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Preservice Music Teachers' Perceptions of Online Peer-Assisted Learning

The purpose of this study was to examine preservice music teachers' motivation, social emotional skills, and perceptions of classroom climate during an online peer-assisted learning (PAL) experience. Participants (n = 27) included students in an introductory music education course who completed a teaching practicum using an online peer teaching format. The design of this study is primarily quantitative; however, follow up participant interviews (n = 4) were conducted to help further contextualize survey results. Quantitative data were collected via questionnaire measures (Coryn et al., 2009; Elliot & Murayama, 2008; Kaufmann et al., 2016; Kaufmann & Vallade, 2020) and follow-up interviews were conducted with four participants. Data revealed several moderately strong positive correlations between mastery approach orientations and self-regulation, course structure, and course clarity, indicating that participants' experiences were likely influenced by their individual motivation orientation, social-emotional learning skills, and perceptions of online classroom climate. Interview data provided further context for these findings by revealing participants' individual experiences with group interactions, peer feedback, student connectedness, and course structure. It is important to note that, given the small sample size and exploratory nature of this study, further research on this topic is needed before any interpretations can be strongly relied upon.

Keywords: online collaboration, peer learning, preservice music teachers

Growing health and safety concerns related to the spread of COVID-19 in a global pandemic necessitated a shift from face-to-face instructional settings to online classroom environments in the 2020-2021 school year. However, researchers have previously found that online classrooms may foster feelings of social isolation, lead to concerns with maintenance and sustainability, and can lack the immediate feedback and non-verbal communication present in face-to-face teaching (Hayward, 2004; Keppell et al., 2011). Researchers have identified collaborative learning strategies as a potential tool for mitigating these feelings of isolation and frustration that arise due to online instruction (Altinay, 2017; Biasutti, 2011; Ray-

mond et al., 2016; Shawcross, 2019; Thorpe, 2002). Additionally, collaborative learning practices have been identified as an effective instructional strategy in a variety of music learning contexts (e.g., Alexander & Dorow, 1983; Duran et al., 2020; Johnson, 2013).

One collaborative learning approach that has been investigated in music education contexts is peer-assisted learning (PAL), which is defined as "the acquisition of knowledge and skill through active helping and supporting among status equals or matched companions" (Topping, 2005, p. 631). PAL arrangements have been evaluated in the context of diverse demographic contexts, K-12 and higher education settings, subject areas such as math, reading, and medical education, and students with special needs (Cohen et al., 1982; Ginsburg-Block et al., 2006; Li et al., 2020; McMaster et al., 2006; Robinson et al., 2005; Rohrbeck et al., 2003; Roscoe & Chi, 2007). Additionally, researchers investigating music learning contexts have found that PAL approaches can be beneficial for students' academic and social achievement (Alexander & Dorow, 1983; Darrow et al., 2005; Duran et al., 2020; Goodrich, 2007; Jellison et al. 2015, 2017; Johnson, 2017; VanWeelden et al., 2017).

Collectively, meta trends that have emerged from these bodies of literature highlight both social and academic achievement gains, demonstrating the ability for PAL to be used effectively in a wide range of educational contexts. Specifically, this study focuses on student perceptions of online PAL experiences through an examination of social-emotional learning, classroom climate, and individual student motivation orientations.

Social-Emotional Learning

While traditional didactic teaching approaches emphasize teacher to student interaction as a primary form of learning, collaborative learning methods such as PAL emphasize student to student interaction. Theoretically, PAL experiences may promote social interactions, heightened communication, and shared experiences that have the potential to support the development of social-emotional learning skills in students. An individual's social-emotional learning (SEL) refers to an essential set of competencies that reflect their ability to recognize and manage emotions, solve problems effectively, and establish positive social relationships (Zins & Elias, 2006). Furthermore, Zins and Elias (2006) suggest that these competencies are most effectively taught within caring and supportive learning environments. Examining PAL activities through the lens of SEL could provide valuable insight into student perceptions and experiences, as social-emotional and psychological constructs have been identified among the greatest influences on school performance (Wang et al., 1993).

Online Classroom Climate

Recently, scholars have extended investigations of collaborative learning practices into the realm of online learning environments (Altinay, 2017; Biasutti, 2011; Raymond et al., 2016; Shawcross, 2019). Broadly, researchers suggest that facilitating online collaborative learning can help students achieve educational goals, yet students in online classes have reported higher levels of perceived loneliness than peers in face-to-face courses (Ali & Smith, 2015). Therefore, introducing collaborative learning into the online classroom may help build interpersonal connection and combat feelings of social isolation.

Collaborative learning environments have the potential to positively affect online classroom climate due to increased peer interaction, communication, and relationship building (Dwyer et al., 2004; Kaufmann & Vallade, 2020). Classroom climate refers to the perceived connection, rapport, and affinity among teachers and students (e.g., Dwyer et al., 2004; Frisby & Martin, 2010; Myers, 1995). Theoretically, PAL has the potential to affect a positive classroom climate given that researchers have found PAL approaches to be beneficial in providing a structure for positive student interaction that nurtures a culture of mutual respect and understanding that benefits students' personal development (Jellison et al., 2015, 2017).

Motivation Orientations

A student's motivation orientation may influence their behavior while engaged in PAL while also impacting the degree to which that student is able to learn (Johnson, 2013). In other words, students' feelings of competitiveness toward peers, or even the degree to which they are willing to engage with others, may be affected by their motivation orientation. Thus, a collaborative learning experience in which students are the purveyors of their own learning would be an ideal environment in which to examine student motivation orientations. The field of academic motivation is divided up into numerous theories; however, underlying motivational impetus has traditionally been characterized as either intrinsic or extrinsic (Ryan & Deci, 2000). Specifically, this study draws upon achievement goal theory wherein motivation orientation is synonymously reframed from intrinsic and extrinsic motivational categories and conceptualized as mastery and performance goal orientations (Ames, 1992; Dweck, 1986; Elliot, 1999).

