Developing Creativity and Other 21st Century Skills through Theatre Classes

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Abstract

Theatre classes ask students to engage in a variety of creative and generative activities, including performing scripts, learning characters, and engaging in role play. Such activities have been promoted as a way to develop both acting performance skills and more generalizable habits such as creativity, empathy, or communication. However, research on these questions is not often placed in a real world setting such as a theatre conservatory, and rarely does it follow students longitudinally. In the current study, we analyze 6 years of mixed-methods data from a theatre conservatory for students aged 5 – 18. Each occurrence of data includes teacher ratings of students' 21st Century Skills (*Creativity, Problem Solving*, *Initiative, Communication* and *Collaboration*) and teacher and student open-ended qualitative comments. A Cross-Classified Hierarchical Linear Model was employed and revealed significant skill level growth over semesters enrolled and significant skill decrease with advancement through class levels. In other words, for each semester in the program, 21st Century Skills increased, but advancing through theatre class levels showed lowered levels of growth. Skill variance was attributable to semester, followed by child factors, and teacher factors. Qualitative data was analyzed using *a priori* theory-driven coding and grounded theory thematic coding; results reflect the quantitative results across 21st Century Skill constructs. Our findings suggest participation in theatre arts classes promote positive youth development and generalizable abilities, and as teachers judge students more stringently in higher levels, theatre may be affording 21st Century *habits* rather than specific *skills*.

Keywords: drama; creativity; 21st century skills; child development; theatre

Public Significance Statement

What kinds of fun and artistic activities can be used to build students' creative, social, and emotional skills? One longstanding possibility is theatre. We measured the effects of theatre training across 13 semesters on students' (aged 5-18) 21st Century Skills: *Creativity, Collaboration, Communication, Initiative,* and *Problem Solving*. We found for each semester the students were in the program, their scores went up, however, teacher ratings of skills were more stringent in each advancing level. This suggests theatre participation may cultivate generalizable social, emotional and cognitive *habits*, and has implications for how to think about theatre's effects on student creative growth over time.

Developing Creativity and Other 21st Century Skills through Theatre Classes

How can children develop *Creativity* and related skills such as *Problem Solving*, *Initiative*, *Communication*, and *Collaboration*? One proposed intervention for developing these so-called "soft" or "21st Century" skills is arts education (Charleroy et al., 2011). Specifically, theatre education (also sometimes called drama or acting) has been linked to creativity in two ways. First, that participation in theatre classes, including improvisation, character development, script analyses, enactment, and role playing, is in itself creative—students must generate multiple new ways of performing verbal and physical material, listen and add on to each other's responses, and explore emotional responses (Barton, 2018; Drinko, 2018; Schmidt & Charney, 2018). Second, theatre education has long been theorized and investigated as a conduit to higher levels of creativity outside the classroom, by teaching transferrable ways of thinking about idea generation and openness that students can take into their everyday lives (Dawson, 2018; Porter, 2018)

Arts education researchers have often focused on skills that transfer from practice in arts classrooms to the outside world (Winner et al., 2013). This idea of "far transfer" as endemic to arts learning has spread to arts practitioners and training programs, as they work to define benefits and outcomes of their programs. Measurement of arts-specific and general social, cognitive and emotional abilities can be helpful to parents and educators interested in building students' skills, to art schools seeking to provide the best educational and artistic experience for their students and to afterschool programs looking for ways to increase positive youth development. There has been significant progress in research on the effects of theatre arts training on developing various skills (Goldstein et al., 2017). Intervention programs, large scale correlational findings, and some random control trials of theatre activities show effects for

children in areas as diverse as empathy (Dow et al., 2007; Goldstein & Winner, 2012; Lewandowska & Węziak-Bialowolska, 2020), language (Greenfader & Brouillette, 2013; Piazzoli, 2018; Podlozny, 2000) and creativity (Burgoyne, 2018; Celume et al., 2019; Pfeiffer et al., 2018; Yeh & Li, 2008). Theatre artists and teachers have theorized that theatre participation can be a primary way of fostering social, emotional, and cognitive skills crucial to academic and real-world functioning (Farrington et al., 2019). However, this research is rarely longitudinal past a few months, nor is it developed by theatre artists themselves, based on their expert understanding of the activities at hand. In the current study, we look to theatre artist determined 21st Century Skills as broadly applicable social and cognitive abilities fostered through the creative act of theatre. We focus on childhood and adolescence, with students engaged in a progressive theatre class curriculum across several years, and skill growth measured through teacher ratings in the theatre classroom.

The 21st Century Skills

The 21st Century Skills (21CSs; also referred to as "21st Century Competencies") are a set of domain general abilities codified in the educational science literature (Greiff & Kyllonen, 2016; Larson & Miller, 2011). 21CSs describe a framework of expertise students need to be successful in their school, work, and personal lives (Chalkiadaki, 2018; Bellanca, 2010; Larson & Miller, 2011). These skills emphasize going beyond rote learning towards in-depth thinking. While there is no definitive set of 21CSs, they typically include *Creativity and Innovation*; *Communication and Collaboration*; *Innovation and Research*; *Critical Thinking, Decision Making and Problem Solving*; and *Digital and Technology Literacy* (Kay & Greenhill, 2011). Particularly *Creativity*, *Communication*, *Collaboration*, *Problem Solving* and *Initiative* have been theorized as "meta" knowledge skills within 21CSs, meaning they help students understand how

and why to behave and apply knowledge (Kereluik et al., 2013). These are higher order habits that can be applied across situations and goals, and allow students to work together to discover the gaps in their existing knowledge and how to solve them (Movassaghi & Growe, 2019). For education scholars, *Creativity* involves both the generation of novel and useful information and products, and the ability to evaluate and refine ideas. This is associated with critically thinking about *Problem Solving*, and solving problems through the application of both creative and critical thinking. *Communication* and *Collaboration* involve the ability to articulate yourself to others, through digital and interpersonal engagement, and listen and be flexible within groups. *Initiative* involves being able to direct yourself through activities, self monitor for goals, and adapt behavior to achieve those goals (Charleroy et al 2011; Kay & Greenhill, 2011; Kereluik, 2013). While these constructs individually are not new to the educational or child development literature, they have recently gained heightened attention as a group and explicit efforts to incorporate them into non-arts subjects (e.g., science and math; National Research Council et al., 2013).

