Abstract

Pupils are another group of stakeholders in teacher preparation because most programs include clinical experiences for students enrolled in teacher education degrees. There is an increasing number of teacher education programs in the United States that are using a coteaching model for the student teaching practicum. The aim of this study was to develop an instrument that would examine coteaching contextual features from pupils' perspectives. This research reports the design, validation, and implementation of a coteaching survey for pupils in classes where student teacher candidates along with their cooperating teachers have taught the class. Data were collected from over 7,000 students aged from 10 to 18 years. Exploratory factor analysis (EFA) was used to establish a 23-item instrument with three subscales. The subscales were Respectful and Caring Environment, Engagement and Motivation for Learning, and Behavior and Classroom Management. Cronbach reliability for the scales ranged from .857 for Respectful and Caring Environment, .837 for Engagement and Motivation for Learning, and .685 for Behavior and Classroom Management.

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Listening to the Missing Voices: Students' Perspectives on Coteaching

Over the past decade, a quickly growing number of teacher education programs have begun implementing coteaching as a model for student teaching because it better supports pupil learning and contributes to the collaborative professional development of both the teacher candidate and the clinical educator[1]. The teacher preparation field is swiftly building consensus for the use of coteaching approaches to develop novice teachers' expertise and to increase learning opportunities for pupils. Yet important voices are missing from the research literature to support these claims: pupils' voices.

Pupils spend many hours in classrooms and often their perception of the learning environment can differ from teachers. Pupils become "'experts' in knowing the 'ins and outs'" of their classroom (Bayne, 2012, p. 243). They can provide insights on the classroom climate and assess the learning environment (Fraser, 2001; Moos, 1973; Walberg & Haertel, 1980) to assist in identifying coteaching practices that need to be strengthened or reformed. For more than 40 years, other researchers have collected pupils' perspectives of their classroom climate, also known as the psychosocial learning environment. These pupil perspectives illuminate the benefits and informative challenges leading to improved learning opportunities for children through a more positive and effective learning environment (see Fraser, 2012a for a full review of other classroom environment instruments).

In the few coteaching studies that included capturing pupils' perspectives on their own learning environment the pupils were coteachers themselves aiding the instruction of other peer students to develop deeper content knowledge understandings (e.g. Schultze & Nilsson, 2018; Woodburn, 2010). Our search of the literature failed to unearth any research focused on pupils' perspectives of coteaching when the coteaching pair included a clinical educator and a teacher candidate with the pupils solely positioned as learners. While teacher education and assessment are two highlighted areas for the utilization of classroom environment instruments (Fraser, 2012a), there are currently no valid and reliable survey instruments aimed at collecting

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[1] Clinical educators are the mentor in-service teachers who host teacher candidates during student teaching field experiences; teacher candidates are the preservice student teachers pursuing licensure and/or certification; pupils, as we refer to them in this article, are the K–12 student learners in the classroom environment.

pupils' perspectives on their own cotaught learning environment and experiences. This highlights a critical gap in our understanding of coteaching as a collaborative teacher preparation approach and one that must be addressed due to the mounting pressure from teacher education accreditation agencies for these types of data.

This study acknowledges that coteaching is becoming a ubiquitous approach across teacher preparation programs, and as such, we as faculty teacher educators must attend to national accreditation agencies' continuous push for valid and reliable ways to collect data for ongoing program improvement (i.e. CAEP, 2015). Thus, we developed and validated a survey instrument that garnered over 7,000 pupils' perspectives on their own classroom environment where at least one teacher candidate and one clinical educator were using a coteaching model. Specifically, the instrument includes psychosocial learning environment scales which correspond to the classic framework of Moos's (1974) dimensions for the classification of human environments which include pupils' perceptions of Relationships, aspects of Personal Development, and elements of System Maintenance and System Change in the classroom. The new instrument provides educational researchers a valid and reliable tool to collect pupils' perceptions of their classroom, while also accounting for the interpersonal factors between and amongst coteachers (teacher candidate and clinical educator). These factors, which could be overlooked by outside observers, are closely captured by pupils positioned as classroom insiders (Fraser, 1998). In this way, pupils' voices are no longer missing in the data and can now be used to support coteaching model improvements, while also enabling faculty to attend to accreditation pressures for valid and reliable instruments.

