationale for this unbalanced approach to music education was found in the results of interviews with teachers who reported that they were operating under constraints that led them to concentrate primarily on a single element, that of listening. Ng and Morris found that the key factors explaining “the priority given to listening were its suitability for a transmission style of teaching, its compatibility with the prevailing style of assessment in schools and with the physical context of classrooms.” (33) Teacher isolation and lack of resources were also identified as factors. Teachers were particularly concerned about noise levels and discipline control that they associated with composing and performing.

What these and other qualitative studies share with the exemplary study by McCammon and Betts is a reliance on methodical observation and careful attention to the voices of all participants. The goal of this kind of research is to gain a rich and detailed understanding of a specific situation or program. The limitation shared by all qualitative studies is their inability to produce generalizations except when included in meta-analyses. Their great strength is their ability to convey, in vibrant terms, a sense of the immediate reality experienced by a specific teacher or student engaged in a particular program of arts education.

Quantitative Research

An Introduction to Quantitative Research

While qualitative research focuses on interpreting the construction of meaning in social processes, quantitative research emphasizes the measurement and analysis of relationships between and among variables. Rather than creating richly detailed accounts of particular cases of social phenomena as in qualitative research, quantitative research results in statistical relationships that communicate the amount, intensity, or frequency of particular variables.

In quantitative studies researchers test or verify a theory by engaging a deductive logic rather than developing one through the use of inductive reasoning. A theory guides the entire research framework: hypothesis or research questions, data collection procedures, and ultimately, the interpretation of the results as a confirmation or disconfirmation of the theory under investigation. Based on theory, the researcher selects a construct(s) to be empirically examined through observable behaviours and responses. A construct is an abstract theoretical construction that is not directly observable, in other words a concept. For example, creativity, motivation, mental ability, and self-esteem are examples of constructs. Because constructs are not directly observable, quantitative researchers employ indicators to measure the construct in question. For instance, a researcher may select flexibility, originality, and elaboration of thought as indicators of the construct “creativity”.

Indicators of the particular construct in question are referred to as variables in quantitative research. Creswell (2002) defines a variable as “a characteristic or attribute of an individual or an organization that can be measured or observed and that varies among the people or organization being studied” (p. 93). In quantitative research the variable that is considered to cause or influence a particular outcome is referred to as the independent variable (also termed treatment, manipulated, antecedent, or predictor variable). The variable that is considered to be the outcome of the influence of the independent variable is referred to as the dependent variable (also termed criterion, outcome, and effect variable). For example, in a study that examines the effect of arts study (e.g., as measured by number of arts courses taken or number of years of arts study) on students’ performance on a creativity test, performance on the creativity test (dependent variable) is dependent upon students arts study (independent variable). In other words, creativity test scores in this case are considered to be an outcome of the variable arts study.

There are several other variables important in quantitative research: mediating, control, and confounding variables. A mediating variable is a variable that comes between the independent and dependent variable. For example, in a study that examines the effect of arts study (independent variable) on students’ performance on a standardized mathematics tests (dependent variable), there may be other mediating variables such as the type of arts instruction (e.g., integrated-arts approach, discipline-based approach) that influence the independent variable. Thus, the type of arts instruction (mediating variable) stands between the independent (arts study) and dependent variable (standardized mathematics test performance). Further, other variables that may influence the independent variable such as demographic or personal variables (e.g., socio-economic status (SES), parental education) that may be controlled through statistical analysis (e.g., analysis of covariance) are called control variables. By controlling such variables

the influence of the independent variable may be determined more clearly and internal validity of study increased. Variables that may influence the independent variable but cannot be easily detected or were not statistically controlled for in a study are considered confounding variables. To continue our example, in a study examining the impact of arts study on students' mathematics performance a researcher may have controlled for SES, but may not have controlled for previous mathematics achievement. Previous mathematics achievement would likely have an effect on the independent variable and in this case would be considered a confounding variable.

The fundamental difference between qualitative and quantitative approaches to research revolves around the issue of control. While qualitative researchers relinquish control in an effort to capture social processes in all their complexity in natural settings, quantitative researchers implement means of control in all aspects of the research design. A central reason that quantitative research methods are called upon is to generalize study results to larger populations. McMillan and Schumacher (1997) define generalizability as the "extent to which the findings of one study can be used as knowledge about other populations and situations—that is, to predict" (p. 18). Generalizability refers to the external validity of a study. In order to maximize external validity researchers attempt to select participants that represent the populations they intend to generalize the results to. The research study setting and how closely it represents the social setting to which the results will be generalized also influences the external validity of findings. The conditions of the research setting such as the nature of the dependent and independent variables, the physical surroundings of the research setting, the temporal aspects of the study (e.g., time of day), and the effects caused by the presence of a researcher or the treatment (e.g., new arts-focus program) are considerations that one must take into account when considering the external validity: the extent to which research findings can be generalized to another population. The internal validity of quantitative research, on the other hand, is the extent to which a study controls for extraneous variables that may influence the dependent variable. As Pedhazur and Pedhazur-Schmelkin state interrogatively with reference to internal validity "Is what has taken place (i.e., the phenomenon observed) due to the variables the researcher claims to be operating (e.g., manipulated variables), or can it be attributed to other variables?" (p. 224). Variables that are unaccounted for in a study may thus jeopardize internal validity.

Experimental research

Quantitative research studies may be one of two types: experimental or non-experimental. Experimental research is concerned with establishing cause-and-effect relationships and involves a high degree of control in that the researcher manipulates particular conditions that the participants do and do not experience. This type of research involves an experimental group of participants who receives a particular treatment (e.g., arts study) and a control group (also termed comparison group) of participants who does not receive treatment. Researchers then compare the experimental and the control group with respect to a particular variable(s). In true experimental research, participants are randomly assigned to groups (experimental and control). A true experimental design is the best approach for examining cause-and-effect relationships as random assignment of participants increases the chances of there being no differences between the control and experimental groups prior to treatment. Thus a clearer indication of the impact of the treatment or independent variable is more likely in true experimental research. Through rigorous attention to issues of control and the manipulation of particular variables experimental

research provides the best research approach for determining causal relationships in social phenomena.

