

Mixed Methods Research and Arts Education Equity: A Dialogic, Methodological Journey

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Abstract

The article presents a process-focused inquiry examining the development of a research project that uses a transformative mixed methods design. The research project concerns equity in elementary arts programming in an urban school district in the U.S. Currently, there is little quantitative research on equity in the arts and few resources to support researchers in adopting mixed methods. The authors focus on their methodological journey to shed light on challenges and nuances of mixed methods research in the arts. They use a script-like format to illuminate the dialogic nature of designing and navigating transformative mixed methods research. The findings advance methodological diversity in studies of arts programming and expand knowledge on equity issues in mixed methods research.

Introduction

Challenges abound when conducting research, but for scholars who wade into the waters of mixed methods arts education research, the cross-paradigmatic currents present a unique set of circumstances. This article documents some of these methodological challenges as we designed a research project involving qualitative and quantitative methods. The primary purpose of this article is to trace the development of our mixed methods research, which concerns access to and participation in elementary arts programming in a large, urban American Southwest school district. It follows an equity-focused research agenda put forth by the National Art Education Association, National Association for Music Education and various other commissions and editors (McKay, 2020; NAEA Art Education, 2024; NAEA Research Commission, 2014; National Art Education Association, n.d.; National Association for Music Education, 2022; Rolling, Jr., 2020; Rosamond, 2024). Another aim of the research is to address a research gap in the field of arts education concerning quantitative research, particularly as it relates to arts equity.

Inequity in the arts and arts education is a multidimensional problem that requires various conceptual and methodological tools to understand and address (Kraehe et al., 2016). However, there are few methodological studies in arts education that focus on illuminating equity-related research processes (Gaztambide-Fernández et al., 2011, being a notable exception). This paper responds to these gaps by delving into our lived experiences as equity researchers as we traverse these unpredictable waters. The purpose is to provide a source of knowledge and skill development for other scholars, particularly when combining quantitative and qualitative strategies that can often seem incompatible and irreconcilable.

To guide our methodological inquiry, we focused on two questions: What are the methodological challenges of mixed methods research involving arts education equity, and how do researchers navigate these challenges? The aim of presenting our journey is not to generalize all mixed methods research or arts education equity studies, but to make the processes of research transparent, contextualized, and accessible to other researchers.

The research project came together as the result of a meeting of circumstances. Two of us, Andrew and Howe, were visual art education PhD students living in Arizona (USA), one of whom, Howe, was first among us to call out the methodological gap related to arts education equity. Andrew has a degree in math as well as art, and after a fortuitous hike with Howe one morning, the idea of the research project was formed. Amelia (Amy), Howe's doctoral adviser at the time, is a qualitative researcher who studies sociological aspects of the arts in education. We came to realize that each of us might be able to contribute something to a project larger and more multifaceted than any one of us could accomplish alone.

We take a novel approach to this methodological inquiry, building it as a narrative and using a transcript format to dramatize the data (Barone, 2007; Saldaña, 2003). The narrative is based on actual events, but we reconstructed the dialogue after the events occurred. Then, through an editing process, we filled in important scholarly information (e.g., Cook & Dixson, 2013; Mesa-Bains & hooks, 2006; Saldaña, 2003). We use this approach for its dialectical potential, a way to arrive at understandings through critical experiences that remain open to contradiction (Gallagher, 2011). The script-like presentation alludes to performance. It is a way to acknowledge that research is for others and that words affect relationships (Gergen & Gergen, 2016). The polyvocality of our presentation reflects a democratic sensibility, as our different voices help to widen the discursive space (Barone, 2007). Lastly, we hope our polyvocal narrative shows that ideas are never unitary and always negotiated (Siry & Ali-Khan, 2011).

We also think this kind of presentation offers a parallel to mixed methods research itself, the primary subject of the article. Both narrative construction and mixed methods negotiate between different ways of knowing. They are approaches that recognize the need to constantly code switch, whether between ourselves as research partners, figuring out cross-cultural understandings together, or between the different languages and frames used in quantitative and qualitative research.