Novel approaches to evauation and current interpretations of well-established scales still are forthcoming for educational research in practical applications

Theoretical Basis

Since the early 1980s, science education researchers have developed survey instruments that asked pupils for their perceptions of their classroom environment (Fraser, 2012a). Pupils spend many hours in classrooms developing their perceptions of the environment (Fraser, 2001), and as such, can be key informants. Researchers have used prior lines of research to ask pupils about the overall classroom climate and psychosocial elements, such as student-student and student-teacher relationships and how these relationships impact student engagement and learning behaviors (Bayne, 2012; Bell & Aldridge, 2014; Fraser, 1998).

Frequently these investigations and the resulting classroom environment instruments have widely relied on the theoretical backbone established by Moos's (1974) schema for identifying and describing a wide variety of environmental contexts for learning. Relationships are the focus of the first dimension in which researchers attend to the depth of support, respect, and involvement that teachers and students alike have with one another. The second dimension, Personal Development, highlights the opportunities for learning and growth provided by the environment. The final dimension, System Maintenance and System Change, describes the degree to which an environment is structured and orderly—as well as how, or if, it is responsive to change. Fraser (2012a) has extensively reviewed and described many frequently employed classroom environment scales according to these dimensions. For example, the Classroom Environment Scale (CES; Moos & Trickett, 1987) has scales related to Involvement, Affiliation, Teacher Support (all Relationship dimensions), Task Orientation, Competition (both Personal Development dimensions), Order and Organization, Role Clarity, Teacher Control, and Innovation (System Maintenance and System Change dimensions).

Yet novel approaches to evaluation and current interpretations of well-established scales still are forthcoming for educational research in practical applications. Bayne utilized the Constructivist Learning Environment Survey (CLES; Taylor, Fraser, & Fisher, 1997), reanalyzed the survey to classify four scales instead of five via quantitative analysis, and supplanted these findings through qualitative analysis (Bayne, 2012). New perspectives on this well-established body of knowledge are still needed to explore and understand emerging models for teaching and learning, especially from the pupil perspective. Namely, in this study we sought to better appreciate the psychosocial climate and contextual elements of the coteaching classroom through examination of the perceptions of the pupils experiencing such environments.

Coteaching was introduced as a model for student teaching in the early 2000s (Martin 2009; Murphy & Scantlebury, 2010; Roth, Tobin, Carambo, & Dalland, 2004; Tobin & Roth, 2006; Tobin, Zurbano, Ford, & Carambo, 2003). In the United States, teacher accreditation bodies such as the National Council for Accreditation of Teacher Education (NCATE, 2010), the Council for the Accreditation of Educator Preparation (CAEP, 2013), and the American Associate of Colleges of Teacher Education (AACTE, 2018) have noted the importance of clinical experiences in the education of a teacher and placed an increased emphasis on meaningful collaborations between stakeholders in teacher preparation programs, teachers, and schools. NCATE's Blue Ribbon panel praised coteaching as a model for linking theory and practice in preparing teachers to teach (NCATE, 2010). Likewise, AACTE's recent commission on clinical practice had coteaching as a key tenet in preparing teachers. Teacher education programs have adopted this model for student teaching because there is evidence that coteaching supports clinical educator and teacher candidate professional learning (Gallo-Fox & Scantlebury, 2015; Guise et al., 2016; Hedin & Conderman, 2015; Kerin & Murphy, 2015; Martin, 2009; Roth et al., 2004; Siry, 2011; Soslau, Gallo-Fox, & Scantlebury, 2018a) and student learning (Bacharach, Heck, & Dahlberg, 2010; Emdin, 2007). Recently programs have expanded the use of coteaching and have been using qualitative approaches to explore, to provide deeper descriptions of the approach, and to discern learning benefits to teacher candidates, pupils, and clinical educators (Gallo-Fox & Scantlebury, 2016; Milne, Scantlebury, Blonstein, & Gleason, 2011; Scantlebury, Gallo-Fox, & Wassell, 2008; Soslau et al., 2018a; Soslau, Kotch-Jester, Scantlebury, & Gleason, 2018b).