Quasi-experimental research

However, the degree of control becomes an issue within the context of educational research. The need for a high degree of control in experimental research means that the research setting may become artificial and restricted and thus does not represent accurately the natural setting to which the results will be generalized (e.g., a classroom setting). In applied research, such as educational research, it is often difficult to conduct true experimental research as the process of random assignment is difficult in educational contexts. Thus, experimental research in education often employs a quasi-experimental design in which intact groups of participants are used such as a school, a classroom, or a group of students participating in particular programming. A quasi-experimental design is similar to a true experimental design in that experimental and control groups are employed and conditions are manipulated. However, participants are not randomly assigned to control and experimental groups. Researchers conducting a quasi-experimental study must employ statistical measures to control for group differences (control variables) that may impact the results of the study. While cause-and-effect relationships are still the focus of quasi-experimental research, the lack of random assignment of participants decreases the ability to generalize results. Further, Rosenthal and Rosnow (1991) state “When dealing with studies in the natural setting and with humans, researchers cannot absolutely ‘prove’ cause and effect (Rosenthal & Rosnow, 1991)” (Creswell, 2003, p.94). Thus, as Creswell states, a more apt research statement is one that states “probable causation” between variables (p. 94).

Illustrative example of quasi-experimental research

For the purposes of illustration, Park’s (2003) study of the impact of a music program on students’ creativity is chosen as example of quasi-experimental research. This study employs the basic features of quasi-experimental research and also describes an initiative in Korea for developing students’ creativity. Park states that “a creative learning atmosphere in music education has not been effectively implemented in Korea” (p. 306). Thus, in an effort to address this shortcoming in Korean music education, the Creativity-Enhancing Music Program (CEMP) was developed with the aim of cultivating elementary students’ creative abilities. Park’s study of the effectiveness of the CEMP in enhancing creativity as measured by pre-and posttests of creativity was part of a larger research project that initially involved the development of a preliminary CEMP program based on the creativity literature, the Seventh Curriculum of Music for Elementary Schools in Korea, and the recommendations of teachers and experts in the educational field.

Research Questions

Quantitative researchers use research questions or hypothesis to state the specific purpose of a study. In this case the research questions were: 1) Is the CEMP effective in enhancing cognitive traits of creativity in elementary school students?; and 2) Is the CEMP effective in enhancing personality traits of creativity in elementary school students?

Participants

The participants for this study were 60 fourth grade students from a single elementary school. Thirty students were assigned to the experimental group and thirty students assigned to the

control group with 15 males and 15 females in each. Statistic analysis of the pre-test data was used to confirm that there were no differences between the experimental and control group prior to treatment (i.e., CEMP program). Further, the two groups were equal in holistic learning abilities and it was ensured that the classroom conditions for both groups were the same with the exception of the CEMP program (treatment). These measures of control ensured that results of the study were not influenced by initial group differences. Establishing that there are no initial group differences, or if differences exist, statistically controlling for them, is an important step in conducting quasi-experimental research as initial group differences jeopardizes the integrity of the results.

Instruments

In a pretest-posttest quasi-experimental design researchers make observations or measure a variable in question by means of instruments. The instrument used for pre- and posttest measures of creativity in this study were Im's (1998) Personality Trait test of creativity (PT) and Torrance's (1988) Tests of Creative Thinking (TTCT Verbal Forms-A type & TTCT Figural Forms-A type). The four subcategories of the Torrance test (TTCT) that measures creative cognitive traits are: 1) fluency (number of ideas); 2) flexibility of thinking; 3) originality; and 4) elaboration. The four subcategories of the Im Personality Trait test (PT) are: 1) independence; 2) risk-taking; 3) persistence; and 4) openness.

Materials

The materials used in quantitative research refers to the specific aspects of the treatment that the experimental group receive (e.g., arts program, curriculum, instructional method). The materials used in this study are those of the CEMP program which the experimental group experienced. As Park describes, CEMP is a program consisting of four stages with a total of 20 activities and lesson plans. The stages of the program are: 1) Introduction (creative expression through body movement); 2) Musical Conceptual Learning Step (learning of musical concepts); 3) Creative Music Making Step (composing, performing, appreciating and assessing music creatively); and 4) Developed Learning Step (combines all previously learned steps). The control group experienced a basic music learning program implemented for the same duration as the CEMP.

Procedures

The procedures of a quantitative study refer to the details of the research design that a study employs. In this case a pretest-posttest experimental design was used which consisted of: 1) conducting a pretest using the TTCT and PT measures of creativity to establish baseline data and ensure there were no significant differences between experimental and control groups; 2) the application of CEMP on the experimental group for a period of three months (treatment) and observations of participants in CEMP; 3) conducting a posttest using the TTCT and PT measures of creativity on both experimental and control groups to see if group differences existed on measures of creativity after treatment and interviews with the experimental group.

Data analysis and results

In this study *t*-tests were used to analyze the data of the creativity tests. The *t*-test is a common statistical analysis used to compare the means of two groups to determine the probability of the group means being different. If the *t*-test indicates that the means are different then there is a greater probability that the group means are significantly different. Based on the *t*-test analyses

the findings of this study showed that the experimental group (CEMP program) increased significantly on cognitive creativity measures of verbal-fluency, figural fluency, flexibility, verbal-originality, figural originality whereas the control group did not. Elaboration was the only creativity trait that showed no significant difference. However, an analysis of observations revealed that elaboration was beginning to develop in the later stages of the CEMP program. A post-test analysis of the PT test however, did not show a significant difference from pre-test scores for the two groups. An analysis of observation and interview data, however, showed enhancement of the creative personality traits (it must be noted that in this case Park's addition of qualitative interview and observational methods to the experimental design actually make this study overall a mixed-methods study).

Further, with respect to creativity research, Park's finding that creative personality traits (independence, risk-taking, persistence, openness) did not develop in the three month period of CEMP is consistent with current literature that states that creative personality traits generally do not show changes in a short period of time (i.e., the three month period of the CEMP program) (Wilson, 1976; Allen, 1997; Feist; 1999). However, interview and observation data did reveal improvements in creative personality traits. This may indicate that different types of measures are needed to tap into the impact of the arts on personality traits. Further, Park's effort to assess creative personality traits is a step in the right direction for arts education research as such traits are often overlooked in favour of the more cognitive traits. If we are to assess the instrumental impact of the arts, an assessment of creative personality traits such as independence, risk-taking, persistence, and openness, are critical to understanding the positive impact of the arts.