Individuals who possess mastery goal orientations are propelled by an internal desire to achieve for the sake of one's own satisfaction; however, individuals with performance goal orientations are motivated by a desire to demonstrate competence for others (Elliot, 1999). According to Elliot, mastery and performance orientations are further subdivided via their "valence," whereby individuals also hold

"approach" or "avoid" beliefs through which they enact their specific orientation. A person who holds an approach valence seeks to achieve a positive outcome (approach success) whereas a student who holds an avoid valence seeks to avoid a negative outcome (avoid failure). Further examination is needed to understand the interaction of motivation orientations in the context of PAL (Johnson, 2013).

Many educators are in search of flexible online learning solutions as technology continues to become more pervasive in everyday life, and face-to-face interactions become increasingly limited due to the ongoing global pandemic. Therefore, music educators may benefit from context-specific knowledge about PAL in online music learning environments. Further investigations of learner experiences will help provide insight into how online PAL arrangements interact specifically with music learning in an online preservice music teacher education context.

Purpose and Research Questions

The purpose of this study was to examine preservice music teachers' motivational dispositions, social emotional skills, and perceptions of classroom climate during an online peer-assisted learning (PAL) experience. The research questions addressed in this study were: (1) What are the achievement goal orientations of preservice music teachers in the context of an online PAL experience?; (2) What are preservice music teachers' perceptions of their individual social-emotional skills in the context of an online PAL experience?; (3) How do student perceptions of online classroom climate change throughout an online PAL experience?; and (4) How are preservice music teachers' achievement goal orientation, social-emotional learning skills, and perceptions of classroom climate related to each other in an online PAL experience?

Method

Participants

Potential participants for the study included all students enrolled in an introductory music education course at a large public land-grant university in the Western United States in the Fall 2020 semester. Out of 34 total students enrolled in the course, 27 opted to participate in the study, yielding a response rate of 79.4% for the quantitative questionnaire. Institutional Review Board (IRB) approval was granted prior to contacting potential participants about the study. Follow-up interview participants signed the IRB-approved Informed Consent Form that detailed the purpose of research, study procedures, and confidentiality measures before

data collection began. Participants agreed to an electronic version of the Informed Consent Form before responding to the questionnaire, per IRB regulations.

Participants were music education majors and represented both undergraduate (n = 22) and graduate (n = 5) levels of study. All students (both undergraduate and graduate) were taking this course as part of their required coursework to obtain their initial music teacher licensure. Additional demographic data are summarized in Table 1. Participants for follow-up interviews (n = 4) were selected from the pool of student participants in the introductory music education course who completed the quantitative questionnaire (n = 27).

Table 1
Sample Demographics

Demographic Category	*n*	%
Female	11	40%
Male	16	60%
White/European American	22	81%
African American	3	11%
Hispanic American	1	4%
Asian American	1	4%
Freshman	14	52%
Sophomore	6	22%
Junior	2	7.5%
Graduate Student	5	18.5%
Band	17	63%
Choir	7	26%
Orchestra	3	11%

The start of the Fall 2020 semester marked the first time students returned to campus for face-to-face instruction since moving to an online learning format in March 2020 due to the COVID-19 pandemic. Upon returning to campus, health and safety protocols were strictly enforced and included a minimum of a 6-foot distance between all students and instructors, mandatory face coverings, required disinfecting of all surfaces before and after use, and limitations on time spent in classrooms. Due to ongoing research about the spread of aerosols in music ensemble settings, playing wind instruments and singing in face-to-face classroom settings was not permitted at any time during the Fall 2020 semester when the study took place.

All students in the introductory music education course participated in a practicum experience which had previously included travel to local secondary public schools to observe practicing teachers and to teach students in small groups; however, health and safety protocols enacted due to the COVID-19 pandemic necessitated a shift from this traditional format. Therefore, an online practicum format was chosen to provide an opportunity to develop online teaching skills and allow students to engage in singing and music making safely.

Data Collection

Prior to engaging in the online practicum unit, participants responded to a questionnaire comprised of the achievement-goal orientation questionnaire (Elliot & Murayama, 2008), the Social Emotional Learning Scale (Coryn et al., 2009), and the online learning climate scale (Kaufmann et al., 2016). Students' perceptions of classroom climate were collected twice: once after the initial peer-teaching experience and again at the conclusion of the online PAL unit using the 15-item online learning climate scale (OLCS) (Kaufmann et al., 2016). Validity and reliability were previously established for each measure via confirmatory factor analyses conducted in prior research studies (Coryn et al., 2009; Elliot & McGregor, 2001; Kaufmann et al., 2016). Reliability coefficients in the current study ranged from marginal ($\alpha = .51$) to very good ($\alpha = .86$) (see Table 3). It is important to note that, given both the small sample size ($n = 27$) and presence of some marginal reliability coefficients, further research is needed to explore combined use of these measures in a music specific context before interpretations can be strongly relied upon.

Motivation Orientation. The achievement-goal orientation questionnaire (Elliot & Murayama, 2008) consists of twelve items, with three items designated to measure each motivation orientation: mastery-approach, mastery-avoid, performance-approach, and performance-avoid. Participants responded using a 5-point Likert-type scale ranging from *Not At All True of Me* (1) to *Very True of Me* (5) and items representing each orientation were presented in a random order. Elliott and McGregor (2001) reported that confirmatory factor analyses (CFAs) were conducted on the achievement goal items to examine the hypothesized model and all subscales demonstrated high levels of internal consistency ranging from $\alpha = .84–.94$. Elliot and McGregor demonstrated that the hypothesized model provided the best fit in comparison to alternative models.

Social-Emotional Learning. The Social Emotional Learning Scale (SELS; Coryn et al., 2009) is a self-report instrument designed to measure three aspects of social-emotional learning: task articulation (TA), peer relationships (PR), and self-regulation (SR). The SELS is a 20-item scale anchored by five response options

ranging from *strongly disagree* (1) to *strongly agree* (5). The instrument was developed for use with elementary-aged students and was adapted by the researcher for college-age participants. Coryn et al. reported reliability estimates ranging from α = .69–80. Ordinal omega was also computed for each subscale due to the relatively low reliability coefficient estimated for the TA subscale resulting in estimates ranging from ordinal α = .79–.87 and α = .88 for each subscale.

