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The journal accepts articles for peer-review that describe classroom practice which positively impacts student learning. We define teacher action research as teachers (at all levels) studying their practice and/or their students' learning in a methodical way in order to inform classroom practice. Articles submitted to the journal should demonstrate an action research focus with intent to improve the author's practice.

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EXAMINING THE INSTRUCTIONAL DESIGN OF INTERACTIVE AND COLLABORATIVE LEARNING OPPORTUNITIES

Rachel Karchmer-Klein
University of Delaware

Elizabeth Soslau
University of Delaware

Jann Sutton
University of North Florida

Abstract As interest in fully online programs increases at institutions of higher education, faculty members must adapt their pedagogical practices to successfully integrate the digital tools available for teaching and learning. This action research study examined if and how faculty in a school of education designed instruction that leveraged digital tools to provide collaborative and interactive learning opportunities in an online program in teacher leadership. Framed by tenets of a sociocultural perspective and the technological affordances of multimodality, collaboration, and interactivity, a variety of data was qualitatively analyzed. Findings revealed interactivity was established when instructional design explicitly guided students to interact with others. Interactivity was also established when students were given opportunities to apply content learned in class, analyze their actions, and report on the experiences to others using multiple modes accessible through digital tools. Related to collaboration, analysis indicated that program design encumbered the implementation of collaborative activities due to large class enrollment and the short duration of the academic semester. These findings will inform future revisions to the program under study as well as be shared with other faculty who are charged with designing online courses but may not have online pedagogical expertise.

Keywords: teacher action research, technological affordance, instructional design, higher education, online learning

Introduction

As interest in fully online programs increases at institutions of higher education, faculty must adapt their pedagogical practices to successfully integrate the digital tools available for teaching and learning (Adams Becker et al., 2017). Simply connecting students to instructors and classmates using technology does not result in thoughtful collaboration and
interactivity, indicators of effective online teaching practices (Beach & O’Brien, 2015). Instead, focus should be placed on how instruction is designed to create these meaningful learning opportunities that meet course objectives (Karchmer-Klein, Mouza, Shinas, & Park, 2017).

Most online courses in higher education are delivered through a learning management system (LMS), a password-protected cloud-based architecture that provides a common online location to exchange information for teaching and learning (Kroner, 2014). Each LMS (e.g., Canvas, Blackboard) encompasses a set of multimodal digital tools with unique technological affordances. For instance, many incorporate a peer review tool that facilitates interactivity between classmates through written language, images, audio and video. The tool can be easily integrated into an online course, but the way in which the learning opportunity is designed will ultimately influence the depth and breadth of student learning, not the technology itself.

Instructional design typically rests on course instructors who are experts in their fields of study, but may not be expert pedagogues of teaching and learning (Ko & Rossen, 2017). This, in turn, may lead to an overreliance on teacher-directed learning activities (Koedinger, Booth, & Klahr, 2013; Rienties et. al., 2012). For instance, when studying patterns in the instructional design of 157 online learning modules, Toetenel and Rienties (2016) found didactic teaching methods, where information was transferred electronically from instructor to student, were the most commonly integrated.

As teacher educators who research and implement traditional and digital pedagogical approaches, we set out to examine the instructional design of courses in our own 100% online teacher leadership graduate program. This action research project was important to conduct because the lessons learned could be used to inform not only our own practice, but other faculty who are charged with designing online courses but may not have online pedagogical expertise. To achieve this aim, we explored the following research question: In what ways did online faculty’s instructional decision-making support, or not support, collaboration and interactivity amongst online course participants?

Theoretical Framework

This study draws upon tenets of a sociocultural perspective, specifically social constructivism (Vygotsky, 1978) and situated learning theory (SL) (Brown, Collins, & Duguid, 1989). Social constructivism suggests learners develop through their interactions with other people’s values, beliefs, and ways of thinking (Tracey & Morrow, 2017). SL suggests learning develops in authentic contexts with the application of content to real life experiences (Herrington & Oliver, 2000). These lenses are especially useful when directly applied to promote collaborative learning opportunities amongst students in coursework that does not include face to face instruction. In this way, instructors deliberately and purposefully design instruction that requires group problem-solving and engagement in discussions about relatable experience that would otherwise be unachievable through autodidactic learning or other non-peer collaborative approaches (Oztok, 2016; Vygotsky,1978).
Literature Review

Each LMS encompasses a set of multimodal digital tools with unique technological affordances (Beach, Anson, Breuch, & Reynolds, 2014). Three of the most commonly identified in the research literature are multimodality, interactivity, and collaboration (Karchmer-Klein et al., 2017; Beach & O’Brien, 2015). When faculty better understand these affordances, they are better equipped to leverage them in ways that create contexts where collaborative and interactive learning opportunities flourish.

**Multimodality.** Modes are signs or symbols that communicate meaning (Kalantzis, Cope & Cloonan, 2010). LMSs incorporate several types of tools that allow for the consumption and production of multimodal materials. Canvas, for instance, allows teachers and students to embed video, audio, static images, and hyperlinks. Combining modes (e.g., words and audio) in online activities, such as discussion posts, transforms the learning environment by interjecting non-verbal cues in ways that allow participants to experience each other as humans rather than computer-generated words on a screen (Lee, 2004). Research examining instructor multimodal feedback indicates value in its use. For instance, students reportedly find audio and video comments more personal (Henderson & Phillips, 2015) and easier to comprehend (West & Turner, 2016) than written feedback. Moreover, there is evidence that students who receive, process, and interpret content presented through multiple modes score higher on assessment measures than those who learn from a single mode (Frisby, Limperos, Record, Downs & Kercsmar, 2013).

**Interactivity.** Interactivity is about the exchange of ideas and perspectives with others. In an educational setting, interactivity can take place between students, students and instructors, as well as students and content (Moore, 2013). Researchers have studied the interactivity afforded through LMS digital tools such as online discussion boards (Kent, Laso & Rafaeli, 2016), peer review (Sullivan & Watson, 2015), and video conferencing (Martin & Parker, 2014). In each case, findings emphasize the critical role of thoughtful instructional design. Martin, Wang and Sadaf (2018), for example, examined graduate students’ perceptions of how they used digital tools to interact with instructors. Although previous studies indicated that synchronous audio and visual chats could facilitate community building, (Reushle & Loch, 2008), participants in this work did not perceive them as helpful. Instead, students reported the sessions’ purposes were not well-articulated nor did they meet their learning needs. Thus, although the LMS conference tool afforded opportunities for interactivity, the design of the student-instructor activity fell short.

**Collaboration.** Collaboration is the process by which members of a group negotiate, share, and construct meaning in response to stimuli. The increased visibility of one’s own work and the opportunities to express creativity through collaborative online activities have been found to motivate and usefully engage students (Trentin, 2009). In a study of graduate educational technology majors, Karpova, Correia and Baran (2009) found that students were motivated to learn new technologies to collaborate when other online communication efforts failed. Students quickly determined that the lack of non-verbal cues in asynchronous written collaborative digital settings was problematic. To alleviate the issue, students initiated the use of the LMS’s video function to they could talk as a group in real-time.
Like interactivity, students seem to be more invested when collaborative tasks are well defined and scaffolded to support their understanding of group dynamics. Kear, Woodthorpe, Robertson and Hutchison (2010) found this when studying the use of wikis in an online course in higher education. Similar to Google Docs, wikis are collaborative digital writing spaces where students must divide responsibilities associated with the assigned tasks and how to respectfully respond and revise classmates' work given the open nature of the writing process. Kear et al., (2010) found that the lack of preparedness on how to use a wiki influenced the quality of student work and students felt high risk about their engagement in the activity.

Taken together, these affordances can be used to build social learning environments. When affordances are leveraged successfully, both aforementioned theoretical frames are satisfied. That is, social constructivism can be seen in the instructors’ creation of a collaborative online learning environment that enable users to make meaning in ways that would not have been possible had they not engaged in the synergistic online space. Instructors’ online course design also extends beyond social constructivism by situating the learning and meaning making process in a highly contextualized setting that mimics the future lived experiences of the learners in their authentic settings, thus incorporating the signature components of situated learning theory.

**Methodology**

*Research Context.* The Master of Education in Teacher Leadership (MEdTL) is a fully online program designed for full-time certified teachers who seek to fill school leadership roles such as instructional specialist, data coach, and teacher mentor. Coursework is aligned with the Teacher Leader Model Standards (Teacher Leader Exploratory Consortium, 2011) and Middle States Commission on Higher Education.

The MEdTL was chosen as the focus for this action research study for two reasons. First, the faculty were highly dedicated to the program’s success and valued the role of technology in candidate learning. Moreover, they were experts in not only their content areas, but also pedagogy, given their experience and research as teacher educators. Second, it was the first fully online graduate program offered by the university’s School of Education. This study was seen as an opportunity to identify strengths and weaknesses and make modifications as needed.

MEdTL candidates complete ten, three-credit courses taught asynchronously in seven-week sessions using Canvas (LMS). It was decided by faculty that all courses would be organized around a Situated Learning (SL) model that directly connected candidates’ professional experiences to graduate course content (Clarke & Hollingsworth, 2002). Therefore, a requirement of admission was current employment in a professional setting allowing candidates to practice leadership skills learned in class. Individual courses had large enrollments of 45-65 candidates.

*Participants.* Data were collected from four full-time faculty who held doctorate degrees in education (pseudonyms replace participants’ real names in this article). The participants, three females and one male, all Caucasian, had an average of 21 years overall teaching experience, an average of 14 years of experience as higher education faculty, and an average of almost 6 years of online teaching experience. Their fields of expertise included
pedagogical decision-making across content areas, literacy education, action research, and mobile computing environments. The faculty members did not have any formal training to teach online, describing themselves as “self-taught” and mainly relying on their pedagogical expertise coupled with peer support to guide the development of their courses (see Table 1 for participant and course information).

Table 1: Demographic Information as Reported by Faculty

<table>
<thead>
<tr>
<th>Gender</th>
<th>Faculty Member (Pseudonym)</th>
<th>Highest Degree</th>
<th>Years of Teaching Experience</th>
<th>Years Teaching Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Dr. Bower</td>
<td>Ph.D.</td>
<td>29</td>
<td>4</td>
</tr>
<tr>
<td>Female</td>
<td>Dr. Kostner</td>
<td>Ph.D.</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td>Female</td>
<td>Dr. Merrin</td>
<td>Ed.D.</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>Female</td>
<td>Dr. Santos</td>
<td>Ph.D.</td>
<td>13</td>
<td>1</td>
</tr>
</tbody>
</table>

Positionality. Rachel and Elizabeth, two of the three authors of this manuscript, were also faculty instructors in the program. Jann, the third author, was a doctoral candidate. Mirroring the work of action researchers (Herr & Anderson, 2005), self-study advocates (Tidwell, et al., 2009), and adopting a teacher as inquiry stance (Feiman-Nemser, 2012) enabled us to examine our own practice through the externalization and joint examination of our design experiences.

To secure credibility and confirmability (Herr & Anderson, 2005) and to make use of our ‘collaborative resources’ (Melrose, 2001), Jann was solely responsible for the first wave of data analysis and Rachel and Elizabeth initially took on the role of informant (Eisner, 1998). Additional validity criteria such as transferability and ecological validity were strengthened by clearly situating this study in the context from which the data were culled; thereby allowing research consumers from higher education, and online course instructors, to draw parallels to their own contexts (Guba & Lincoln, 1981; Bloomberg & Volpe, 2008).

Data Sources and Analysis

LMS Digital Tools. Before exploring the faculty’s decision-making around the available online learning tools (i.e., Pages, Discussions, Peer Review, Collaborations), the tools themselves were analyzed against affordances (multimodal, interactivity, and collaboration) following an inductive and deductive process (Patton, 2015). We read descriptions of the tools’ capabilities on the Canvas website and conducted independent reviews by utilizing them in ways we were familiar with in our own work. Next, we met and referred to our notes to identify specific instances of if/how the tools included the aforementioned...
affordances. Once we reached agreement about the digital tools’ affordances, we illustrated the analysis (see Table 2).

**Table 2: LMS Tools and Affordances Leveraged by Instructors**

<table>
<thead>
<tr>
<th>Tool</th>
<th>Types of Activities</th>
<th>Written Language</th>
<th>Oral Language</th>
<th>Visual</th>
<th>Audio</th>
<th>Interactivity</th>
<th>Collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pages</td>
<td>Provide content through Canvas or other applications.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Discussions</td>
<td>Provide space to talk with classmates and instructor</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Peer Review</td>
<td>Provide opportunity to peer review work</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Collaborations</td>
<td>Provide space to collaborate on the same document</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Modules.** To limit the pool to a manageable corpus of codable data, participants were asked to identify one module from each class they designed which was most representative of their entire course in terms of technological tools used and attention to overall course learning goals. A total of eight course modules were identified. The number of activities within a module ranged from eight to seventeen.

To begin analysis, tables were constructed using the following headings: (a) learning objective, (b) activity, (c) digital tool, and (d) technological affordances. The first three
columns were immediately filled for each module. Second, we worked individually and then collaboratively to conduct deductive analysis of the modules using the technological affordances (multimodality, interactivity and collaboration) as a priori codes. This process consisted of looking across the learning objectives, activities’ descriptions, and the selected digital tools and cross-coding and axial-coding against the affordances (Patton, 2015). Thirdly, we systematically examined the activities to identify similarities and differences among and between them to identify patterns related to if and how the activities provided opportunities to collaborate and interact. Table 3 is an example of a coded set of activities within one module.

Table 3: Example of Coding Activities Within a Module

<table>
<thead>
<tr>
<th>Learning Objective</th>
<th>Activity</th>
<th>Canvas Digital Tool</th>
<th>Leveraged Affordance</th>
</tr>
</thead>
<tbody>
<tr>
<td>To understand and demonstrate knowledge of different coaching models.</td>
<td>Read articles and watch video on peer coaching.</td>
<td>Pages</td>
<td>Multimodality</td>
</tr>
<tr>
<td></td>
<td>Read articles and watch video on content-specific coaching.</td>
<td>Pages</td>
<td>Multimodality</td>
</tr>
<tr>
<td></td>
<td>Read articles and watch video on mentoring.</td>
<td>Pages</td>
<td>Multimodality</td>
</tr>
<tr>
<td></td>
<td>Read articles and watch video on cognitive coaching. Watch video and determine coaching type implemented. Post response in discussion board with evidence supporting your answers. Respond to at least one classmate’s post with questions, affirmations, or healthy debate.</td>
<td>Discussions</td>
<td>Multimodality Interactivity</td>
</tr>
</tbody>
</table>

Interviews. Jann conducted semi-structured interviews with each faculty participant with the purpose of learning more about the instructors’ decision-making, perceptions of online teaching, and their assessment of the overall module design including how the LMS tools were used to facilitate student learning. Interviews were transcribed verbatim, copied into
NVivo software, and analyzed using an a priori coding system aligned to the technological affordances of multimodality, interactivity and collaboration.

**Overall Analysis.** Once each data set was analyzed, using the constant comparison method, we cross-compared the consistency of findings (Patton, 2015). For example, we compared and contrasted how participants described their module design with the analysis of how we identified the technological affordances were leveraged within the module activities. Next to further examine our findings, Jann conducted member-checking with participants (Lincoln & Guba, 1985). She drafted a full report outlining themes along with data examples and shared the document with the faculty. To reach a 75% member-check rate, Jann met with three of the four participants for 90-minutes to discuss reactions to the report, clarification of points, and the opportunity to answer questions. Overall, results from the member check served to confirm the original analysis.