Another example of a quasi-experimental study is Kim's (1998, as reviewed by Hetland, 2002c) study of the effect of creative and traditional dance instruction on Korean seventh-grade girls' (78 students) creative and critical thinking skills. It was hypothesized that the students in a creative dance group would make more significant gains in creative and critical skills than a group of students who were instructed in traditional dance. One intact class of students from Soeul, Korea was employed as the experimental group and was taught creative dance (three five-week blocks with fifteen, forty-five minute sessions). Another intact class from Soeul was used as the control group and was taught traditional dance (modern, ballet, and Korean traditional dance) for the same number of classes and duration as the experimental group. Both groups of students (experimental and control) had no previous dance experience and were SES heterogeneous. Kim compared the effects of both creative and traditional dance instruction as measured by pre- and post-tests on creative (Torrance Test of Creative Thinking: Figural Form A and B) and critical thinking skills (Raven's Standard Progressive Matrices). Thus by using intact classes, experimental and control groups, and pre- and post-test measures, Kim's study illustrates a pretest-posttest quasi-experimental design. Accounting for dance experience and SES variables increased the internal validity of the study and thus the integrity of the results. The results of this study showed that there was a significant improvement in the creative thinking skills (originality, elaboration, flexibility, and fluency) in the experimental group (creative dance group) while the control group did not make significant gains in creative thinking skills. Further, while the hypothesis that the creative dance instruction group would result in greater gains in critical thinking scores than traditional dance instruction group was not supported, critical thinking skills in the creative dance group were enhanced moderately.

Experimental research employs inferential statistics to test hypotheses and address research questions. The first step in both experimental and non-experimental research involves the use of descriptive statistics for example means (\bar{x}) and standard deviation (SD). After the analyses of these data the researcher can evaluate alternate *a priori* hypotheses through the use of many different statistics for example regression, analysis of variance (ANOVA), multiple regression and multiple analysis of variance (MANOVA). However, a discussion of inferential statistics is beyond the scope of the present paper (e.g., see Pedhazur & Pedhazur-Schmelkin, 1991, for a detailed account of statistical analysis in quantitative research).

Non-experimental research

In contrast to experimental research, non-experimental research does not involve the manipulation of conditions in the research setting. Non-experimental research aims to describe social phenomena by examining relationships between variables rather than cause-and-effect relationships. Non-experimental research may be used to describe the existing or past state of a particular social phenomenon. In other words, it describes things as they are, or were, without the manipulation of variables. Through the use of descriptive statistics (e.g., frequency distributions, measures of central tendency, measures of variation) non-experimental research is a valuable means of establishing a foundation of knowledge about an uncharacterized social phenomenon which may then guide future research. For example, the description of alternate approaches to arts instruction used in a particular population may then lead researchers to ask questions about relationships between the different approaches (e.g., arts-integrated, discipline centered) and arts knowledge and skill development. Further, descriptive research provides a tractable means for studying a group of individuals over a length of time (longitudinal research) on such variables as cognitive and social development. For instance, within the context of arts education, research that examines instrumental impacts of arts education on cognitive and social skills longitudinally is needed to examine the durability of the impact of arts education.

A common approach to non-experimental descriptive research is to conduct a survey which involves selecting a sample population and administering a questionnaire or conducting standardized interviews to collect information on particular variables. A survey is a useful method of gaining information about a larger population through the use of a small sample from the population. Surveys may be used to describe the incidence, frequency, and distribution of particular aspects of a population such as people's attitudes, beliefs, ideas, behaviours, and demographics. For example, Lam (2003) conducted a survey to evaluate the effectiveness of public programs in the art museums of Hong Kong. To determine the effectiveness of the museum education programs (guided tours, workshops, demonstrations, lectures, audio guides, and art video programs) Lam employed a standardized questionnaire of multiple choice questions (some open-ended questions were used at the end of the questionnaire) to assess the participants satisfaction with the programs, the knowledge and skills gained through the programs, the type of information that the participants gained through the programs, the participants expectations of the programs, and the participants beliefs about art. From the 331 completed questionnaires (237 from females and 94 from males; participants ranged from 12 to 65 years of age with 12-18 years old accounting for 69.5% of the participants) Lam found that participants believed the museum educational programs of Hong Kong to increase their knowledge in art history and to enhance their art appreciation abilities. Further, participants found programs that incorporated interactive educational approaches (discussions, hands-on

activities) more educationally rewarding than those programs that adopted a strict lecture style of instruction.

After an initial descriptive study correlational research may be used to explore the relationship between variables. The correlation between variables is described by a correlation co-efficient (r) which can be positive or negative with a range of +1 to -1. A positive correlation indicates that an increase in one variable will be accompanied by an increase in the other(s). A negative correlation co-efficient indicates an increase in one variable will be accompanied by a decrease in the other(s). The size of coefficient indicates how closely the variables are related either positively or negatively. The Pearson product moment coefficient of correlation represented by r is the most frequently used index of correlational relationship. For example $r = 0.8$ means a stronger positive correlation between two variables than $r = 0.3$. It is important to remember that correlation between or among variables does not infer a cause and effect relationship.

Summary

Thus in summary experimental research is concerned with cause-and-effect relationships and involves the random assignment of participants to experimental and control (comparison) groups and the manipulation of independent variables. Quasi-experimental research is similar to experimental research in all respects with the exception of random sampling. Quasi-experimental research employs intact groups of participants (e.g., classes of students, schools, programs) rather than randomly assigning participants to experimental and control groups. In contrast to the naturalistic approach of qualitative research where researchers attempt to illuminate social phenomena in all their complexity, experimental research involves implementing measures of control and the manipulation of particular independent variables in the research setting in an attempt to measure a limited set of outcome variables. Non-experimental research such as survey research is also concerned with examining a limited set of variables but does not involve the manipulation of independent variables. Non-experimental research is used to examine the characteristics of a particular population based upon a sample of a larger population and may also be used to examine relationships between and among variables through correlational statistical analysis.