Educational theorists, however, have noted academic classrooms may not be as supportive of developing 21CSs as arts classrooms (Happ, 2013), given extra time and resources needed to advance 21CS goals in already overcrowded curricula (Dede, 2009; NRC et al., 2013). Various art forms have shown promising outcomes from implementing 21CS curricula into their pedagogies (Maneen, 2016). For example, in digital art, students can work collaboratively to create a video game around the theme of gender equity (Liao et al, 2016); in visual arts, students use strategies such as creating artistic analogy or reformatting scientific knowledge creatively and collaboratively to make it more clear for themselves and an audience (Buczynski et al.,

2012). In a music program, 21CSs were said to emerge from the emphases within high school bands to focus on peers, performance, and building patience for improvement (Tan, 2017).

The 21st Century Skills and Theatre

Separately from being investigated as a set of skills however, the individual constructs of *Creativity, Problem Solving, Initiative, Communication* and *Collaboration* have been connected to theatre in a variety of ways. Theatre teachers strongly believe these skills are fostered through theatre classrooms. In one large scale survey of teachers, principals, and other administrators, survey respondents endorsed *Confidence, Creativity*, *Collaboration, Communication*, and *Interpersonal Skills* as positively affected by engagement in theatre classes in schools (Omasta, 2012). In another study of 178 theatre teachers, many outcomes (from *Verbal Abilities* to *Collaboration*) were rated as "extremely likely" to occur. However, out of 28 choices, teachers rated *Collaboration*, *Creativity, Confidence*, *Communication, Empathy*, and *Interpersonal Skills* as most likely to positively change as a result of theatre classes (Goldstein et al., 2020). Of note, in these studies, teachers used their own definition and understanding of these terms.

Despite strong theatre teacher support, when directly studying student outcomes, most empirical research in these areas has not looked at acting or theatre classes *per se*, but instead investigated applied or integrated theatre. This includes dramatic techniques and strategies integrated into school curricula such as drama based pedagogies (Dawson & Lee, 2018; Lee et al., 2020), and improvisational exercises in higher and professional education (Berk & Trieber, 2009). Drama based pedagogies such as story-telling and improvisation have been linked to higher scores on classical tests of creative thinking, such as the Torrance Test of Creative Thinking, in populations from preschool to high school (Berretta & Privette, 1990; Clements, 1982; Garaigordobil, 2006; Hainselin et al., 2018; Hui & Lau, 2006; Lin, 2010; Yeh & Li, 2008).

Empirical studies on improvisational theatre (where all material is created in the moment, Sawyer, 2014), have also shown participants gain in divergent thinking (Felsman et al., 2020; Lewis & Lovatt, 2013; Sowden et al., 2015), but most of these findings are focused on skill transfer, rather than the application of creativity within the theatrical practice.

Applied improvisational theatre techniques have been used to help medical students, pharmaceutical students, and professional scientists improve their communication skills with patients and the general public (Alda, 2018; Bachmann et al., 2013; Hoffman et al., 2008; Jacob et al., 2019; Neilson & Reeves, 2019; Watson, 2011). These techniques have been found to foster collaboration, turn taking (Sawyer, 2014), and collaborative discussion in classrooms (Sawyer, 2004). However, scripted work is rarely, if ever, the intervention of interest.

A technique using improvisation, script creation, and devised performance, Theatre of the Oppressed (TO), has been used to help groups gain a sense of agency and determine the best ways to solve problems in their communities (Boal, 2000, 2005; Hawkins & Georgakopolous, 2010). TO is a form of theatre specifically developed to catalyze communities into social change by empowering members of the community to understand and solve problems around oppression, injustice, and give voice to community activists and organizers. It uses collective improvisation and storytelling based on the real-life experiences of the group, specifically creating scenes to help the members find their voices and self-determine solutions to community problems (Boal, 2005). These techniques have been studied with mixed-methods and qualitative methods, showing self-reported gains on problem solving and deeper understanding of community and justice issues for both children and adults (Hammond, 2015; Sappa & Barabasch, 2020). While a sense of *Initiative* may be underlying self-determination through TO,

as far as we know, there is no published work that looks directly at children or adolescents' *Initiative* through theatre.

Taken together, theorists have long proposed that theatre experiences may be uniquely suited to simultaneously engage ensemble *Collaboration*, group *Problem Solving* and *Communication*, individual *Initiative* and *Creativity*, and use of the body and mind (Dawson & Lee, 2018; Goldstein et al., 2020; Omasta, 2012). A 2011 report by The College Board proposed that out of 24 Consortium of National Arts Education Associations Standards for Theatre, 22 are positively aligned with *Critical Thinking* and *Problem Solving*, 20 with *Communication*, and 16 with *Creativity* (Charleroy et al., 2011). Other academic domains spend less time in free play or open exploration as they advance (Brock et al., 2013; Golinkoff & Hirsh-Pasek, 2006), but when moving through theatre courses, creative improvisational play and openness to playful activities continues and grows (Standards, 2014). However, there has not been a longitudinal, within-theatre study of 21CS gains. While the field has mostly moved past issues with correlational designs being taken as definitive causal evidence (Goldstein et al., 2017; Winner et al., 2013), arts effects are rarely investigated over multiple years or levels within the same art form (Alegrado & Winsler, 2020; Gara & Winsler, 2019).

The Current Study

The current study therefore examines the effect of a creative activity, theatre class participation, on students' 21CS growth. We use teacher ratings of the 21CSs of *Creativity, Collaboration, Initiative, Problem Solving* and *Communication* within the context of a theatre classroom, over multiple years, to answer three major questions:

1. Does the context of a theater classroom affect skills individually (i.e., is skill growth separable) or holistically (i.e., does a latent "21st Century Skill" develop over time)?

2. Do students increase 21st Century Skills as they move through the theatre curriculum?
3. Do variables such as class level, teacher, and demographic variables differentially affect growth in 21st Century Skills?

Method

Participants

Participants in this program-based data collection were children and adolescents enrolled in classes at an extracurricular theatre conservatory program (N = 1017) in a Southern state in the USA. Students could enroll in the theatre program as young as Kindergarten (age 5) and remain in the program until they graduated from high school (age 18). Participants were aged 5 to 18 at time of enrollment, M_{age} = 10 yrs, 7 mos; male = 28.7%, female = 64.9%, no sex specified = 6.4%. While student ages ranged from 5 to 18, the distribution of student enrollment across ages was not even. The highest enrollment typically occurred between ages 8 to 13 (see Table 1 of Appendix A). Because data collection occurred through the program before the participation of the research team, demographic information is limited. At enrollment, 73.4% of participants identified as White, 10.4% African American, 1.5% Asian American, 2.2% Hispanic, 2.3% Mixed Race, 3.0% Other, and 9.5% did not specify. While we do not have individual level education or income data from participants, over the course of the data collection time period, in any semester, approximately 1/3 of students received financial aid to attend the conservatory. Financial aid was provided to all students who needed it, and scholarships were not based on audition or restricted to a certain number.