**Results**

**Requirements Scaffolded Interactivity.** An examination of candidate work within Canvas indicated two important findings related to interactions among and between candidates and instructors. First, all interactions, such as candidates’ discussion board posts and classmates’ responses were presented using written language unless the directions specifically required the use of a different mode. In other words, candidates chose to respond to class activities using typed words rather than audio or video. This finding was noteworthy because the Canvas tools encompassed multimodal affordances allowing candidates to seamlessly respond with a choice of modes. Moreover, the majority of instructor feedback to candidates was provided with typed written language although, again, the Canvas grading feature allowed for video or audio responses. Dr. Kostner was the only instructor who designed instruction that encouraged, and sometimes required, candidates to respond with audio or video. Her interest and experience with digital tools seemed to influence her instructional design. She explained in her interview, “I like using different digital tools and challenging candidates to present their thinking in various ways, especially since many candidates communicate via text and read from web pages rather than traditionally printed books.”

Analysis also revealed interactivity mostly took place between candidates only when it was required. For example, instructors designed two types of activities that utilized the Canvas Discussions tool. Reflective posts were written by candidates in response to teacher-created prompts after reading, viewing, and participating in course content and activities. Although the instructor could provide comments and classmates were encouraged to respond, there was no expectation these would occur. We did not find any instances of candidates responding to reflective posts in the modules examined for this study.

Discussion posts, on the other hand, were like reflective posts but required candidates to respond to at least one classmate. In other words, there were grades attached. In all instances that we examined for this study, candidates responded to at least one classmate’s post and fulfilled this requirement. Although the depth and breathe of the interactivity seemed to be dependent upon how the instructor designed the activity. For example, Table
4 includes excerpts from grading rubrics used to assess candidates’ responses to classmates’ discussion board posts in three different classes:

*Table 4: Example of Grading Rubrics for Discussion Posts*

<table>
<thead>
<tr>
<th>Course</th>
<th>Criteria</th>
<th>No Credit</th>
<th>Half Credit</th>
<th>Full Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Response to classmate</td>
<td>Does not respond to classmate</td>
<td>Response to 1 classmate</td>
<td>Response to at least 2 classmates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does not interact with classmates</td>
<td>Response refers to 2 other classmates’ opinions</td>
<td>Response refers to other classmates’ opinions as well as readings</td>
</tr>
<tr>
<td>#2</td>
<td>Responsiveness</td>
<td>Response explicitly responds to group member posts, and substantively builds on them by furthering their argument, constructively offering a different perspective, or posing questions likely to further peers' thinking about the issue.</td>
<td>Response fulfills all dimensions of criteria</td>
<td>Response does not respond to group posts OR does not substantively build on them</td>
</tr>
<tr>
<td>#3</td>
<td>Response explicitly responds to group member posts, and substantively builds on them by furthering their argument, constructively offering a different perspective, or posing questions likely to further peers' thinking about the issue.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There are obvious differences between the rubrics. Rubrics #1 and #2 mention the exact number of responses that need to be posted to receive credit whereas Rubric #3 is vague. Rubric #3 provides more detailed criteria, explicitly stating the types of feedback the instructor would to evaluate the response. Analyzing candidate work was outside of the scope of this paper so we do not share actual posts in this paper. However, the analysis of the rubrics and other aspects of the instructional design indicate that candidates followed the directions presented to them when interacting with classmates in these online courses.

*Situated Learning Scaffolded Interactivity.* Dr. Merrin described the application of content to real world examples as “something taken very seriously in the program” and she described assignments as “not abstract but really tangible things that are relevant to
[candidates’] daily jobs and responsibilities.” Analysis revealed that instruction designed around such SL opportunities scaffolded interactivity in the MEdTL courses.

One type of SL design required candidates to connect their professional experiences to course readings and videos by responding to teacher-created prompts. Close analysis revealed the majority of prompts did not merely require candidates to describe their professional settings in relation to the topic, but rather extend their thinking to consider challenges, alternative approaches, or other perspectives. For example, after watching videos and reading articles on ethical action research as well as conducting a critique of an action research article, candidates were asked to respond to the following prompt: “What innovations have you implemented that do not seem to be working in the ways that you had anticipated?” Another example is from a course on state curriculum standards where candidates learned how updated standards required shifts in teaching and learning. The prompt was:

Describe the kinds of changes that you have already made in your school or classroom -- or that you feel you must make -- in order to meet the demands of the state standards. Clearly identify the changes that you made or will have to make, why you made them (or have to make them), and whether or not you or your colleagues are having difficulties/discussions/arguments about these changes, and the nature of those discussions.

Again, this prompt went beyond summarizing what was learned from class resources to requiring candidates to make complex connections to their professional settings from the role of teacher leader.

In some instances, the responses to teacher-created prompts were completed in public discussion boards accessible to classmates, promoting interactivity among them by sparking debate, agreement, or additional questions. In other cases, candidates’ responses were posted privately within the Canvas Assignments tool, which allowed interactivity to take place between the candidate and instructor.

Another type of SL design that precipitated interactivity invited MEdTL candidates’ colleagues or other experts into the online learning space. These activities reflected SL since the information drawn came from people who shared similar professional settings. For example, in a course on technology-based collaborations MEdTL candidates created a Professional Learning Network focused on a problem of practice (PoP) identified in their school. Candidates were required to survey colleagues and report back their findings, explaining how they narrowed down their PoP and how it was applicable. This activity precipitated interactivity between MEdTL candidates and their colleagues.

A third way interactivity was scaffolded by SL was when the instructional design leveraged multimodality, specifically video and audio. For instance, a coaching course required candidates to videotape themselves leading a professional development conversation with a colleague. Candidates uploaded the videos directly into the Peer Review tool in Canvas where classmates analyzed the conversations and provided verbal feedback using the audio feature as they evaluated the video. Using video allowed the instructor and classmates to make their own assessments of content application rather than relying solely on the
candidates’ accounts of what took place. Dr. Kostner explained, “Video is a powerful tool especially when we’re asking candidates to describe their own practice. It helps them look at their work more objectively and it also helps their classmates do the same.”

Participants agreed that framing activities from a SL lens benefitted learning in at least two ways. First, SL provided instructors with windows into candidates’ professional contexts. In turn, instructors felt they had more insights about challenges candidates confronted when attempting to implement content from the coursework and they could provide individualized feedback. Second, instructors felt sharing real-life experiences scaffolded group cohesion, creating social settings where candidates could make sense of the stories classmates told about their experiences related to course content. Dr. Bower explained that he purposely built SL activities into his courses so that candidates learned more about each other. He stated this approach led to “more robust interactions” in class.

Program Design Influenced Collaboration. In this study, collaboration was coded when an activity required a group of candidates to analyze and apply content to develop a synthesized outcome representing their combined efforts. Using this definition, collaboration was evident in only one module out of the eight analyzed. A course on equity issues required candidates to brainstorm responses to a case study and create a plan of action based on their collective thinking. Specifically, the instructions guided candidates to use a collaborative writing tool, such as Google Docs, or video conferencing tool, such as Canvas Collaborations, to work together to “build consensus about the ideal response that represents the group’s thinking.”

Given only one module out of eight reflected collaboration, MEdTL instructors were asked about their views of online collaboration during their interviews and the member-checking meeting. There was agreement by the participants that candidates would benefit from working together on class projects, especially since the candidate demographics reflected a range of background experiences and professional settings. Dr. Merrin noted, “Most of my face to face class time is collaborative. Candidates turn and talk all the time, sharing ideas and building consensus.” However, instructors identified two challenges to leveraging the collaborative affordances within the digital environment.

As the first fully online program in the School of Education that served as the setting for this study, the administration determined course enrollments would not be limited in order for it to be financially viable. Thus, 45-65 candidates were registered in each course. To put this in perspective, face-to-face graduate courses at this institution were typically capped at 20 candidates. Although they were deeply invested in the program, faculty voiced concern over managing large numbers of candidates, especially in an online environment where they needed to rely on digital tools to scaffold the collaboration.

The second challenge was the short duration of the online semester. Each three-credit course ran for seven weeks yet covered the same amount of content as in the regular 14-week semester. Faculty found it difficult to introduce candidates to content, provide situated learning activities, assess understanding, and provide opportunities to collaborate within such a condensed amount of time. As Dr. Santos explained, “There is a lot of back and forth between instructor and candidate [in my class]. So with large enrollments I’m going to have 60 something candidates that I am going to have to help with their work and
it’s a seven-week semester. I just don’t know how to do it.” In sum, although Canvas tools allowed for collaboration to take place, participants reportedly chose not to leverage this affordance due to program design.

Discussion

A In this study we did not evaluate the effectiveness of the learning activities nor candidates’ engagement in the course, therefore we do not presume an impact on student learning. Instead, we focus on three insights that can inform revisions to our instructional design.

Findings indicated the way learning opportunities were designed influenced candidates’ use of multimodality. This was evident in that the majority of candidate responses and class interactions were composed with written language, unless directions specifically required the use of a different mode. Since we did not interview candidates we cannot say for certain why they relied mostly on typed words. Perhaps they were unsure, unaware, or disinterested in representing their knowledge with modes other than words. Similarly, when faculty required interactivity, such as responding to classmates’ posts on the discussion boards, candidates engaged in these activities. Yet, when they were not required but given space to interact, few candidates did. Overall, these findings taught us that faculty must closely examine the affordances of the digital tools they integrate into their instruction, decide if there are modes or interactions candidates would benefit from, and then invite candidates to represent their knowledge in different ways. Activities should then be structured around the integration of these decisions with clear and explicit instructions. By restructuring activities in these ways, lesson design can transition online courses from isolated spaces to social, interactive learning communities (Lee, 2004). Additionally, instructors should model how to leverage multimodality, collaboration and interactivity within the LMS. This would provide candidates with concrete examples from which they could learn. Of course, this requires faculty to invest in professional development opportunities that explicate how online teaching differs from traditional face to face pedagogy.

Findings also indicated SL precipitated interactivity in online courses by providing concrete starting points for discussions. SL encouraged candidates to share their individual professional stories and actively connect these stories to course content. Interestingly, instructors also leveraged multimodality to invite others into the learning experience through video and audio representations. This finding taught us that framing courses around SL was a good decision, but that the tools for collaboration are not yet being optimized by candidates or instructors, particularly as they pertain to communication for discussion using modes other than typed words.

According to faculty, program logistics also seemed to influence instructional design. Faculty voiced concerns with integrating collaborative projects due to class size and the short duration of the semester. These obstacles reflected the realities of teaching online at this university. They also highlighted a tension between research-based teaching practices and university-mandated policies. For example, although they understood the importance of collaboration, the faculty mostly shied away from graded group activities because the management was too cumbersome, especially when class enrollment exceeded 50
candidates. This tension is not unique to this particular setting. Universities around the world are prioritizing student-centered, hands-on learning opportunities over rote memorization, yet not providing faculty with the professional development or support to re-envision classroom practices (Adams Becker et al., 2017). Although there is no consensus about how many students are optimal in an online course, research indicates “14% more hours are required to teach the same number of students online at a distance than in the traditional classroom” (Tomei, 2006, 539). As administrators make enrollment decisions based on financial needs, it is critical to consider what compromises must be made to sustain the level of student enrollment.

In light of these findings, we share preliminary steps we plan to take to improve our instructional design. First, we plan to lobby our administration for small class sizes, which would make grading collaborative projects less unwieldly. Second, we plan to encourage our candidates to leverage multimodality afforded by the technology. Finally, we will conduct a course mapping exercise across all seven modules from all ten courses, where we collaboratively identify the features of our course assignments that are aimed at promoting collaboration and connections to highly contextualized lived-experiences.

Limitations and Further Research

This work should be viewed in relation to three limitations. First, a primary source of data was content from eight different course modules, only a subset of instructional content within each course. In turn, there may have been collaborative and/or interactive opportunities that were not examined. Additionally, this method removed the activities from the context of the entire course. It would be useful to conduct a systematic study of an entire course to evaluate the full gamut of activities. Second, since we focused on learning opportunities and not learning outcomes in this specific inquiry, candidate data were not collected. Prior research indicates that much can be learned from student perspectives at any grade level (e.g., Coiro & Dobler, 2007; Jimenez & Meyer, 2016). Such an approach in future studies would infuse their important voices. Third, we examined courses designed by experts in the field of education for a particular education program. Moreover, three out of four participants had experience designing fully online courses. Thus, the results will likely differ when exploring online learning environments designed by faculty with expertise outside the field of education or with less technology experience.

Conclusion

According to the 2017 NMC Horizon Report Higher Ed Edition, “Technology and digital tools have become ubiquitous, but they can be ineffective or dangerous when they are not integrated into the learning process in meaningful ways” (Adams Becker et al., 2017, p. 7). Designing online instruction, however, is a complex and demanding task that will not occur without systematic explicit instruction in the pedagogies associated with digital teaching. We suggest higher education faculty engage in similar types of program review as described in this paper and also be given opportunities to strengthen their understandings of online instructional design.
About the Authors

Rachel Karchmer-Klein, Ph.D. is an Associate Professor at the University of Delaware where she teaches undergraduate, graduate, and doctoral level courses in literacy and educational technology. Her research agenda focuses on the relationships between Internet technologies and reading and writing, with particular emphasis on the practical implications of technology use in K-16 education. She taught her first online course in 2003 and now coordinates and teaches in two fully online graduate programs in education. Dr. Karchmer-Klein’s work has been published in journals such as Reading Research Quarterly, Action in Teacher Education, Journal of Digital Learning in Teacher Education, and Journal of Research on Technology in Education. Email: karchmer@udel.edu

Elizabeth Soslau, Ph.D. is an Associate Professor in the School of Education at the University of Delaware. Her research focuses on the development of adaptive teaching expertise, building intersubjectivity between teacher educators and student teachers, and promoting teachers’ agency and equity literacy. Dr. Soslau’s work has been published in journals such as the Journal of Teacher Education, Teaching and Teacher Education, Action in Teacher Education, and Educational Action Research. Her clinical work includes coordinating the student teaching practicum, providing field instruction in urban schools, and teaching graduate and undergraduate courses in diversity and equity, as well as action research methods for teachers. As a past middle school teacher with the Philadelphia School District, she remains committed to initiatives that support university and public education partnerships. Email: esoslau@udel.edu

Jann Marie Sutton, Ed.D. is an instructional designer with the Center for Instruction and Research Technology at the University of North Florida where she collaborates with faculty to identify and apply rigorous pedagogical concepts and principles to teaching initiatives. Project highlights include cultivating pedagogical strategies in the United States, South Africa, Haiti, and Bosnia and Herzegovina. Her research interests encompass examining instructional design strategies, investigating online teaching activities for large online classes and group work, and evaluating digital tools. Dr. Sutton’s work has been published in the Journal of Management Education and the Journal of Online Learning and Teaching. Email: j.sutton@unf.edu
References


COMPARING COOPERATIVE LEARNING STRATEGIES IN ASSESSMENT INSTRUCTION

Joseph A. Mayo
Gordon State College

Abstract As a follow-up to a prior exploratory investigation of cooperative learning in teaching assessment to early-childhood-education majors, the present study systematically compares the pedagogical efficacy of two variants of cooperative learning. In the first cooperative learning condition, students reprised the simulated classroom practice evidenced in the Cooperative Assessment Portfolio (CAP) assignment used in the previous study. In the second condition, students completed a Cooperative Assessment Case Analysis (CACA) assignment with distinguishing features of case-based learning. On all quantitative and qualitative measures, results favored the CAP over CACA assignment. Findings are discussed in light of social constructivist pedagogy and future directions for research.