Meta-Analysis and Research Reviews

Issues Related to Transfer of Arts Learning

In recent decades a growing justification for the arts in North America has been an instrumental one claiming that the arts have social, motivational, and academic repercussions. This justification is based upon a growing body of research that suggests experiences in the arts produce cognitive and social skills that transfer to other domains of cognitive activity and learning. However, the suggestion of “transfer of learning” has initiated heated debate within the arts education community and within the broader educational field. Within the context of educational and psychological research, transfer of learning, where learning in one domain enhances learning in another domain, has proven to be extremely difficult to achieve, if at all, and more so, difficult to detect (Catterall, 2002c). Thus, the suggestion of learning transfer in arts education has been met with much skepticism. Further, research findings can be misconstrued such as the now famous “Mozart Effect”. In 1993 it was reported that listening to Mozart caused

college students' to have a *temporary* increase (10-15 minutes) in their spatial reasoning abilities after listening to about 10 minutes of Mozart music (Raucher, Shaw, & Ky, 1993). This research finding instigated a media outburst with headlines such as "Mozart makes you smarter" and the unsubstantiated conclusion that listening to Mozart could increase children's IQ. Further, most of the research findings to date that suggest transfer of learning from the arts are of a correlational nature and thus do not provide evidence of a causal link. However, research findings that show a correlation such as "music study is positively correlated with improved mathematic achievement scores" are often misconstrued by the media and members of the general public as a *causal* relationship. Further, such claims of learning transfer are often utilized for the purposes of arts advocacy—even when claims are empirical unjustified. Moreover, many arts educators are concerned that justifying the arts by non-arts outcomes is a dangerous proposition as it undermines the intrinsic value of the arts as important ways of human understanding and knowing (e.g., Eisner, 2002; Winner & Cooper, 2000).

The Arts and Academic Achievement: The Project Zero Meta-Analyses

In order to examine what the research actually shows with respect to transfer of arts learning, an extensive survey of quantitative research that examined the effects of arts education on academic achievement was conducted by Harvard's Project Zero under the direction of Ellen Winner and Lois Hetland (2000). In this research review, comprehensive and exhaustive searches were conducted to find all relevant research, published and unpublished, that linked an individual art form (music, drama, visual art, and dance) or the arts generally (all forms combined) with specific cognitive and academic outcomes. The studies were analyzed using the method of meta-analysis. Meta-analysis is group of quantitative methods used to integrate the statistical results from a number of quantitative studies to assess the size of the effect of some variable or condition (e.g., the effect of learning in the arts on academic achievement). An effect size, which is the key data for meta-analysis, indicates the degree of relationship between two variables. An effect size is calculated for each study and then combined and compared with the effect sizes calculated for all the studies included in the analysis. Meta-analysis can show the moderating effect of sample size, research design, specific outcome measures, and other moderating variables that may impact the results. Thus meta-analysis provides a valuable means for identifying possible explanatory variables in the area of research being examined. While meta-analyses have been conducted in many fields of research, the use of meta-analysis in art education is a new application. Because meta-analysis is a means of systematically addressing specific questions within the context of existing research, in this particular case: Does arts experience increase academic achievement?, it is a means of determining the current state of knowledge about a particular phenomenon and is thus a valuable method for guiding the direction of future research.

The research team directed by Winner and Hetland produced ten individual meta-analysis studies examining links between different aspects of academic achievement and arts study. These studies examined the following links: arts study and academic achievement (Winner & Cooper, 2000); arts study and SAT scores (Vaughn & Winner, 2000); arts study and creative thinking (Moga, Burger, Hetland, & Winner, 2000); listening to music and spatial temporal reasoning (Hetland, 2000); learning to make music and spatial reasoning (Hetland, 2000b); music study and mathematical ability (Vaughn, 2000); music and teaching reading (Butzlaff, 2000); verbal skills

and classroom drama (Podlozny, 2000); instruction in visual art and learning to read (Burger & Winner, 2000); and teaching cognitive skills and dance (Keinanen, Hetland, & Winner, 2000).

In brief summary, some of the conclusions of these meta-analyses are respectively:

- There is evidence of a positive correlation between arts study and enhanced academic achievement (Winner & Cooper, 2000).
- There is evidence of a positive correlation between students who take art classes in high school and higher SAT scores (math and verbal) in the United States (Vaughn & Winner, 2000).
- There is evidence of a positive correlation between students who study music and higher scores on standardized reading tests (Butzlaff, 2000).
- The research to date addressing the impact of dance on cognitive skills is slim and thus no evidence exists to suggest that dance study produces skills that transfer to other non-arts domains (Keinanen, Hetland, Winner, 2000).
- There is evidence for a small correlational relationship between studying the arts and enhanced performance on creativity measures (visual and verbal measures). There is modest support for a causal relationship between arts study and creativity when the measure is a figural (visual) one. However, there is no evidence for a causal relationship when the creativity measure is verbal/conceptual (Moga, Burger, Hetland, & Winner, 2000).
- There is evidence for a causal relationship between active instruction in music and enhanced spatial-temporal reasoning performance for preschool and elementary aged children during the period of music instruction and up through two years of instruction (Hetland, 2000b).
- There is evidence for a causal relationship between enhanced spatial-temporal reasoning performance and listening to music (i.e. the “Mozart” effect). This effect is limited to the particular spatial task of mental rotation in the absence of a physical model. Music other than Mozart was also found to enhance spatial-temporal performance (Hetland, 2000).
- There is evidence for a correlational relationship between drama study and enhanced verbal skills performance (story understanding, reading achievement, reading readiness, and writing) (Podlozny, 2000).
- There is evidence that when reading is taught through art (visual) projects children may be more motivated to read and as a result their reading performance may improve (Burger & Winner, 2000).
- There is evidence for a correlational relationship between mathematics performance and voluntary study of music. There is also a small causal relationship between studying

music and enhanced mathematics performance, and a weak causal relationship between enhanced mathematical problem solving ability and the presence of background listening music (Vaughn, 2000).