In the five scenes that follow, we illustrate important events and discussions in the development of our methodology. Scene 1 is set on a hike where Howe and Andrew discuss their interest in doing mixed methods research and why this methodology is substantive to the research problem. They also discuss research ethics and issues associated with researcher positionality and take stock of paradigmatic problems. Scene 2 is set in a car as Howe and Andrew drive back from their first pilot interview. They examine early lessons and use them to refine the study. Quantitative concerns are also raised, and the research design is first discussed. Scene 3 is a meeting in Amy's office where we all discuss how to further our research planning. We talk about methodological debates concerning educational equity scholarship, the benefits of mixed methods research in addressing these debates, and solidify the research design. Scene 4 is in the corridors of a university building. There, Howe and Andrew address quantitative data analysis, especially issues surrounding statistical significance, correlation, and effect size. The last scene, Scene 5, is a video conference where Howe and Andrew interpret and integrate data, their experiences conducting the research, and discuss the nature of research after COVID-19. We cap this methodological inquiry with a postscript summarizing the findings.

Scene 1: A Desire for Mixed Methods... On a Mid-Semester Hike in the Desert

Andrew: It's a nice spring day. I'm glad we decided to go on this hike. So, what are you

working on in your classes right now?

Howe: Well, I'm working on a paper that I'm really excited about—a systematic review.

Systematic reviews are helpful in finding research gaps (Grant & Booth, 2009).

Andrew: What topic are you studying?

Howe: I searched for “equity” and “social justice” in the arts education literature and also looked up “quantitative” and “mixed methods.” This was in Dr. Kraehe’s Issues in Research in Art and Visual Culture Education class.

Andrew: What did you find?

Howe: There are tons of papers on equity and social justice that are qualitative, but if you look for ones focusing on numbers or using mixed methods, there are only sixteen papers from the period 2015-2020. In comparison to other methods, it is very small. The number covers studies globally. Among them, only seven studies were from the U.S. or conducted by US scholars. And only ten of them were mixed methods research.

Andrew: Why did you focus on quantitative research?

Howe: I took a quantitative methods class in Hong Kong. I think that is where my interest started. What is your feeling about this research gap?

Andrew: Well, we're in a postmodern and racial justice-oriented period of time. Context is really important. Reduction to numbers and grand narratives obscures so much lived experience.

Howe: You're right. Quantitative research is associated with positivism or postpositivism. What you are talking about are qualitative studies related to critical, constructivist, or participatory genres (Lincoln et al., 2011). There are various research paradigms. But we know that decision makers in education still want numbers.

Andrew: There's a push for critical approaches, though, because they look at how power affects both identity and opportunity. I think it's also about ethical issues in research, questions about whose voice and knowledge are being shared, and who the research is actually serving.

Howe: Let me tell you another piece of information. Dr. Kraehe and her colleagues wrote a paper about arts equity in education (Kraehe et al., 2016). They organized their analysis around six dimensions of arts equity: distribution, participation, access, effects, recognition, and transformation. But I wonder if there is something they missed because it was based on a critical review of literature. It would be good if someone got empirical data that explore their theoretical model.

Andrew: Are you thinking of doing this research?

Howe: It is something we could do together. Maybe Dr. Kraehe can advise us.

Andrew: Well, I'm in! What would be the site, though? What about K-12 schools? That seems like the place to do this kind of work, in public schools.

Howe: Based on the literature that I looked at, there are many issues in American schooling, especially in public schools. But are we in a good position to do it?

Andrew: Yes, what is our positionality? Why us? I'm a white guy; I'm not sure I'm the best person to initiate research on education equity. I don't have an embodied understanding of inequities. What I mean is there is a kind of authenticity problem here. I have to ask myself, what's my agenda? If I'm involved, we'd have to be really open about that. What's your thinking about how your background relates to this?

Howe: I don't have the embodied experience either. I am an international student who has not experienced the American K-12 school system. I am also a minority here, a student of color, so to some degree I empathize with marginalized students. Through research, I want to demystify how they are treated by the education system.

Andrew: For me, it's about caring. Experiences with the arts in school matter to me. Experiences being denied or erased matter. I can't really be in someone's shoes. So really, we're researchers. It's a researcher's job to tackle the gaps in the knowledge base. Equity, diversity, and inclusion are considered important research agendas in visual art education. And we can follow Dr. Kraehe's lead on this. We just have to take good care.

Howe: Yes, the focus should be on ethical research. I think we have the right skill set. But what should we study more specifically?

Andrew: Let's talk about place. Our research ethics also relate to our ability to build relationships in the place we work. Do we have the ability to do that here?

Howe: I have lived in Arizona for only two years.

Andrew: Only four years for me, but I did work in an after-school program. I'm from a similar US-Mexico border region, and I've previously taught in the K-12 public school system. I have a sense of the intersecting issues related to equity around here.