Keywords: cooperative learning, social constructivism, constructivist pedagogy, educational assessment, early childhood education, post-secondary classroom research, action research

Introduction

Recent decades have witnessed an increase in active-learning pedagogies in college classrooms (Fink, 2004). Cooperative learning continues to hold a prominent place in this changing classroom landscape (e.g., Davidson & Major, 2014; Gillies, 2016; Healy, Doran, & McCutcheon, 2018; Love, Dietrich, Fitzgerald, & Gordon, 2014). Among the most researched of all topics in the teaching literature, a significant body of evidence supports cooperative learning as a means for students to optimize their own learning while facilitating the academic performance of their classmates (Johnson, Johnson, & Holubec, 2008). As a structured application of collaborative learning, the merits of cooperative learning at the college level can be classified under two broad categories: academic and socioemotional (Jones & Jones, 2008). More specifically, cooperative learning encourages higher-order reasoning, goal-setting, idea-generation, group-to-individual learning transfer, promotive interaction, positive interdependence, and interpersonal competence (Johnson, Johnson, & Smith, 2014; Mayo, 2010; Williams, 2007). Cooperative learning, as the underlying pedagogical basis for the present study, has longstanding theoretical roots within the constructivist tradition. Social interdependence theory derives from the confluence of Kurt Koffka’s (1935/1999), Kurt Lewin’s (1935, 1948), and Morton Deutsch’s (1949) shared
recognition of groups as dynamic initiators of varying levels of interdependence among individual group members. Vygotsky (1962/1986) built upon this perspective with his sociocultural theory of development. According to Vygotsky, there is interplay between cognitive processes and social activities such that social interaction becomes essential to active knowledge construction on an intrapersonal level. In practice, cooperative learning brings together the basic elements of these theoretical stances. Groups of students work together to learn, while each individual becomes personally accountable for his or her own learning within the group context (Brame & Biel, 2015).

Literature Review

**Background and Purpose of the Present Study.** In a prior exploratory investigation, I asked groups of students to complete an end-of-semester project, called the Cooperative Assessment Portfolio, in junior-level assessment classes for early-childhood-education (ECE) majors (Mayo, 2013). The study focused on the extent to which this assignment served as a formative learning tool for ECE candidates in successfully designing teacher-developed strategies for assessing the learning of young children. Students’ performance on the assignment demonstrated assessment proficiency as applied to simulated classroom practice. Moreover, students’ surveyed perceptions toward completing the assignment pointed to its effectiveness in both promoting mastery of academic content and fostering productive group interaction. The observed success of the Cooperative Assessment Portfolio in this pilot study served as a springboard for my undertaking the present investigation.

The purpose of the current study is to systematically compare the pedagogical efficacy of two group-based assignments using case-based learning (CBL): the Cooperative Assessment Portfolio (CAP) examined in the aforementioned preliminary investigation and the Cooperative Assessment Case Analysis (CACA). CBL typically incorporates collaborative-learning processes that permit students to solve problems and reflect on their experiences (Hmelo-Silver, 2004). The primary purpose of CBL is to teach students to apply theoretical knowledge (Ching, 2014). In the context of teacher education, the manner in which CBL accomplishes these intersecting educational aims can be summarized as follows:

[CBL] provides generative contexts for prospective and certified teachers to work together in small collaborative groups. Together, they analyze problems, discuss options, and make informed decisions to solve problems based on authentic teaching situations with real, multifaceted challenges (DeSimone, 2014, p. 17).

Within the group-centered and applied-theoretical focus of CBL, both the CAP and CACA assignments are aimed at permitting students varied opportunities to demonstrate a working understanding of the factors underlying well-conceived teacher-developed assessment strategies. With the CAP assignment, students engage in simulated classroom practice by creating their own classroom assessments. In contrast, students completing the CACA assignment critique already-created classroom assessments as an exercise in professional decision-making.
In spite of CBL’s widespread use in teacher education, there has been relatively little published research on CBL-reliant instructional methodologies or outcomes related directly to teacher preparation (Goeke, 2008). The present study aims to add to this area of research. It also seeks to make an original contribution to the teacher education literature through systematic comparison of two cooperative-learning assignments in the framework of teaching ECE assessment.

Methodology

Participants. Participants were 96 ECE baccalaureate candidates enrolled in four equivalent-enrolled sections of a junior-level course in ECE assessment for which I served as instructor. Classes, which were taught at a public state college in the southeastern United States, occurred in an accelerated four-week summer semester (two hours of instruction per day, five days a week). Two class sections were offered in each of two consecutive summer terms.

The participant pool consisted of 87 females and 9 males. The racial demographic was approximately 85% Caucasian, 13% African-American, and 2% multiracial. Participants ranged in age from 21 to 43 years (M = 23.98). Roughly 60% of participants were first-generation undergraduates, with nearly two thirds holding a full- or part-time job while enrolled in the course. All participants had completed two semesters of classroom field experience in pre-kindergarten through fifth grade before taking the course.

Design. I used an independent, two-group, quasi-experimental design in which intact classes were assigned to one of two conditions. In one condition that took place over the initial summer of the study, 50 students completed the CAP in fulfillment of their term-length project requirement. In another condition, 46 students completed the CACA as their term-length project in the second summer of the investigation. There were no appreciable differences between conditions on the basis of age, gender, or GPA. Additionally, I held course content, testing format, and other relevant instructional variables constant between conditions.

Course Description. The learning objectives of the course were broadly inclusive as relates to early-childhood assessment topics; however, the principal focus of the present study was students’ understanding and development of appropriate strategies for assessing the learning of young children from pre-kindergarten through grade five. This primary focus—which was canvassed in both the CAP and CACA assignments—included deciding accurately what to assess and how to assess it, with emphasis on the cognitive domain of the revised version of Bloom’s taxonomy of educational objectives (Krathwohl, 2002). It also encompassed the detection and prevention of bias when assessing children with special needs and children from culturally and linguistically different backgrounds.

I administered a unit exam at midterm in each of the two conditions. This exam contained 50 conceptually applied multiple-choice questions from the non-principal focal areas of the course, including theories embedded in assessment practices, test validity and reliability, interpreting standardized tests, and applying proper test-preparation practices toward high-
stakes standardized testing. At the conclusion of the semester, I administered a second unit exam to students in each condition that served as the current investigation’s dependent measure for comparative statistical testing. This second exam also consisted of 50 conceptually applied multiple-choice questions, but these questions pertained to the chief focal points of the study that were addressed in both the CAP and CACA assignments. In order to minimize the possibility of experimenter effects in composing the second exam, I selected all multiple-choice questions from conceptually based test-bank items. Consistent with considerations surrounding both test security and alternate-form reliability, I matched questions on both content and level of difficulty in the process of selecting items for inclusion on four different-but-comparable exam versions (one for each of the four participating class sections).

*Instructional Procedures* (CAP Condition). In the CAP condition, the initial three weeks of the semester consisted of in-depth classroom instruction over the entire gamut of assessment topics (both principal and non-principal focal points as described under *Course Description*). Throughout the final week of the semester, students worked in class within pre-assigned groups of four or five individuals to complete the CAP assignment with slight procedural modifications from the previous preliminary investigation (Mayo, 2013). These modifications, which included eliminating affective assessment and placing greater emphasis on absence-of-bias in assessment, were predicated largely on instructive student feedback from prior summative course evaluations. Once assigned to their corresponding groups, students met preliminarily to select individuals to serve in the flexible and rotating capacities of facilitator, recorder, and other defined roles.

In completing the CAP assignment, each group selected the grade level(s), subject area(s), and specific topic(s) to incorporate into the portfolio. Each group also established a collaborative division of labor in which each member was exposed to a representative sampling of every assessment strategy outlined below:

1. selected-response assessment [20 binary-choice (true-false) items; 10 multiple binary-choice items in two sets of 5; 20 multiple-choice items; and 10 matching questions in two sets of 5]
2. constructed-response assessment (20 short-answer items and two different essay items with an accompanying analytic scoring rubric for each)
3. performance assessment (one concept map, case-study analysis, analogical reasoning project, and autobiographical and/or biographical journaling assignment, with a concomitant analytic scoring rubric for each assignment)
4. portfolio assessment (five hypothetical work samples related to targeted skills and/or knowledge for prospective students to master, along with a single analytic rubric on which all work samples could be scored)

Students composed answer keys for all selected-response and short-answer constructed-response items. For constructed-response essays, performance assessment, and the portfolio-assessment items, students designed prototypical responses upon which they based their associated scoring rubrics.
Along with demonstrated mastery of each assessment strategy, the evaluative criteria for scoring each group’s assignment included an applied understanding of Bloom’s taxonomy (knowledge and cognitive-process dimensions) and absence-of-bias in assessment plus evidence of a collaborative division of labor. I rated students on all evaluative criteria except for collaborative division of labor, which was reserved solely for students in corresponding groups to evaluate. On the division-of-labor score, students in each group rated one another in terms of individual contributions to the group (e.g., effort, cooperation, and dedication to team work), with the group’s average per person used for individual scoring purposes. Peer ratings occurred on a Likert scale ranging from 1 = unsatisfactory to 5 = exceptional. I afforded additional opportunity for students to offer their evaluative comments. I kept all peer ratings anonymous to other students.

The CAP assignment counted for one third of the final course average. In calculating each student’s grade for this assignment, I weighted all of the following eight evaluative criteria equally in calculating the cumulative grade for each student: (1) Bloom’s knowledge and cognitive-process dimensions per content standard; (2) absence-of-bias in assessment; (3) average within-group peer rating per respective student; (4) selected-response assessment; (5) constructed-response assessment (short answer); (6) constructed-response assessment (essay); (7) performance assessment; and (8) portfolio assessment. In assigning grades for each evaluative criterion, I relied on a numerical-rating system with similar anchors as the students’ peer ratings (1 = unsatisfactory to 5 = exceptional). I collapsed all evaluative criteria onto a grading summary sheet, which also included space for a concise synopsis of my evaluative comments and a scheme for converting rubric point-totals to grade-level percentages. For clarification, I distributed and reviewed the content of this summary sheet during the first class meeting. Once grading was completed, I returned these sheets to respective students at the end of the semester.

**CACA Condition.** In the CACA condition, the first three weeks of the semester involved the same classroom instruction as occurring in the CAP condition. Similar to the CAP condition, students worked in class during the final week of the semester—in pre-assigned groups of four or five—to complete the CACA assignment. As in the CAP condition, students in the CACA condition met briefly after groups were assigned to choose individuals to act in various flexible and rotating roles within each group.

In the CACA condition, I asked each group to write critiques of a series of fictitious reference cases that reflected all of the teacher-developed assessment strategies canvassed in the CAP assignment: selected-response, constructed-response (short answer), constructed-response (essay), performance, and portfolio assessment. In completing the CACA assignment, I also required students to address the same considerations as those observed in the CAP condition, including Bloom’s knowledge and cognitive-process dimensions, absence-of-bias in assessment, and a collaborative division of labor within each group.

I designed all cases as narrative experiential-learning exercises based on the principal focal points of assessment canvassed in the course. Cases originated from two sources. The first source involved my own instructor-created cases that included various types of errors in assessment practice. The second source derived from appropriately referenced adaptations...
of case scenarios appearing as applied assessment exercises within leading textbooks, workbooks, and other publications within the realm of educational assessment. In some situations, these cases already incorporated one or more errors that students could identify and discuss in their CACA assignments. In other instances, assessment blunders were not present. In either event, I modified case content—ranging from moderately for error-inclusive cases to extensively for correct case applications—such that errors of omission and/or commission were introduced. A simple, illustrative example of a constructed-response (short answer) item for second-graders appears next. This language-arts item—which includes in italics a brief discussion of the accompanying assessment error—is adapted from extended-applications exercises appearing at the conclusion of Popham’s (2014) classroom-assessment textbook:

These letters are all vowels: A, E, O, and U. What is the one missing vowel? ____________  

*Although the intended correct answer is “I,” “Y” and “W” are occasionally accepted as vowels. Therefore, this item violates one of the basic tenets of developing sound short-answer items, namely, the intended correct response must be unique.*

I used the same peer- and instructor-rating scales and procedures in the CACA condition that had been used in the CAP condition. I incorporated all evaluative information into the same grading summary sheet that had been utilized in the CAP condition. Once again, I distributed and reviewed this grading sheet at the start of the semester and then returned it to students after I had completed grading at the semester’s conclusion. As with the CAP assignment, the CACA assignment was also worth one third of the final course average.

**Results**

*Comparative Statistical Testing. As described in methodology, the dependent measure was students’ scores on the end-of-semester unit exam that addressed material related to the major content concentrations in the course (teacher-developed assessments in conjunction with both Bloom’s taxonomy of the cognitive domain and absence of bias in assessment). The means and standard deviations for student scores in each condition are CACA (M = 80.92, SD = 10.36) and CAP (M = 84.88, SD = 8.65). I used independent-groups t-testing to compare student scores in the CACA condition with those in the CAP condition. Results show that student performance in the CAP learning condition differed significantly from performance in the CACA condition, t (94) = 2.04, p < .05.*

*Questionnaire Data. I gauged students’ perceptions of completing corresponding assignments in the CACA and CAPA conditions with an anonymous 10-item questionnaire that combined a 5-point Likert rating scale (*not at all effective* = 1 to *highly effective* = 5) with several questions about respective assignments to which students responded narratively. I asked students to rate numerically the experience of completing the assignment in question in terms of how effectively it accomplished a total of 10 educational objectives. I also asked students to comment narratively on what they liked best and least about the respective assignments, along with whether they would recommend that assignment to other students. Students’ numerical ratings are shown in Table 1.*
Table 1: Students’ Numerical Ratings of the Cooperative Assessment Case Analysis (CACA) and Cooperative Assessment Portfolio (CAP) Assignments

<table>
<thead>
<tr>
<th>Questionnaire Item</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CACA (n=46)</td>
<td>CAP (n=50)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thinking beyond the classroom</td>
<td>3.83</td>
<td>.70</td>
<td>4.72</td>
<td>.61</td>
</tr>
<tr>
<td>Fostering participation in learning</td>
<td>3.66</td>
<td>.48</td>
<td>4.58</td>
<td>.42</td>
</tr>
<tr>
<td>Increasing practical relevance of information</td>
<td>3.74</td>
<td>.62</td>
<td>4.88</td>
<td>.31</td>
</tr>
<tr>
<td>Facilitating understanding of course content</td>
<td>4.01</td>
<td>.39</td>
<td>4.56</td>
<td>.51</td>
</tr>
<tr>
<td>Increasing motivation to learn</td>
<td>3.45</td>
<td>.80</td>
<td>4.27</td>
<td>.54</td>
</tr>
<tr>
<td>Promoting intellectual challenge</td>
<td>3.62</td>
<td>.53</td>
<td>4.44</td>
<td>.46</td>
</tr>
<tr>
<td>Stimulating interest in the subject matter</td>
<td>3.36</td>
<td>.75</td>
<td>4.31</td>
<td>.49</td>
</tr>
<tr>
<td>Distinguishing between varied assessments</td>
<td>3.71</td>
<td>.43</td>
<td>4.67</td>
<td>.63</td>
</tr>
<tr>
<td>Recognizing the importance of absence-of-bias</td>
<td>3.50</td>
<td>.72</td>
<td>4.39</td>
<td>.58</td>
</tr>
<tr>
<td>Applying Bloom’s Taxonomy (cognitive domain)</td>
<td>3.55</td>
<td>.68</td>
<td>4.78</td>
<td>.42</td>
</tr>
</tbody>
</table>

Questionnaire ratings coincided with the results of comparative statistical testing. Students preferred the CAP to the CACA assignment across all surveyed measures. Students’ narrative comments were also consistent with their numerical ratings. Although approximately 60% of respondents in the CACA condition commented about the cooperative case-analysis assignment’s general utility in bolstering understanding of the targeted course content, only about half that number said that they would recommend it to other students. In contrast, more than 90% of respondents in the CAP condition asserted that they would recommend the cooperative portfolio assignment to other students. In response to what students liked best about the CAP assignment, the vast majority stated that it provided valuable hands-on experience that should later benefit them in their future teaching responsibilities. Many of
these respondents also remarked that they had never realized how much time and energy went into creating good teacher-developed assessments. Not unexpectedly, the major criticism of both assignments was the perceived workload associated with their completion. Students in the CAP condition voiced this criticism most often; however, many of these same respondents qualified their concern by noting that the end product was both personally gratifying and worth the concerted effort.