Across 12 time points (i.e., 6 years, two times per year, Fall 2013 – Spring 2019), data were collected via paper rubrics at the end of each semester. Teachers completed an individual rubric for each student in their class (M = 20.25 rubrics completed per teacher each semester;

Range = 1 – 54). Teachers (Total *N* = 28, ~ 15 per semester) met with artistic staff at the beginning of each Fall and Spring to review program policies and procedures, theatrical curriculum and standards, rubric assessments, and enrolled students. Many teachers had themselves gone through the program and returned post-college to teach. All instructors were college graduates and performing arts professionals. Parents and youth participants signed a handbook with the Theater when first enrolling, which gave permission for teachers to complete assessments of skills each semester using these rubrics. IRB approval was given for data sharing from the Theater and for secondary data analysis by [BLIND FOR REVIEW] University.

The Theatre Program and Classes

The conservatory theatre program where data were collected was founded in 1976 to provide after-school, pre-professional theatre training for youth. The program offers six different classes, three of which have subsections for a total of nine separate instances of teacher ratings, in a developmental progression for students that increase in difficulty. Initial placement is based on age, maturity, and previous experience as judged by artistic staff (for more information about class levels, age, and student retention, see tables in Appendix A). Generally, new students with no previous experience who are older skip the first levels of classes: If a new student with no previous experience is younger than 8, they are placed in class level "Imagination"; if they are younger than 13, they are placed in class level "Improv"; if they are in high school they are placed in "Playmaking". Students are typically promoted into a new class level after they complete 2 – 4 semesters (1 – 2 years) at their current level. At the end of each semester, teachers recommend the student to either remain in their current class or be promoted to the next level. Instructors review students' previous assessments before beginning a new class. Progression is individualized. Some students spend several years in one level while others

quickly advance into higher-level performance classes (see Figure 3 for an infographic example about class leveling and trajectory). Classes contain a mix of activities, scripted work, and improvisational exercises. The first two classes, “Imagination” and “Improv”, contain no scripted work at all, focusing on playing and exploring characters. “Studio” classes have scripted work in individual scenes, with “Apprentice” level classes including multiple scenes up to 10 minutes long. However, each class still includes improvisational work, 25% of the class or more. When students rotate through different units in the upper most classes of “Playmaking” and “Advanced”, they have some units that are only improv and some only working on scripts. There, the breakdown is approximately 25% improvised content as well.

Measures

Quantitative

Rubric measures were developed through discussion and reading on the effects of theatre by the artistic staff. As the program grew, the artistic staff decided the skills of *Communication, Collaboration, Creativity, Initiative*, and *Problem Solving* were central to the goals of the program, regardless of class level. Artistic staff then updated the curriculum to include class standards and vocabulary, and edited rubrics to track the progress of each student as well as the program's overall success. The end product was an age group and class level sensitive scale, developed by artistic staff, accounting for curriculum, and using National Core Arts Standards for K – 12 students (National Coalition for Core Arts Standards, 2014). Rubrics specific to class level were developed with this framing in mind. Artistic staff reviewed the scales multiple times over 2 years until they came to consensus the scales were working for both students and teachers.

For each class level, definitions for each of the 21CSs were slightly different to account for goals and curriculum of each class level (see Table 1 in Appendix B). For example, the

definition of *Creativity* was adapted from the Partnership for 21st Century skills, which included demonstrating originality in work and being open and responsive to new perspectives and ideas (Dean et al, 2010). This was then adapted at various levels to include "Plays well in an imaginary environment/outside their comfort zone;" "Reacts to text with original and inspired ideas"; "Uses body and voice to create a character"; "Boldly acts on creative ideas;" "Can articulate and assess their creative process". This was echoed across all of the 21CSs, where the theater and the teachers used their understanding of the constructs to create a developmental progression at the levels of the acting classwork, independent of the students' age.

Teachers scored each student individually at the end of each semester on a 4-point Likert-type scale (from 1- *Never or Rarely* to 4- *Frequently with Enthusiasm*). In addition, qualitative data from students and teachers were collected at the end of each semester. Teachers were given extensive training using an instructor handbook which covered program goals, practices, curriculum and vocabulary, assessment definitions, and rubrics for all class levels. Instructors reviewed class standards with students on the first day and used the rubric to discuss progress with students. A sample rubric, breaking down skills into scoring levels from the first level class ("Imagination") is in Appendix C.

Qualitative

Following rubric ratings of 21CSs, teachers provided "Teacher Comments" about students in an open-ended written response format. Students also completed self-report written responses, answering questions such as "What did you learn and what skills did you develop?" Verbatim transcript statements were coded for *a priori* established 21CS themes. A theory driven approach (Boyatzis, 1998) was used to code, using definitions provided by the theatre company. Grounded theory (Corbin & Strauss, 2014) and phenomenological (Pidgeon, 1996) approaches

were used to identify reoccurring emergent themes. Transcripts were double coded by trained research assistants (Interrater Reliability theme presence = 0.702).

Results

Planned Quantitative Analyses

All participants were included in analysis and any missing data was imputed using Full Maximum Likelihood. Because students entered the program at different ages and levels, each participant begins in "Semester 1" of their enrollment. To account for children changing teachers and class levels over semesters, we employed a cross classified hierarchical linear model (Raudenbush & Bryk, 2002), which allowed us to analyze linear growth in 21CSs, operationalized with two time-structured predictor variables, semester and class level (level 1). This also allowed us to account for multiple occasions of ratings nested within both teachers and students (level 2) and for three sources of variance (Rowe et al., 2019): occasion (time-structured variance at level 1), teacher and child (person-centered variance at level 2). In order to rule out any moderating person-level demographic variables, child age, sex, and race were added as categorical predictors in the level 2 equation.

The conditional cross-classified model (with added hypothesized predictor variables):

Level 1: $21CS_{ijk} = \pi_{0jk} + \pi_{1jk}(SEMESTER) + \pi_{2jk}(CLASSLEVEL) + e_{ijk}$

Level 2: $\pi_{0jk} = \theta_0 + b_{00j} + c_{00k}$

$\pi_{1jk} = \theta_1 + \gamma_{11}(SEX)$

$\pi_{2jk} = \theta_2 + \gamma_{21}(SEX)$

Level 1 represents the average 21CS score (π_{0jk}) and individual error (e_{ijk}) from child j and teacher k. Level 2 represents the grand mean (θ_0) and random effect for child j (b_{00j}) and teacher k (c_{00k}) is equal to the level 1 21CS score average (π_{0jk}) (Rowe et al., 2019). (SEMESTER) and (CLASS LEVEL) were added to level 1 as time growth predictors, and

moderators (AGE), (SEX), and (RACE) were added to level 2 as person-level predictors; Level 1 accounts for time-related predictors and level 2 accounts for person-characteristic predictors.