However, one of the central points that Winner and Hetland emphasize in this report is that a correlation between arts study and academic achievement does not provide evidence for a causal link. As they state, no causal conclusions can be made from research that demonstrates a high correlation between students who choose to study the arts and high academic achievement as there may be a host of other variables that cause students to be higher academic achievers. Winner and Hetland (2000) state that students who study the arts may develop “habits of learning” from experiences in the arts such as “persistence, revision, and close-observation”, which may make them better learners (p.5). Another possible reason is that students who participate in arts study become more engaged in school and more motivated students and thus high academic achievers. However, Winner and Hetland state that it is also “possible that no causal relationship exists” between arts study and academic achievement as students who choose to study the arts just be high academic achievers (p. 5). Further, high academic achievers who study the arts may attend schools that are more rigorous academically. And moreover, students who study the arts may come from families that emphasize high academic achievement. Thus, a causal conclusion cannot be made based on correlational evidence as there may be a number of other variables and explanations, such as those highlighted above by Winner and Hetland, that may be causing a positive relationship between arts study and academic achievement.

The second point that Winner and Hetland make is the need for “appropriate comparison groups” in research investigating the link between the arts and academic achievement and cognitive skills. They argue that research that attempts to demonstrate a causal link between arts learning and academic achievement must be experimental or quasi-experimental in design and employ comparison groups that consist of students that are similar with respect to background variables such as socioeconomic status. Further, the comparison group (i.e. non-arts focus group) should experience a similar quality of teachers and similar learning context to the arts group. This way the types of learning that take place in the classroom can be attributed to the arts rather than some other variable effecting the learning situation.

Winner and Hetland (2000) also state the need for a comparison group in which some other kind of initiative has been implemented. For instance, they suggest that the impact of an arts focus program could be compared with the effects of a program that has a technology initiative. The implementation of new programs often cause teachers and students to be motivated and inspired which can result in a positive effect such as an increase in academic achievement. This effect, known as the “Hawthorne effect,” comprises researchers ability to measure the effect of the actual program as the special attention that students and teachers receive with a new initiative program may be the cause for a positive effect.

Further, research to date has predominantly used standardized tests and grades as indicators of the impact of the arts on non-arts outcomes. Winner and Hetland (2000) suggest that this may be reason for the lack of causal relationships in the research to date. As an alternative to standardized tests and grades, it is recommended that qualitative methods be used to examine

possible arts learning indicators such as motivation, attention, engagement, and further how such arts learning outcomes effect learning in non-arts areas and the culture of a school generally.

The Arts Education Partnership Review

Another substantial and important survey of research in arts education was recently conducted by the Arts Education Partnership (Deasy, 2002) in the United States examining the impact of arts education on student academic achievement and social development: *Critical Links: Learning in the Arts and Student Academic and Social Development*. The purpose of this research survey was to provide researchers and funding agencies with guidance and recommendations for the most promising directions for future research in arts education. As well, this research survey provides valuable insights for those designing curriculum and for teaching practices in the arts.

A committee of reviewers consisting of James S. Catterall of the Imagination Group at the University of California at Los Angeles, Lois Hetland of Project Zero at the Harvard Graduate School of Education, and Ellen Winner of Project Zero at the Harvard Graduate School of Education and the Psychology Department at Boston College conducted an exhaustive search of current research examining the academic and social effects of arts learning experiences. The review process resulted in 62 studies that the committee deemed as being representative of the best work in the field at the time of the review. The Critical Links Compendium is divided into sections reviewing research studies in dance, drama, visual arts, music, and multi-arts respectively with individual studies summarized by two reviewers. Each section is concluded with recommendations for future research in the respective arts categories. This research review represents a diversity of perspectives, arts learning experiences, and research methodologies (qualitative and quantitative) and is thus a literature review type of analysis, rather than a quantitative analysis such as the meta-analyses conducted by Harvard Project Zero summarized above which only included a survey of quantitative research.

While the Critical Links Compendium contains many layers and details that require a detailed exploration to appreciate the insights revealed in this valuable resource, it is beyond the scope of the present paper to summarize such detail. Thus, a summary of the recommendations and some of the findings that indicate the positive impact of the arts follow. However, it is highly recommended that researchers interested in conducting arts education research which addresses the impact of arts learning on academic achievement and social development, or that addresses the use of the arts in creating educational contexts that are conducive to rich understanding and learning generally, review this important document in more detail for the specifics of the research procedures employed and limitations of individual studies (The Critical Links Compendium is available at: <http://aep-arts.org/CLTemphome.html>).

The studies (quantitative and qualitative) reviewed for the multi-arts section of the Critical Links Compendium revealed a positive link between experience in the arts and improved academic achievement. General cognitive and social capacities such as creative thinking, decision-making, perceptivity, motivation, and verbal skills were also linked with arts participation (Horowitz & Webb-Dempsey, 2002). For example:

- Based on a sample of 25, 000 American students spanning across all SES levels a strong positive correlation was found between middle and high school students who are highly

involved in the arts and high academic achievement. High arts involvement was also found to be positively correlated with lower drop-out rates, less television watching, more community service, less boredom in school, and a more positive self-concept (Catterall, 1998, as reviewed by Winner, 2002).

- Case studies of five secondary schools with strong arts focus in the United Kingdom showed that students who were involved in at least one art form experienced enjoyment, relief of tension, knowledge about social and cultural issues, enhanced creativity and thinking skills, self-confidence, and enhanced skills of self-expression (Harland, Kinder, Lord, Stott, Schagen, Haynes, Cusworth, White, & Paola, 2000, as reviewed by Winner, 2002b).
- Based on the results of a figural creativity test performance (the Torrance creativity test) administered to 4th, 5th, 7th and 8th grade students in 18 American schools it was found that students who are highly involved in the arts performed better on the creativity measure. Further, based on teachers' ratings in three questionnaires students who were highly involved in the arts were rated higher on expression, risk-taking, creativity and imagination, and cooperative learning (Burton, Horowitz & Abeles, 2000, as reviewed by Winner, 2002c).