**Discussion**

Within the broad context of understanding and applying varied types of teacher-developed assessments, the present results show that the CACA assignment did not compare as favorably as the CAP counterpart on the joint measures of comparative statistical testing and analysis of surveyed attitudinal data. The core reason why this occurred might relate to fundamental differences in the underlying foundations of these two types of cooperative learning.

The CACA and CAP assignments are variant forms of social constructivist pedagogy (Mayo, 2010) that encourage small groups of students to work together to create shared understanding. In these types of assignments, students collaborate to produce, not reproduce knowledge (Millis, 2002). The CACA assignment aligns with the longstanding tradition of using case-based learning in numerous undergraduate disciplines as a means of linking knowledge and practice through developing students’ critical thinking and applied reasoning skills. (e.g., Allchin, 2013; Floyd & Bodur, 2005; Heitzmann, 2008; Kaddoura, 2011; Mayo, 2002, 2004; Pariseau & Kezim, 2007). Both the CACA and CAP assignments qualify as problem-centered approaches that advocate for authentic applications of course content in the framework of active and interactive learning. Yet these assignments take differing routes to these educational outcomes. As mentioned briefly in the literature review, the CACA assignment uses case studies to introduce practical examples and analogous contexts for analysis, critique, and vicarious learning and practice in professional decision-making. On the other hand, the CAP assignment relies on actual simulated classroom practice that offers students ample opportunities to create their own assessments to demonstrate applied understanding of sound principles of test construction. Of the two approaches, then, the CAP is more inherently active in practice. This conclusion is not only supported by related pedagogical findings in other academic disciplines (e.g., Jeffries, 2005), but it also upheld in the present study by students’ perceptions of the CAP assignment as fostering demonstrably greater participation in learning than the CACA assignment (see Table 1).

**Conclusion**

Overall, the results of the present study validate the merits of cooperative learning in ECE assessment instruction that emphasizes simulated classroom practice as a vehicle for promoting what Hmelo and Guzdial (1996) described more than two decades ago as knowledge-building-for-action. Additional research, involving assignments similar in nature but perhaps different in scope to the term-length CAP assignment, might show if these
findings also apply to assessment instruction in middle-grades or secondary education programs. Another potentially inviting direction for future research on pre-service students’ assessment instruction might involve a systematic examination of the pedagogical efficacy of a hybrid cooperative-learning approach that integrates key elements of both the CAP and CACA assignments from the current investigation. As a proposed example, students might begin with carefully planned case analyses as a way to scaffold learning experiences (see Hmelo & Guzdial, 1996) in preparation for later simulated classroom practice.

About the Author

Joseph A. Mayo, Ed.D. is currently a Professor of Psychology at Gordon State College in Barnesville, Georgia, who has been teaching and conducting classroom-centered research in higher education for over three decades. His primary research interest is effective undergraduate teaching strategies with an emphasis on constructivist classroom applications. He is the recipient of both statewide and national awards for his ongoing contributions to the scholarship of teaching and learning. Email: joe_m@gordonstate.edu
References


Millis, B. J. (2002, October). *Enhancing learning—and more!—through cooperative learning*. Manhattan, KS: The IDEA Center. [IDEA Paper No. 38]


DOES MINDFULNESS STRENGTHEN SELF-EFFICACY IN FIRST GRADE STUDENTS?

Kirsten L. Logan
University of Richmond

Erik K. Laursen
University of Richmond

Abstract External and internal stressors often influence young children’s sense of self-efficacy and resiliency negatively. Practicing mindfulness within the classroom may be one intervention that can help students strengthen the social-emotional skills involved in self-efficacy and resiliency. This study used a mixed methods approach to gather quantitative and qualitative data from six first-grade students who participated in a daily mindfulness practice. The data were analyzed using descriptive statistics to determine if their perceptions of self-efficacy and resiliency improved from week one to week six of the study. Logico-inductive data analyses were used to identify common themes in student interviews. Students favored the mindfulness activities and shared benefits such as feeling calm, happy, and a sense of self-control. The six-week timeframe and small sample size are possible limitations for this research study to show significant differences through the quantitative data analysis.

Keywords: teacher action research, mindfulness, resiliency, self-efficacy, social-emotional learning

Introduction

During Kirsten’s time as a teacher, she had observed that her students’ low sense of self-efficacy appeared to impede their learning. Common behaviors related to low self-efficacy include a low level of perseverance, i.e., situations in which students become easily frustrated by mistakes or unknown answers, self-talk focusing on students’ inability to complete a task, and a lack of establishing, working toward, and reflecting on goals within the classroom. Kirsten noticed that these behaviors were overtaking much of the core instructional time for her students. A great deal of the school day focused on these negative behaviors and providing interventions to address them before effective learning could occur. Kirsten was therefore interested in finding ways to strengthen her students’ self-efficacy by investigating the following question: Does mindfulness strengthen self-efficacy in first grade students?
The purpose of this study was to explore if the implementation of daily mindfulness practices in the classroom have a positive effect on first grade students’ self-efficacy. Over a six-week period, all students in Kirsten’s classroom participated in mindfulness practices during the morning meeting time. Data were collected from six students who participated in one-on-one interviews and completed a questionnaire three times; at the beginning, midpoint, and end of the study.

Literature Review

Mindfulness is gaining influence in education and a body of research outlines the benefits of implementing mindfulness practices into classroom settings (e.g., Costello & Lawler, 2014; Harpin, Rossi, Kim, & Swanson, 2016; Moreno, 2017). Students face many challenges that compete for their attention during school hours. Malow and Austin (2016) observed that student stress and anxiety continue to rise. As a result, educators must take on the crucial role to explicitly teach students how to manage strong emotions before they impede their success. Harpin et al. (2016) identified a need for students, specifically within urban settings, to strengthen their abilities to cope with adversity and to improve their focus to be more successful in school.

Mindfulness practice is one strategy to support students in dealing with stress and anxiety. Mindfulness is “the cognitive ability to pay attention to the present moment without judgment or attachment to a desired outcome” (Keller et al., 2017, p. 508). Students can utilize mindfulness by taking a structured, peaceful, reflective time to practice keeping their thoughts in the present. Mindfulness involves three interconnecting components that include intention, attention, and attitude. Greason and Cashwell (2009) described mindfulness as a state of being attentive to experiences with an attitude of openness and acceptance. Kielty, Gilligan, and Staton (2017) emphasized that mindfulness is a practice in which individuals focus on the current experiences rather than being on “auto-pilot.” Increasing academic demands, coupled with the lack of coping skills to deal with external stressors, often leads to a constant state of stress that creates barriers for student success.

Resiliency and Self-Efficacy. Students’ ability to control their emotions, thoughts, and behaviors is essential for success in school and in life (Thierry et al., 2016). Prolonged and unresolved internal and external stress inhibits students from developing a strong sense of
self-efficacy and resiliency. However, mindfulness can be utilized to strengthen both areas. Social-emotional learning (SEL) curriculums focus on developing the ability to recognize one’s own emotions, as well as the emotions of others, while providing the necessary skills to communicate emotional understanding (Malow & Austin, 2016). SEL curriculums foster the implementation of mindfulness and the development of resiliency in students. Malow and Austin (2016) defined resiliency as, “the degree to which an individual’s personal resources match or exceed their reactivity to internal or external stress” (p. 83). Self-efficacy, defined as, “one’s beliefs or judgment about his or her capabilities” (Greason & Cashwell, 2009, p. 3), is also nurtured within SEL curriculums.

Self-efficacy development is theorized to occur through four primary sources, including mastery experiences, vicarious learning, verbal persuasion, and changes in emotional arousal (Greason & Cashwell, 2009). Mindfulness is a practice that can be used in the classroom with these four sources of self-efficacy development in mind. The open-ended nature of mindfulness allows students to feel a sense of mastery in their own unique way, while continuously learning new strategies and practices.

Mindfulness allows students to recognize the adverse effects of “mind traps” and offers a period of reflection, stillness, and peace (Costello & Lawler, 2014). Mind traps are mental habits that increase stress, such as negative self-talk in which children are hard on themselves. These habits can include self-criticizing, where students perceive themselves to be worthless or inadequate (Costello & Lawler, 2014). Mindfulness practices can help students overcome the negative influence of mind traps on their perceptions of self-efficacy and resiliency.

In addition to resiliency and self-efficacy, self-regulation and emotional awareness are critical skills for students to master to allow them to learn efficiently, work well with others, and decrease anxiety and depression (Keller et al., 2017). Mindfulness promotes these skills through direct instruction and teaches students strategies they can independently utilize within their daily routines. With daily practice, mindfulness can positively support emotional self-regulation, which consequently improves the likelihood of academic success (Keller et al., 2017).

**Brain Development and Neuroplasticity.** Critical periods in a child’s development are times during which positive experiences can provide optimal brain development. However, if these experiences are absent or replaced by negative experiences, healthy brain development can be disrupted (Lally, 2012). Early childhood is a critical period in which the brain is malleable and easily shaped by the child’s environment. Knowing that brain development is shaped by early experiences, much of what gets in the way of learning in later years is the result of skills that were underdeveloped or neglected in early childhood. If students are expected to be successful in school, teachers must provide experiences that support healthy brain development. Lally (2012) describes experience-created expectations that impact brain development as “brain shaping” experiences. These experiences fluctuate...
greatly from student to student and can present a wide collection of variables that interfere with learning, such as stressors or environmental factors.

Mindfulness supports students’ development of skills that are necessary for school success. Stress-reducing practices, such as mindfulness, can contribute to positive brain development and functioning while also reducing the expression of pro-inflammatory genes (National Scientific Council on the Developing Child, 2015). Over time, daily mindfulness practices can lead to healthy brain development in children and fill in the “gaps” that may exist in many students. Mindfulness practices, in conjunction with the brain’s neuroplasticity, allow children to continuously develop and strengthen skills, such as sustained attention, focus, and calmness in the school setting (Kielty et al., 2017). Research has also shown that mindfulness can strengthen neural systems that support emotional, cognitive, and behavioral regulation (Thierry et al., 2016).

Awareness of brain development allows educators to plan activities that strengthen underdeveloped skills and support students for learning and academic success. For example, children benefit from learning how to slow down their thinking to give their brain time to override negative responses to shut down or act out (Moreno, 2017). Mindfulness offers students strategies to slow down their thinking and gives them time to reflect and respond, rather than negatively reacting to stressful events. Moreno (2017) showed that six-year-old children who participated in mindfulness practice strengthened their capacity to slow down their thinking and reflect. Kielty et al. (2017) demonstrated the positive influence of mindfulness for middle school students who were asked to practice mindful breathing to calm the amygdala and “free up” the pre-frontal cortex before engaging in high-stakes testing.

_Growth Mindset and Positive Psychology._ Mindfulness provides opportunities for students to cultivate and practice a growth mindset. A person with a growth mindset can be described as an individual who believes their intelligence and abilities can be continuously developed and enhanced (Kielty et al., 2017). Both mindfulness and a growth mindset foster a positive attitude that is centered on practice rather than perfection. The open nature of mindfulness allows for feedback and opportunities to practice overcoming adversity and setbacks. Mindfulness also enables students with an optimistic attitude and with basic trust during times of uncertainty (Malow & Austin, 2016).

Positive psychology is “employing structured interventions to build resiliency with the goal of buffering symptoms of emotional dysregulation” (Malow & Austin, 2016, p. 84). Mindfulness is one example of a structured intervention to support positive psychological feelings. Mindfulness can also aid in alleviating distress through self-regulatory processes, such as mindful breathing. Cultivating the positivity and optimism alongside mindfulness allows for opportunities for growth. Moreno (2012) described mindfulness being rooted in the beauty of failure, where students work to recognize that rather than an endpoint, mindfulness focuses on repeated engagement with a cycle of focus-loss and focus-refocus. With a growth mindset, failure presents itself as a continued opportunity to start anew,
rather than a fixed stopping point. Routhier-Martin, Roberts, and Blanch (2017) stressed that the purpose of mindfulness is not for students to forget or repress their stressors or weaknesses, but rather to acknowledge these areas for improvement and practice the ability to focus on schoolwork instead.

In summary, social-emotional learning and brain development are foundational building blocks for students to succeed in school and in life. Early experiences, whether positive or negative, impact brain development. The lack of positive experiences in early childhood can impede student success and create a need for interventions later in life. Mindfulness practices in the classroom are one type of intervention strategy that can provide students with skills to develop and cultivate resiliency, a stronger sense of self-efficacy, emotional awareness, and self-regulation. Pairing mindfulness with a growth mindset allows for an optimistic outlook for growth in all students, no matter their background or severity of stressors present in their lives. Educators who establish mindfulness routines and procedures help students understand that their intelligence is malleable rather than fixed and can provide students with tools and strategies to overcome adversity within the classroom environment. In addition, teachers who practice mindfulness themselves can help nurture mindfulness within their students.

Methodology

Design. This study used a mixed-method methodology collecting data from six students on a Likert scale style questionnaire and from interviews. Open-ended questions and follow up prompts were used to explore students’ perceptions of self-efficacy and the impact of the mindfulness intervention. Interviews were recorded, transcribed, and analyzed for common themes. All interviews and questionnaires were completed in a quiet spot in the classroom, away from other students.

Participants and Procedure. All 15 students in Kirsten’s first-grade classroom participated in guided mindfulness practices over a six-week period using audio and video clips from GoNoodle (n.d.) and Calm (n.d.). Six students, three males and three females, were selected to complete a ten-item questionnaire and to be interviewed to explore their perceptions of self-efficacy. The survey included ten questions with three possible responses, yes, sometimes, and no. A composite score was given to each of the questionnaires by converting the smile face to three points, the neutral face to two points, and the frowning face to one point, yielding a possible score for each student between 10 and 30 points. A score of 30 indicate a high level of self-efficacy and a lower score a lesser degree of self-efficacy. Kirsten selected these six students because of their openness to engage in one-on-one conversations with her.

The questionnaire included ten questions asking students to reflect on their perceptions of their self-efficacy and resiliency skills. The students completed the questionnaire at the beginning of the study, at the midpoint (week three), and at the end of the study after six weeks. The three-point Likert scale utilized symbols for the first grade students to easily
answer the questions: a smile face for yes, a neutral face for sometimes, and a frowning face for no (see Table 1).

Table 1: Student Questionnaire

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>Sometimes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I work hard in school.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>I can name at least one thing I am good at.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I try my best at school every day.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I can solve most problems by myself.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I can finish all my schoolwork.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I can calm myself down when I am angry or frustrated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I pay attention to my teacher in class.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I ask for help when I need it.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I keep trying, even when things get hard or tough.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I can make a goal for myself to work towards.</td>
<td></td>
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</table>

The qualitative data were collected through four open-ended interview questions and follow-up questions were used to expand on students’ thinking. The interviews were administered at the same three points throughout the research study as the questionnaire. The interviews were recorded, transcribed, and analyzed for common themes in student responses using the logico-inductive process (Mertler, 2019) to make sense of the narrative data. The interview questions included the following:

1. What is your favorite part of doing mindfulness activities?
2. Do mindfulness activities make you feel like you have self-control? If yes, how so?
3. What mindfulness strategies have you used throughout the school day?
4. What feelings do you feel when we do mindfulness activities?
Results

The survey data from the questionnaire was summarized for the six students and the mean and range were used to compare participants’ answers between the three times the questionnaire was administered (Table 2). The results show that two students increased their self-efficacy scores over the six weeks, while four showed a decrease. The mean varied slightly between the three surveys and the range between students decreased from a nine-point range within the first week to a five-point range within the sixth week of the study. The results suggest that the students perceived the mindfulness practices favorably with a mean score consistently above 25, but do not indicate that students increased their perception over the six-week period of the intervention.

