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41 Teachers, 41 Different Ways: Exploring Teacher Implementation of a Universal Social-Emotional Learning Program under Routine Conditions

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Abstract

Schools are increasingly adopting universal social-emotional learning (SEL) programs to support students' prosocial development and academic success. When adopted across contexts and student populations, SEL interventions can be implemented in different ways particularly under typical classroom conditions that are not part of research efficacy trials. This study, situated across 13 elementary schools, examined 41 primary teachers' use of a popular universal SEL program with their 811 students, with attention to the prevalence and nature of teachers' program changes to standard program practices. In addition, this study explored whether and how teachers' changes were associated with instructional quality more broadly. Results from 221 lesson observations revealed that teachers' instructional expertise in areas closely aligned with the program's target intervention skills was positively associated with higher levels of program fidelity. Expertise was also related to program changes that honored students' outside of school experiences, supported moment-to-moment decision making, and centered on students' interests.

Children's social-emotional development is positively associated with academic achievement (Bandura, 1986; Caprara et al., 2000; Wentzel, 1991, 1993) and long-term professional success (Belfield et al., 2015). Students who demonstrate prosocial behaviors such as engaging in efficacious communication with others, exhibiting self-control in challenging situations, cooperating with peers, and empathizing with others (Elliott & Gresham, 2007) have fewer challenging behaviors, increased motivation to excel academically, and greater school achievement (Greenberg et al., 2003).

The important role of social-emotional learning (SEL) in students' school success has resulted in statewide initiatives (Dusenbury & Weissberg, 2018), accountability measures, and policies focused on SEL (Common Core State Standards Initiative, 2010; Every Student Succeeds Act, 2015). Such initiatives, in turn, have increased the adoption of universal SEL programs to support students' development of these essential skills (Clark et al., 2015; Department for Education and Skills, 2004; Department of Education, 2015, 2016), particularly in elementary schools. According to a recent survey, 41% of elementary school principals reported school-wide implementation of SEL programs (DePaoli et al., 2017). However, SEL meta-analyses and research syntheses find that efficacy of these programs varies widely (e.g., Browne et al., 2004; Clarke et al., 2015; Payton et al., 2008; Wilson & Lipsey, 2007).

One explanation for the mixed efficacy of universal SEL programs is that they are implemented differently across school contexts (Blakely et al., 1987; Carroll et al., 2007; Dane & Schneider, 1998; Elliot & Mihalic, 2004), with the curriculum enacted and interpreted by teachers in distinctly different ways (Remillard, 2005). Schools generally lack the resources or implementation infrastructure to administer evidence-based programs in ways that mirror intervention efficacy trials (DePaoli et al., 2017; Levin & Belfield, 2015) where research teams

typically provide extensive coaching and professional development (Institute of Education Sciences, 2020). Successful implementation under typical or routine conditions—i.e., implementation without coaching, professional development, and intervention integrity monitoring provided by a research team—is an area of research that remains understudied in intervention research (Bryk et al., 2015).

Beyond the field of SEL, though, there is emergent research that highlights the contribution of teacher knowledge, judgement, and expertise to teachers' intervention implementation and curricular adaptations that promote intervention-related outcomes (Kim et al., 2017; Lemon et al., 2014; Neugebauer, 2017; Quinn & Kim, 2017). Research on the formative role of teachers in SEL program implementation, however, is lacking. Existing studies support the critical facilitative nature of teachers tailoring intervention practices to suit specific classroom contexts, and subject-area research emphasizes the dynamic participatory relationship between the teacher and curriculum materials (see review in Remillard, 2005). However, educational researchers vary in whether they see deviations from strict program adherence as an obstacle for efficacy research and intervention effectiveness (Dusenbury et al., 2003; What Works Clearinghouse, 2020) or alternatively, as essential for interventions to be viable in different contexts with different populations (Lemon et al., 2014; Maniates, 2017; Neugebauer, 2017; Quinn & Kim, 2017). Many SEL studies appear to reflect the perspective that classroom-specific changes dilute as opposed to augment best practice (Brown et al., 2018).

To address this area of research, the current study explores teachers' use of a universal class wide SEL program under typical instructional conditions, outside of the context of a highly structured efficacy trial—across diverse school contexts. This exploratory investigation captures the prevalence of teachers' program changes to meet their specific classroom context. In

addition, we examine the types of changes teachers make under these more flexible, less regimented, and, due to their pervasiveness, potentially more instructive conditions for improving student outcomes broadly. We also address the potentially synergistic relationship between teacher expertise and program changes, by exploring the associations among teachers' high quality instructional practices and teacher-driven program changes. Findings from this study have the potential to advance the reach of SEL programs across varied school contexts, highlight the role of teacher expertise and decision making in program implementation, and generate usable knowledge for supporting teacher SEL learning and leadership.