However, few studies have used quantitative methods to ascertain pupils' perspectives on the impact of coteaching on their classroom experiences. Murphy and Beggs (2010) reported primary school pupils' science attitudes improved after being cotaught for six months by a teacher candidate, majoring in science, in partnership with their classroom clinical educator (Murphy & Beggs, 2005; Murphy, Beggs, Carlisle, & Greenwood, 2004). In the United States, Bacharach, Heck and Dahlberg (2010) found pupils' reading and mathematics scores improved when they were cotaught. Though achievement outcomes are important, to understand how these outcomes were achieved we suggest that researchers should explore the classroom environment aspects of coteaching contexts. Quantitative data, which examines pupils' perspectives about the sociocultural climate of their cotaught classes, is needed to fully explore which features of coteaching may relate to improved pupil learning outcomes and attitudes. To date, these types of data have not yet been collected. The aim of this study was to develop instruments that could examine the coteaching contextual features from pupils' perspective.

Our hope is that our survey instrument will be useful in evaluating coteaching as a model for student teaching across programs nationally and internationally

Accreditation Requirements

In the United States, external teacher accreditation agencies, such as CAEP, review and evaluate teacher education programs. One criteria of the accreditation process is that programs must rely on "relevant, verifiable, representative, cumulative and actionable measures, and produce empirical evidence that interpretations of data are valid and consistent" (CAEP, 2015, para. 2). However, to date there has been no development of instruments that could collect valid and reliable data on pupils' and teachers' perceptions of the coteaching environment. The study research site, State University (a pseudonym) is required by its state department of education to complete CAEP accreditation. The university moved to develop valid and reliable survey instruments to document the perceptions and experiences of coteachers and pupils engaged in coteaching through the hosting of teacher candidates. In addition to satisfying accreditation requirements, another intended outcome of this research is to provide a valid instrument that can be used by other teacher preparation programs responsible for collecting data with valid and reliable instruments. Ultimately, our hope is that our survey instrument will be useful in evaluating coteaching as a model for student teaching across programs nationally and internationally.

Methods

Factor analysis examines patterns of variance and correlation (covariance) within participant responses on a survey instrument. Exploratory factor analysis (EFA) begins with all

items and uncovers related latent variables. These items are then grouped into subsets based on participants' patterns of responses. The main goal of EFA is to identify these sets of items and does not base the organization of survey items to any a priori theory.

The survey development process was influenced by the meta-framework presented by Onwuegbuzie, Bustamante, and Nelson (2010) for a mixed methods development process and the four-step procedure established for developing and validating measures (Crocker & Algina, 1986; Sax 1997). These frameworks guided our approach to the creation of possible survey items, testing, and refinement of these items, all while utilizing both qualitative and quantitative approaches to develop a measure that would allow the pupils to share their insights and perceptions of the coteaching classroom environment. While taking this approach, we worked to develop the survey to operationalize the practices and outcomes that we could expect these pupil stakeholders to experience across a variety of coteaching settings.

Procedure

All survey items were structured as Likert type responses for evaluation of frequency with a 5-point scale

This study was completed within a larger ongoing research study on the impact of coteaching on clinical educators, teacher candidates, and their pupils. This pilot study was conducted under the established IRB protocols. Participants were recruited from classes cotaught by teacher candidates from grades 4 (pupils aged around 10 years) through high school (pupils aged up to 18 years old). Due to limited technology access at some schools, pupils completed a pen and paper version of the survey to maximize participation.

In the initial item development, our research team qualitatively reviewed existing surveys related to student teaching already in use by State University and other similarly purposed surveys from other institutions. These surveys provided a preliminary framework for designing appropriate demographic and background questions to allow the instrument to be employed in diverse coteaching settings.

In the next phase of item development, the lead author collected and reviewed numerous coteaching-related articles through a literature review to create an initial list of survey items. All survey items were structured as Likert type responses for evaluation of frequency with a 5-point scale (i.e. "Never," "Mostly Not," "Sometimes," "Mostly Yes," "Always") with an unclear option of "I Don't Know."

After an initial pilot in Spring 2015, which garnered 341 responses, the survey consisted of 28 original items. At this point the research team (comprised of university-based field instructors, faculty experienced with the coteaching model, and clinical educators) qualitatively reviewed the survey utilizing a thematic analysis approach to evaluate items for clarity and to establish face validity and content validity based on their collective expertise in this research area. Three scales were preliminarily identified through collaboration and consensus building with researchers and clinical educators.