Howe: Considering the complexity of equity issues in education and the systematic review I completed, how about we use mixed methods? That is a way to deal with those "intersecting issues."

Andrew: Maybe mixed methods can bring in critical perspectives, too, which is important considering the subject is equity.

Howe: There are still arguments about the conflicts between paradigms of research, such as postmodern, critical perspectives and positivism. We should really look at those arguments.

Andrew: For sure.

Howe: The desert has lots of cactus, but it is beautiful. This has been such a productive walk.

Scene 2: Where We Think Through Research Designs...Driving in a Car After a Pilot Interview

Howe: It was good that we just did that pilot interview with the principal.

Andrew: Very eye opening. So, what did it tell us about how to do this research?

Howe: Well, first, we need to build our background knowledge. We are outsiders of this

school system. Second, we need to refine our instruments for data collection. Lastly, we need to decide how to analyze the data.

Andrew: Some background knowledge we learned during the pilot interview was the district has an arts-in-a-cart itinerant arts teacher program for elementary schools. We learned about state-level school choice policies. We heard about how funding for arts education is related to a special public school tax credit that parents can take, where they allocate some of their tax money to a school of their choice. Parents can even itemize their contributions for particular school programs, like the arts.

Howe: Some of these things are quantifiable.

Andrew: Right. Let's talk about that. What data can we collect specifically? What are the variables?

Howe: You bring up a good point about variables. I have been thinking about linear regression a lot. Linear regression is about finding the best-fit line on a graph for sets of variables.

Andrew: You're talking about inferential statistics.

Howe: Yes. If we want to draw conclusions or inferences about the population from which our sample was taken, we say it is inferential statistics. Regression analysis is one of the major inferential statistics, part of the general linear model. It is mainly used for two purposes, explanation and prediction. In education, it's more common to use it for explaining things.

Andrew: So, not just to predict outcomes?

Howe: Right. In regression analysis, if you have knowledge about the independent variable, you know something specific about the dependent variable (Howell, 2013). We can quantify whether this is likely due to chance or another factor using regression analysis. That is what statistical significance means—we know that it is not just by chance. So, regression analysis may explain something in the arts equity model.

Andrew: That would help fine-tune the model, for sure. So, I took a class at the university recently, and we looked at correlations between variables. What about that?

Howe: Bivariate correlation analysis is good. It focuses on the degree of relationship between a pair of variables based on a calculation of correlation coefficients. Before deciding if we will use regression or correlation, we need to determine what variables we want to measure.

Andrew: We know some data are available publicly, like standardized test scores, but those don't cover the arts. The National Assessment of Educational Progress (NAEP) does include music and visual art but only in 8th grade. Data on demographics and free-and-reduced lunch rates are publicly available.

Howe: These kinds of data talk about school conditions.

Andrew: What if we make a checklist of a school's arts programming? For example, how many sessions of arts are on-going each week? But that's just if a school has arts

- programming. It doesn't talk about the quality of the programming. Quality is in the curriculum.
- Howe: A checklist could reflect both the school conditions and how the school runs its arts programming. Those items can be developed based on the findings of our pilot interviews and the existing literature. There isn't a way to measure equity directly, but these are indicators we can quantify for detecting differences.
- Andrew: It's like an arts equity assessment at the school level.
- Howe: The school-level checklist data are about a group but not an individual. Using interviews, we can have an in-depth understanding of how individuals handle the situation on a daily basis and how they navigate the system.
- Andrew: Speaking of interviews, the principal we just talked to today faces so many challenges. They deal with a lot of daily equity issues—issues of fundraising, parent involvement, wanting to “expose” students to the arts.
- Howe: What about the population involved with this study?
- Andrew: We need to be clear about who that is and what their own priorities are.
- Howe: This district we chose is big. And we learned that 80% of students are students of color.
- Andrew: We should probably involve all of the school-level equity-related decision makers in this research—the parents, teachers, and principals—at least in the interviews.
- Howe: How should we configure the mixed methods design?
- Andrew: I read about a couple of different setups (Watkins & Gioia, 2015). It doesn't sound like we are doing the qualitative and quantitative inquiries separately and will then compare the findings from both, or doing a qualitative phase that then helps form the research questions of the next quantitative phase. Ours are integrated together.
- Howe: Right. Qualitative methods, quantitative methods, and theoretical perspectives can be fluid (DeCuir-Gunby & Walk-DeVose, 2013). But decisions about the research design and implementation should always rely upon the research questions.
- Andrew: Good point. Then there's the potential for transformation (Mertens, 2009, 2010). What if we think of impacts as part of the research? We can do a second set of interviews with the same people that were interviewed at the beginning and share what we've learned. We can ask how they think the data inform their practices.
- Howe: I think that's good. It is something that motivates us to do this research, making contributions to social betterment.
- Andrew: You know, Howe, I think we're starting to have a picture of this road we're on.