Studies of Implementation Fidelity and Program Changes

Teachers tasked with implementing a manualized universal intervention program must engage in a complex balancing act of taking up standardized prescribed practices while attending to the unique needs of their classroom population. To fully grasp the pitfalls and potential benefits of managing these two demands requires an understanding of (a) different stances toward implementation fidelity and (b) instructional moves associated with adaptive teaching (i.e., linguistically, culturally, and instructionally responsive teaching).

To begin, the field of implementation science includes divergent perspectives on the contribution and nature of implementation fidelity—defined broadly as "the degree to which teachers and other program providers implement programs *as intended by the program developers*" (Dusenbury et al., 2003, p. 240) —for intervention effectiveness. One perspective embraced by pro-fidelity scholars is a linear model, whereby schools eager to boost outcomes must adhere rigidly to the intervention as enacted in the original efficacy trial (Dane & Schneider, 1998; Dusenbury et al., 2003; Murnane & Nelson, 2007). This model encourages

practitioners only to implement practices as prescribed by intervention developers and implies that the absence of such adhesion will culminate in negative impacts on outcomes.

Pro-adaptation scholars argue that population-specific changes or adaptations are essential to the success of an intervention at scale (Bryk et al., 2015). Sanetti and Kratochwill (2009) referred to this approach as "flexibility within fidelity" (p. 452), and it has been described by Bryk and colleagues (2015) as "adaptive integration" (p.16). In naturalistic settings, these scholars argue that adaptations tailoring universal interventions to particular populations and contexts are the norm not a rarity. For example, in a meta-analysis of the widely implemented, small group intensive (i.e., Tier 2) prosocial behavior intervention, Check-in Check-out (CICO), Majeika and colleagues (2020) found that 71% of studies using CICO made adaptations to core components. The type of adaptation varied considerably (e.g., practices embedded within the core components of CICO or structure, or least common, added program components) but the act of adapting was widespread across contexts. In her case study of four teachers' sustained implementation of a literacy program after the conclusion of an intervention trial, Troyer (2019) found that, of the 10 hours of recorded lessons, only 80 minutes did not include some form of adaption, and like Majeike et al. (2020), the type of adaptation varied considerably (i.e., addition, omission, and modification).

Given that interventions at scale often are changed under typical conditions, a growing research base draws from both pro-fidelity and pro-adaption arguments to highlight fidelity as important but insufficient – unless teachers engage in supplementary instructional interactions (i.e., adaptations) aligned with the design principles of the intervention (Harn et al., 2013; Mclaughlin & Mitra, 2001; Kim et al., 2017; Neugebauer et al., 2017; Sanetti & Kratochwill, 2009).

Research on adaptations in the SEL literature is still nascent, with most work in this area conducted in the field of cultural adaptations. This literature has focused extensively on the importance of adaptations for different target populations. The core of this research base is that such adaptations are not intended to change the structure or big ideas of the program. Instead, they tailor the program to a particular group (Bernal & Saez-Santiago, 2006; Bernal et al., 1995; Castro et al.,2004; Lopez et al., 2002), such as translating program material into Spanish, recording participants' responses in their preferred language, and then translating these responses (Ingraham et al., 2016). Importantly, efficacious cultural adaptation studies in elementary school contexts have involved researcher-designed program changes (Castro-Olivo et al., 2018; Ingraham et al., 2016).

The role of researcher support in the success of program changes has been documented across several key studies in the field of language and literacy that have examined teachers' use of adaptations with guidance and input from the research team (e.g., structured adaptations). These studies have shown the potential advantages of adaptations when teachers are well trained in the theory and practice behind the intervention. Kim and colleagues (2017) explored the impact of structured adaptations versus strict fidelity to core components of a summer adolescent reading program. Teachers in the structured adaptations condition received extensive support from the research team including three researcher-practitioner meetings focused on skill, will, and theory behind the components of the program, an online training on the components of the program, and teacher-generated adaptation plans being reviewed by the research team before implementation.

Findings indicated that students in the structured adaptation condition performed .12 standard deviations higher in reading comprehension compared with students receiving the core

intervention with no teacher-generated changes. In addition, adapting teachers consistently distinguished themselves from teachers just implementing core practices in that they added components to the program and taught longer lessons. The latter finding indicates that adaptive teachers—in this case highly knowledgeable and more extensively prepared teachers—may take a unique approach to intervention dosage by extending program lesson time, when encouraged to take liberties with program implementation. SEL researchers have also found that teachers' judgement about dosage can boost outcomes, with a greater number of implemented SEL lessons being related to slower growth in negative outcomes (Aber et al., 1998) and fewer unexcused absences (Moskowitz et al.,1982).