Quantitative Results

Results revealed the five 21CS constructs, *Collaboration, Creativity, Initiative, Problem Solving*, and *Communication*, had good model fit in a Confirmatory Factor Analysis (CFA), indicating that the five operationalized constructs map onto the more encompassing latent variable: *21CS*. The CFA fit statistics were within the desired ranges for a good fitting model (RMSEA = 0.035, CFI = 0.974, SRMR = 0.03, $df = 5$, $\chi^2 = 78.12$, $p < 0.001$) and all factor loadings were strong at > 0.8. The 21CS CFA is depicted in Figure 1.

A latent 21CS score was imputed from the CFA and was used in the cross-classified hierarchical linear model. Results revealed significant growth in student skill over semesters enrolled in the theatre classes ($p < 0.01$) and significant decrease in student skill as students advanced through theatre class levels ($p < 0.01$).[1] In other words, for each semester a student remained in the program, their 21CS score increased. However, moving up a class level diminished their increase in skill score. This finding suggests that theatre class participation contributes to children's growth in *Collaboration, Creativity, Initiative, Problem Solving, Communication*. Yet, with advancement through higher theatre class levels, teachers are rating this growth more stringently, which acts against the observed growth in skill score. Growth in 21CSs over semesters enrolled and class level advancement is depicted in Figure 2. For ease of interpretation, in Figure 3, we give an example of one student's trajectory through the program, including repeating classes, and gaining in habits over the course of several years of enrollment,

[1] In an exploratory analysis, each 21CS was considered individually in separate cross classified HLM models. All constructs still revealed growth effects over semesters enrolled and lessened growth with advancement through class levels (p's < 0.05), bar these exceptions: Collaboration did not significantly increase over semesters enrolled and Problem Solving did not significantly diminish with advancement through class levels.

while having small setbacks in how teachers rated the skills at each class level.

The variance in children's skill scores was accounted for by occasion (i.e., semester or time of rating) (70%), followed by child factors (21%) and teacher factors (10%). Much of this variance is attributable to the child's starting level 21CS score: 20% of the child factor variance in 21CS scores is due to children's trait level (starting level) individual differences and 9% of the teacher factor variance in 21CS scores is due to teacher rating differences in starting level scores. Variance concerning growth after starting level differences have been accounted for makes up less than 2% of all variance in skill scores: children's individual differences account for less than 1% of the variance in growth and teacher rating differences account for less than 1% of variance in growth (combined variance for semester and class level growth). 70% of the variance accounted for by occasion reflects variance occurring due to inconsistencies surrounding the point of time at which the rating was given (time-structured variables at level 1), such as program differences between years or inconsistent settings. This occasion-based variance is not attributable to child or teacher differences; it reflects inconsistent ratings between time points (An et al., 2019), and is large because it accounts for variance unable to be controlled for in this type of program-based data collection. These findings suggest that teacher ratings of student 21CSs vary primarily based on factors associated with the time the rating was given, and secondarily based on child characteristics. The smallest amount of variance in ratings was attributable to teacher factors, indicating that there was little teacher rating bias.

Moderating Variables

To ensure these findings were not specific to child sex, age, and race, we included sex, age, and race as moderating variables by adding them as categorical child-level predictor variables in level 2 of the model (see equation in the method section). Age represented the

child's age when they started the program. Neither child age ($p > 0.05$) or mixed-race status ($p > 0.05$) predicted growth in 21CSs and therefore, were not relevant to the child characteristic source of variance in 21CS growth. However, child sex ($p < 0.001$) and race ($p = 0.001$) did moderate growth in 21CSs. Female children demonstrated larger growth rates in 21CSs than male children, and African American children demonstrated lower growth rates than White children.

Qualitative Analyses

A subsample ($N = 73$) of qualitative data was analyzed to further elaborate on student 21CS growth. Participants were included in this subsample if they completed at least 8 semesters of enrollment in the program. This was to ensure students' individual level qualitative data would be reflective of the longitudinal quantitative data. Qualitative data were coded for presence of growth in individual 21CS constructs in order to illuminate how teachers and students were recognizing and interpreting manifestations of growth, which the quantitative data could not capture. Thematic coding of teacher and student statements supported findings that children demonstrate longitudinal growth in four of the five 21CS. Coding for *Problem Solving* was not reliable in this subsample of qualitative responses, and therefore, we excluded it from the findings. An additional theme, *Motivation*, was emergent. Teacher and student statements also revealed some instances where growth was needed or lacking. Appendix D contains a codebook with themes and additional supporting quotes, including quotes suggesting where growth was needed in order to improve the 21CS.[2]

Collaboration

[2] Teacher and student qualitative comments were used by the school to track student progress and were also released to students and students' parents at the end of each semester.

Teachers and students reported that students gained collaboration skills manifested as efficacy working in groups, support and respect for peers, and the ability to receive and integrate criticism and others' ideas.

> "He provides insightfulness and thoughtfulness that is imperative to the devising process. He has a great eye for detail in providing feedback to others and receives constructive feedback well" (Playmaking 2 teacher comment, Fall 2016).
>
> "I learned that we're all in this together. So when tacking things (like improv) I don't have to be afraid because I know it is a group job. Performing … is very much an ensemble job" (Playmaking 2 student comment, Fall 2016).

Creativity

Teachers and students reported creativity growth through willingness to take risks and explore novel ideas, and ability to effectively implement novel ideas.

> "[Student] was so flexible and creative. He makes such interesting character choices and is fearless in his approach" (Advanced teacher, Spring 2015).
>
> "I think I became more comfortable taking risks in my character choices…" (Advanced student, Spring 2016).
>
> "I learned how to impulsively run with an idea … and make a bold choice in order to entertain the audience. I've also learned to be more open to the idea of dance and body movement as a way to develop a character more thoroughly, as well as put it into action" (Improv student, Fall 2016).

Initiative

Teachers reported students worked on and improved their initiative, demonstrated through active participation, attendance, commitment to projects, commitment to improving their skills, and timely completion of tasks.

> "When I achieve my goals, I feel like I will take my acting skills, and put them into everyday situations to make myself a better person. I will also set new goals for myself so I can continually improve" (Apprentice student, Spring 2016)
>
> "… he takes his work during class seriously. I appreciate his attentiveness and his eagerness to improve" (Advanced teacher, Fall 2018).