Scene 3: Naming and Staging the Research...A Meeting in Amy's Office

Amy: Hi, Andrew. Hi, Howe. Come on in.

Andrew: Nice matching guest chairs, Dr. Kraehe. The old upholstery is fun.

Amy: Thank you, Andrew. I've had them for a while.

Andrew: We have a mixed methods research design to show you finally. We also did some pilot interviews, but the arts education equity picture is still fuzzy. From the interviews, we learned that the equity issues are all muddled together. The arts equity model that you and your colleagues put together breaks things down pretty well, but it's really complicated how it plays out in real life.

Howe: I think of it as a "black box" (Bunge, 1963). If you are not an insider, you don't understand what is going on inside the box. We play a role as outside researchers looking inside to see how the system operates. By looking at the inputs and outputs, we see how different stakeholders work within this milieu.

Amy: What I'm hearing is you're using the black box as a metaphor for a lack of understanding of an area that needs more light.

Howe: We discussed not having an embodied understanding, so this metaphor can indicate the difference between insiders and outsiders.

Andrew: But does the black box idea conflate the issue of our positionality with an abstraction that obscures and encases the people who work within this school system?

Howe: I guess the most important thing for us is what is a good pathway to understand the phenomena under our investigation. I can see there are some conflicts between different inquiry paradigms, especially between positivism/postpositivism and the so-called critical lens. What do you think, Dr. Kraehe?

Amy: Well, let's back up. The arts equity framework that I worked on with Joni Acuff and Sarah Travis draws heavily on critical race theory (CRT), and CRT is within a critical paradigm (Delgado & Stefancic, 2001; Kraehe et al., 2018; Ladson-Billings & Tate, 1995; Lynn & Dixson, 2013; Delgado & Stefancic, 2000). Much of the research informed by CRT is qualitative. In fact, there are debates going on within the CRT community about whether quantitative methods are consistent with the ethics and epistemology of the paradigm. And so, you're suggesting that bringing in quantitative methods is somehow beneficial to shed light on issues of equity. You're not alone in making that argument (e.g., Garcia et al., 2018; Gillborn et al., 2018).

Andrew: I think that quantitative approaches can be used in a pro-justice way. Quantitative approaches talk about scale. And thinking about postpositivism, it gives us more tools in the toolbox.

Howe: We know that numbers are not neutral. Quantification and interpretations of numbers also depend on the researcher's positionality (Gillborn et al., 2018). One possible benefit of putting qualitative and quantitative methods together is triangulation. Different findings can complement one another (Krathwohl, 2009).

Amy: Going off of what you said, Howe, back to the black box idea: It's sounding like the argument for using mixed methods has to do with capturing certain dimensions of equity that are only capturable quantitatively. And as you said, Andrew, at certain scales. It's something that can tell us about the context, or what is being put into the

black box. What's creating this environment, this institutional, structural situation? And then, on the other side of that black box, what is coming out of it? This might need a different combination of tools in order to capture the complexity.

Andrew: And I still feel this irreconcilability between the planning, policy, or macro-scale, and the people who work on these things or work within them.

Howe: There are different stakeholders occupying different areas in the education system. And those people probably don't fully understand how other people behave and perform in their own territories. There are boundaries between different stakeholders inside the box.

Amy: People have agency and creatively negotiate any set of circumstances in ways that are not predictable, which would suggest the limitations of a positivistic approach. Maybe a different meaning of the black box is appropriate, like black box theater. These are small, flexible performance spaces. What happens in the educational system includes improvisation, adaptation, as well as deviations and resistance to the script. Using the metaphor this way emphasizes the possibilities inherent in human agency. It's less about inputs and outputs, and more about utilizing the tools you have within a mixed methodology to home in on what's happening at a micro-level, which allows for that complexity to be on display.

Andrew: Let's run through the research design and see how it relates (Table 1). We've set it up in three phases: interviews in Phase I, quantitative school survey checklists in Phase II, and follow-up interviews in Phase III.