Classroom Climate. The 15-item online learning climate scale (OLCS; Kaufmann et al., 2016) was used to measure climate. The OLCS is a 7-point Likert, multi-dimensional measure, with a response scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (7). The scale consists of variables related to teacher roles and behaviors, student characteristics, and course-specific structural issues to explain how students perceive climate in an online classroom. Kaufmann et al. reported alpha reliabilities ranging from α = .81–.90. Additionally, alpha reliabilities reported by Kaufmann and Vallade (2020) ranged from α = .87–.94 for each scale component. The scale's convergent validity was determined by Kaufmann et al. (2016) and indicates that the scale measures classroom climate in the online context.

Learning Activities

The practicum unit consisted of several different online peer-assisted learning experiences:

- One-on-One: participants designed and taught a lesson to one peer
- Collaborative: participants co-designed and co-taught a lesson to a small group
- Peer Feedback: participants provided peer teaching feedback and evaluations
- Group Observations: guided discussion and teaching reflection activities

Participant groups were assigned by the instructor and varied both in size and membership throughout the peer-assisted learning activities. A timeline and description of each activity is included in Table 2.

Participant Interviews

At the conclusion of the online PAL experience, several participants (n = 4) were chosen for participation in a follow-up interview to contextualize findings from the questionnaire. Participants for follow-up interviews were selected from the pool of student participants in the introductory music education course following a second round of consent collected according to approved IRB protocols. A maximum variation sampling approach (Creswell & Creswell, 2017) was used to

Table 2
Timeline of Peer-Assisted Learning Activities

Activity	Description
Practicum Introduction	All students are introduced to the online practicum unit and participants submit informed consent.
Week 1 - Peer Teaching *(one-on-one via Zoom)*	In pairs, participants alternate teaching their lessons and acting as the student. Afterward, participants submit lesson plans, peer feedback forms, and a video recording of their teaching.
Week 1 - Discussion	With instructor guidance, participants reflect and share their teaching experiences.
Week 2 - Peer Teaching *(group teach via Zoom)*	Each group takes a turn co-teaching a lesson to another group of students, and then acting as the students while the other group teaches. Afterward, participants submit lesson plans, peer feedback forms, and a video recording of their teaching.
Week 2 - Discussion	With instructor guidance, students reflect and share their teaching experiences.
Week 3 - Peer Teaching *(solo teach via Zoom)*	Participants take turns solo teaching to a small group of peers. Afterward, participants submit lesson plans, peer feedback forms, and a video recording of their teaching.
Week 3 - Discussion	With instructor guidance, participants reflect and share their teaching experiences.
Week 3 - Questionnaire	Participants are contacted to complete the questionnaire via a Qualtrics survey. Responses are used to identify potential follow-up interview participants.
Weeks 4–7 Guided Observations *(via Zoom)*	Students meet virtually in small groups to view videos of music educators teaching in face-to-face settings. With instructor guidance, students observe and discuss. Afterwards, students submit an observation reflection document.
Week 7 - Questionnaire	Participants are contacted to complete the second OLCS questionnaire via a Qualtrics survey.
Follow-Up Interviews	Interview participants meet virtually with researcher.

identify and select a diverse group of students that represent a broad range of experiences and backgrounds according to the data collected, which included primary music area (instrumental or choral), gender, race, and motivation orientation. Prior research indicated that an individual's motivation orientation can influence behavior and learning throughout PAL experiences (Johnson, 2013); therefore, participants were chosen to represent a divergent array of motivation orientations.

The researcher conducted semi-structured interviews in order to elucidate individual student perspectives regarding participation in online peer-assisted learning activities. Interview questions were adapted from Jones et al. (2013) and

Raymond et al. (2016) concerning student perceptions of motivation and classroom climate during peer-assisted learning experiences in online environments. Interviews were scheduled at the participant's convenience and took place via an online video chat. Each participant was asked the same set of open-ended interview questions; however, follow-up or probing questions were dependent upon responses to the original questions (Creswell & Creswell, 2017).

Data analysis began during the interviews with follow-up and probing questions. All interviews were audio recorded, transcribed verbatim, and double-checked by an external auditor for accuracy (Creswell & Creswell, 2017). Data from interviews were coded on three levels (inductive, pattern, and deductive) and resulted in a code book for analyses. Following data collection, identifying information (including participant names and other relevant information) was replaced with pseudonyms in order to protect the identity of participants.

Trustworthiness. Several strategies outlined by Miles and Huberman (1994) and Creswell & Creswell (2017) were used to increase the trustworthiness of the findings. During data analysis, color coding was used to designate potential emergent patterns and code areas, resulting in two major deductive themes. Representative examples of each specific code were indexed by the researcher and organized into a code book. Member-checks occurred in two phases: case-study participants were invited to review transcriptions of their interviews, and individual thick descriptions developed by the researcher were reviewed by each participant to ensure accurate portrayal (Creswell & Creswell, 2017).

Ethical Considerations. Interview data was interpreted by the researcher; therefore, the researcher should report and account for any bias related to the study that may impact their interpretation. Researcher biases regarding this study include prior teaching and learning experiences in collaborative learning environments. Anecdotally, the researcher engaged in collaborative and PAL activities as a part of their own primary and secondary education environments and found them to be meaningful and rewarding experiences. Professionally, positive teaching experiences of the researcher and observed experiences of a diverse population of students prompted interest in this area of research. As a result, the researcher has developed a strong interest in investigating ways to incorporate collaborative and PAL activities into all teaching and learning environments.

Results

Quantitative data were collected via a Qualtrics survey (version XM of Qualtrics, 2020). Data were analyzed using descriptive statistics with R statistical programming software (R Core Team, 2017). Means and standard deviations were

calculated for each scale included on the questionnaire (Table 3). Responses to questions within the mastery approach and mastery avoid domains were negatively skewed and resulted in relatively high means of 4.41 and 4.03, respectively. On average, students reported strong mastery approach and mastery avoid orientations and moderate performance approach and avoid orientations. Means for the social-emotional learning sub-scales were also negatively skewed and ranged from 4.20 (peer relationships) to 4.35 (self-regulation), out of the highest possible score of 5 (*Strongly Agree*). Similarly, means for each classroom climate sub-scales were negatively skewed: for the initial administration, means ranged from 5.82 (course structure) to 6.39 (student connectedness) and means from the administration following the PAL unit ranged from 6.03 (course structure) to 6.52 (peer behaviors), out of the highest possible score of 7 (*Strongly Agree*). Pre- and post-test means were compared for significant differences using a paired-samples *t*-test. Only the difference in means for course clarity was statistically significant, $t(26) = 2.05$, $p < .005$, Cohen's $d = .36$.