During this qualitative review process five items were dropped and six items were revised. Of the items that were revised, changes were made to improve interpretation by removing double barrel items (i.e. old version: "If I have questions or need something, I can go to any of my teachers" revised to new version "If I need something, I can go to any of my teachers") and/or to allow students to be unbiased in their responses (i.e. old version: "If I break the rules, both teachers would give me the same punishment" revised to "If a student breaks the rules, both teachers would give the same consequence"). Several items were removed, such as one item related to technology usage. These eliminations were designed to focus the survey on research themes and outcomes identified by prior research in the coteaching classroom and to be mindful of the negative impact on responses due to a lengthy survey (Galesic & Bosnjak, 2009; Schwarz, Groves, & Schuman, 1998). Following these revisions, additional testing of the 23-item survey was completed at the end of the Fall 2015, Spring 2016, and Fall 2016 semesters. No further edits were made to the items during this data collection period. During the testing cycles over 7,620 surveys were collected from pupils.

The process to validate the survey relied on Principal Component Analysis, an EFA technique, with varimax rotation due to the orthogonal nature of the data. This type of factor analysis relies on the judgement of the researcher along with the analytic results to determine the appropriate number of factors or components to include (Tabachnick & Fidell, 2007). The most common method is to retain all factors with an eigenvalue over 1.0, but often this method will over- or under-estimate the true number of dimensional factors (Gorsuch, 1983; Zwick & Velicer, 1986). Parallel analysis is one of the best methods for ascertaining the appropriate number of components and scree plot examination is a useful supplemental method (Velicer, Eaton, & Fava, 2000; Zwick & Velicer, 1986). After utilizing all three approaches we determined that three components were present. Then the research team evaluated each group of items to characterize them by their similarities and to name each component, herein referred to as the survey scales.

Interpretation of the EFA pattern matrix was conducted employing the guidelines for factor loadings where greater than .71 is excellent, greater than .63 is very good, greater than .55 is good, and greater than .45 is fair (Comrey & Lee, 1992). Typically items with factor loadings less than .4 are removed or revised, though they may be kept under special circumstances—especially when sample sizes are larger (Field, 2013).

Reliability for each scale was considered by a Cronbach's alpha analysis. Desired values for Cronbach's alpha are generally between .7 and .8, while greater than .9 indicates an overly homogenous or repetitive grouping, between .5 and .7 is deemed acceptable, and lower than .5 is considered unacceptable (George & Mallery, 2003).

After the survey scales were established and evaluated for reliability, another analysis was conducted via a one-way ANOVA to determine if the different pupil groups were responding differentially to the survey. Lastly, a descriptive analysis for the individual item means and standard deviations was completed for the entire sample population to initiate an investigation into the overall findings uncovered by the survey. Prominent findings from the most and least positively rated items will be examined further in the results and discussion sections.

Participants

The participants in this study were pupils from classrooms in which coteaching was used as a model for the student teaching experience. Student teaching consisted of at least 12 and no more than 15 weeks, full time, with daily participation in the school setting. Teacher candidates were involved with all aspects of planning, implementing and evaluating the curriculum, in collaboration with at least one experienced clinical educator. The pupils were from elementary classrooms (grades 4 to 5, ages 9 to 11 years, N = 1,333), middle school classrooms (grades 6 to 8, ages 11 to 13 years, N = 6,059), and high school classrooms (grades 9 to 12, ages 14 to 17 years, N = 228). The total population of pupils, from which the sample was selected, was majority (> 60%) white and middle class with approximately half of the population identifying as female and the other half as male.

The final survey consists of three scales: Respectful & Caring Environment (9 items), Engagement & Motivation for Learning (8 items), Behavior & Classroom Management (6 items)

Results

Factor Analysis Results

The final survey consists of three scales: Respectful & Caring Environment (9 items), Engagement & Motivation for Learning (8 items), Behavior & Classroom Management (6 items). Multiple analytic methods (scree, eigenvalues, and parallel analysis) converged such that three scales were present in the data. The factor analysis model appropriately fit the data (determinant = .001, KMO = .930, Bartlett's < .001). The final survey consists of 23 items and exemplar items for each of the three scales are presented in the appendix. For a full text copy of the survey with all survey items, please contact the corresponding author of this article.

Scale reliability as measured by Cronbach's alpha was .857 for Respectful & Caring Environment, .837 for Engagement & Motivation for Learning, and .685 for Behavior &

Classroom Management. Table 1 provides the factor loadings by scale. Note that questions 3, 5, and 20 are reverse-coded items.