Communication

Student progress in onstage and offstage communication strategies were reported. Progress included confidence communicating, clear speaking voice, being receptive to others, comfort being vulnerable, freely expressing ideas, and using the entire body to communicate.

> "He is attempting to be more assertive on stage" (Advanced teacher, Fall 2017).
>
> "I learned how to be louder. In [previous level] you could rarely hear me on stage but now I feel much more confident in my stage voice" (Apprentice student, Fall 2017).
>
> "I learned how to use my entire body to express my emotions" (Advanced student, Fall 2016).

Motivation

In addition to *a priori* themes, the theme of *Motivation* emerged organically through grounded theory coding. We consider *Motivation* a higher-level theme that overarches the 21CS themes, potentially acting as a catalyst to bolster already existing growth in 21CSs, and encompasses both desire to engage in the material of the course fully, enthusiasm about activities, and seeking out additional experiences. *Motivation* was evident in students as passion for the coursework and enthusiasm in class.

> "… a very eager student and she absorbs the lessons very well. She is very enthused about the work and continues to grow" (Advanced teacher, Fall 2015).
>
> "[Student] is an outstanding student and continues to improve and grow every semester. She is extremely eager and has a huge desire to improve and has a wonderful work-ethic" (Advanced teacher, Fall 2015).

Discussion

21st Century Skill (21CS) growth of Kindergarten – 12th grade students enrolled in extracurricular theatre classes were examined over six years using quantitative and qualitative analyses. Results provide evidence that theatre teachers see continuous student growth in generalizable 21CSs that are critical for success in modern day school, work, and personal lives (Soulé & Warrick, 2015). Results also show that advancement into higher theatre class levels

lowers observed growth in skill scores. This may mean that theatre teachers are becoming more stringent in their judgment achievement in 21CSs, even as the students are gaining skill as they progress through the program. One way to frame these findings is that theatre classes could act to build students' use of *Creativity* and *Collaboration* etc. as habitual approaches to the work, rather than increase any one particular level of skill (Logsdon, 2013). In other words, theatre classes might impact how students navigate their work and behaviors, rather than their distinct and measurable skills. Advancement through class levels could therefore allow the 21CSs to advance in a cyclical nature. Overall, students are improving due to the *habits* that theatre instills and promotes, but as rated for a particular level and age, level-specific *skills* diminish slightly as students face new challenges with level advancement.

We also found that child sex and race moderate growth in 21CSs, where girls show more growth than boys and African American children show less growth than White children. The sex moderation may in part be because the sex distribution of children in the program was uneven. More girls elected to enroll in the extracurricular theatre program, which may be indicative of a potential sex bias for enrolling in theatre classes and may be driving the sex difference we found. The moderation of child race is in line with previous research on race and academic achievement, sometimes called "the achievement gap", where African American students score lower than their White counterparts academically (Merolla & Jackson, 2019; Oyserman & Lewis, 2017). It should be noted that reasons for the this gap—which may be better defined as an *opportunity gap*—include socioeconomic inequities in resources, income, and access to educational opportunities that are not based on race (Carter & Welner, 2013; Chetty et al., 2020; Flores, 2007; Howard, 2019).

Qualitative findings support the quantitative findings of 21CS foci and theories that

Creativity, *Initiative*, *Communication* and *Collaboration* do not advance as auxiliary elements of theatre education but are central to the curriculum itself. The emergent theme of *Motivation* supports the need for future research to examine whether or not arts subjects may be better able to foster 21CSs than academic subjects (Happ, 2013) by comparing motivation for 21CS growth in academic subjects to motivation for 21CS growth in arts subjects. Students' motivation to engage in the creative act of theatre could be a mechanism allowing for augmented 21CS growth in arts classrooms compared to traditional academic classrooms. Alternatively, *Motivation* may be another individual level variable that affects growth in 21CSs. In future creative arts research on growth in generalizable skills, it could be beneficial to include *Motivation* as a person-level moderator. Future research could also look at the interplay between theatrical activities and mainstream academic schooling, such as including academic schools children attend as a nesting variable or level 2 predictor in a hierarchical linear model for growth in 21CSs.

Our results align with research demonstrating success integrating 21CSs into non-arts curriculum (Gut, 2011) and with research on other art forms and 21CS development (Buczynski et al., 2012; Liao et al., 2016; Maneen, 2016; Tan, 2017). However, the present study is the first examining creative arts and 21CSs to use a rigorous longitudinal quantitative methodology and supplemental qualitative analyses to show growth in 21CSs, supporting the previously proposed notion that arts-based activities can be used for 21CSs development (Ifeoma & Ifeoma, 2015).

Limitations

Several limitations should be noted when interpreting these findings. The first is our reliance on teacher ratings, and not tasks or standardized scales for *Creativity* or *Problem Solving*. Teachers were provided with definitions for each skill and descriptions of what the skill encompassed at each scoring level (See Appendix B), but teachers likely also came into the

classroom with their own implicit definitions, not based on standardized definitions in the literature. Having a codified rating system may have provided teachers with a clearer idea of program goals and a way to communicate instruction for improvement. In other words, simply having a rating system could have helped clarify goals for each class level, promoting more cohesion in teacher methods, and potentially bettering 21CS growth. This lack of standardized measurement means future research investigating teacher ratings should be used conjunction with valid and reliable tasks on the elements of the 21CSs under study here. It also means that because ratings were focused on these habits within theatre classrooms themselves, the possibility that these skills do (or do not) transfer outside of the theatre classroom remains an open question. It is possible that the skills scored for by teachers are not transferrable to contexts outside of theatre, or that standardized measurement would not show the same growth. Thinking larger scale, a standardized 21CS rating system based on a standardized set of curriculum goals could be developed for use by theatre programs and teachers in order to lend better instruction for student improvement, affording better 21CSs.

Teacher ratings as measurement is also likely why the highly loaded latent factor emerges. Teachers may be conceptualizing *Creativity* and *Communication* as similar, or thinking of all possible outcomes as equally likely and important, as past research has shown with theatre teachers (Goldstein et al., 2020). This means that in the quantitative data, each individual 21st Century Skill does not advance on its own separate from the collective of skills. Therefore, each individual construct is a component part of 21st Century Skills and theoretically should not be considered separately in the quantitative data. Future work should look to standardized ratings scales of 21CSs, as well as tasks that ask students to show abilities in each domain.

A second limitation is the lack of a paired control group. Therefore, there is no way to

rule out that observed growth was due to typical maturational processes separate from theatre class participation. Additionally, there is no way to discern whether students who would show continuous 21CS growth regardless of theatre class participation are drawn to self-select into theatre classes. Future research should move beyond a correlational study model and use quasi-experimental comparison groups such as students enrolled in an extracurricular sports program. In practice, executing a 6-year-long randomized control trial requiring K – 12th grade student participation in theatre is difficult, but shorter longitudinal randomized control trials should be conducted before suggesting causal links between theatre class participation and 21CS growth.