Relationships Between Questionnaire Domains

Though data were slightly skewed, they did not violate the assumption of normality; therefore, Pearson correlations among the sub-scale scores are reported in

Table 3

Descriptive Statistics and Reliability for Self-Report Measures

Questionnaire Domain	M *(SD)*		*Cronbach's* ∝	
Motivation Orientation				
Mastery Approach	4.41 *(0.74)*		.51	
Mastery Avoid	4.03 *(1.13)*		.72	
Performance Approach	3.13 *(1.04)*		.82	
Performance Avoid	3.23 *(1.18)*		.86	
Social-Emotional Learning				
Task Articulation	4.23 *(0.71)*		.52	
Peer Relationships	4.20 *(0.68)*		.78	
Self-Regulation	4.35 *(0.57)*		.66	
Online Classroom Climate	*Pre*	*Post*		
Peer Behaviors	6.34 *(0.79)*	6.52 *(0.70)*	.67	.84
Course Structure	5.82 *(1.09)*	6.03 *(0.91)*	.58	.81
Student Connectedness	6.39 *(0.72)*	6.43 *(0.67)*	.72	.67
Course Clarity	5.90 *(1.17)*	6.27 *(0.80)**	.78	.86

*$t(26) = 2.05$, $p < .005$, Cohen's $d = .36$

Table 4. A significant moderate positive correlation (r = .431) was found between self-regulation scores and the mastery approach motivation domain, suggesting that participants who tended to have higher mastery approach scores also tended to have a more positive perception of their own self-regulation behaviors. Participants with higher scores in the mastery approach domain also had more positive perceptions of the overall course structure and course clarity. The significant positive correlation (r = .630) between course clarity and self-regulation demonstrates that participants with higher self-regulation scores tended to view the organization of the course as clearer and easier to understand. The peer relationships and task articulation domains were also significantly correlated (r = .493) indicating that participants with a higher capacity for task articulation (i.e., responsible decision-making skills) also tended toward a higher capacity for peer relationship skills (i.e., self-awareness and relationship building). Task articulation also exhibited a significant moderate positive correlation (r = .572) with the self-regulation domain, demonstrating a relationship between participants perceived self-regulation behaviors and responsible decision-making skills. A significant correlation (r = .557) was also found between the student connectedness and peer behavior domains, indicating that participants who perceived stronger connections to others also had positive perceptions of peer behaviors such as respect and cooperation.

Interview Participant Profiles

Charles. Charles is a freshman music education major who recently transferred from another university. As an aspiring teacher, Charles is highly motivated to inspire future students and help them discover their own love for music. Ul-

Table 4

Correlations Between Self-Report Measures

	M App	M Av	P App	P Av	TA	PR	SR	PB	CS	SC
M App	1.00									
M Avoid	.28	1.00								
P App	-.28	-.07	1.00							
P Avoid	.07	.23	.69**	1.00						
Task Art	.29	.06	-.04	-.18	1.00					
Peer Rel	.25	-.05	-.14	-.20	.49**	1.00				
Self-Reg	.43*	.24	-.19	-.18	.57**	.32	1.00			
Peer Beh	-.18	.24	-.12	-.11	-.29	.04	.06	1.00		
C Struct	.57**	-.10	.01	.25	.04	.01	.13	-.03	1.00	
S Connect	-.07	.03	-.01	-.21	.11	.19	.26	.56**	.29	1.00
C Clarity	.53**	.38*	.16	.09	.29	.11	.63**	-.09	.24	.27

*r > .36, p < .05; **r > .47, p < .01

timately, Charles would like to direct college level ensembles while teaching additional music classes at a higher education institution. In the music education course, Charles regularly volunteers to answer questions and help his peers. He is friendly, outgoing, and eager to develop good working relationships with others. While Charles has an easy-going demeanor, he takes his coursework very seriously. The challenges of attending college during a global pandemic have not dissuaded Charles from putting forth his best effort. He considers this course to be extremely valuable to his development as an educator.

Raina. Raina is a freshman music education major who plays horn. She is known by her peers for her exceptionally sunny disposition and warm personality. Raina dreams of using her teaching career to connect her two biggest passions: people and music. She is especially eager to connect with other musicians and aspiring teachers. In the music education course, Raina is an enthusiastic student and always brings a creative flair to her projects and assignments. She firmly believes that humans have an inherent need to create and experience music in a variety of ways and hopes to infuse those beliefs into her own teaching practice. In the future, Raina would like to teach band in a public school, preferably at the middle school level.

Jamal. Jamal is a freshman music education major with a passion for percussion performance. His love for music grew steadily throughout his middle and high school years as he continued to observe the many ways music can effect change in people's lives. Now, Jamal is heavily involved in his university's percussion studio and takes every opportunity to develop his performance skills. Jamal finds the music education course interesting because it allows him to explore what teaching means to him personally. He is a regular participant in class discussions and is intrigued and inspired when he and his peers have differing viewpoints. Jamal considers his musical studies to be a safe haven where he and others can freely express themselves and their vulnerabilities. In the future, Jamal would like to achieve a long-term balance between teaching and performing careers.

Hope. Hope is a freshman music education major who has been heavily involved in both band and choir throughout her musical career. In high school, she had the unique experience of having four different band directors and two different choir directors. As a college student, Hope eagerly takes every opportunity afforded to her. She is outgoing and confident in her music education class and is often the first to volunteer or participate in class discussions. She is a conscientious student who is determined to make the most of her semester in this course. Specifically, Hope aspires to teach at the high school level. Her goal is to provide stability and support for her future students both personally and musically.

Interview Results

Data gathered during the follow-up interviews support two major themes: (1) online collaboration and (2) teaching as learning. Common responses regarding online collaboration centered around the concepts of learning environment, connections with others, and peer support. Patterns that emerged within the theme of teaching as learning included observation and reflection, and personal growth. Pattern level coding was used to synthesize both inductive and deductive coding into themes and categories.