The review of dance education research suggests that dance is an effective means for developing creative thinking skills and a possible means for improving reading skills (Bradley, 2002). For example:

- A experimental study conducted in the United States involving 286 high school students employed pre- and post-test measures (Torrance Test of Creative Thinking: Figural Form A) to compare the creative skills abilities of high school students who participated in dance courses (experimental group) with those of students who did not participate in dance courses (control group). The results of this research showed that creative thinking skills (elaboration, originality, and abstractness) were positively correlated with higher levels of dance instruction (Minton, 2000, as reviewed by Hetland, 2002).
- A quasi-experimental study of 74 students participating in the Basic Reading through Dance (BRD) program in three Chicago elementary schools, and 198 students in a control group were compared on pre- and post-test measures of reading ability using the Read America's Phono-Graphix Test. BDR is a program where students use their bodies to physically represent sounds by making letter shapes and letter combination with their bodies. The results of this study showed that while both groups (experimental and control) improved on all measures of the reading test, students who participated in the BDR program improved significantly more than those in the control group. Further, the experimental group improved more than the control group in their ability to connect written consonants and vowels to corresponding sounds, and to segment phonemes from spoken words (Rose, 1999, as reviewed by Winner, 2002d).

The most significant finding in the review of research in drama and theatre education was that research to date shows a positive relationship between drama and narrative understanding.

Specific skills such as reading comprehension and oral and written story understanding were consistently related to dramatic enactment of a story (Catterall, 2002b). For example:

- A quasi-experimental study which examined three groups (one experimental and two control) of fifth-grade students (17 students in each group) in remedial reading classes revealed that the experimental group where creative drama was used to support reading comprehension scored significantly higher on reading comprehension tests (Metropolitan Achievement Test (MAT6)). Further, based on a criterion-referenced test to assess story comprehension students in the experimental group were better able to comprehend stories that they had read but not acted out through drama such as those on the standardized test (DuPont, 1992, as reviewed by Catterall, 2002). This is a significant finding in that it indicates that the comprehension skills gained through creative enactment of a story in the experimental group transferred to comprehension of stories not acted out through drama (Catterall, 2002b).

The music education research reviewed in the Critical Links Compendium reveals significant evidence for a strong positive link between music and spatial-temporal reasoning, mathematics achievement, and reading achievement (Scripp, 2002) (this conclusion is primarily based upon the meta-analyses studies conducted by Project Zero discussed above). And further, there is evidence of a positive relationship between music and the reinforcement of social and learning behaviours. For example:

- A meta-analysis of 98 studies related to the issue of using music as a reward for learning and for behaviour modification purposes suggests that music is a more effective reinforcement technique than other reinforcement techniques (e.g. candy, juice, stories) (Standley, 1996, as reviewed by Hetland, 2002b). While this study primarily has implications for therapy and educators in the classroom, as most of the studies involved listening to music rather than study of music, it is significant evidence for the power of music to modify children's behaviour in the classroom (Hetland, 2002b).

Due to methodological criteria guidelines for the review and to the paucity of research addressing the instrumental outcomes of visual arts education, the Critical Links Compendium only contains four studies concerning the visual arts. Thus while the evidence for the instrumental outcomes of visual arts learning is limited at the present, the research studies included in the Compendium indicate that certain writing and reading skills, reading readiness, and reasoning about scientific images may be enhanced through the visual arts. For example:

- A quasi-experimental study involving children ages 9 and 10 (162 students) who participated in a Visual Thinking Curriculum (VTC) where students learned interpretive skills involved in looking at works of art, demonstrated looking and reasoning skills learned in the VTC program when presented with a scientific image. Further, the experimental group (VTC participants) scored higher than the control group (204 students) on evidential reasoning, and were less likely to use circular reasoning, and more aware of the subjective nature of their interpretations when looking at the scientific image (Tishman, MacGillivray, & Palmer, 1999, as reviewed by Winner, 2002e).

- An experimental study involving 98 sixth-graders examined students' understanding of history by assessing learning communicated through writing, and through writing and drawing combined. The findings showed that when students were able to employ both drawing and writing the scores on measures of content knowledge and interdisciplinary knowledge were higher than those of students who only employed writing to communicate their learning (DeJarnette, 1997, as reviewed by Winner, 2002f).

While the authors of the *Critical Links Compendium* state that the research reviewed suggests a positive link between rich arts learning experiences and positive social and academic performance, they also state that there is an urgent need for research to address the specific nature of the arts teaching and learning experiences that produce such positive effects. Investigation of this type demands a qualitative approach where researchers would describe through ethnographic accounts the unique details and complex nature of arts experiences. Further, it is stated that there is a need for a “lexicon of descriptive terms that authentically capture the arts learning experience while at the same time suggesting an array of interactions with other realms of learning and life—a lexicon that may blunt the debate between ‘intrinsic’ and ‘instrumental’ arts learning” (Deasy, p. iv, 2002b) Thus there is a call for more creative research designs that provide detailed accounts of the rich experience that arts learning and teaching generate. Such detailed qualitative research may then lead to a common language of terms and definitions to guide future research in addressing the precise aspects of arts experiences. Further, the development of constructs that capture and define the arts learning and teaching experiences may aid in the development of quantitative measures for examining the impact of the arts in more controlled settings. Thus, by describing the mental processes employed in the arts, such as the ability to theorize and predict, persistence, attention to detail, and creative thinking, and aspects of teaching in the arts such as a “respect for authentic achievement” Deasy states that we may be able to decipher a “constellation” of mental abilities that dissolves the instrumental/intrinsic divide. Deasy urges researchers to “explore the interrelationships between these abilities and attitudes as they are brought into play or produced in the context of arts learning and in other academic, personal, and social contexts and situations” (p. iv).