Table 1
Factor Loadings by Subscale

	Subscale		
	Respectful & Caring Environment	Engagement & Motivation for Learning	Behavior & Classroom Management
Q11	.746		
Q7	.711		
Q13	.688		
Q9	.679		
Q15	.640		
Q4	.608		
Q16	.608		
Q6	.559		
Q17	.554		
Q22		.781	
Q21		.738	
Q18		.715	
Q19		.680	
Q12		.636	
Q23		.616	
Q14		.565	
Q1		.425	
RC Q3			.649
Q8			.606
RC Q20			.570
Q2			.522
RC Q5			.415
Q10			.282

The results indicate there was a statistically significant difference in how the three groups are responding

Item Q10 ("It is clear who is in charge of the classroom.") has a low factor loading of .282 on Scale 3—Behavior and Classroom Management. Due to the large sample size, there was both quantitative support, and a qualitative necessity, for retaining this item. After discussion with the research team, it was determined that this item could prove qualitatively insightful for current and future coteaching research studies because shared power and collaboration are hallmarks of quality coteaching (Scantlebury et al., 2008; Soslau et al., 2018a, 2018b). Therefore, the item was retained despite a low factor loading.

ANOVA results

The one-way ANOVA was completed utilizing the survey responses for the entire survey to compare how the three different groups of pupils responded to the questions. Levene's test is significant, which indicates a violation of the homogeneity of variance assumption (this is likely due to the drastically different group sizes). Therefore, the Welch statistic from the Robust Tests of Equality of Means is reported instead of the traditional ANOVA F statistic. The results indicate there was a statistically significant difference in how the three groups are responding to the survey (Welch statistic = 38.374; df1 = 2; df2 = 565.053; sig < .001).

Post hoc comparisons

Games-Howell post hoc test was utilized due to the violation of the homogeneity of variance assumption. Table 2 presents the overall survey means and standard deviations for each group of pupils as well as the sample size for each group.

Table 2
Survey Means, SD, and N by School Level

Group	Mean	SD	N
Elementary	4.14	.48	1331
Middle	4.05	.54	6056
High	3.78	.67	228

Table 3 shows the results of the Games-Howell post hoc test. There was a significant small effect between elementary and middle school pupils (Cohen's d = 0.180), and a significant medium effect between elementary and high school pupils (Cohen's d = 0.673), and middle and high school pupils (Cohen's d = 0.459).

Table 3
Post hoc results from Games-Howell analysis

Groups compared	*p*-value	Cohen's *d*	Effect
Elem vs Middle	<.001	.180	Small
Elem vs High	<.001	.673	Medium
Middle vs High	<.001	.459	Medium

This post hoc analysis demonstrates that not only is the difference between the three groups statistically significant, but that elementary pupils are answering the survey most positively (M = 4.14) and high school pupils less positively (M=3.80) with middle school pupils between these two groups (M=4.05). The difference between elementary and middle school pupils represents a small effect size, while the differences between elementary and high school as well as middle and high school pupils demonstrates a medium effect size. With further data collection to gain group sizes that are more equivalent, these results may change, and this will be considered in future analysis. However, because only small to medium effect sizes are observed, we consider this survey to be appropriate for use across the grade bands tested thus far (grades 4 to 12, pupils aged 10 to 18 years).

Elementary pupils are answering the survey most positively (M = 4.14) and high school pupils less positively (M=3.80) with middle school pupils between these two groups (M=4.05)

Descriptive Analysis for Scales and Individual Survey Items

Table 4 presents the means and standard deviations for each of the three scales. The scale, Respectful & Caring Environment, had the highest mean score of 4.57 of the three scales, with Engagement & Motivation for Learning having the lowest mean score of 3.52.

Table 4
Mean and Standard Deviation by Subscale

	Mean	*SD*	*N*
Respectful & Caring Environment	4.57	.546	7620
Engagement & Motivation for Learning	3.52	.796	7620
Behavior & Classroom Management	3.86	.779	7620

Table 5 is the descriptive analysis results for each item individually. The three questions currently highlighted yielded the lowest mean responses (least positive); the four questions emphasized with an underline garnered the highest mean responses (most positive).