Theme #1: Online Collaboration

Learning Environment. All four participants indicated that the online learning environment was unique and directly impacted their peer-assisted learning experiences. Jamal spoke directly to the contrast between learning in a face-to-face setting and being in an online course. Specifically, he felt that there was "less distraction when you're in an actual classroom because we are all facing the professor or some sort of focal point." Charles also elaborated on some of the potential frustrations with communication in an online setting. He felt an additional problem involved attempting to communicate with others solely online without the opportunity for any face-to-face interaction. However, Charles went on to explain some of the benefits to participating in this experience online:

> *Now I have opportunities to use the technology to my advantage. We really had to figure out how to get the student to harmonize while we're not there. We had to figure out how to record ourselves and upload it to complete everything. I'd say it was definitely a good experience to learn technology better and be more comfortable with all of that.*

Similarly, Raina enjoyed some of the features of the online learning environment because they supported her personal learning preferences. She enjoyed the chat function that was available in their online platform because it gave her the opportunity to communicate with others in a low-stress way.

Connections with Others. Participants worked online with peers in several different configurations including both one-on-one and small group teaching formats. Raina mentioned that she enjoyed the connections she was able to make with her peers in the one-on-one format. Specifically, she felt that the informal, social bonding that happened before and after class was an important part of her experience. By contrast, Hope felt like the physical distance between her group was a barrier to building genuine connections with others. She described being online as a "type of disconnecting experience" because "we were all supporting each other but

we weren't physically there…I was just sitting in a room by myself but still teaching other people, so it just had a different feeling to it." Charles also mentioned that connecting with others online can make communication between peers difficult, which led to some difficulties during the group teaching round. He specifically mentioned that "a couple of people were upset with who they were working with because their group members just didn't do what they were supposed to do", which ultimately led to frustration in subsequent teaching episodes.

Jamal found that once he was able to connect with his peers online, he felt more comfortable with the peer teaching experience overall. He expressed that working together in online groups was "a huge weight off of my shoulders to finally be able to get to know the people in my class and it made me feel so much more comfortable than I did before."

Jamal went on to explain that he believes "music is such a strong connector" and "that is what makes this group work so much stronger and more meaningful" to him. However, Charles expressed frustration at not being able to connect with others musically the way that he had hoped when he said, "It was difficult not to be able to be in-person and sing with other people and create harmony together."

Peer Support. Each participant described feeling supported by peers or providing support to other peers throughout the online peer teaching process. Both Hope and Charles had experiences providing support and encouragement to fellow classmates who were nervous about teaching in front of others. Hope described her experience as particularly supportive of students who were teaching for the first time. Specifically, she mentioned that "a lot of us were very supportive, especially in our feedback…being able to have those interactions with your peers was really helpful."

Raina provided some insight as to why some students may have felt nervous during their first group meetings when she cited her own insecurities about working closely with other students in her class. She mentioned that her first few group meetings "were so awkward because we were all insecure and scared about knowing how to teach our concept…but we eventually learned." Overall, each participant described their perceptions of their peers as supportive and beneficial to their own experiences. Jamal characterized it as "extremely supportive" and believed this was in part because "if anyone was struggling, someone would always jump in and help and that was just so nice to have. It was just really helpful to have everyone on the same page and truly supporting each other."

Theme #2: Teaching as Learning

Observation and Reflection. Participants had the opportunity to observe their peers teach and reflect on their own teaching episodes through reflection assignments. Hope mentioned that the opportunity to observe others teach was one of the highlights of her overall experience because the diversity that she noticed in her peer's teaching was helpful in expanding her own repertoire of teaching strategies. Jamal felt that observing and discussing teaching with others was more valuable than working on his own because "a lot of what I learned about each teaching episode came from other people. It was helpful to be introduced to several ideas at once instead of just staying focused only on things we noticed individually." Raina mentioned that observing multiple people teach the same lesson was particularly valuable because it provided her with insight into different ways to approach the same topic.

Charles, however, mentioned that it was not always easy to get meaningful feedback from peers who had observed him teach, which made the reflection process more challenging. He said that the most genuine feedback he received cited specific teaching behaviors or moments from his lesson, while less meaningful feedback was comprised of broad, generic statements such as "you did pretty well" or "good job, maybe work on how you ask questions." Raina echoed these frustrations with receiving broad, generic peer feedback after an observation took place. Charles did feel that the opportunity to self-reflect on his own teaching was valuable because it allowed him time to process the entire experience and approach it with a more level head. He felt that the self-reflection time provided him a guided opportunity to "sit down and just look at what you did and be able to take away good things and also notice bad things that you did."

Personal Growth. All participants mentioned initial feelings of apprehension and uncertainty at the beginning of the peer teaching experience; however, each expressed pride in their own growth and ability to overcome obstacles with each subsequent teaching episode. Charles described his own journey from fearful and entirely reliant upon his lesson plan, to a more confident and independent teaching persona. He also mentioned that he recognized similar experiences among his peers who were initially concerned about how their teaching would be perceived by others. Charles suggested that "once they were able to see who they were working with, and sit down and be comfortable with them, then the true teachers were able to come out of these people."

Raina and Hope both experienced growth regarding their own personal planning and subsequent execution of their lesson plans. Hope was particularly grateful for the opportunity to teach multiple times and felt that it was a great benefit to

her personal development. Raina also cited her progression from the first round to the final round of teaching. Specifically, she felt that her planning and pacing improved over time. Hope summed up her overall experience with the sentiment that "knowing that I have to teach something to other people means that I need to know it even better" and that, ultimately, she now has "tools that [she] can use for [her] own benefit in the future."

Discussion

The purpose of this study was to explore student perceptions of online peer assisted learning experiences in a preservice music education context. Specifically, this included concepts which have been theoretically linked to PAL: individual student motivation orientation, social-emotional learning, and online classroom climate. The following discussion addresses each component (motivation orientation, social-emotional learning, online classroom climate) and the sub-domains that emerged as important contributing factors.

Motivation Orientation

Descriptive data for the mastery approach subdomain trended in the positive direction, indicating that, on average, most students in the sample have a desire to master the content that they are learning. Overall mean scores were lower for the performance approach (M = 3.13) and performance avoid (M = 3.23) subdomains; however, these scores still trended in the positive direction, suggesting that some of the students in the sample may have a motivation orientation skewed toward the performance domain. This finding is in line with previous research with secondary K-12 populations (e.g., Miksza, 2009; Schmidt, 2005) which suggests that music students tend to possess mastery orientations. Given that students who enroll in the introduction to music education course are a self-selected population, the students in this sample are likely already highly intrinsically motivated.