Finally, while we were able to look at differential effects of theatre class levels in a chronological curriculum, we were unable to separate out any specific class activity, exercise, or teaching method linked to these findings. Classes contained a mix of improvisation and scripted work, at different levels of engagement. Future research must work to isolate exercises within theatre classes or particular types of theatre classes that contribute most to 21CS development. From a developmental standpoint, it may also be fruitful to investigate which age group/grade(s) experience the most growth. Each of the 21CSs have developmental trajectories independent of any intervention or activity, and given the wide age range in our dataset, future work will need to carefully separate developmental progressions in and out of theatre classes. This could potentially establish when theatre may be most beneficially used for generalized skill growth.

Conclusion

We present a longitudinal analysis of connections between participation in theatre classes and growth in generalizable cognitive, social, and emotional skills. We specifically look to whether the creative activity of engaging in theatre is connected to teacher ratings of 21st Century Skills in class over time. Our study uniquely contributes to the literature on learning in the arts as

our measures were developed by theatre teaching artists themselves, concern generalizable life habits, and are employed longitudinally. Results show promising associations between engaging in theatre classes and progress in the 21st Century Skills of *Communication, Initiative, Collaboration, Problem Solving,* and *Creativity*. The arts have been held up as a context for positive youth development and growth (Larson, 2000; Larson & Tran, 2014). Afterschool arts programs, such as this one, can be immersive ways to develop creativity and other strengths (Montgomery, 2020). Teachers and program evaluators should take these findings to mean that a well developed rubric, closely related to the curriculum of an artistic activity, can discover patterns of growth over time in arts learning. Teachers and researchers should take care to look at possible opportunity gaps for African-American children and boys, but altogether, children in a creative activity can show development in their application of creative habits in classrooms increasingly over time.

References

Alda, A. (2018). *If I understood you, would I have this look on my face?: My adventures in the art and science of relating and communicating*. Random House Trade Paperbacks.

Alegrado, A., & Winsler, A. (2020). Predictors of Taking Elective Music Courses in Middle School Among Low-SES, Ethnically Diverse Students in Miami. *Journal of Research in Music Education*, *68*(1), 5–30. https://doi.org/10.1177/0022429420908282

An, X., Curby, T. W., & Brock, L. L. (2019). Is the Child Really What's Being Rated? Sources of Variance in Teacher Ratings of Socioemotional Skills. *Journal of Psychoeducational Assessment*, *37*(7), 899–910. https://doi.org/10.1177/0734282918808618

Bachmann, C., Barzel, A., Roschlaub, S., Ehrhardt, M., & Scherer, M. (2013). Can a brief two-hour interdisciplinary communicaton skills training be successful in undergraduate medical education? *Patient Education and Counseling*, *93*(2), 298–305.

Barton, R. (2018). Creative Acting. In Creativity in Theatre (pp. 19–32). Springer.

Carter, P. L., & Welner, K. G. (2013). *Closing the Opportunity Gap: What America Must Do to Give Every Child an Even Chance*. Oxford University Press.

Chalkiadaki, A. (2018). A Systematic Literature Review of 21st Century Skills and Competencies in Primary Education. International Journal of Instruction, 11(3), 1–16. Bellanca, J. A. (2010). *21st century skills: Rethinking how students learn*. Solution Tree Press.

Chetty, R., Hendren, N., Jones, M. R., & Porter, S. R. (2020). Race and Economic Opportunity in the United States: An Intergenerational Perspective*. *The Quarterly Journal of Economics*, *135*(2), 711–783. https://doi.org/10.1093/qje/qjz042

Berk, R. A., & Trieber, R. H. (2009). Whose classroom is it, anyway? Improvisation as a teaching tool. *Journal on Excellence in College Teaching*, *20*(3), 29–60.

Berretta, S., & Privette, G. (1990). Influence of play on creative thinking. *Perceptual and Motor Skills*, *71*(2), 659–666.

Boal, A. (2000). *Theater of the Oppressed*. Pluto Press.

Boal, A. (2005). *Games for actors and non-actors*. Routledge.

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. Sage.

Brock, A., Dodds, S., Jarvis, P., & Olusoga, Y. (2013). *Perspectives on play: Learning for life*. Routledge.

Buczynski, S., Ireland, K., Reed, S., & Lacanienta, E. (2012). Communicating Science Concepts Through Art: 21st-Century Skills in Practice. *Science Scope; Washington*, *35*(9), 29–35.

Celume, M.-P., Besançon, M., & Zenasni, F. (2019). Fostering children and adolescents' creative thinking in education. Theoretical model of DPT. *Frontiers in Psychology*, *9*, 2611.

Charleroy, A., Gentry, C., Greco, A., Rubino, N., & Schatz, M. (2011). Arts Education Standards and 21st Century Skills: An Analysis of the National Standards for Education (1994), As Compared to the 21st Century Skills Map for the Arts. *New York, NY: The College Board Office of Academic Initiatives*, *45*, 10023–16992.

Clements, R. D. (1982). Evaluation of Some of the Effects of a Teen Drama Program on Creativity. *Journal of Creative Behavior*, *16*(4), 272–276.

Conard, F., & Asher, J. W. (2000). Self-concept and self-esteem through drama: A meta-analysis. *Youth Theatre Journal*, *14*(1), 78–84.

Dawson, K., & Lee, B. K. (2018). *Drama-based Pedagogy: Activating Learning*. Intellect.

Dawson, K. (2018). Performative embodiment as learning catalyst: Exploring the use of drama/theatre practices in an arts integration course for non-majors. In Creativity in theatre (pp. 67–87). Springer.

Drinko, C. D. (2018). The Improv Paradigm: Three principles that spur creativity in the classroom. In Creativity in Theatre (pp. 35–48). Springer.

Dean, C., Ebert, C. M. L., McGreevy-Nichols, S., Quinn, B., Sabol, F. R., Schmid, D., ... & Shuler, S. C. (2010). *21st Century Skills Map: The Arts*. *Partnership for 21st Century Skills*.

DeBettignies, B. H., & Goldstein, T. R. (2019). Improvisational theater classes improve self-concept. *Psychology of Aesthetics, Creativity, and the Arts*.

Dede, C. (2009). *Comparing Frameworks for "21st Century Skills."* (Unpublished Doctoral Dissertation, Harvard Graduate School of Education).