In a study that involved less hands-on researcher support, Lemons et al. (2014) encouraged teachers to adapt instruction when using Peer Assisted Learning Strategies (PALS), a peer tutoring program found to increase student achievement. They specified core and non-core intervention practices and allowed teachers to modify non-core practices but prohibited teachers from altering core practices. Similar to the study by Kim, students in PALS classrooms with teachers who modified non-core practices experienced an academic advantage compared with students in classrooms with teachers who adhered most closely to the PALS curriculum. This quasi-experimental study, however, did not randomly assign teachers across conditions, and differences across classrooms may have reflected other teacher expertise variables not captured in their investigation.

Blakely and colleagues' (1987) canonical study of seven education and criminal justice interventions was not highly standardized by the research team, and they found when controlling for fidelity, only program changes in the form of instructional additions were associated with outcomes, not program modifications. These program additions, which they referred to as

"reinvention additions," were defined as supplementary activities, materials or facilities not considered part of the existing fidelity components of the intervention. By contrast, "reinvention modifications" included modified activities, materials, or facilities, and were considered within the realm of program fidelity components executed in a novel way.

In the case of a universal SEL program, a teacher might engage in a reinvention addition by creating their own anchor chart providing pictorial images of various relationship skills that help students remember strategies related to a target skillset prescribed by the program, e.g., to develop the skill of taking turns when talking. This teacher might display two visual images side by side, with the first image of a person listening and the other person talking, followed by a reversing of roles in the second image on the chart. That same teacher might also engage in a reinvention modification for the relationship skills unit, where she combines two topics that are sequenced separately by the program, such as taking turns when talking and making compromises, and uses program-generated role play cards to help clarify for her students how these two terms are different but can be related. The former goes beyond the realm of the programs' fidelity components by generating new materials for students to engage with, while the latter still includes prescribed topics and activities but has students engage with the content (i.e., combining topics) in a slightly different way than it was written by the program developers.

Kim and colleagues (2017) and Lemons and colleagues (2014) did not distinguish between these two types of reinventions, i.e., additions and modifications, but a review of the permitted changes and opportunities for teacher autonomy appear to reflect these categories. These studies encourage the co-occurrence of fidelity and program adaptations/reinventions, and underscore the potential of these changes, particularly additions and extensions of program time. However, these studies, in contrast to Blakely and colleagues' study, were highly structured in

their directives to teachers about how they could (and couldn't) alter program features. As such, they may not reflect typical or routine classroom conditions as in the current investigation.

The studies we have reviewed use different terms to describe these deviations from strict adherence, with pro-adaptation scholars adopting terms like program adaptations because of their positive stance regarding the necessity of making program changes. To better understand the range of ways teachers alter programs, we focus on any and all program changes in the current investigation. We frame practices that diverge from strict or prescribed adherence as program changes because not all of these changes may be equal in their quality and suitability. In addition, we intended to comprehensively capture the ways teachers may alter the program under typical conditions.

Adaptive Teaching

The promise of program changes that tailor instruction and bolster program-related outcomes for particular populations of learners is grounded in research on adaptive teaching in general classroom practice. Adaptive teaching is adjusting instruction to fit the linguistic, cultural, and instructional needs of students (Parsons et al., 2018). We center this work on adaptive teaching given our core focus on teachers' enactment of the SEL curriculum and more specifically on teachers' instructional moves that tailor instruction to students. Adaptive teaching approaches are viewed as one of the most critical components of effective teaching (Borko & Livingston, 1989; Corno, 2008; Dewey, 1910; Duffy, 2005; Fairbanks et al., 2010; Gambrell et al., 2011; Pearson, 2007; Pearson & Hoffman, 2011; Vagle, 2016) and are consistently highlighted as a characteristic of exemplary teachers (Allington & Johnston, 2002; Pressley et al., 2001). A research synthesis capturing typologies of adaptive teaching included practices such

as: teacher questioning, assessing, encouraging, modeling, managing, explaining, giving feedback, challenging, and making connections (Parsons et al., 2018).

In a study exploring over 315 teacher observations and post-observation interviews in 73 elementary (K-6) schools, Vaughn and colleagues (2020) identified teacher behaviors that drive adaptive teaching. Based on these data, the authors argued that exemplary adaptive teachers: (a) anchor teaching in real world learning opportunities for students that center students' interests and motivations, (b) honor and invite students' cultures, languages and backgrounds in academic learning, and (c) involve reflection to better understand one's own moment-to-moment instructional moves and the interaction between these moves and student learning.