Follow-up interviews revealed varying experiences with group work and peer feedback which may be related to participant's differing individual motivation orientations. Hope, who trended toward performance approach, and Jamal, who trended toward performance avoid, both indicated that their initial concerns centered around judgment from their peers more than the content of the course itself. These concerns are in alignment with the concept that individuals with performance goal orientations are motivated by a desire to demonstrate competence for others (Elliott, 1999). Overall, motivation orientation provides insight into an individual's underlying motivational impetus. As reflected by the participant's com-

ments, mastery and performance goal orientations have the capacity to influence how individual students interact with one another and perceive their own experiences in an online, collaborative learning environment.

Social-Emotional Learning

Questionnaire respondents reported confidence in their decision-making skills (task articulation, $M = 4.23$), relationship skills (peer relationships, $M = 4.20$), and social management skills (self-regulation, $M = 4.35$). However, social-emotional learning may require further investigation in similar contexts to determine whether participants experience growth in SEL competencies as a result of prolonged participation in PAL experiences. Notably, SEL constructs have been identified among the greatest influences on school performance (Wang et al., 1993) and interview participants echoed the importance of these constructs on their individual experiences.

Zins (2004) posits that collaborative learning can create a culture among peers that fosters the development of important interpersonal skills, such as clear communication and establishing and maintaining healthy relationships. Interview respondents reported feeling encouraged by opportunities to build relationships with others during PAL experiences. Charles specifically mentioned that the online peer teaching unit was his first opportunity to begin to establish relationships with others. Similarly, Hope said that she was able to "make connections and friends with people that I just couldn't in person, so I think it was definitely beneficial to build relationships with other students in the class." The personal experiences of both Charles and Hope suggest that these online peer teaching experiences were conducive to the frequent, high-quality social interactions that are necessary to build strong interpersonal skills.

Classroom Climate

Inferential analyses on all pre-posttest participant responses indicated significant changes in course clarity ($t = 2.05$, $p < .005$). Theoretically, these findings suggest that perceptions of online classroom climate may be moveable during short-term PAL experiences. Further examination of this interaction is warranted given the exploratory nature of this study. Overall, participants felt positive about experiences with their peers and the course structure given final mean scores ranging from 6.03 (course structure) to 6.52 (peer behaviors) on a scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*). Furthermore, pre-posttest increases in mean scores across all domains indicate that positive student perceptions of classroom climate

increased over the course of the online peer-assisted learning unit. This is supportive of previous findings that indicate climate-building through positive student-student interactions can create a sense of community online (Song et al., 2004) and increase feelings of connectedness with others (Vonderwell, 2003; Woods, 2002).

The strongest responses indicated on the questionnaire include the perception that peers were respectful, supportive, and cooperative toward one another. However, it is important to note that students in online classroom environments have previously reported higher levels of perceived loneliness which can leave students with a feeling of being "alone together" (Ali & Smith, 2015; Turkle, 2011). In the interview portion of the study, Hope mentioned a similar feeling of disconnect from her peers despite being able to connect with them online. Conversely, the other interview participants mentioned feelings of support, respect, and comfort with other students as a result of the ability to meet online in small groups. This mirrors Biasutti's (2011) finding that students experience more success and higher levels of satisfaction in smaller groups due to the potential for higher levels of interaction and participation.

According to Kaufmann et al. (2016), meaningful social connections are a predictor of success in online learning environments. These positive interactions can help create a sense of community (Song et al., 2004) and increase feelings of connectedness online (Vonderwell, 2003; Woods, 2002). Several interview participants highlighted these concepts in their discussions of the overall support and camaraderie that they felt amongst their classmates. Jamal described the climate as "extremely supportive" while Raina described the online climate as fun and interactive because of the ability to have informal conversations with her peers before and after the teaching assignments. This student rapport is strongly related to the development of a positive classroom climate (Frisby & Martin, 2010). The experiences of these participants coupled with the relatively high aggregate mean scores in the peer behavior (M = 6.52) and student connectedness (M = 6.43) subdomains suggests that the online PAL experience created opportunities for students to connect with one another in meaningful ways.

Several practical implications for music teacher educators may be interpreted based on the results of this study. Overall, it is possible for PAL to be integrated into an online music teacher education context with benefits for a variety of learners. However, educators might carefully consider the overall design of the PAL experience when choosing to incorporate it into an online setting. For example, introducing PAL in small, semi-structured ways may help students acclimate to some of the difficulties of communicating online with one another. Small online breakout groups are an easy, low stakes way to provide students with opportunities to interact with one another. If done at regular intervals, this may also create

opportunities for students to connect with a variety of their peers. Additionally, students may benefit both academically (e.g., perceptions of course clarity) and socially (e.g., feelings of belongingness and empathy) from opportunities to connect with others in informal, personal ways. Intentionally providing these opportunities for students at all levels may be important given that online collaboration does not inherently lend itself to the same type of communication that face-to-face learning contexts do.

Furthermore, providing elements of choice within an online PAL experience may help students feel a sense of autonomy over their learning (Deci & Ryan, 1985). This can be done in myriad ways on both a small and large scale. Some examples include students choosing group members or selecting group activities from a teacher-approved list. Finally, peer feedback has the potential to benefit student growth and may be incorporated alongside teacher commentary and assessment. Students might utilize a variety of online platforms to deliver feedback in both video and written format. Similarly, it might be helpful to provide space for students to give both synchronous and asynchronous feedback.

The themes that emerged from this study align with prior research regarding the benefits and drawbacks to online collaborative learning environments (Altinay, 2017; Biasutti, 2011; Seddon & Biasutti, 2009; Thorpe, 2002). However, given the lack of research pertaining to online PAL in music contexts, future researchers could expand upon these findings by investigating online secondary music environments, including ensemble-based and non-performance-based courses. It would also be useful to explore methods of making music together in both synchronous and asynchronous online music classrooms and to compare this with different age groups.