Table 5
Mean and Standard Deviation by Item

Item	Mean	SD
Q1	3.65	.907
Q2	3.82	1.144
Reverse code Q3	3.12	1.309
Q4	4.79	.600
Reverse code Q5	4.31	1.094
Q6	4.66	.711
Q7	4.78	.558
Q8	4.28	.895
Q9	4.47	.836
Q10	4.33	.962
Q11	4.66	.700
Q12	3.81	1.110
Q13	4.60	.713
Q14	3.67	1.169
Q15	4.66	.665
Q16	4.38	.876
Q17	4.33	.925
Q18	3.77	1.139
Q19	3.41	1.158
Reverse code Q20	3.94	1.301
Q21	3.24	1.274
Q22	3.39	1.223
Q23	3.43	1.161

This survey can be used to support program evaluation for improvement and for reporting to accreditation agencies

After completing data collection, and conducting scree, eigenvalues, and parallel analysis, three reliable scales emerged: Respectful & Caring Environment (9 items); Engagement & Motivation for Learning (8 items), and Behavior & Classroom Management (6 items). Pupils' responses indicated a violation of the homogeneity of variance assumption possibly due to the unequal sample size that reflect the lower numbers of secondary science student teachers compared with those student teachers preparing to teach elementary and/or middle school classes. Clear patterns emerged with the scales and individual items. Questions 3, 21, and 22 had the lowest mean scores of the individual items, while questions 4, 6, 7, and 11 had the highest mean scores of the individual items

Discussion

There are two main findings that extend the current body of coteaching research in practice. First, this survey instrument is a valid and reliable way to gather pupils' perspectives about their classroom contexts for learning within a coteaching model for student teaching. These collected perceptions are quite valuable as they relate to student behavior and other achievement outcomes and cannot be omitted when determining instructional effectiveness (Fraser, 2012b). The use of student-oriented classroom environment surveys has meaningful application for the purpose of research and evaluation of educational innovations (Fraser, 2012a). Additionally, this survey can be used to support program evaluation for improvement and for reporting to accreditation agencies, which represent two other meaningful applications espoused by Fraser (2012a) for teacher education and teacher assessment.

Heretofore, only teachers' voices have been included when evaluating the implementation of coteaching. Yet pupil voices must be influential in our work as educators because pupils "have the potential to assess and evaluate honestly and flawlessly" (Issa, 2015, p. 106) the classroom environment, especially the psychosocial or relational aspects within the classroom climate. These current data provide an opportunity for researchers to triangulate findings with teacher data to make more robust attributions about the quality of coteaching in classrooms and within teacher preparation programs. Teacher candidates and clinical educators can also use the survey results to reflect upon how their coteaching influenced classroom learning, especially along the dimensions of Moos's framework: Relationships, Personal Development, and System Maintenance and System Change (1974). Many clinical educators regularly support teacher education programs by mentoring teacher candidates and by having access to pupils' perspectives on their learning experiences; this may result in clinical educators and teacher education programs collaboratively discussing changes to improve field experiences more broadly.

We also provide useful exemplars of findings from the survey with an eye to how this survey moves the field of teacher education research and assessment to consider the impact of coteaching models. The three scales, Respectful and Caring Environment, Engagement and Motivation for Learning, and Behavior and Classroom Management are reliable scales that are aligned with the theory and purpose of using coteaching as a model for student teaching. Items on the Respectful and Caring Environment scale ask pupils their perception of whether the coteachers worked well together and if they respected each teacher. Scantlebury et al. (2008) noted that successful coteaching between teacher candidates and clinical educators require corespect as a prerequisite. If coteachers did not respect each other then typically they would fail in implementing the most basic tenets of coteaching. In this scale, we see counterparts to the Relationship Dimension from Moos (1974) and other traditional survey instruments. For example, a representative item from the Classroom Environment Scale (CES),"The teacher takes a personal interest in the students," closely parallels an important assumption for coteaching that coteachers are focused on pupils' learning. Other items on this scale for a Respectful and Caring Environment include statements such as "All my teachers make me feel like I can learn" and "I remember the lesson better when I have more than one teacher." These items work to examine whether the additional human resources in the classroom (that is, the teacher candidate) support pupils' perceptions that their learning needs are being addressed.

The second scale of this new instrument relates to Engagement and Motivation for Learning. Again, the traditional theoretical framework put forth by Moos holds here as well as similarities are evident to the Personal Development dimension. In our previous research, coteachers reported that the model provided new opportunities for teachers to implement new or different pedagogical approaches (Gallo-Fox & Scantlebury, 2015). Items such as "When there is more than one teacher, we do more activities in class" and "I participate more often when I have more than one teacher" may help to strengthen coteachers' self-reports, which claim that coteaching served to expand their pedagogical repertoire during student teaching—increases reported both by the teacher candidate and the clinical educator (Soslau et al., 2018a).