Table 2: Student Responses to Questionnaire

<table>
<thead>
<tr>
<th>Student</th>
<th>Week 1</th>
<th>Week 3</th>
<th>Week 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>30</td>
<td>28</td>
<td>26</td>
</tr>
<tr>
<td>E</td>
<td>21</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>H</td>
<td>29</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>K</td>
<td>28</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>A</td>
<td>26</td>
<td>26</td>
<td>25</td>
</tr>
<tr>
<td>L</td>
<td>25</td>
<td>24</td>
<td>25</td>
</tr>
<tr>
<td>Mean 26.5</td>
<td>25.5</td>
<td>26.3</td>
<td></td>
</tr>
<tr>
<td>Range  9</td>
<td>8</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

After the interviews were transcribed, common statements were coded. Using logico-inductive analysis (Mertler, 2019) patterns and trends were identified from the student interviews. Two patterns emerged from the student responses. In 15 of the 18 interviews students identified feeling calm after participating in a mindfulness practice. Five of the six students felt that mindfulness helped them calm down. Student H said, “they [the mindfulness practices] calm my body down,” and Student L felt that “it helps our brains calm.” Feeling happy during the mindfulness practice was another pattern discovered in ten
interviews as illustrated by Student L’s comment: “It feels like a yummy strawberry.” The following trends were noted from across all interviews, students shared that they were interested in trying the mindfulness activities. Four out of six participants said that mindfulness activities made them feel they had self-control at the end of week one. At the end of week three, all students reported feeling calm when practicing mindfulness, and five students reported that the activities made them feel they had self-control. At the end of week six, all students reported that mindfulness activities provided them with a sense of self-control. When asked what specific identify mindfulness strategies students used throughout the school day, students were unable to identify specific strategies. In summary, students were eager to try and were receptive to mindfulness activities and expressed that they felt a strong sense of self-efficacy following the mindfulness practices.

The purpose of this study was to explore if daily mindfulness practices strengthens self-efficacy in first grade students. The results of the surveys show that the six students who participated in the study did not increase their self-efficacy over the six-week period of the study. However, in the interviews, students expressed that mindfulness practices made them happy and helped them calm their bodies and brains leading to a sense of self-control. Research (e.g., Abdel-Khalek et al., 2014, Tahmasbipour, 2017, Zaker et al., 2016), though not done with elementary students, show a strong relationship between happiness and self-efficacy. Additionally, calmness and self-control are essential elements of self-efficacy. In summary, the results of the student interviews show that students experienced happiness, calmness, and self-control after participating in mindfulness practices, all essential elements to developing self-efficacy.

Discussion

Kirsten was eager to implement mindfulness within her first-grade classroom. Although she had received no formal training in mindfulness prior to the implementation of this study, she researched best practices and strategies that would be appropriate for her first grade students. One of the greatest takeaways of having the role as “mindful leader” for her students is the patience her students showed in the classroom. She began the mindfulness activities with an open mindset, which allowed her to guide the students through the practices without expecting that all students would react in the same manner. Some students showed reluctance to participate in the mindfulness activities, but with her growth mindset, Kirsten saw growth in all her students during this six-week period. Working with younger students, the practices were taken more seriously and intentionally by the end of this study by all students. Students were more open and willing to share their reflections during the morning meeting time as well. The overall culture of the students’ reflective nature was one positive benefit that Kirsten observed throughout the study.

Limitations

The present study has several limitations. With a sample size of six students from the same school and receiving mindfulness activities through the same method, the findings cannot be generalized to a greater population. Further, Kirsten’s dual role as a teacher and researcher may have influenced the students’ answers on the questionnaires, despite being
made aware that their answer was in no way going to influence their academic grade. The short timeframe of this study may also limit the study by not allowing students sufficient time to practice and reflect on the impact of mindfulness activities. Finally, asking six- and seven-year old students to reflect on their perceptions through the questionnaire and interview questions may not have been developmentally appropriate for all participants, e.g., “I can make a goal for myself to work towards.”

**Implications**

This study provided insight to the role mindfulness activities have in the classroom setting. Students were eager and willing to participate in daily mindfulness activities and class discussions. We recommend that teachers introduce mindfulness activities at the beginning of the school year, pairing them with other social-emotional learning concepts such as fostering a growth mindset and character strengths (Via Institute on Character, n.d.). Implementing mindfulness activities is one strategy to help students strengthen self-efficacy and resiliency.

Teachers who wish to implement mindfulness practices within the classroom must foster and create an open and inviting classroom culture for students to practice mindfulness. The classroom schedule must allow for periods of calmness for students to practice meditation and reflection. As practicing mindfulness and self-reflection are not innate skills, especially for young students, we recommend that teachers spend several weeks at the beginning of the school year introducing the topic of being mindful and fostering a growth mindset. Students can be encouraged to progress at their own pace throughout the mindfulness journey. We also recommended that teachers set aside a time of day to practice a mindfulness activity for the class. As students grow more comfortable with the strategies learned in the scheduled mindfulness activities, students should also be given opportunities to apply these strategies throughout the school day. Intentional conversations (Laursen, 2018) and “teachable moments” should be utilized for students to identify periods of the day in which mindfulness practices can be utilized. In elementary grades, the teacher can serve as the model by using a “thinking out loud” model in which the teacher explicitly demonstrates a period of the day in which a mindfulness practice, such as deep breathing or a body scan, can be used in the classroom.

**Conclusion**

We encourage school leaders to provide teachers who are willing and ready to take on the incorporation of mindfulness practices with professional development on being a “mindful leader.” There are professional development workshops and online classes that can be utilized for teachers to become familiar with different programs and mindfulness activities. Teachers who practice and familiarize themselves with mindfulness first will have a smoother transition implementing it within their own classroom.

Finally, we suggest that teachers reflect on students’ perceptions of mindfulness activities and the impact on students’ self-efficacy and resiliency. Follow-up research on ways to
measure student perceptions of mindfulness practices is suggested to best fit the age group of students who are participating in mindfulness practices.

About the Authors

**Kirsten L. Logan, M.Ed.** is currently a first grade teacher in Virginia. She received her undergraduate degree from Ashland University in Ashland, Ohio in Early Childhood Education and her master’s degree in Curriculum and Instruction from the University of Richmond in Richmond, Virginia. Her research interests include growth mindset, mindfulness, positive behavior interventions, and social emotional learning curricula. Email: kirsten.logan7@gmail.com

**Erik K. Laursen, Ph.D.** is an Adjunct Associate Professor in the Department of Education at the University of Richmond. He teaches the action research course and works with his graduate students to publish the results of their classroom-based projects. His research interests are in positive education, caring relationships, and character strengths. He also teaches educators in youth workers in trauma informed practices. Dr. Laursen received his doctoral degree from Virginia Commonwealth University. Email: elaursen@richmond.edu
References


“LET THE PEOPLE SING!” – ACTION RESEARCH EXPLORING TEACHERS’ MUSICAL CONFIDENCE WHEN ENGAGING LEARNERS IN ‘SINGING FOR WELLBEING’

Daphne Rickson
New Zealand School of Music - Te Kōkī, Victoria University of Wellington

Jo Atkinson
Marshland School

Dianne Reynolds
Waitākiri School

Robert Legg
Head of Music, Icknield Community College, United Kingdom

Abstract The examination and reconstruction of personal beliefs and change in practice that comes with action research can be intellectually and emotionally demanding. Action research exploring the process of “singing for wellbeing,” at a Christchurch primary school severely affected by the 2010-2011 earthquakes, uncovered the interesting dichotomy that teachers who were passionate about engaging children in singing were uncomfortable singing themselves. A critical action research orientation gave teachers impetus and time to discover and reflect on their personal histories, to engage with relevant literature, and to explore strategies to increase their confidence to engage in music activities with learners. Learning that musical confidence can be severely affected by the negative judgements of others, and that lack of teacher confidence in the arts is widespread (Bainger, 2010), validated their experiences, increased their self-understanding, and enabled them to sing with their learners with increasing confidence. Our findings reinforced the hypothesis that unpacking negative experiences can be almost as important in some cases as acquiring knowledge and skills in music.

Keywords: teacher action research, teachers, musical confidence, singing, wellbeing
Introduction

Waitākiri School in Christchurch opened in 2014, as part of the larger restructuring of Christchurch schools following the 2010-2011 earthquakes. At that time, our teachers began to engage learners in singing every day to develop and maintain a sense of community, and to promote enjoyment and readiness to learn. Despite experiencing significant ongoing challenges associated with a post-earthquake environment, well-being and engagement data indicated that learners continued to feel safe, valued and supported. Members of the school community joined university researchers in an action research project to examine the ways in which the singing was facilitated and sustained, and the perceived relationship between singing and well-being. We have reported these findings elsewhere (Rickson, Legg & Reynolds, 2018; Rickson, Reynolds & Legg, 2018), and in this paper focus on one aspect of our two-year action research project; specifically, our exploration of teachers’ self-efficacy with regard to singing.

The school has been designed to promote collaborative teaching in flexible learning spaces. It is comprised of six learning studios; each designed to cater for approximately 115 children working with 4-5 teachers and one to two learning assistants. Our teacher-researchers were passionate about singing, strongly believed that singing was supporting the well-being of learners in our school, and were committed to maintaining daily singing in the learning studios. Yet the dialogic action research process allowed them to recognise that despite their passion for engaging learners in daily singing, six of the eight were not confident singers themselves. It seemed they were able to successfully facilitate the daily singing, despite having low self-efficacy with regard to music, by constructing a clear differentiation between ‘singing for well-being’ and ‘music education’, and promoting singing for well-being as fun activity which involved few expectations (Rickson, Legg & Reynolds, 2018). Engaging in what might be described as a ‘spin-off cycle’ (McNiff, 1988) our action research took a critical turn as we began to examine the processes that were inhibiting teachers’ ability to singing freely with learners in the classroom, and elsewhere.

Literature Review

Singing can be helpful not only in fostering individual wellbeing in singers, but also in uniting groups (Ilari, Chen-Hafteck & Crawford, 2013). Participating in group singing leads to common purpose, developing cohesion within a group culture, through a common set of attitudes and behaviour (Drummond, 2012, p.305). The synchronisation of bodies and voices to a pulse, along with shared emotional expression, can be powerful in promoting group bonding (Kirschner & Tomasello, 2010; Sutherland, 2015), and performing with others can give participants a sense of fulfilment, pride and accomplishment (Sutherland, 2015).

The vocalisations of babies and their caregivers is musical (Barrett, 2005; Trevarthen, 2002; Wiggins, 2015), and ‘singing’ emerges in infancy and continues to develop as children interact with others in their environments (Ilari et al., 2013; Welch, 2005). From the songs of children we can deduce that musical ‘ability’ is universal (Campbell, 2010; Ilari, Chen-
Hafteck & Crawford, 2013) and that, although we need to train in order to develop and exercise our potential, all people have the capacity to be musical (Lamont, 2011). That is, we can all enjoy music through listening, singing, and moving, regardless of whether we have had opportunities to take music lessons (Ilari et al., 2013; Thorn & Brasche, 2015). Moreover, singing does not require the use of external instruments or highly specialised teachers and is therefore a relatively low cost way of engaging children in music (Lamont, Daubney & Spruce, 2012).

Nevertheless, our ability to continue singing beyond preschool years is affected by how people around us view our singing (Welch, 2005). Our view of our musical selves is based on our beliefs taken from society, and in order to realize our inborn musical abilities we need to establish a strong musical identity that reinforces a belief that we are musical (Ilari, Chen-Hafteck & Crawford, 2013). Cultural associations guide our thinking about what we sound like when singing solo or with a group, and we learn to assess ourselves as ‘good’ or ‘not so good’ singers in according to our socio-cultural contexts (Ilari, Chen-Hafteck & Crawford, 2013; Welch, 2005). In Western cultures people are often identified as ‘singers’ or ‘non-singers’ and singing in public is considered to be a performance for the ‘talented’ singer (Ilari, Chen-Hafteck & Crawford, 2013; Welch, 2005). Consequently, people whose singing development has been held up in some way are often categorised as someone who ‘cannot sing’ (Sloboda, Wise, & Peretz, 2005) and as they grow older, many people refuse to sing in any circumstances, while others refuse to sing where they can be heard (West, 2009).

The views held by significant others, particularly music teachers, affect children’s self-concept in powerful ways (Abril, 2007; Turton & Durrant, 2002). Formative experiences which are negative or discouraging can have lifelong damaging effects; including the belief that it is too late to learn music as an adult (Pitts, 2015). A number of adults who are no longer musically active suggest their ‘lack of talent’ prevents them from engaging in music (Lamont, 2011; Sloboda, Wise & Peretz, 2005; Welch, 2005) and many of these people also report negative experiences at some point in their childhood music education, such as being told not to sing out loud in primary school choirs (Lamont, 2011; Welch, 2005). Lamont found that nearly 20% of 530 amateur adult music-makers from around the world had a relatively negative musical identity despite the fact that they were actively involved in making music (Lamont, 2011). Singing is a very personal act (Ilari, Chen-Hafteck & Crawford, 2013; Campbell, 2010). Criticism of singing ability therefore seems to have a stronger influence on an individual’s perception of their musical self than criticism of other music abilities such as instrumental skills, because it feels much more like a personal attack (Swain & Bodkin-Allen, 2014). When children are labelled as non-singers it can stigmatise them for life and stop them from singing in any context (Whidden, 2008).

Teachers in classrooms - even in early childhood settings, where children are constantly singing – often lack confidence in their own singing abilities (Heyning, 2011; Russell-Bowie, 2009; Swain & Bodkin-Allen 2017) and are more apprehensive about teaching music than most other school subjects (Hargreaves, Lamont, Marshall, & Tarrant, 2003; Heyning, 2011; Russell-Bowie, 2009; Thorn & Brasche, 2015) because of the complexity of the discipline and
their self-perceived lack of talent for music (Thorn & Brasche, 2015). Many teachers still believe singing is a ‘gift’ for the ‘talented’ and that only musically talented people can teach music in the classroom (Heyning, 2011). Further, teachers who may have low self-efficacy with regard to singing, are battling a crowded curriculum, are feeling over-scrutinised and losing confidence, and in our case managing significant challenges associated with living and working in a post-earthquake environment.

On the other hand, teachers are generally more confident to sing with children than with adults, and when they are prepared to have a go they can have a positive experience (Thorn and Brasche, 2015). Moreover, singing and other musical behaviours can improve with both formal and informal experience (Sloboda, Wise, & Peretz, 2005). The increasing popularity of inclusive community singing groups for adults for example, may be beginning to counter the impact that negative criticism and judgement had on many adults as children (Davidson 2011; Lamont, 2011).

Methodology

‘Singing for Well-being’ was a two-year Action Research (AR) project, funded by the New Zealand government Teaching and Learning Research Initiative (TLRI) and approved by Victoria University of Wellington human ethics committee (Approval #22081). Action research in this context is a systematic, participatory approach, in which education practitioners themselves aim to promote positive change in their school community (Hine & Lavery, 2014; Mertler, 2010).

Participants. For this particular phase of our project, eight general classroom teachers, one specialist music teacher and one kapa haka tutor (kapa haka is the term for Māori performing arts), collaborated with a core research team involving two researchers from Victoria University of Wellington and the Deputy Principal of Waitākiri School.