Conclusion

There are several limitations of the current study that should be taken into consideration. First, the sample included was relatively small and therefore replications of the study with larger and more varied samples are warranted in order to enhance the generalizability of the findings. It is unclear how the conditions of this study might play out with younger populations, in public school K-12 settings, or with different course types such as large ensembles. Additionally, it is important to note that this study took place during a time when strict safety precautions were in place for all face-to-face courses at the university level. All students in the introduction to music education course initially met face-to-face prior to transitioning to the practicum unit, which took place exclusively in an online context. Therefore, it is possible that these initial meetings coupled with requirements for wearing face

coverings and social distancing may have influenced the participant's perspectives of their experiences with this online PAL unit.

Given this information, researchers interested in collaborative learning and PAL might also examine comparisons between student experiences in face-to-face, online, and hybrid music learning contexts. Moreover, researchers might consider alternative self-report measures in the future, given that the participants' responses in the current study tended to be negatively skewed. Finally, it might be useful for researchers to examine additional variables that have been theoretically linked to PAL (e.g., self-efficacy, student agency, self-concept) in order to deepen the understanding of individual student perceptions and experiences. Further exploration might also include a deeper investigation regarding how these variables interact with one another to influence an individual's experience during collaborative learning activities.

This investigation of PAL within an online, music-specific context was intended to create a potential path forward for the development of meaningful collaborative experiences in online music classrooms. A fundamental assumption of PAL is that students have the capacity to become active participants in their own learning process. Educators can better help students realize that potential by understanding different characteristics and viewpoints (such as motivation orientation, social-emotional learning, and classroom climate) of the students under their care. While music teachers and students are faced with unique obstacles in online learning environments, collaborative learning arrangements such as PAL have the potential to provide important tools that can be used to overcome those challenges.

References

Alexander, L., & Dorow, L. G. (1983). Peer tutoring effects on the music performance of tutors and tutees in beginning band classes. *Journal of Research in Music Education, 31*(1), 33–47. https://doi.org/10.2307/3345108

Ali, A., & Smith, D. (2015). Comparing social isolation effects on students' attrition in online versus face-to face courses in computer literacy. *Issues in Informing Science and Information Technology, 12*(1), 11–20. https://doi.org/10.28945/2258

Altınay, Z. (2017). Evaluating peer learning and assessment in online collaborative learning environments. *Behaviour & Information Technology, 36*(3), 312–320. https://doi.org/10.1080/0144929X.2016.1232752

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84*(3), 261. https://doi.org/10.1037/0022-0663.84.3.261

Biasutti, M. (2011). The student experience of a collaborative e-learning university module. *Computers & Education, 57*(3), 1865–1875. https://doi.org/10.1016/j.compedu.2011.04.006

Cohen, P. A., Kulik, J. A., & Kulik, C.-L. C. (1982). Educational outcomes of tutoring: A meta-analysis of findings. *American Educational Research Journal, 19*(2), 237–248. https://doi.org/10.3102/00028312019002237

Coryn, C. L., Spybrook, J. K., Evergreen, S. D., & Blinkiewicz, M. (2009). Development and evaluation of the social-emotional learning scale. *Journal of Psychoeducational Assessment, 27*(4), 283–295. https://doi.org/10.1177/0734282908328619

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed). Sage Publications.

Darrow, A. A., Gibbs, P., & Wedel, S. (2005). Use of classwide peer tutoring in the general music classroom. *Update: Application of Research in Music Education, 24*(1), 15–26. https://doi.org/10.1177/87551233050240010103

Deci, E., & Ryan, R. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum Press

Duran, D., Ribosa, J., & Sánchez, G. (2020). Peer tutoring for improvement in rhythm reading fluency and comprehension. *International Journal of Music Education, 38*(2), 299–312. https://doi.org/10.1177/0255761419898313

Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*(10), 1040–1047. https://doi.org/10.1037/0003-066X.41.10.1040

Dwyer, K. K., Bingham, S. G., Carlson, R. E., Prisbell, M., Cruz, A. M., & Fus, D. A. (2004). Communication and connectedness in the classroom: Development of the connected classroom climate inventory. *Communication Research Reports, 21*(3), 264–272. https://doi.org/10.1080/08824090409359988

Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist, 34*(3), 169–189. https://doi.org/10.1207/s15326985ep3403_3

Elliot, A. J., & McGregor, H. A. (2001). A 2 × 2 achievement goal framework. *Journal of Personality and Social Psychology, 80*(3), 501–519. http://doi.org/10.1037/0022-3514.80.3.501

Elliot, A. J., & Murayama, K. (2008). On the measurement of achievement goals: Critique, illustration, and application. *Journal of Educational Psychology, 100*(3), 613. https://doi.org/10.1037/0022-0663.100.3.613

Frisby, B. N., & Martin, M. M. (2010). Instructor–student and student–student rapport in the classroom. *Communication Education, 59*(2), 146–164. https://doi.org/10.1080/03634520903564362

Ginsburg-Block, M. D., Rohrbeck, C. A., & Fantuzzo, J. W. (2006). A meta-analytic review of social, self-concept, and behavioral outcomes of peer-assisted learning. *Journal of Educational Psychology, 98*(4), 732–773. https://doi.org/10.1037/0022-0663.98.4.732

Goodrich, A. (2007). Peer mentoring in a high school jazz ensemble. *Journal of Research in Music Education, 55*(2), 94–114. https://doi.org/10.1177/002242940705500202

Hayward, L. M. (2004). Integrating web-enhanced instruction into a research methods course: Examination of student experiences and perceived learning. *Journal of Physical Therapy Education, 18*(2), 54–65.

Jellison, J., Brown, L., & Draper, E. (2015). Peer-assisted learning and interactions in inclusive music classrooms: Benefits, research, and applications. *General Music Today, 28*(3), 18–22. https://doi.org/10.1177/1048371314565456

Jellison, J. A., Draper, E. A., & Brown, L. S. (2017). Learning together: The instinct to do good and peer-assisted strategies that work. *Music Educators Journal, 104*(2), 15–20. https://doi.org/10.1177/0027432117713823

Johnson, E. (2017). The effect of symmetrical and asymmetrical peer-assisted learning structures on music achievement and learner engagement in seventh-grade band. *Journal of Research in Music Education, 65*(2), 163–178. https://doi.org/10.1177/0022429417712486

Johnson, E. A. (2013). *The effect of symmetrical and asymmetrical peer-assisted structures on music achievement and learner engagement in the secondary large ensemble* (Publication No. 3561981) [Doctoral dissertation, University of Colorado at Boulder]. ProQuest Dissertations Publishing.