Dow, A. W., Leong, D., Anderson, A., Wenzel, R. P., & Team, V. T.-M. (2007). Using theater to teach clinical empathy: A pilot study. *J Gen Intern Med*, *22*(8), 1114–1118.

Felsman, P., Gunawardena, S., & Seifert, C. M (2020). Improv experience promotes divergent thinking, uncertainty tolerance, and affective well-being. *Thinking Skills and Creativity*, *35*.

Flores, A. (2007). Examining Disparities in Mathematics Education: Achievement Gap or Opportunity Gap? *The High School Journal*, *91*(1), 29–42.

Freeman, G. D., Sullivan, K., & Fulton, C. R. (2003). Effects of creative drama on self-concept, social skills, and problem behavior. *The Journal of Educational Research*, *96*(3), 131–138.

Gara, T. V., & Winsler, A. (2019). Selection into, and academic benefits from, middle school

dance elective courses among urban youth. *Psych of Aesthetics, Creativity, and the Arts*.

Garaigordobil, M. (2006). Intervention in creativity with children aged 10 and 11 years: Impact of a play program on verbal and graphic–figural creativity. *Creativity Research Journal*, *18*(3), 329–345.

Goldstein, T. R., Lerner, M. D., & Winner, E. (2017). The Arts as a Venue for Developmental Science: Realizing a Latent Opportunity. *Child Dev*, *88*(5), 1505–1512.

Goldstein, T. R., & Winner, E. (2012). Enhancing empathy and theory of mind. *Journal of Cognition and Development*, *13*(1), 19–37.

Goldstein, T. R., Young, D. L., & Thompson, B. N. (2020). It's All Critical: Acting Teachers' Beliefs About Theater Classes. *Frontiers in Psychology*, *11*, 775.

Greenfader, C. M., & Brouillette, L. (2013). Boosting language skills of English learners through dramatization and movement. *The Reading Teacher*, *67*(3), 171–180.

Greiff, S., & Kyllonen, P. (2016). Contemporary Assessment Challenges: The Measurement of 21st Century Skills. *Applied Measurement in Education*, *29*(4), 243–244.

Gut, D. M. (2011). Integrating 21st Century Skills into the Curriculum. In G. Wan & D. M. Gut (Eds.), *Bringing Schools into the 21st Century* (pp. 137–157). Springer Netherlands.

Hainselin, M., Aubry, A., & Bourdin, B. (2018). Improving Teenagers' Divergent Thinking With Improvisational Theater. *Frontiers in Psychology*, *9*.

Hammond, N. (2015). *Forum Theatre for Children: Enhancing social, emotional and creative development*. Trentham Books.

Happ, D. W. *(2013). Results of a survey of 21st century skills of communication, collaboration, critical thinking, and creativity* (Unpublished Doctoral dissertation, American International College).

Hawkins, S. T., & Georgakopolous, A. (2010). Dramatic problem solving: Community conflict transformation through interactive theatre in Costa Rica. *International Journal of Arts and Sciences, 3,* 545-560.

Hoffman, A., Utley, B., & Ciccarone, D. (2008). Improving medical student communication skills through improvisational theatre. *Medical Education*, *42*(5), 537.

Howard, T. C. (2019). *Why Race and Culture Matter in Schools: Closing the Achievement Gap in America's Classrooms*. Teachers College Press.

Hui, A., & Lau, S. (2006). Drama education: A touch of the creative mind and communicative-expressive ability of elementary school children in Hong Kong. *Thinking Skills and Creativity*, *1*(1), 34–40. https://doi.org/10.1016/j.tsc.2005.06.001

Jacob, S. A., Larter, J., Blair, A., & Boyter, A. C. (2019). Using forum theatre to teach communication skills within an undergraduate pharmacy curriculum: A qualitative evaluation of students' feedback. *Currents in Pharm Teaching & Learning*, *11*, 373–381.

Kay, K., & Greenhill, V. (2011). Twenty-first century students need 21st century skills. In *Bringing schools into the 21st century* (pp. 41-65). Springer, Dordrecht.

Kereluik, K., Mishra, P., Fahnoe, C., & Terry, L. (2013). What Knowledge Is of Most Worth: Teacher Knowledge for 21st Century Learning. *Journal of Digital Learning in Teacher Education*, *29*(4), 127–140.

Larson, L. C., & Miller, T. N. (2011). 21st century skills: Prepare students for the future. *Kappa Delta Pi Record*, *47*(3), 121–123.

Lee, B. K., Enciso, P., & Brown, M. R. (2020). The Effect of Drama-based Pedagogies on K-12 Literacy-Related Outcomes: A Meta-Analysis of 30 Years of Research. *International Journal of Education & the Arts*, *21*(30).

Lee, B. K., Patall, E. A., Cawthon, S. W., & Steingut, R. R. (2015). The effect of drama-based pedagogy on preK–16 outcomes: A meta-analysis of research from 1985 to 2012. *Review of Educational Research*, *85*(1), 3–49.

Lewandowska, K., & Węziak-Bialowolska, D. (2020). The Impact of Theater on Empathy and Self-esteem: A Meta-analysis. *Creativity Research Journal*, 1–9.

Lewis, C., & Lovatt, P. J. (2013). Breaking away from set patterns of thinking: Improvisation and divergent thinking. *Thinking Skills and Creativity*, *9*, 46–58.

Liao, C., Motter, J. L., & Patton, R. M. (2016). Tech-Savvy Girls: Learning 21st-Century Skills Through STEAM Digital Artmaking. *Art Education*, *69*(4), 29–35.

Lin, Y. (2010). Drama and possibility thinking – Taiwanese pupils' perspectives regarding creative pedagogy in drama. *Thinking Skills and Creativity*, *5*(3), 108–119.

Logsdon, L. F. (2013). Questioning the Role of "21st-Century Skills" in Arts Education Advocacy Discourse. *Music Educators Journal*, *100*(1), 51–56.

Maneen, C. A. (2016). *A Case Study of Arts Integration Practices in Developing the 21st Century Skills of Critical Thinking, Creativity, Communication, and Collaboration* (Unpublished Doctoral Dissertation, Gardner-Webb Univeristy).

Merolla, D. M., & Jackson, O. (2019). Structural racism as the fundamental cause of the academic achievement gap. *Sociology Compass*, *13*(6), e12696. https://doi.org/10.1111/soc4.12696

National Research Council, Center for Education, Board on Testing and Assessment, Division of Behavioral and Social Sciences and Education, Committee on Defining Deeper Learning and 21st Century Skills, Pellegrino, J. W., Hilton, M. L., Division of Behavioral and Social Sciences and Education Staff, & Center for Education Staff. (2013). *Education for*

Life and Work: Developing Transferable Knowledge and Skills in the 21st Century. National Academies Press.