Method. Action research is dynamic in nature and is frequently described as a messy or chaotic experience (Nyanjom, 2017; Mikkelsen 2013). Researchers often begin with broad questions which are developed and refined through cycles of critical reflection and dialogue, which in turn lead to further or alternative action (Cardno, 2003). Each cycle involves planning, acting, reflecting and discussing results (Mertler, 2010), while engaging in continuous exploration of the relevant literature which informs, inspires and clarifies emerging findings. Cycles are not linear, but involve a “fluid, iterative, open, complex, and responsive process” (Cordeiro, Soares & Rittenmeyer, 2017, p.397). In a process of open dialogue, ideas that are tentatively articulated in reflection, can be examined more systematically in subsequent phases of active exploration. Action Research therefore offers opportunities to deal with a number of problems at the same time through the development of ‘spin-off cycles’ (McNiff, 1988).

This paper reports one such phase of our research, specifically our exploration of an early finding that despite their passion for supporting children to sing, six out of the eight classroom teachers who were co-researchers on this project were not confident singers themselves. Heyning (2011) argues that teachers who are confident and competent singers
are more likely to engage children in singing, and to do it successfully. Yet at our school, teachers who were decidedly lacking in singing confidence were able to introduce and sustain daily singing specifically to address the well-being of teachers and learners.

Research Question. We examined the above dichotomy by sharing our personal histories, engaging with the literature, and critically reflecting on the impact of our values and beliefs to answer the question ‘What are the processes that are inhibiting teachers’ ability to singing freely with learners in the classroom, and elsewhere; and how can singing confidence be increased.

Data gathering. Data were drawn from two semi-structured focus groups involving eight classroom teachers, individual interviews with four generalist teachers and the school’s specialist music teacher, and engagement with the literature. Focus groups and interviews were run in flexible ways, and initial prompts/questions were broad (e.g. ‘Can we talk about our experiences of facilitating singing in the classroom?’) to allow participants to discuss and to develop their own understanding of things that were important to them (Liamputtong, 2011). It was crucial to allow participants to continue talking, to shape the topic and conversation, and to introduce sometimes unexpected but relevant information that was meaningful and important to them (Hesse-Biber & Leavy, 2010). They were able to provide rich descriptions of their experiences, and to acquire in-depth knowledge about the things that they felt were important. In the later focus group and individual interviews we focused more on the change process using prompts such as ‘Tell me about any changes you have noticed with regard to your attitude or implementation of music with your learners?’ ‘How did those changes come about?’ ‘How important do you think these changes might be in terms of your future thinking/development as teachers who use music in the classroom?’

Data Analysis. Data were analysed by the first author using a process of inductive thematic analysis (Braun & Clarke, 2013), and peer reviewed by the fourth author. The process involved:

- Transcribing the audio material from the focus groups and interviews verbatim
- Returning manuscripts to participants inviting their checking, editing and additional comments
- Listening to the audio, and reading the transcripts to become familiar with the data
- Identifying relevant chunks of transcript, and giving them initial codes
- Transferring the chunks of data, with initial codes in a separate column, to excel sheets
- Combining data by creating a master excel sheet, and sorting according to initial codes
- Reviewing the codes, and renaming, combining and developing new codes
- Sorting codes into broad categories
- Examining each category and applying secondary coding
- Sorting by secondary codes, and developing descriptions of codes
• Renaming, combining and developing new secondary codes as needed
• Sorting according to secondary codes and revising descriptions to develop themes (ideas generated by several participants), exceptions (ideas mentioned by only one person), concepts (combinations of ideas), and stories (examples from practice)
• Reproducing themes, exceptions and concepts in the form of findings
• Returning findings to participants for their comment/editing.

Results and Discussion

A critical action research orientation is employed when transformative action needs to be preceded by critical thinking and reflection (Kemmis, 2014). The process of examining personal experiences alongside theories reported in the literature was crucial to the personal transformation that teachers described. The paragraphs below therefore include actions and reflections interspersed with relevant literature.

Initial Problem: If music is for everyone why do we feel we are not musical? We began our research with the assumption that musicality is innate. Teachers already agreed that music is for everyone, not just an ‘elite’ few, and that singing is an ‘equalising’, ‘accessible’ and highly motivating activity. We learnt from the literature that infants engage in musical interaction with caregivers (Barrett, 2005; Trevarthen, 2002; Wiggins, 2015); and young children, across cultures, engage in musical play (Campbell, 2010; Wiggins, 2015). Children are initiators of musical activities (Burnard, 2013), musical ideas (Wiggins, 2007) and musical innovations (Marsh, 2009) and singing is a natural, spontaneous, means of communication for them (Bodkin-Allen, 2009; Campbell, 2010). Yet despite our understanding that musicianship is innate, six of our eight general classroom teacher/researchers variously claimed they were ‘not musicians’, ‘not musical’, or they ‘couldn’t sing’.

I wouldn’t know if I was singing a note correctly or not. I don’t have that kind of ear.
Barbara, Individual Interview

Action: Reflecting on one’s beliefs. Jo, one of our studio teachers, recognised she had a fear of singing, which stemmed from being told, "You don’t sing very well", as a child. She described becoming “frightened of music”, “putting up a wall” and deciding, “Right then!”, she was not going to do it anymore. At teachers college, she was required to learn the recorder and guitar, and felt shut down even further by tutors who seemed to lack passion for their subject. Perhaps more importantly she experienced her music module as highly judgemental. She was shocked when one of her tutors told her not to sing but to “hum along” to what she describes as her "dreadful music making". On the other hand, Jo admits that she entered teacher’s college already believing music was an area she was not good at, and that improvement would be unlikely. Yet she loves listening to music, singing in private, dancing, and listening to children singing. She even described feeling “desperate to sing" but still “won’t let (her) voice come out" if other people are around.
Sue too, suggested she loves singing and “sings loud, in private.” When we began our research Sue described feeling “a bit out of my depth here”. She explained:

I learnt piano as a child, but I’m just private with music. I had a really bad experience actually when I trained initially as a kindergarten teacher. We all sat together in one group and we all had to sing – then it was pointed out to us everything that we did wrong. And ever since that point, when I was probably about 18-19, I don’t sing – unless I’m singing with whole lot of other people. ...I remember it all.

Sue, focus group contribution

**Action: Professional development workshops.** It was clear that our teachers were enthusiastic about facilitating daily singing for well-being, yet most had little confidence in their ability to sing or to teach children to sing. We learnt that preservice and professional development programmes can be successful in increasing teachers’ confidence and competence to teach music (Heyning, 2010; Pascoe, 2007; Russell-Bowie, 2013; Sinclair, Watkins & Jeanerett, 2015). For example, skill and confidence can be enhanced when teachers are involved in weekly one hour singing sessions with children (Heyning; 2010), staff singing groups (Nyland, Ferris & Deans; 2010), and collaboration with mentors (Bainger, 2010; Jeanerett & Stevens-Ballenger, 2013). Our team therefore agreed that the fourth author, (a university lecturer, researcher, and music educator) and the first author, (a music therapy lecturer) would facilitate a workshop which focused on participatory vocal/movement activities that teachers might be able to facilitate in the studio learning environments.

Several teachers felt uncomfortable engaging in the exercises that were offered (as indicated in quotes below), and rejected the offer of further professional development of this type. Others built on it by attending a teachers’ workshop in the community that the fourth author was facilitating. Overall however, ‘direct learning’ such as that offered through the workshop, was not as successful in supporting our teachers as the process of documenting, examining and reflecting on the ways in which they were engaging children in music in the classroom.

_The skill development comes with enjoyment over time. As part of the research process we tried some skill-based exercises that took us back to childhood experiences that some of us were not ready for – we were transported to feelings that “you can’t do this.” However from this point in time – without any pressure – teachers decided to give their children some different musical opportunities. A teacher from each team went to a music education workshop. They enjoyed that opportunity and it too sowed a little seed that they were able to go away and think about. Eventually one team worked with a group of boys on a body percussion piece that they performed; another on a drumming piece; and they have given children other ‘new’ musical experiences too. They did that because the children were really interested and motivated, and the children and teachers all learnt. And while these activities were fun, they would also have made an important contribution to the children’s music education._

Dianna, individual interview
Action: Facing and challenging fears through a collaborative process of critical reflection. Jo and Sue’s histories provide convincing evidence that early negative interactions with others significantly impacted on their singing confidence. Their stories reinforce the belief that lack of singing confidence can be related to negative experiences in childhood or adolescence; including public humiliation in front of classmates, or being asked to mouth the words instead of singing (Bainger, 2009; Bodkin, 1999; Swain & Bodkin-Allen, 2014). However, the process of critically reflecting on their experiences enabled Jo and Sue to face and to challenge their fears. Jo recognised that learners would not judge her singing as she might have previously anticipated. She was aware before we began our research that she didn’t sing in front of the children, but believed it wasn’t a problem. The research process helped her re-evaluate.

"(I was thinking initially) ‘don’t change my ideas. This is how I have to be’. But I feel like I have actually owned up to that and thought, ‘Oh actually you are right’".

Jo, interview

As she began to look more closely at her role in facilitating singing for wellbeing, Jo began to understand the importance of modelling what she expects from the children. She has “stepped out of her comfort zone”, to "behave differently toward the singing... (and is now) bouncing and smiling and the pointing to the words... in a good way”. Jo began to recognise that her love of music and dance freed her to engage passionately during music activities and was determined that she would not pass her fear of singing on to the children.

“I felt (the research was telling us) that we can’t be a good teachers of singing if we feel frightened of singing ourselves, in front of a crowd. And, and I felt quite offended by that at the end of the (first) year. (But) I thought ‘Hang on a minute, I love bopping around. That’s my ‘thing’, you know. And I love to sing in the car by myself. And I’ve learnt through this process how to sing in front (of others). And I’ll sing in front of the children.

Jo, focus group contribution

Action: Drawing on the support of colleagues. Jo also noticed that some of her colleagues who also felt they "don't sing well" continued to sing with the children. The ways in which more confident teachers have been modelling 'courage' and supporting and motivating each other to lead and participate in singing, has increased Jo’s comfort with singing.

I thought working as a team was important; because, I wouldn’t have enjoyed it as much, if I was participating on my own in my own little classroom. And I think watching these guys (other teachers) who are obviously musical, and Sue expressing early on that she wasn’t very comfortable made me feel a little bit better that I wasn’t alone. And then I watched Sue stepping out of her comfort zone. At the end of the year we did a performance which I don’t think we would normally have done... and it was fantastic.

Jo, focus group contribution

Jo has begun to dance in the studios with other staff, while children are singing, and thinks it is great fun. She is aware that when children see teachers enjoying themselves they sing louder and they laugh while they are singing. The enjoyment promotes wellbeing. Jo also believed the higher number of children in learning studio environments, compared with
regular classrooms, made a significant positive difference to her experience of facilitating singing.

“If the singing is not very loud, nobody sings up. It's just really quiet, which (isn't) actually that enjoyable... (On the other hand) the louder they get the louder they get and the louder they get. ...And the sound of 120 children ...blows me away ‘cos I love to listen to children sing’.

Jo, individual interview

It is possible that Jo’s preference for loudness might have been related to her fear of being heard, and the 'safety' she perceives when ‘hiding’ in a big group. She suggested when children are in a smaller group they might want to sing, but feel unable to because "(when) no-one else is singing ...I can’t. I have to go". ‘Having to go’ or ‘running away’ seems to be a metaphor for Jo’s fear of music and her childhood decision that she was not going to do it anymore. More recently, Jo tried to learn the drums from another teacher but stopped because she felt she "really wasn't very good".

It’s a slow process because it’s my fear too to get over. I still want those children to sing. I would never sort of, walk around as though (it's not a good thing) that people will hear you. I’d never put that onto children. So does how we feel about (our) singing impact on the singing and wellbeing of our children? I think we play a role. If we are frightened of something we ensure that those children aren’t, you know. We take more of advanced thinking to make sure that they’re not feeling the way I do. ...A lot of teaching is like that isn’t it? You’ve got a role that you’re playing”.

Jo, individual interview

Action: Promoting positive participation. Teacher self-efficacy is dependent on both confidence and competence. Teachers’ beliefs about their competence, their school context, and the pressures they experience with regard to the curriculum, as well as their beliefs regarding the benefits of the arts for learners, can be highly influential in their abilities to teach music effectively (Garvis & Pendegast, 2010). We have already suggested that what teachers believe about their capacity for initiating and implementing musical ideas can underpin or impede their potential to engage in further music education (Wiggins, 2015). However, in our case, while singing confidence and confidence to teach music was low, teachers were extremely confident in their abilities to successfully facilitate singing for well-being, i.e. singing for fun. This was crucial, because if an experience is perceived to be successful, self-efficacy is raised, and if it is perceived to be a failure, self-efficacy is lowered (Garvis, Twigg & Pendegast, 2011).

Teachers also stressed the importance of children believing they can be successful at singing in order to gain a sense of achievement, and the motivation to continue. However they suggested 'success' is about children being able to participate in their own way (e.g. listening, moving, as well as or instead of singing). They argued strongly that ‘technical music learning’ was not appropriate in the context of singing for well-being; and that singing for well-being should not be ‘taught’; rather it should just be “pure spontaneous enjoyment” (Rickson, Legg & Reynolds, 2018). This was important because it contributed to a growing body of knowledge that suggests when aiming for psychosocial well-being
benefits, activities that focus on expression and fun should be encouraged to enable learners to experience music as engaging, enjoyable and useful in terms of communicating feelings (Crooke & McFerran, 2014).

On the other hand we also concluded that by focusing on positive participation rather than skill-based learning, the potential exists for singing in the classroom to contribute positively to both education and well-being agendas (Rickson, Legg & Reynolds, 2018), and the development of lifelong musical learning (Higgins, 2015).

I was in a choir all the way through primary school but I actually don’t think of myself as a very good singer. I don’t think I sing in tune, but that doesn’t stop me singing because I absolutely love it! And I don’t think that’s a bad thing, in front of the kids, if you can’t sing that well then it’s always good to show that.

Carmen, focus group contribution

The singing has offered opportunities for all kids to be involved as active participants, the music we did at the end of last year was similarly giving those kids a go – those who might not normally be perceived as being musical, and giving them a purpose, making it fun. And though we weren’t teaching them notation and those sorts of things, I was using musical terms like 4/4 and they were learning rhythms and beats so they were still learning those concepts in a fun, purposeful way.

Matt, focus group contribution

(The research process) has grown my appreciation of the music that the kids are involved with. ...To see the enjoyment they’ve got from some of those older songs, and the engagement, whereas we would be inclined to go with what the kids choose thinking that that’s what’s going to give them the most enjoyment. But it’s not actually been that way and it’s broadened their musical appreciation as well. ... What helped was knowing the process that they would be going through, and the feelings that they would go through. So we worked through those things as we became more confident.

Sue, focus group contribution

Our experiences of having conversations around singing for wellbeing – just the pure enjoyment of it – got mixed up with thinking that music education is completely different. But we know we can enjoy singalongs and still take opportunities to increase our enjoyment and wellbeing by taking the singing to another level with new songs that we might not always sing, or with adding harmonies and so on. We don’t need to judge people who don’t go to that next level, but taking those opportunities can enhance the positive responses that singing can evoke. It might be the difference between happiness and ‘goose bumps’ for example.