Jones, B. D., Epler, C. M., Mokri, P., Bryant, L. H., & Paretti, M. C. (2013). The effects of a collaborative problem-based learning experience on students' motivation in engineering capstone courses. *Interdisciplinary Journal of Problem-based Learning, 7*(2), 2. https://doi.org/10.7771/1541-5015.1344

Kaufmann, R., Sellnow, D. D., & Frisby, B. N. (2016). The development and validation of the online learning climate scale (OLCS). *Communication Education, 65*(3), 307–321. https://doi.org/10.1080/03634523.2015.1101778

Kaufmann, R., & Vallade, J. I. (2020). Exploring connections in the online learning environment: student perceptions of rapport, climate, and loneliness. *Interactive Learning Environments*, 1–15. https://doi.org/10.1080/10494820.2020.1749670

Keppell, M., Suddaby, G., & Hard, N. (2011). Good practice report: Technology-enhanced learning and teaching. *Australian Learning and Teaching Council, Sydney*. http://www.olt.gov.au/resource-good-practice-reporttechnology-enhanced-learning-and-teaching-2011

Li, H., Xiong, Y., Hunter, C. V., Guo, X., & Tywoniw, R. (2020). Does peer assessment promote student learning? A meta-analysis. *Assessment & Evaluation in Higher Education, 45*(2), 193–211. https://doi.org/10.1080/02602938.2019.1620679

McMaster, K. L., Fuchs, D., & Fuchs, L. S. (2006). Research on peer-assisted learning strategies: The promise and limitations of peer-mediated instruction. *Reading & Writing Quarterly, 22*(1), 5–25. https://doi.org/10.1080/10573560600203491

Miksza, P. (2009). Relationships among impulsivity, achievement goal motivation, and the music practice of high school wind players. *Bulletin of the Council for Research in Music Education, 180*, 9–27. http://www.jstor.org/stable/40319317

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis* (2nd ed.). Sage Publications.

Myers, S. A. (1995). Student perceptions of teacher affinity-seeking and classroom climate. *Communication Research Reports, 12*(2), 192–199. https://doi.org/10.1080/08824099509362056

R Core Team (2017). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. https://www.R-project.org/

Raymond, A., Jacob, E., Jacob, D., & Lyons, J. (2016). Peer learning a pedagogical approach to enhance online learning: a qualitative exploration. *Nurse Education Today, 44*, 165–169. https://doi.org/10.1016/j.nedt.2016.05.016

Robinson, D. R., Schofield, J. W., & Steers-Wentzell, K. L. (2005). Peer and cross-age tutoring in math: Outcomes and their design implications. *Educational Psychology Review, 17*(4), 327–362. https://doi.org/10.1007/s10648-005-8137-2

Rohrbeck, C. A., Ginsburg-Block, M. D., Fantuzzo, J. W., & Miller, T. R. (2003). Peer-assisted learning interventions with elementary school students: A meta-analytic review. *Journal of Educational Psychology, 95*(2), 240. https://doi.org/10.1037/0022-0663.95.2.240

Roscoe, R. D., & Chi, M. T. (2007). Understanding tutor learning: Knowledge-building and knowledge-telling in peer tutors' explanations and questions. *Review of Educational Research, 77*(4), 534–574. https://doi.org/10.3102/0034654307309920

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*(1), 54-67. https://doi.org/10.1006/ceps.1999.1020

Schmidt, C. P. (2005). Relations among motivation, performance achievement, and music experience variables in secondary instrumental music students. *Journal of Research in Music Education, 53*(2), 134–147. https://doi.org/10.1177/002242940505300204

Seddon, F., & Biasutti, M. (2009). Evaluating a music e-learning resource: The participants' perspective. *Computers & Education, 53*(3), 541–549. https://doi.org/10.1016/j.compedu.2008.12.011

Shawcross, T. L. M. (2019). *Online communities of practice in the secondary music classroom: a tool for increased collaboration and peer to peer learning?* [Master's thesis, Unitec Institute of Technology, New Zealand]. https://hdl.handle.net/10652/4643

Song, L., Singleton, E. S., Hill, J. R., & Koh, M. H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. *The Internet and Higher Education, 7*(1), 59–70. https://doi.org/10.1016/j.iheduc.2003.11.003

Thorpe, M. (2002). Rethinking learner support: The challenge of collaborative online learning. *Open Learning: The Journal of Open, Distance and e-Learning, 17*(2), 105–119. https://doi.org/10.1080/02680510220146887a

Topping, K. J. (2005). Trends in peer learning. *Educational Psychology, 25*(6), 631–645. https://doi.org/10.1080/01443410500345172

Turkle, S. (2011). *Alone together: Why we expect more from technology and less from each other*. Basic Books.

VanWeelden, K., Heath-Reynolds, J., & Leaman, S. (2017). The effect of a peer mentorship program on perceptions of success in choral ensembles: Pairing students with and without disabilities. *Update: Applications of Research in Music Education, 36*(1), 37–43. https://doi.org/10.1177/8755123316675480

Vonderwell, S. (2003). An examination of asynchronous communication experiences and perspectives of students in an online course: A case study. *The Internet and Higher Education, 6*(1), 77–90. https://doi.org/10.1016/S1096-7516(02)00164-1

Wang, M. C., Haertel, G. D., & Walberg, H. J. (1993). Toward a knowledge base for school learning. *Review of Educational Research, 63*(3), 249–294.

Woods, R. H. (2002). How much communication is enough in online courses? Exploring the relationship between frequency of instructor-initiated personal email and learners' perceptions of and participation in online learning. *International Journal of Instructional Media*, *29*, 377–394. https://www.learntechlib.org/p/64266/.

Zins, J. E. (Ed.). (2004). *Building academic success on social and emotional learning: What does the research say?*. Teachers College Press.

Zins, J. E., & Elias, M. J. (2006). Social and emotional learning: Promoting the development of all students. *Journal of Educational and Psychological consultation*, *17*(2-3), 233–255. https://doi.org/10.1080/10474410701413152