Neilson, S. J., & Reeves, A. (2019). The use of a theatre workshop in developing effective communication in paediatric end of life care. *Nurse Education in Practice*, *36*, 7–12.

Ifeoma, O. E., & Ifeoma, M. (2015). Curriculum enrichment for 21st Century Skills: A case for arts based-extra-curricular activities for students. *International Journal of Recent Scientific Research*, *6*(6), 4850–4856.

Omasta, M. (2012). A Survey of School Theatre: A Landscape Survey of Theatre Education in United States High Schools. *Teaching Theatre*, *24*(1), 8.

Oyserman, D., & Lewis, N. A. (2017). Seeing the Destination AND the Path: Using Identity-Based Motivation to Understand and Reduce Racial Disparities in Academic Achievement. *Social Issues and Policy Review*, *11*(1), 159–194. https://doi.org/10.1111/sipr.12030

Porter, L. (2018). Teaching the Creative Process: An Essential and Portable Skill. In Creativity in Theatre (pp. 121–129). Springer.

Pfeiffer, F. M., Burgoyne, S., Hunt, H. K., Strobel, J., Bauer, R. E., Pardoe, J. J., Simkins, S. P., Vansant, M. E., Saboorizadeh, J., & Busselle, K. (2018). Creativity Theory and Action in Bioengineering Class. In *Creativity in Theatre* (pp. 247–268). Springer.

Piazzoli, E. (2018). *Embodying language in action: The artistry of process drama in second language education*. Springer.

Pidgeon, N. (1996). Grounded theory: theoretical background. In: Richardson JTE, ed. *Handbook of Qualitative Research Methods* (75-85). Leicester, England: The British Psychological Society.

Podlozny, A. (2000). Strengthening verbal skills through the use of classroom drama: A clear link. *Journal of Aesthetic Education*, *34*(3/4), 239–275.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (Vol. 1). sage.

Rowe, E. W., Curby, T. W., & Kim, H. (2019). Variance in teacher ratings of children's adjustment. *Journal of Psychoeducational Assessment*, *37*(1), 26-39.

Sappa, V., & Barabasch, A. (2020). Forum-theatre technique to foster creative and active problem solving: A resilience-building intervention among in-service teachers. *Journal of Adult and Continuing Education*, *26*(1), 43–60.

Sawyer, R. K. (2004). Creative teaching: Collaborative discussion as disciplined improvisation. *Educational Researcher*, *33*(2), 12–20.

Sawyer, R. K. (2014). *Group creativity: Music, theater, collaboration*. Psychology Press.

Schmidt, M., & Charney, M. (2018). Assessing creativity as a student learning outcome in theatre education. In Creativity in theatre (pp. 271–287). Springer.

Soulé, H., & Warrick, T. (2015). Defining 21st century readiness for all students: What we know and how to get there. *Psychology of Aesthetics, Creativity, and the Arts*, *9*(2), 178–186.

Sowden, P. T., Clements, L., Redlich, C., & Lewis, C. (2015). Improvisation facilitates divergent thinking and creativity: Realizing a benefit of primary school arts education. *Psychology of Aesthetics, Creativity, and the Arts*, *9*(2), 128.

Standards, N. C. for C. A. (2014). *National core arts standards: A conceptual framework for arts learning*.

Corbin, J., & Strauss, A. (2014). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Sage publications.

Tan, L. (2017). Developing 21st century competencies through the arts: A case study of a high performing secondary school band in Singapore. *Asia Pacific J. of Ed*, *37*(4), 472–482.

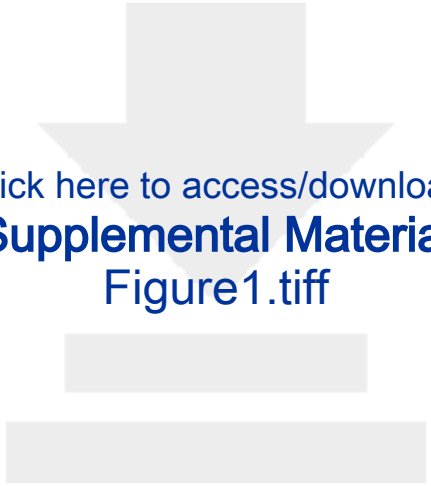
Watson, K. (2011). Perspective: Serious play: teaching medical skills with improvisational theater techniques. *Academic Medicine*, *86*(10), 1260–1265.

Winner, E., Goldstein, T. R., & Vincent-Lancrin, S. (2013). *Art for Art's Sake?: The Impact of Arts Education*. OECD. https://doi.org/10.1787/9789264180789-en

Winsler, A., Gara, T. V., Alegrado, A., Castro, S., & Tavassolie, T. (2019). Selection into, and academic benefits from, arts-related courses in middle school among low-income, ethnically diverse youth. *Psychology of Aesthetics, Creativity, and the Arts*, *14*(4), 415.

Yeh, Y. C., & Li, M. L. (2008). Age, Emotion Regulation Strategies, Temperament, Creative Drama, and Preschoolers' Creativity. *The Journal of Creative Behavior*, *42*(2), 131–148.

Figure 1



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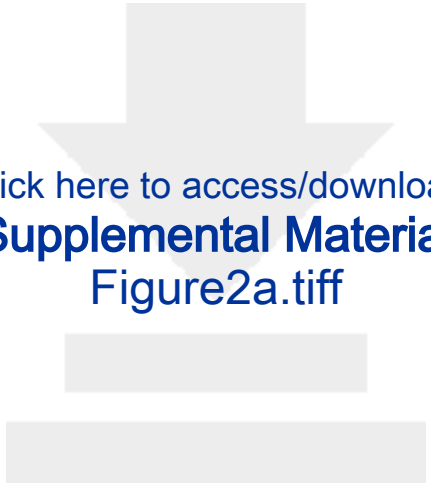

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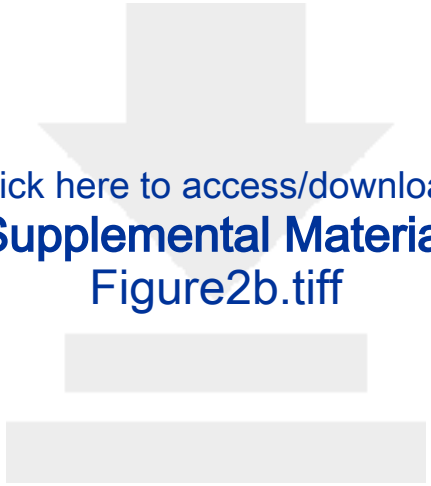

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Figure 3

Appendix A

Appendix C

Appendix D