The third scale, Behavior and Classroom Management, includes items such as "Sometimes I ask one teacher instead of the other teacher for permission because I know they will let me do what I want to do," which seeks to unearth pupils' perceptions about how coteachers manage the class and if they perceive that coteachers share this responsibility. Once more, this final scale complements the third dimension of System Maintenance and System Change (Moos, 1974). An item from the CES is representative of this third dimension: "There is a clear set of rules for students to follow." Items from our Behavior and Classroom Management scale pivot to address the unique circumstances of multiple teachers in the cotaught classroom (i.e. "If a student breaks a rule, both teachers would give the same consequence" and "Each teacher has different rules"). However, our analysis continues to support and confirm the continuing utility of these three dimensions of the learning environment.

Our analysis continues to support and confirm the continuing utility of these three dimensions of the learning environment

Additionally, we know that classroom management is a primary focus of coteachers' huddles. Huddles are the impromptu meetings between teacher candidates and classroom teachers that often occur during instruction to check in about how the lesson is unfolding and discuss any necessary changes (Soslau et al., 2018b). Coteachers must set clear expectations for instruction, and through the use of huddles, instruction can be nimble and responsive to the needs of the classroom environment and the students.

We also know that teacher candidates report finding their participation in these help-seeking huddles educative, thus coteaching functions as a context for learning how to improve their management skills (Soslau et al., 2018b). This scale looks to ascertain pupils' perceptions of the shared responsibility for supporting pupils' behavior. This, once again, provides additional data that can be used to bolster claims about the teacher candidates' self-reports regarding the usefulness of their participation in huddles focused on classroom management.

In addition to serving as an extension to the existing research on coteaching, there are practical implications that are critical for us as teacher educators in the local context. The scales on the pupil survey will provide data to revise and strengthen the professional development towards the goal of improving coteachers' learning opportunities for all pupils when using coteaching as a model for student teaching. Bayne describes this practical application for all: "Learning more about how the learning environment is experienced has potential for creating more adaptable forms of teaching, learning and assessing—including assessing the learning environment itself—that can support a diversity of students" (2012, p. 246).

Researcher-practitioners may consider collecting and sharing survey data with the specific clinical educators and teacher candidates that serviced the students. In this way, survey data can serve as a formative assessment for the coteaching pair to reflect on not only their enactment of coteaching practices, but also how those coteaching practices were experienced by the pupils. This could work to ensure that the classroom climate is a comfortable and productive space (Aldridge et al., 2016). Methods faculty, who teach teacher candidates before the student teaching practicum, may also find these pupil data compelling because part of these faculty's charge is to support teacher candidates' development of collaborative expertise—a foundational competency for coteachers. By prioritizing data from pupils' perspectives, instruments like the one developed in this study can offer a more detailed picture of the coteaching process (Fraser, 1998). Moreover, while the survey was developed to address pupils' perceptions of coteaching with teacher candidates involved in the teaching process, the items and scales are also applicable to other coteaching settings, such as when a special education teacher coteaches with a general education teacher. The survey items may also be useful for teachers who coteach with pupils, parents, or other volunteers with the goal of supporting their pupils' academic and social-emotional wellbeing as key indicators of a positive psychosocial learning environment and along Moos's three dimensions of the learning environment.

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Limitations of this work emerged due to the unequal pupil sample sizes, a consequence of the varying enrollment in State University's teacher education programs. Future research is underway to link pupil survey responses with survey responses from the clinical educators and teacher candidates to further develop a more detailed research imagery of the coteaching classroom in practice. Overall, this study shows that pupils are sensitive to the differences in a coteaching learning environment. Pupils can provide useful insight into the overall nature of the care and respect exhibited, the encouragement they encounter toward their learning, and the managerial approaches that are in place within a coteaching classroom.

Appendix.
Exemplar survey items for each scale

Scale 1 – Respectful & Caring Environment
Q11 - My teachers in this class care about me and my learning.
Q13 - My teachers teach well together.

Scale 2 – Engagement & Motivation for Learning
Q18 - I learn better when I have more than one teacher.
Q19 - When there is more than one teacher, we do more activities in class.

Scale 3 – Behavior & Classroom Management
Q2 - If a student breaks the rules, both teachers would give the same consquences.
Q8 - I know that both teachers use the same rules for students.

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