Table 1

Research design of the mixed methods arts education equity project

Phase I (qualitative)	Phase II (quantitative)	Phase III (qualitative)
<ul style="list-style-type: none"> ● Individual semi-structured interviews ● 3-6 parents, teachers, or principals 	<ul style="list-style-type: none"> ● School surveys ● 20 schools ideally ● Collect state/district public data 	<ul style="list-style-type: none"> ● Follow-up semi-structured interviews ● 3-6 parents, teachers, or principals

Amy: What are the research questions?

Andrew: The first research question is, "How do experiences of parents, teachers, and school leaders compare with models and statistical relationships of arts education in(equity)?" We're using the verb compare to relate quantitative and qualitative findings. We may change the question later to focus on productions and contexts of equity as seen through the interviews and statistics. The second question is, "How do these experiences, models, and relationships inform and impact each other?" The verbs inform and impact are about our interest in transformation and how findings can be

used by stakeholders. There's something in that second question, too, about how the stakeholders are making equity decisions.

Howe: Also, Dr. Kraehe, we want to ground the interview questions and the survey items in the multidimensional arts equity model (Kraehe et al., 2016).

Amy: If you were doing straight qualitative research, I would suggest that arts equity theory is helpful, but shouldn't determine what you look at or ask. All theoretical models can be improved upon, and my hope is that research of this kind would have something to add or correct. Use those six dimensions from the arts equity model as sensitizing concepts (Charmaz, 2013). Pose questions for yourself or for your interviewees that open up the possibility for them to talk about their everyday concerns. Be mindful that most people don't talk about "distribution of resources" or "effects" and "outcomes" in their everyday speech. Let them touch on these arts equity dimensions in their own way.

Andrew: Phase II is the quantitative part. The idea of this Phase II is a survey checklist for assessing arts programming and the conditions surrounding it.

Amy: What you're describing sounds like an inventory. The creation of an inventory is itself a contribution to research knowledge, particularly in arts education. I don't think I've ever come across an inventory strategy for thinking about arts equity.

Howe: The initial idea of the items in the "inventory" is also inspired by the arts equity model, especially the resources and participation dimensions. Do you have any suggestions about data analysis, Dr. Kraehe?

Amy: I can speak to the qualitative piece because that's what I do. A lot of people like to use grounded theory, meaning themes and theoretical concepts arise from the dataset rather than from outside of it. I like to use situational analysis (Clarke, 2005), a postmodern approach to grounded theory where you map out what other things are happening within the context of the study that may not be showing up directly in the data, but that are definitely part of the environment.

Andrew: Overall, what would you say are the pitfalls?

Amy: Well, building relationships with people and schools takes time. It's a challenge knowing how to present your work and gaining access in ways that are honest, but you also don't shoot yourself in the foot. You're looking at equity, which means you're looking at inequity, and not every principal, parent, or teacher wants to shine a light on that. Another thing is the methodological and creative problem or pitfall: How will you bring the two data stories together? They're almost like different languages, the quantitative and qualitative. So, you speak multilingually. How can you create a polyvocal text that tells a fuller story related to the multiplicity of your mixed methods? That's a creative problem.

Andrew: Oh, the time!

Howe: Is it 10:00? We need to get ready for our classes. Thank you, Dr. Kraehe.

Scene 4: Data Analysis How-To's...In the Corridors of a College of Education Building

Howe: The ground floor is Floor 2?

Andrew: <Nods; hits elevator button.> It sure was nice showing your educational psychology advisor, Dr. Monica Erbacher, our data and getting some help with R, the free statistics program. And we were able to run R and have some results!

Howe: Yeah, we ran the linear regression model. We input all data from the inventory surveys and public datasets. What are your thoughts on the inventory data?

Andrew: Some of the data are messy. Counting the total number of arts sessions that elementary students receive wasn't the easiest for principals. It's too bad the undesignated tax dollars variable, which relates to the tax credit program, was so unclear even to the principals. Talk about a black box! The tax credit program is a major funding source for the itinerant arts teacher program. And there is also some sample bias going on because only some schools volunteered to participate. We should note where there could be validity issues.

Howe: The statistical models are a reductionist research process. How do we rationalize our reductive process and still get good findings? How can we define some data, as you said, being messy or bad and some data as being good?

Andrew: One way is through the interviews. The interviews tell us where things are fuzzy with the numbers. I think the key is transparency. We do not hide where we think there are issues.