Dianna, individual interview

Reflection: Understanding the action research process. The emphasis our teachers put on taking a ‘non-judgemental’ and ‘non-pressurizing’ approach to singing for well-being might also be related to their personal experiences of feeling pressurized to sing, and/or being judged to be inadequate. People who label themselves ‘non-singers’ are anxious about
singing, often resist it in fear of being judged (Abril, 2007; Ruddock & Leong, 2005; Sloboda, 2005). Moreover, Jo argued that people have high expectations of teachers generally; they are always being 'judged', and judged on the performance of others, and “cannot put a toe out of line”. She is therefore “always worried about whether (she) is good enough”. However, the action research process enabled individual teachers in our study not only to gradually understand various aspects of their facilitation of singing, including the ways in which their histories have impacted on their relationship with singing, but also to make continuous progress in developing their strengths as reflective practitioners.

The action research has been enjoyable overall, because it has allowed us to have thinking time, to hear each other’s stories, and to hear teachers’ learning. It has prompted people to share personal experiences, early experiences, not just their own experiences of teaching music. And some of our conversations have been difficult. But we were able to uncover some long held beliefs that teachers were carrying about music, and this was important. It was helpful to reflect on some of my own music experiences at school and to realise why I hold some of the beliefs that I now do now. For example, I never got into the choirs at high school because I was ‘never good enough’, but I want children to be able to have that experience now, so I make sure that anyone can come and sing at choir.

Dianna, individual interview

Jo suggests the action research process enabled her to sing with her learners by taking a cognitive approach (telling herself it was part of her professional role to do this), acknowledging her love of music, and drawing on the support (particularly modelling) of colleagues. All members of the school community were already working together to achieve a common purpose and teachers had developed a strong culture of collaboration (Fullan, 1999). Our teachers’ shared communication and reflection on their experiences enabled them to safely challenge their beliefs, to gain further self-understanding, and to take small steps towards improving their singing confidence, by allowing them to establish a learning community specifically to examine their daily singing practices.

When we began our action research, we would have been making assumptions about what team members were thinking and feeling. We began singing brain breaks with a neurological focus; knowing that singing would be something that would stimulate other areas of the brain and help children to be ready for learning. That’s why we did what we did. The teams came on board because they were interested in the singing, they could see the positive benefits that singing had for the children – but without realising how much self-reflection they would end up doing themselves. During this process, we have looked not only at how we facilitate the singing, or teach music, but also at ourselves – and this is more than we would have anticipated when we started on this journey. The action research process helped us to change.

Dianna, individual interview

Change takes time to be realized, and works best when it is not imposed (Makoelle, 2014). Our teachers already had substantial change imposed on them as a result of significant and traumatic events, and we were aware that we were working in a sensitive setting which
demanded we take care not cause unnecessary distress (Dickson-Swift et al., 2008; Liamputtong & Ezzy, 2005; Mutch, 2015). It was crucial that they be allowed to think on their own about change rather than having change imposed on them (Richards et al. 2001). As Jo suggest, “people need gentle encouragement and support in order to engage with music in their own time and at their own pace”. Action research does not always lead to dramatic changes in practice, or even make a significant contribution to a body of knowledge. Rather, individual practices and practitioners are changed as participants engage in inquiry in which connections are made – through critical reflection – between personal experiences, theory and their professional practice. Reflecting deeply is something teachers rarely have regular time for.

_The action research made us do it. We might have slackened off - (Another teacher cuts in: “We had to think about it more”) - Yes, we had to think about it more because we were part of something that was bigger than us, we don’t like letting people down so we put our best foot forward. So it made us think laterally too._

_Sue, focus group contribution_

By thinking and learning about their classroom singing practices, and the beliefs and values that underpin them, our teachers may have become more confident in their ability to put theory into practice across a wider range of curriculum activities. They have been challenged to examine their own beliefs and values, have become more reflective, analytical, and critical, and will be able to expand their knowledge and skills as researchers and as empowered professionals who can self-monitor more effectively, in an ongoing way.

_Teachers do not want to stagnate, we don’t want to stand still; we want to challenge ourselves all the time. But we’ve been through a great deal of change at Waitākiri School both before and during the period of this research – including developing our collaborative teaching and learning approach. Some of the change has been externally imposed, and some of it was internally imposed, as well as teachers engaging in self-challenge. Making and maintaining positive connections with others in our school community has been extremely important. The research enabled us to connect with those around us because we were all singing and working on the action research together._

_Dianna, individual interview_

**Conclusion**

This single case study focuses on a school where teachers chose to engage learners in daily singing to support their well-being in a traumatic post-earthquake environment. While reflecting on the work, several teachers recognised that they were passionate about engaging children in singing yet were uncomfortable singing themselves. An action research process gave them time and space to reflect on their personal histories, to consider how their musical confidence had been affected by the negative judgements of others, and to recognise that their experiences were not unique. In this way their experiences and feelings were validated.
The success of teacher professional development depends not only on their ability to reflect on and develop their conceptualizations of knowledge, learning and teaching practices (Thorn & Brasche, 2015) but also on their willingness to challenge problematic beliefs and develop new understandings (Nyberg, 2015). Nyberg goes on to say that research on professional development within arts education has found that practitioners are reluctant to implement change suggested not only by authorities and policy makers but also by practitioners; and that thought patterns, as well as behaviour, needs to change (Neyberg, 2015). However, examining and reconstructing personal beliefs can be intellectually and emotionally demanding. Teachers participating in the Singing for Wellbeing project described journeys of listening, rebelling, gaining self-acceptance and acceptance from others; and of watching, listening, gaining confidence, participating, increasing confidence and participating further. Thus they deemed the work worthwhile.

The key to worthwhile teacher-conducted action research rests in the questions addressed by the project and the extent to which the results are meaningful and important to the teachers - and not necessarily in the means by which those results are realized (Mertler, 2010). In our case the research process helped teachers gain a deeper sense of empathy with others in the school community, and they were able to use this empathy to support learners. They felt that the research process supported their efforts to collaborate as those who were more confident or competent with particular aspects of the project were able to model and support others; i.e. they learnt from each other. Most importantly, their close observations of children left them inspired by the ways in which the learners managed themselves in extremely difficult circumstances, and how singing, along with physical movement and humour, appeared to support their well-being. We have included a video put together by learners and teachers which brings together these three factors and demonstrates how they supported well-being in our community (https://youtu.be/GkOr7xq36EM).

Despite their low self-efficacy with regard to singing and teaching music, our teachers were able to ensure that singing programmes remained accessible and enjoyable – and ‘successful’ in the well-being context. Our findings suggest that even with poor self-efficacy, teachers are able to engage learners in singing by taking the focus away from music learning. Similarly early childhood teachers in Swain & Bodkin-Allen’s (2014) study who lacked confidence and considered themselves ‘tone deaf’ and unmusical, also reported enjoying or even loving singing, and were willing to participate in singing activities. However, while our findings suggest that unpacking negative experiences can be almost as important in some cases as acquiring knowledge and skills in music (Bainger, 2010) we would also argue that more needs to be done to ensure that teachers – and indeed all people - are able to be confident in using their voices to sing.

“Journeying on a wider path allows us to move with a more diverse group of fellow travellers who shape our journey and widen our perspectives”.

(Chapman, 2015, p. 27)
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About the Authors

Daphne Rickson, Ph.D., is a Senior Lecturer in music therapy at the New Zealand School of Music - Te Kōkī, Victoria University of Wellington. As a music therapy practitioner she has over twenty years of experience working with learners who have diverse needs, in a range of special schools and mainstream settings. She has particular interest and experience in the use of collaborative research approaches, including participatory action research. Email: daphne.rickson@vuw.ac.nz.

Jo Atkinson is an experienced classroom teacher, and currently Team Leader (Korimako Hub, Year 5-6) at Marshland School. Email: atkinson@marshland.school.nz.

Dianna Reynolds is an experienced classroom teacher, music specialist, and current Deputy Principal at Waitākiri School. Email: dianna.reynolds@waitakiri.school.nz.

Robert Legg, Ed.D., studied music and education at Bristol, Oxford and Durham universities in the United Kingdom, and at McGill University in Canada. He plays the cello and the piano, and is active as a teacher, researcher, conductor and accompanist. His widely performed arrangements and award-winning original compositions include part-songs, dramatic cantatas and carols, as well as music for orchestra and string ensembles. Robert has worked extensively in schools and universities in England, New Zealand and France. His academic writing appears in journals such as Music Education Research, Psychology of Music, Research in Education and The Curriculum Journal while his book chapters, journalism and reviews can be found in many professional periodicals. Email: robertjlegg@gmail.com.
References


USING FIRST AUTHOR® WRITING CURRICULUM WITH STUDENTS WITH AUTISM SPECTRUM DISORDER

Kristie Asaro-Saddler
University of Albany

Jessica Coles
University of Albany

Abstract For individuals with autism spectrum disorder (ASD), writing can potentially aid in increased communication, socialization, and independence. Yet these students historically have been excluded from purposeful writing activities and instead have received limited literacy learning instruction. In this action research project, we observed the effects of a high-quality writing curriculum on three young students with ASD. We utilized a qualitative case study design to answer the following question: What are the effects of the First Author® Writing Curriculum and technology program on the writing and engagement of elementary school students with ASD? Results indicated that all three students appeared to benefit from the use of the First Author®. The teacher also reported feeling more confident and prepared to teach writing to her students. General themes included increased student engagement, willingness to transition, and increased quality interaction with technology and with other students/adults. Practical implications, limitations, and future research direction will be provided.

Keywords: teacher action research, autism spectrum disorder, engagement, technology, writing

Introduction

Writing is a means of expression, personal reflection, and self-discovery (Kluth & Chandler-Olcott, 2008). Writing is often used both in and out of the school setting as a method of demonstrating one’s understanding of content, sharing ideas, and communicating with others. In the current age of text messages, email communications, and social media, students need to be aware of and able to use different forms of written communication. Yet writing often poses as a challenge to many individuals with and without disabilities; among people who face these challenges are those with autism spectrum disorder (ASD).
For individuals with ASD, writing is especially important because it can aid in increased communication, socialization, and independence (Wollak & Koppenhaver, 2011). Although some people with ASD are skilled writers who effectively use writing as a means of communication and expression, many students with ASD struggle to write well. Specific characteristics of students with ASD may interfere with their ability to engage in the writing process. These include language delays that impact their ability to produce written products (Sturm, 2012), difficulty utilizing writing strategies such as planning, organizing and generating content (Joseph & Konrad, 2009), lack of self-regulation (Asaro-Saddler & Saddler, 2010) and executive functioning skills (Carnahan, Williamson, & Christman, 2011) required for writing, and physical and/or sensory impairments that may impact their ability to produce written products (Wollak & Koppenhaver, 2011). These characteristics, coupled with the fact that individuals with ASD often receive inadequate literacy instruction (Joseph & Konrad, 2009), results in their tendency to perform well below their peers in the area of writing (Bishop, Sawyer, Alber-Morgan, & Boggs, 2015).

Literature Review

Historically, students with ASD have been excluded from purposeful writing activities (Carnahan, Williamson, Hollingshead, & Israel, 2012) and instead have received limited literacy learning instruction, often focused on functional skills such as copying words and sentences, worksheets, and handwriting drill-and-practice (Asaro-Saddler, Arcidiacono, & Morris-Deyoe, 2017; Sturm, 2012). This may occur for several reasons. First, many educators continue to believe that a life-skills, functional perspective is most appropriate for students with ASD (Ruppar, 2015; Ruppar, Dymond, & Gaffney, 2011) and that writing instruction is superfluous. In fact, one of the greatest barriers to writing for students with ASD is that their teachers do not believe they are capable of becoming writers (Keefe & Copeland, 2011; Sturm, 2012). In addition, educators often lack training in how to provide evidence-based writing instruction (e.g., Cutler & Graham, 2008). Even with training, teachers often do not have appropriate curricular guides, appropriate writing tools, and time allocated in the day to provide instruction (Sturm, 2012; Sturm, Cali, Nelson, & Staskowski, 2012). Unfortunately, this results in students with ASD learning to write in decontextualized environments, rather than through authentic uses of literacy skills in everyday activities (Ruppar, 2015), and does not allow them to receive the support or develop the appropriate skills they need to become proficient writers.

Research has found, however, that when provided with effective, evidence-based instruction, students with ASD can develop higher-level writing skills. For example, a review of the literature was conducted to explore the effectiveness of writing interventions with students with ASD (Pennington & Delano, 2012), and found several potentially effective writing interventions. Among these is the self-regulated strategy development (SRSD), an approach that combines strategy instruction with prompts for self-regulation such as goal setting and self-monitoring. Studies using this intervention found positive findings in the persuasive writing and story writing of elementary school students with ASD (see Asaro-Saddler, 2016 for a review). Other studies have highlighted the use of technology for students with ASD to write stories (e.g., Pennington, Collins, Stenhoff, Turner & Gunselman,
2014; Schneider, Coddington, & Tryon, 2013), name writing (Moore, Anderson, Treccase, Deppeler, Furlonger, & Didden, 2013), and check the spelling of words (e.g., Kagohara, Sigafoos, Achmadi, O’Reilly, & Lancioni, 2012).

One technology program that has recently been explored with students with ASD is First Author® Writing Curriculum and technology program. This program was developed by Dr. Janet Sturm specifically for beginning writers with complex learning needs such as ASD and designed in consideration of Universal Design for Learning (UDL) principles (Sturm, 2015). It guides students through a three-step writing process of choosing a topic, selecting a picture prompt, and writing with the support of built-in accommodations such as word banks, on-screen keyboards, and self-regulation prompts. Mini-lessons, which occur for about 5-15 minutes, focus on one specific skill for the day (e.g., adding a period) and are taught through explicit instruction (Sturm, 2015). Lessons include a tip sheet consisting of both simple words and pictures to help students remember the essential information. Writing time follows the mini-lesson, and then students are given the opportunity to share their work in the Author’s Chair. In one pilot study, preliminary analyses found that secondary students with ASD and developmental disabilities who used First Author® reported mixed results, indicating that students showed some improvements in writing quality and quantity when being taught using First Author® (Asaro-Saddler, Muir-Knox, Meredith, & Akhmedjanova, 2015). However, no known published study has explored the effects of the program on young beginning writers.

Methodology

Context for the Current Study. The first author, a special education teacher and doctoral student, wanted to provide her students with quality writing instruction in which they could engage appropriately. She worked with the second author, a researcher, to implement an action research project in which they could observe the effects of First Author® Writing Curriculum on the young students with ASD in her class. Specifically, a qualitative case study design was utilized to answer the following question: What are the effects of the First Author® Writing Curriculum and technology program on the writing and engagement of elementary school students with ASD?

Participants. Participants in this study were Osvald, Palen, and Chindi (pseudonyms), three males of European American descent between 5 and 8 years old, and their teacher. The students’ Individualized Education Programs (IEP) each listed their primary diagnosis as ASD, and they were placed for part of their day in a self-contained program that was serving students with communication and cognitive delays. Specifically, Osvald and Palen spent 80% of their time in the special education setting, while Chindi spent 10% of his time there. The classroom was comprised of twelve students, one dually certified special education/literacy and elementary education teacher, three teaching aides, and one teaching assistant (certified teacher and able to provide direct instruction). Student participants were referred for the study by the first author, who was their teacher at the time of the study. The study occurred in a suburban elementary school in the Northeastern United States.
**Materials.** First Author Writing Curriculum® (First Author®) was used with the participants in this study. The First Author® package included a curriculum guide with 80 mini lessons, an instruction guide with 63 tip sheets, assessment guide, classroom posters, teacher resource CD, and writing software. The lessons, which are designed for developing writers, each began with a short mini-lesson, followed by independent writing time, and ended with Author’s Chair, which was an opportunity for students to share their writing with the group.

First Author® software offered several assistive features during the writing process. First, students were directed to a planning screen that supports topic selection by providing photo images that can be individualized by the teacher. Students selected a photo and were then taken to the composing screen. The composing screen had on-screen keyboards and word banks that included topic specific words in addition to high frequency and frequently misspelled vocabulary. A read aloud feature and self-regulatory prompts (e.g., verbal cues to continue writing) were also provided. The final screen read the students’ work aloud and included a “publish” option, which created a book cover with photos and author’s name.