Recommendations for Future Research: Indicators and Methods

The purpose of these research reviews: Project Zero's substantial meta-analyses of the arts and academic achievement, and the Arts Education Partnership's thorough literature review of research addressing the social and academic outcomes of the arts-- is to provide a clearer picture of the state of research in assessing the instrumental impacts of arts education on student learning and cognitive and social skills. These reviews provide invaluable insights and findings for directing future research in this particular area of arts educational research. Thus, based on these two important reviews of research the following recommendations for future research can be made:

The Project Zero meta-analyses and the *Critical Links Compendium* respectively conclude that there is a need for more “good” research--both quantitative and qualitative. With respect to quantitative research, there is a need for rigorously designed quasi-experimental studies to

examine the relationship between arts experience and cognitive and social outcomes (Winner & Hetland, 2000). Such research would be based on sound theory and employ comparison groups: preferably comparison groups that also have some type of new initiative program implemented (Winner & Hetland, 2000). Pre-existing student achievement and ability, and other background variables such as level of parental education should be similar for both experimental and comparison groups. Further, Winner and Hetland emphasize the need for both groups to experience the same quality of instruction in order for group differences to be legitimately attributed to the arts experience. Future experimental studies that implement such recommendations may provide a stronger body of evidence for determining if a causal link exists between arts study and cognitive and social outcomes.

While studies to date have generally employed standardized tests of mathematics and literacy as indicators of the impact of the arts on learning, it is strongly recommended that other measures be developed that more adequately capture the nature of understandings and skills gained through arts experiences. The research reviewed in this paper indicate that the arts have the capacity to cultivate habits of mind such as persistence, focused perception, and divergent thinking, and personal and social capacities such as empathy for others, collaboration, self-esteem, and positive-risk taking. While these arts outcomes may be more difficult to assess, they are more authentic indicators of the cognitive, social, and personal skills and capacities that rich arts experiences may cultivate than outcomes measured on standardized tests. Standardized tests do not lend themselves to creative solutions, alternative means of expression, and the affective dimensions that the arts engender. Further, it is also recommended that arts program evaluations assess the effect that the arts have on school culture. For example, students may become more engaged and motivated to learn in a school where the arts have a lively presence which may impact learning in non-arts areas of study. Thus there is a strong recommendation for more “richly textured” qualitative research that attends to the complexity and contextual nature of the arts learning experience and the diversity of outcomes (cognitive, emotional, and social) that the arts may foster (Deasy, 2002). Through thickly described ethnographic accounts a better understanding of the nature of arts learning, and *how* arts learning outcomes transfer to other domains of learning and life may be generated.

The nature of learning transfer is central to any research addressing the instrumental outcomes of the arts. Thus it is recommended that future research be based upon a theoretical framework that reflects current perspectives of learning transfer (e.g., see Catterall, 2000c; Bransford & Schwartz, 2000). Contemporary perspectives of transfer reflect the current situated and interactive perspectives of learning and knowledge (e.g., Brown, Collins & Duguid, 1989; Lave, 1988; Kirshner & Whitson, 1997; Resnick, Levine, & Teasley, 1991). Such perspectives suggest that transfer is extremely complex, not necessarily direct, and may not be detected in a short period of time (Catterall, 2000c). Catterall states that “current studies on the roles of the arts in academic and social development do not unpack either in fine detail or within comprehensive cognitive models the learning processes accounting for transfer” (p. 156). Thus it is recommended that future research attend more to the complex nature and details of the arts learning experience as these are generally overlooked in research examining learning transfer. Catterall recommends studies that examine the intensity and frequency of arts learning and how these impact the transfer of arts learning. In other words, do students who have more and deeper arts learning experiences display a higher degree of learning transfer? Further, there is a need for

more longitudinal research to more accurately assess the effects and depth of arts learning outcomes (Deasy, 2000; Winner & Hetland, 2000).

As a direct proposal to UNESCO's Institute for Statistics, it is recommended that a means for collecting qualitative study data be instituted, such as an international clearing-house, so that notable examples of qualitative research from around the world may be synthesized through cross-case analyses. Analyses of a significant body of qualitative studies would provide a means for extrapolating constructs and definitions, and ultimately, establishing theory to support the complex nature of the arts learning experience and the diversity of outcomes that the arts may foster. Further, with the establishment of solid theory and constructs, experimental research studies may then examine cause and effect relationships upon a solid theoretical underpinning. The establishment of a clearing-house initiative for qualitative arts education research would provide an invaluable source for synthesizing research findings and directing future research in arts education, and ultimately, informing the decisions of arts educational policy makers around the world.

Points for Discussion

With a view to facilitating discussions at the UNESCO meeting of arts education experts in Hong Kong, the following lists of points have been excerpted from earlier sections in this paper. These lists are meant to be illustrative of issues that may be considered in discussions about research in arts education. They are not meant to be comprehensive. The points in each list are numbered to facilitate discussion. The numbers are not intended to suggest priority.

It will be noted that some of the topics listed for investigation through qualitative research overlap with those listed for investigation through quantitative research. This reflects the capacity of both approaches to address a wide range of issues. The outcome of qualitative studies into these topics will include rich descriptions of heuristic reality. The outcome of quantitative studies into the same topics may include generalizable conclusions.

A summary of topics raised in previous UNESCO meetings

Participants in previous UNESCO meetings of experts in arts education raised a number of topics for research some of which were noted earlier in this paper. While participants in these meetings may have had a particular approach to studying these topics in mind, it is proposed that either qualitative or quantitative methods may be used (or a combination of both approaches) in investigating these issues. The main advantage in selecting qualitative research to address one of these topics would be the capacity of qualitative research to produce a rich description of a particular setting in which the issue arises and of the responses of participants to the program in which they have been involved. The main advantage in selecting quantitative research to address the same topic would be the opportunity to make a generalizable statement about the issue.

Topics raised in previous meetings included the following.

1. The capacity of the arts to nurture creativity
2. The capacity of the arts to nurture critical reflection
3. The capacity of the arts to nurture communication skills

4. The capacity of the arts to nurture autonomy
5. The capacity of the arts to nurture freedom of thought and action
6. The capacity of the arts to nurture ethical values
7. The capacity of the arts to nurture diversity
8. The capacity of the arts to nurture social development
9. The capacity of the arts to nurture psychological development
10. The capacity of the arts to nurture physical development
11. The capacity of the arts to promote learning in other subjects
12. How to incorporate traditional, regional forms of expression in arts education
13. How to achieve agreement on general terminology in arts education
14. How to promote high standards in pedagogical practice in arts education
15. How to use the arts in education in collaboration with refugees and immigrants
16. How to evaluate practicing teachers of arts education
17. The effectiveness of schools in achieving arts objectives

The illustrative studies described in the qualitative and quantitative sections of this paper raised a number of important topics that require further research. The following is by no means a comprehensive list of research questions and methodological issues. However, it will serve to demonstrate the diversity of questions that can be effectively addressed through qualitative and quantitative research and some of the key characteristics of the two approaches to research.