Howe: We did the power analysis, the calculation that helps us know the size our sample needs to be to get statistically significant results. It suggested including at least 30 schools. The results of our regression models for all defined variables did not show statistical significance, even for variables that were highly correlated in another analysis. This had a lot to do with our small sample size—only eight schools. On the other hand, following what Dr. Erbacher recommended, we ran the other analysis, a bivariate correlation analysis, using the pairwise Pearson correlation method, and some of the correlation coefficients are really high, greater than $\pm .80$. This suggests strong relationships between different pairs of variables.

Andrew: Regression is inferential statistics, but Dr. Erbacher said that if we focus on correlation, we can use it as a kind of descriptive statistics in our case. She also was saying that the high correlation coefficients we got talk about “real effects.” What's your take on that?

Howe: It refers to effect sizes. We cannot use the results generated from only eight sample schools to infer something in the larger population, like in regression analysis. The effect size is the magnitude and direction of the difference between two variables (Durlak, 2009; Mertens, 2009). This is for these schools only. Using a correlation design instead of significance testing, our research becomes like a case study. We are describing the real situation for that sample in that particular context.

Andrew: We need to be very clear in how we frame these findings. We'll have to caution people against making inferences.

Howe: Though we should talk about effect sizes, the correlation table indicates trends, only. We need to emphasize its descriptive rather than inferential nature.

Andrew: And it helps us ask new questions. Well, we're figuring out what works more and more. Let's meet again in a few months. How about April?

Howe: That should be a good time. See you then.

Scene 5: Conclusion? A Video Conference Meeting During a Pandemic

Andrew: Hey, Howe...so good to see you.

Howe: Good to see you, Andrew.

Andrew: Are you doing okay?

Howe: Yeah, everything is okay, but too many things are happening.

Andrew: It's been a wild time. We can't do in-person interviews anymore. And what are we even doing with this research? What does it look like in the midst of a global pandemic?

Howe: There will be a marked difference because of the COVID-19 pandemic. We did the Phase I and II data collection, and now we are contending with social distancing and school lockdowns, so there is going to be some disruption to our research, too. If we are lucky, we can do Phase III several months later, I guess.

Andrew: What do you think this is going to mean for the Phase III interviews?

Howe: For starters, the pandemic represents a new arts education equity factor that has been added to our research. We could compare the Phase III interview data to what we collected before the pandemic.

Andrew: Let's talk about the findings we have so far to get a sense of this past world we will be looking back on.

Howe: Here, I will share my screen (Table 2). Many correlation coefficients are above $\pm .6$. The coefficient for #1 per capita total arts sessions per week to #10 students of color, #12 the percentage of students qualifying for free-or-reduced lunch, and #11 the percentage of ELL students are even above $-.8$. Also, #1 per capita total arts sessions tracks strongly with #17 and #18 standardized test proficiency scores. These values are indeed high, suggesting inequitable access to visual arts and an unfair distribution of resources between schools in this district. If we use regression analysis, we did not obtain statistically significant results, so it cannot explain the suggested correlation.

Andrew: What do you make of that?

Howe: With more quantitative studies, we may be able to apply an effect size evaluation for other arts education research contexts. There is a lack of cumulative knowledge in our field of effect sizes suggested by previous studies, but the cutoff values given by Cohen (1988) may be a good point of reference for us. If the correlation coefficient is

above +/- .5, it might say we detect a strong effect size (Cohen, 1988). There are two kinds of effect sizes: raw (or unstandardized) and standardized (Baguley, 2009; Pek & Flora, 2018). For example, a direct comparison of group differences is a raw effect size, while Cohen’s d, the calculated values used in his evaluation, is a standardized version for independent samples t-testing. Correlation coefficients used in our analysis would be another kind of standardized measure. However, we have to be very careful here because we do not want to make inferences. These correlation coefficients indicate a trend. The trend tells only part of the story.