Other materials included a classroom desktop computer or pencil and paper used for writing, a Macbook Pro® laptop to video record each lesson, and augmentative communication program, Proloquo2Go® which was accessible on an iPad® to each student during the lessons. This program was utilized by students as a part of their daily routine; therefore, it was provided during the writing lessons as well.

**Procedures.** The teacher worked one-to-one on writing daily with each of the three participants. Each lesson was composed of two parts: a mini lesson from the First Author® Curriculum, and then writing time, in which the students used the skill from the mini lesson to guide their writing. During writing time, students had the option to start a new piece or finish one they had already been working on. After the students completed their writing they printed it and could either take it home or put it in the classroom library. There were no time constraints put on the mini-lesson or writing time; however, mini-lessons were designed to be no longer than 15 minutes.

Each session varied, depending on the topic, student’s interest, motivation and engagement. Throughout the implementation of the writing intervention, students received the same lesson either once or multiple times, at the teacher’s discretion. This was important because the students’ writing success, engagement and achievement was the ultimate goal for the study, and moving on to the next lesson, if the student had not truly mastered the goal from the previous lesson, would not have been ethical. Each lesson was recorded for later analysis, and the teacher completed field notes after each lesson (see below).

**Data Collection and Analysis.** Data were collected over 10 months during the academic school year (September-June) and contained multiple components: First Author® Teacher Management software, video observations of each session for each student, and field notes from the teacher for each lesson.

The First Author® Teacher Management Software automatically measured student’s writing achievement. The software included measures such as Topic Diversity, which measured and
quantified the various topics the writer self-selected; total intelligible words (TIW), which measured overall intelligibility of the student’s words and written fluency; and total unique words (TUW), which measured the overall vocabulary diversity.

Each lesson (mini-lesson and writing) was video recorded. For each student 60 minutes of pre-selected video recording was transcribed. The video segments were selected at random; some were of the mini lesson, some were of the writing session, and some were a compilation of both. After the transcriptions were completed another researcher compared the transcriptions to the videos for reliability and validity. Transcripts were used to identify writing behaviors and engagement. After watching and transcribing the videos, researchers created a list of codes based on behaviors they noted while watching the videos, as well as previous research regarding engagement of individuals with ASD. Researchers went through the transcriptions and coded the student’s behavior. See Table 1 for a list of the codes developed and used.

Table 1: List of Codes

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<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal initiation</td>
<td>Students initiated a verbal comment about the lesson topic</td>
</tr>
<tr>
<td>Initiation with technology</td>
<td>Student initiated a comment about the lesson using the Proloquo2Go© app</td>
</tr>
<tr>
<td>Other non-verbal initiation</td>
<td>Student initiated by pointing to an object or a picture to communicate what they wanted</td>
</tr>
<tr>
<td>Verbal response</td>
<td>Students verbally responded to a request or question</td>
</tr>
<tr>
<td>Response with technology</td>
<td>Students responded to a request or question using the Proloquo2Go© app</td>
</tr>
<tr>
<td>Other non-verbal response</td>
<td>Students responded to a request or question by pointing to an object or a picture to communicate what they wanted</td>
</tr>
<tr>
<td>Echolalia</td>
<td>Student repeated what the teacher was saying or repeated a phrase they commonly used that was not relevant to the lesson</td>
</tr>
<tr>
<td>Physical aggression</td>
<td>Student hit, kicked, swiped or threw an object.</td>
</tr>
<tr>
<td>Stimming</td>
<td>Student engaged in repetitive behaviors (physical or verbal).</td>
</tr>
<tr>
<td>Eye contact</td>
<td>Student looked at the teacher in the eyes or looked at the screen when asked.</td>
</tr>
<tr>
<td>Waiting</td>
<td>Student was in the designated instruction area and delaying behavioral impulses.</td>
</tr>
</tbody>
</table>
Escaping/leaving work area  

| Student left (or tried to leave) the instructional area without permission |

Disengaged  

| Student gave off topic responses or stared off into the distance |

Distracted by external stimuli  

| Student was unable to concentrate on the mini-lesson or writing because of another student or environmental situation |

Note: Codes in which the child was considered to be “engaged” in the lesson are bolded, while non-bolded items were behaviors in which the child was considered to be “not engaged.”

Field notes were taken during and after each lesson of the study. The field notes included both descriptive and reflective information about the student and session. The notes were organized and completed in response to questions. This was important because it allowed the teacher to collect notes on the same information for each student, as opposed to a random narrative about the session. The notes included the date, student name, title/lesson number and attempt, did the student write during the lesson, what did they write, what was the topic, how many words were written, the level of assistance, student behaviors and additional comments and observations. These notes, combined with video transcripts, allowed researchers to examine the ways in which the participants engaged with First Author®.

Results

There were a variety of complex findings worth noting in regards to this study. Specific themes emerged from the data across all three student participants, as well as among individual students. All three students and the teacher seemed to benefit from the use of the First Author®, and the classroom was a better place for using it. General themes included increased student engagement, willingness to transition, and increased quality interaction with technology and with other students/adults. Specifically, engagement was noted to be a very important theme. Upon viewing the videos, students were engaged in an average of 67% of the time, with Osvald engaged 82.7% of the time, Palen 63.2% and Chindi 57.2%. Overall improvements in writing, such as increased topic diversity and quantity of writing, were also noted. We will now discuss specific findings for each participant.

Osvald. Osvald benefited most from the First Author® Writer’s Curriculum. Specifically, Osvald showed an increase in topic diversity, increased time writing, more opportunities to write, increased academic language, increased quality of writing, decreased problem behaviors and easier transitions from preferred activities to writing. Osvald’s interactions with writing prior to First Author® were delivered via a structured task system in which he would complete a certain number of writing activities (handwriting worksheets and handwriting skills) each day. He struggled to generate ideas for writing and fatigued quickly when asked to write sentences. His writing experiences were limited and driven by his lack of interest in the task.
During the First Author® sessions, Osvald used planning methods, such as brainstorming and making lists, to improve his writing. He was able to progress from needing word banks to facilitate his writing/typing to writing without using word banks and developing phrases independently. Results also indicated that Osvald had increased topic diversity. Prior to First Author®, he struggled to choose topics on his own; however, once he was able to see that whatever he was thinking could be typed into the software and an image would come up, he began to choose a variety of topics. The variety of topics allowed the teacher and readers of his work a deeper and richer access on what was “going on inside of his head”, which was especially important due to his lack of language. Osvald’s writing quality also increased. Since this curriculum required Osvald to write quality pieces every day, he wrote more stories when engaging in First Author®. Prior to using the software Osvald, had never written a story. During the study, Osvald willingly wrote numerous stories during one session on various topics. His writing experience expanded beyond handwriting to quality writing experiences.

First Author® Writing Curriculum also had an impact on Osvald’s behavior. He had a behavior plan that targeted physical aggressions and elopement (running away), since he was averaging 45 physical aggressions a day. When we implemented the intervention, on the other hand, we reported an average of 7 physical aggressions, and they were mainly during one session. The teacher reported that because of Osvald’s decreased physical aggressions when using First Author® she was able to have more quality academic interactions with him. The teacher also reported that Osvald’s academic language increased. He was reported using phrases like “let’s write,” and “I am a writer.”

The teacher reported that Osvald transitioned to writing with greater ease. Prior to the study, Osvald would elope, cry, scream, or engage in self injurious behaviors when it was time to transition from a preferred activity to writing. During First Author, Osvald would transition willingly and would even ask to write during his breaks. Osvald also began to view writing as a collaborative and personal experience and not an isolated one. He would collaborate during planning, he would interact with the computer during writing and look at others’ stories, and when finished he would read his writings to his peers from the author’s chair. He also began taking his stories home, and his mother would integrate them into his bedtime routine.

**Palen.** Palen also benefited from the First Author® Writer’s Curriculum. He showed an increase in topic diversity, increased time writing, more opportunities to write, increased academic language, increased quality of writing, and easier transitions from preferred activities to writing. Like Osvald, Palen’s interactions with writing prior to First Author® also consisted of writing via a structured task system in which he would complete a certain number of writing activities (handwriting worksheets, iPad writing activities, Velcro sentence construction) each day. He struggled to generate ideas for writing and fatigued quickly when asked to write sentences by hand.
One of the greatest findings with Palen was the significant increase in topic diversity. Prior to First Author® the teacher reported Palen struggling to attach topics to writing and to the concept that you write sentences to describe your topic. After mini-lessons and writing sessions, Palen quickly was able to navigate the software and would search topics that he had learned about earlier in the day. His topics ranged from Starbursts to remote control cars. Palen also wrote more. He engaged in writing for longer periods of time, and wrote numerous stories per session; sessions in which Palen wrote 6 stories, for example, were not unusual. Palen’s academic language was also noted to increase. The teacher reported that he would ask for his writing tip sheet and would verbally identify punctuation he needed for the end of sentences. Palen’s success in First Author® carried over to his family life. His family asked that writing goals be put on his IEP moving forward, and he even gifted his printed-out stories to family friends and siblings for Hanukah. Palen transitioned easier to writing when it was First Author® writing time, and began viewing writing as a personal experience.

Chindi. Chindi also benefited from First Author® Writing Curriculum, however his lack of typing ability prevented him from benefitting as much as his peers did. For example, Chindi did not know how to maneuver the mouse, so the teacher had to guide his hand, which inherently removed 100% of the choice during his time on the computer. More specifically, if Chindi wanted to exit the software, he could not because he could not move the mouse. His stimming and lack of technological skills negatively impacted the amount of academic achievement and engagement he had. He did not know how to type, so the typing portion of the lessons were heavily prompted. First Author® did provide Chindi with an increased amount of writing opportunities though. Prior to First Author®, Chindi wrote with his class, but during First Author® he was able to write both during time with his class and during his 1:1 time with the teacher. He was observed to write in every lesson.

The teacher reported that Chindi had an increase in topic diversity, from 0 to 28 unique topics. On occasion, he wrote on the same topic more than once. Prior to First Author® Writing Curriculum Chindi did not suggest his own writing topics. When he was able to use the software, he was able to verbalize to the teacher or point to what he wanted to write about. He wrote about things like his family skiing, tea parties and Disney World. Chindi’s participation in First Author® carried over to his family life. He would bring his stories home and put them on his bookshelf at home, and his parents asked for writing goals for his IEP for the next year. Chindi was very proud when he got to read his story in his kindergarten general education classroom.

Teacher. Throughout the duration of the study the teacher took a variety of field notes and reflections. Implementation of the First Author® Writing Curriculum provided significant support for the teacher. Throughout the intervention the teacher’s results showed themes of increased reflection, increased quality interactions with the students, increased quality of home and school connections, increased preparedness, and efficacy as an educator.
In regards to efficacy as an educator, the teacher reported feeling better prepared to teach her students because of the resources that the curriculum included. The teacher could focus more on delivery than content, which made the content more accessible to the students. More specifically, the traditional standards do not necessarily speak to the needs of the students, and they do not address students with significant cognitive abilities. This curriculum was specific, intentional and sequential, which allowed for the teacher to spend time taking that content and finding a way for it to connect with students instead of designing the content as well. The teacher was happier, more confident, and satisfied with the teaching of these students, because the students were being exposed to rigorous and quality instruction.

Connections with students were also impacted by the curriculum. The teacher had a script to follow that connected directly with the writing skills students were asked to learn. The teacher reported being able to overtly model successful academic interactions with students for other staff. More specifically, the staff and administrators were able to see the students doing something academically rigorous, and it helped change perceptions and possibly improve interactions between students and paraprofessionals.

Discussion

In this study we sought to examine the effects of the First Author® Writing Curriculum on the writing and engagement of three elementary school students with ASD. Results indicated that for the students in this study, writing moved from handwriting and tracing letters to actually writing stories based on their preferred and self-selected topics. This represented a shift in thinking about what writing was for these three students, and what they were capable of as writers.

Findings from this study indicate that the participants were highly engaged during the mini-lessons and writing time. This is a promising finding, since students with ASD often have difficulty engaging during instructional time (Sparapani, Morgan, Reinhardt, Schatschneider, & Wetherby, 2016). Students seemed to require less redirection and were able to transition more quickly from a preferred activity to writing time.

The students were also observed to be writing more, a positive finding given that many students with ASD do not often engage in typical writing activities. In one study, for instance, Ruppar (2015) found that students with ASD and other intellectual disabilities spent minimal time (only 11%) of their identified literacy block engaged in writing, with only one of four teachers observed to include writing in class literacy activities. Therefore, the fact that students were engaged in personally meaningful authentic writing experiences was commendable. Additionally, the students were noted to increase their topic diversity. This was an especially encouraging finding as the participants in this study, like many people with ASD, had specific interests that they tended to want to discuss all the time (Gunn & Delafield-Butt, 2016). The fact that they could use the software to brainstorm and have pictures to support their ideas was a benefit.
The teacher in this study reported feeling more confident and prepared to teach her students when using the First Author® Writing Curriculum, a positive finding given that many teachers, both special and general education, do not feel prepared to teach writing to their students (Cutler & Graham, 2008). Programs such as First Author® may help to fill a gap for many teachers of students with complex support needs who believe that they do not have the appropriate curriculum or materials to teach writing to this population (Sturm, 2012; Sturm, Cali, Nelson, & Staskowski, 2012).

An unanticipated outcome of this study was the way in which use of the program enhanced home/school relationships. Parents were reading their children’s stories at home and one student actually gave his stories as presents. In addition, two of the three participants’ families asked that individual goals in writing be added to their children’s IEPs. This was an especially exciting finding, because it represented the fact that the parents now believed their children were capable of being writers, which they had not thought before.

**Limitations and Implications**

Since this was a qualitative, exploratory study, there was no data examining the gains in writing achievement and engagement prior to and after using the First Author® Writing Curriculum. Future research should consider utilizing single-case or group design studies that examine the effectiveness of the program on young writers with ASD. In addition, it is unknown whether the writing lessons or the technology had a greater effect on the students’ ability to attend and improve writing outcomes. Future research directly comparing technology with paper/pencil writing tasks will help determine whether the lessons or the software program alone may have an impact on students’ writing. Similarly, although students were highly engaged during both the mini-lessons and while using the software, it might be interesting to note trends in students’ engagement across these two aspects of the program (i.e., during which part of the lesson were they more/less engaged).

**Conclusion**

The findings of this action research project add to a small but growing body of research on writing for students with ASD. Using a qualitative case study method allowed for more in-depth, rich observation of the effects of the program beyond quantitative outcomes. We hope that this study may draw attention to the possibility that students with ASD and concurrent communication and cognitive challenges may become skilled, competent writers when given proper instruction. In addition, we believe this study allows teachers to see the benefits of using such a program to allow for more personalized, meaningful, and contextualized writing instruction for all students.
About the Authors

Kristie Asaro-Saddler, Ph.D. is an Associate Professor in the Division of Special Education at the University at Albany. Her research interests focus on writing and self-regulatory strategies, specifically for students with Autism Spectrum Disorders (ASD). She has published in special education journals including the Journal of Special Education, Exceptional Children, and Remedial and Special Education, and has presented at national and international conferences in the area of writing. Prior to joining the faculty at the University at Albany she was a special education teacher for children with ASD and developmental disabilities. Email: ksaddler@albany.edu

Jessica Coles, M.S. Ed. is a doctoral research fellow at the University at Albany in the Educational Psychology and Methodology program. Her research interests focus on special education, teacher preparation and cultural responsiveness. She has been a special education teacher for six years, and works primarily with elementary students who have ASD or mood disorders. Email: jcoles@albany.edu
References