A summary of topics raised in the qualitative section of this paper

Topics raised in the qualitative section of this paper include the following:

1. How to evaluate the effectiveness of arts education programs
2. Why is one exemplary school particularly receptive to theatre education practices?
3. How can in-service training support the continuation of an arts-friendly school culture?
4. How can change be effectively implemented in schools?
5. What problems can arise that inhibit change in schools?
6. How do students, teachers and school administrators feel about their experiences in arts education?
7. How do these individuals explain the success of an arts education program?
8. How do these individuals feel they have been changed by an arts education project?
9. What effect can a movement poetry program have on the creative, social and physical capacity of children with behavioral disorders?
10. What effect can a visual arts program have on learning disabled readers?
11. Can listening to music help improve the writing skills of emotionally disabled youngsters?
12. What challenges face the non-formal arts education system in China?
13. What explanation can be found for the emphasis given to listening in music education in Hong Kong?

Methodological Considerations – Qualitative Research

1. Qualitative research aims to produce a richly detailed description of social processes.
2. Qualitative research is informed by a theoretical framework.

3. Qualitative research involves substantial observation and may include the following methods of gathering data:
 - a. field notes
 - b. interviews
 - c. audio recordings (transcripts)
 - d. video recordings (transcripts)
 - e. still photographs
 - f. a review of print and non-print resources
 - g. focus group discussions.
4. Choice of an exceptional subject may increase usefulness of analysis.
5. Data is analyzed systematically.
6. Research report may contain excerpts from statements made by participants and/or art products created by participants.
7. Goals and methods may change in response to emergent issues.
8. Qualitative research may focus on actions for improving the program being studied.
9. Rigor in qualitative research can be enhanced through use of a diversity of data sources and thoroughness of the collection process.
10. Conclusions reached exclusively through qualitative research are not generalizable.

A summary of topics raised in the quantitative section of this paper

Topics raised in the quantitative section of this paper include the following:

1. What is the impact of a creative music learning program on students' creativity?
2. What is the effect of dance study on students' creative and critical thinking skills?
3. Does experience in the arts increase students creative abilities?
4. What is the nature of the link between academic achievement and arts study?
5. Does listening to music enhance spatial temporal reasoning?
6. Does learning to make music enhance spatial reasoning?
7. Does music study enhance mathematical ability?
8. Does classroom drama enhance verbal skills?
9. Does learning in the visual arts enhance students' ability to read?
10. Does music study enhance reading ability?
11. Does arts study result in a more positive self-concept?
12. Does learning in the arts motivate students to learn in other subject areas?
13. Do schools with a lively presence of the arts have a more engaging learning environment for students?
14. Does integrating dance with reading improve students' reading abilities?
15. Does dramatic enactment of a story improve students' narrative understanding?
16. Does creative drama enhance students' reading ability?
17. How does learning in the visual arts improve students' interpretation skills in the domain of science?
18. Does experience in the arts enhance positive social skills such as the ability to collaborate and empathize with others?
19. Does experience in the arts cultivate habits of mind such as persistence, focused perception, and divergent thinking?

Methodological Considerations – Quantitative Research

1. Quantitative research results in statistical relationships that communicate relationships between or among variables or the amount, intensity, or frequency of particular variables.
2. In quantitative studies researchers test or verify a theory by engaging a deductive logic rather than developing one through the use of inductive reasoning. A theory guides the entire research framework: hypothesis or research questions, data collection procedures, and ultimately, the interpretation of the results as a confirmation or disconfirmation of the theory under investigation.
3. Researchers select constructs (e.g., creativity) to be empirically examined through observable behaviours and responses. Because constructs are not directly observable, quantitative researchers employ indicators to measure the construct in question.
4. Indicators of the particular construct in question are referred to as variables in quantitative research. The variable that is considered to cause or influence a particular outcome is referred to as the independent variable, and the variable that is considered to be the outcome of the influence of the independent variable is referred to as the dependent variable.
5. Quantitative research involves various instruments of measurement to obtain data with a numerical value. Data gathering methods in quantitative research include questionnaires, tests, interviews, and observations.
6. Experimental research is concerned with cause-and-effect relationships and involves the random assignment of participants to experimental and control (comparison) groups and the manipulation of independent variables.
7. Quasi-experimental research is similar to experimental research in all respects with the exception of random sampling. Quasi-experimental research employs intact groups of participants (e.g., classes of students, schools, programs) rather than randomly assigning participants to experimental and control groups.
8. In experimental studies researchers must consider the influence of, or control for, other variables that may influence the outcome of the research (i.e., mediating, control, and confounding variables). Controlling for extraneous variables that may influence the dependent variable increases the internal validity of a study.
9. The conditions of the research setting such as the specific nature of the independent and dependent variables, the physical features of the research setting, the effects caused by the treatment (e.g., new arts program) and the presence of the researcher are considerations that must be taken into account when considering the extent to which research findings may be generalized to another population (external validity).

10. Non-experimental research such as survey research is also concerned with examining a limited set of variables but does not involve the manipulation of independent variables. Non-experimental research is used to examine the characteristics of a particular population based upon a sample of a larger population and may also be used to examine relationships between and among variables through correlational statistical analysis.
11. Quantitative research employs inferential statistics to test hypotheses and address research questions. The first step in both experimental and non-experimental research involves the use of descriptive statistics for example means (\bar{x}) and standard deviation (SD). After the analyses of these data the researcher can evaluate alternate *a priori* hypotheses through the use of many different statistics for example regression, analysis of variance (ANOVA), multiple regression and multiple analysis of variance (MANOVA).
12. Meta-analysis is group of quantitative methods used to integrate the statistical results from a number of quantitative studies to assess the size of the effect of some variable or condition (e.g., the effect of learning in the arts on academic achievement). Meta-analysis can show the moderating effect of sample size, research design, specific outcome measures, and other moderating variables that may impact the results. Thus meta-analysis provides a valuable means for identifying possible explanatory variables in an area of research and directing future research.

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