Table 2

Correlation table using the corr.test function in R (pairwise Pearson correlation method)

VARIABLES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
1 Total Arts Sessions pwk to Total	–																						
2 Hour Arts Instruction pwk to Total	.99	–																					
3 Art Participation pwk to Total Enrollment	.73	.75	–																				
4 Total Payed Arts Teachers	.45	.46	.15	–																			
5 Percentage of 10-Year Experienced Teachers	.60	.59	.10	.85	–																		
6 PTA to Total Enrollment	.69	.71	.35	.69	.60	–																	
7 Undesignated Tax Dollars to Total	.82	.83	.68	.24	.53	.44	–																
8 Undesignated Tax Dollars	.78	.79	.58	.08	.22	.41	.88	–															
9 Student Teacher Ratio	.42	.45	.06	.45	.32	.83	.09	.18	–														
10 Students of Color	-.83	-.83	-.51	-.47	-.45	-.75	-.45	-.75	-.63	–													
11 ELL Percentage	-.87	-.87	-.58	-.29	-.42	-.49	-.62	-.73	-.49	.82	–												
12 Free & Reduced Lunch Percentage	-.90	-.89	-.48	-.35	-.48	-.78	-.61	-.73	-.71	.91	.87	–											
13 Exceptional Education Percentage	-.51	-.55	-.37	-.26	-.25	-.69	-.47	-.22	-.77	.37	.48	.62	–										
14 Attendance Rate	.72	.73	.39	.12	.52	.45	.83	.83	.39	-.34	-.69	-.66	-.80	–									
15 K-8 Model Cut Scores	.57	.60	.16	.48	.42	.65	.20	.41	.83	-.80	-.80	-.79	-.54	.38	–								
16 Overall School Quality	.36	.41	.64	.50	.23	.53	.41	.08	.25	-.17	-.09	-.15	-.55	.22	.03	–							
17 ELA Proficiency	.84	.87	.45	.58	.62	.88	.64	.68	.79	-.85	-.81	-.92	-.73	.68	.83	.37	–						
18 Math Proficiency	.82	.85	.51	.52	.53	.83	.63	.70	.78	-.83	-.84	-.90	-.77	.68	.84	.41	.99	–					
19 Science Proficiency	.90	.90	.40	.52	.73	.72	.73	.75	.57	-.83	-.87	-.92	-.52	.77	.75	.13	.92	.88	–				
20 Proficiency Points Earned	.77	.80	.43	.55	.54	.82	.56	.64	.81	-.82	-.82	-.87	-.75	.64	.88	.37	.98	.99	.87	–			
21 Neighborhood Per Capita Household	.91	.90	.58	.40	.50	.82	.60	.57	.64	-.84	-.76	-.94	-.61	.62	.63	.30	.84	.79	.82	.75	–		
22 Neighborhood Median Household Income	.75	.77	.60	.32	.24	.82	.45	.45	.80	-.76	-.70	-.85	-.82	.56	.69	.48	.83	.84	.65	.81	.89	–	

*N=8. SOURCES: 2019-2020 data from inventory surveys, 2019-2020 district data dashboard, 2018-2019 and 2019-2020 AZ School Report Card, 2016 Making Action Possible, and 2019-2020 National Center for Education Statistics Global Locator (now called the National Center for Education Statistics Search for Schools and Colleges).

Andrew: The situational analysis adds to this story about trends. First, we learned that the school district and the U.S. state it is in allow parents to choose which school to attend. We also learned that the curricular focus of the itinerant arts teacher program is arts integration, which is supposed to support the core curriculum and testing. Well-funded, high-test proficiency schools are attracting students, which attracts tax credit funding, which translates into more resources for enrichment. It's like a self-reinforcing system draining students and enrichment opportunities from smaller schools in marginalized neighborhoods. And what are principals and teachers doing about this? They're laboring. Remember what the principal called it? "Emotional blackmail." Teachers are working extra hours, going to administration meetings, writing grants, trying to get families involved. That's a lot of equity labor. Plus, the itinerant arts teachers are being asked to build in cultural responsiveness so their curriculum is more accessible and engaging. The music teacher we interviewed, whose background is not like the students' backgrounds, said they had to "work outside my comfort zone." More equity labor. Here, I'll sketch it out and hold it up to the camera (Figure 1).

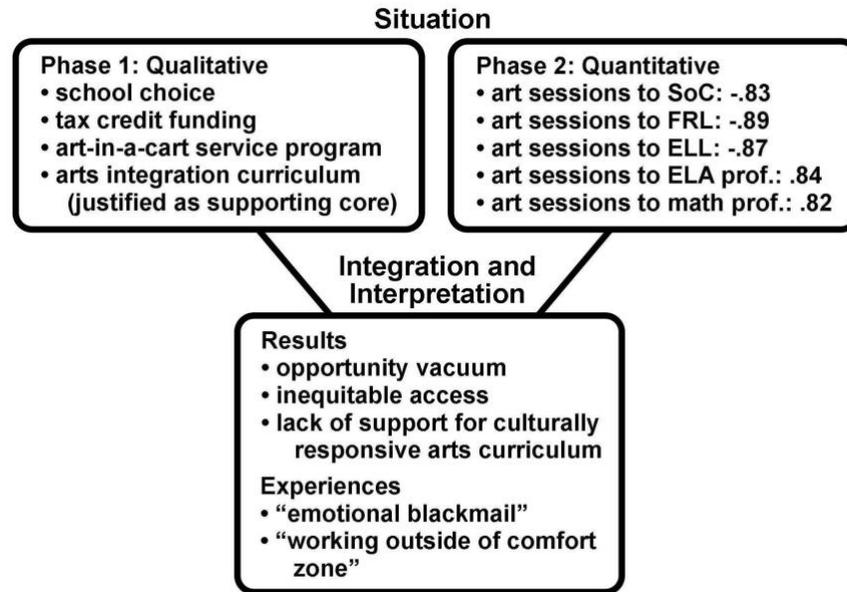


Figure 1. Mixed Methods Integration and Interpretation of Findings.

Howe: The main issue we discovered in this study is about the itinerant arts teacher arts-in-a-cart service program within this district. This is a district policy.

Andrew: And this district policy seems to have a multiplying effect with policies at the state

- level, like school choice and the tax credit funding.
- Howe: We can imagine that those stakeholders who talked about their experiences are facing more difficult situations than they faced in the pre-COVID-19 era. Funding could be cut, and parents could be laid off because of the pandemic's impact on the economy. It is good for us to use the Phase III interviews as a comparison.
- Andrew: And as a way to inform the future. I've been thinking about what Arundhati Roy (2020) said: "The pandemic is a portal." Who is getting shut out? What will be carried through? These are equity questions. The follow-up interviews are an opportunity to look back through the portal. We were talking earlier about this being an equity assessment. I think what we are doing now is a reassessment. It's about reassessing values. What will be our social commitments to equity and opportunity? And how do the arts fit into that?
- Howe: In good times, I think people want to share. In difficult times, we still hope people are willing to share and take care of others. We will see as this research progresses.

Postscript

The back-and-forth dialogue with methodology is never really settled. We continue to discuss the nature of this research—what knowledge and meaning it produces and how it should produce it—years later and up until the moment we submit the work for final publication. And it continues in other research. In the future, we intend to publish papers on findings using conventional presentation formats. At the outset of a long-term equity-focused project, we feel that this dialogue-based approach to sharing our methodology is appropriate and generative of new understanding.

The methodological challenges we experienced were ones of positionality, appropriateness, and language on one level, and scope and purely quantitative issues on another level. We experienced methodological tensions related to where we are coming from. We have diverse backgrounds. As researchers, we have an outsider's perspective, but the nature of this outsider-ness is varied among the three of us. We had to understand our roles as researchers, the agendas that go with that, and reflexively reorient ourselves. We also learned about questions of appropriateness of quantitative findings being used in conjunction with lenses like critical race theory—a problem of research paradigms. We find our postpositivist, transformative approach to mixed methods is a yes-and approach: quantitative research can be layered with critical, qualitative approaches. However, the issue of language and discourse—of code switching between modes—is difficult to overcome. While this combinatorial approach can be effective as a way to triangulate findings, it is hard to produce interpretations without a lot of translation and exposition. Discourses have to be constantly crisscrossed.

Another set of methodological challenges related to scope and more basic issues specific to

quantitative methods. The research involved interviews, transcript coding, and situational analysis (Clarke, 2005), as well as survey creation and testing and quantitative analysis. This was a lot to handle. Each of these components had their own set of challenges. As previous research has shown (Kraehe, 2017; Kraehe et al., 2016), arts equity is multidimensional, and we had a hard time narrowing our inquiry of something so complex. We constantly struggled with the breadth of the research and how this affects the potential of trustworthy findings. We were challenged in making the research feasible in a practical sense, in understanding what data were collectible. The quantitative component of the research, too, was a challenge. Sampling was a big problem for us, which in turn led to deep consideration of the meaning of statistical significance in general.

Even though the narrative was reconstructed at a later time, we hope its detail preserves the nuance and contingencies of our journey. The narrative shows that we each had roles to play. It shows us constantly adding perspective and asking for reconsideration in the pursuit of method. The polyvocal nature of the presentation is a window into the workings of an epistemology that is complex and convoluted. It is a lived methodology bigger than each of us but dependent on each of us, on different voices answering the methodological challenge.

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