Adaptive teaching as a gold standard of instruction is evident in its prominence in commonly used observation protocols for evaluating pre-service and in-service teachers' use of high-quality instructional practices such as the *Classroom Assessment Scoring System* (Pianta et al., 2008). The CLASS is a systematic observation system that assesses the quality of teachers interactions with students and is composed of three domains: Emotional Support (i.e., teachers' warmth and sensitivity to student needs and everyday experiences), Classroom Organization (i.e., teachers' facilitation of a productive classroom, use of effective behavior management, and varied learning modalities), and Instructional Support (i.e., teachers' use of strategies that develop concepts and cultivate higher-order thinking and language skills).

Features of adaptive teaching are assessed across the three CLASS domains. For example, the Emotional Support domain includes indicators focused on honoring students' backgrounds, with teachers receiving high scores when they demonstrate respect for students' backgrounds and invite conversations about students' lives. The Classroom Organization domain captures whether teachers anchor teaching in real-world learning opportunities with indicators

that include hands on opportunities for learning as well as interesting and creative materials. Lastly, the Instructional Support domain captures teachers back and forth exchanges with students that involves teachers' reflecting on moment-to-moment interactions to support learning. These practices (i.e., honoring students' backgrounds in instructional choices, creating real-word learning opportunities, and reflecting on moment-to-moment interactions to improve instruction) are well-aligned with Vaughn and colleagues (2020) identified teacher behaviors that drive adaptive teaching.

Other observation protocols commonly used in schools and for teachers in training also address similar features of adaptive teaching (e.g., Danielson's Framework for Teaching; Danielson, 2011). While, there is consensus that adaptive teaching is an essential element of effective instruction, the understanding that adaptive teaching can be used to augment existing intervention programs has not transferred over to intervention research, as demonstrated by the widespread adoption of the pro-fidelity approach to implementation within such research.

Teacher Instructional Quality to Support Program Success

Adaptive teaching practices are student centered and thus require teachers to anticipate and react to student contributions in ways that support learning (Parsons et al., 2018; Vaughn & Parsons, 2013; Vogt & Rogalla, 2009). Contingent on student feedback, input, and responses, adaptive teaching cannot be scripted or standardized but is rooted in pedagogical content knowledge (Shulman, 1986) and expertise (Parsons et al., 2018)—which are challenging to scaffold in an off-the-shelf intervention manual but at the core of teacher instructional quality.

When adaptive teaching is observed in the context of an intervention study, it has primarily been framed as reflecting teachers' understanding of the theoretical principles underlying the intervention (McLaughlin & Mitra, 2001; Neugebauer, 2017). The argument is

that, to generate effective changes, teachers draw from their knowledge of the principles of the intervention and extend them to adapt instruction in ways that are in sync with the intervention practices. Indeed, Kim and colleagues' (2018) trainings focused on the theories undergirding the intervention to support teachers in applying this knowledge to their structured adaptations. In this way, adaptations are seen as an extension of program quality (Klingner et al., 2006; Neugebauer, 2017). In research conducted by Neugebauer and colleagues (2017) exploring the efficacy of a kindergarten vocabulary intervention, they found that teachers' use of language aligned with the design principles of the program (e.g., modifying a definition of a word to make it more accessible) was associated with growth in curriculum-specific words, above and beyond teachers' language that was specified by the program manual. The authors recommended that training for teachers should develop teachers' understanding of general strategies and the underlying theoretical basis of an intervention as a way of helping teachers understand how to implement interventions in ways that are more responsive to students in their context.

Teachers' pre-existing strategies and theoretical knowledge also likely explain their changes. For example, in a study of the effectiveness of the RULER program (Recognizing, Understanding, Labeling, Expressing and Regulating) with 812 sixth-grade students and 28 elementary classroom teachers, Reyes et al. (2012) found no main effect of training (i.e., attendance at intervention trainings), dosage (number of lessons taught), and implementation quality (delivery and attitudes as rated by a coach) on student outcomes. However, they did find an interaction effect whereby "moderate and high-quality implementers" with more training and a higher dosage of the intervention had greater student outcomes, with no positive gains for "low quality implementers." They attributed the latter outcome to teachers' low levels of perceived teaching competence in general. While the researchers did not capture actual teacher practices

broadly, research shows positive associations between perceived competence and actual skill (Gibson & Dembo, 1984; Ross, 1998; Tschannen-Moran et al., 1998). As such, this study suggests that teachers' ability to use the intervention effectively and capitalize on additional training and time is a function of their instructional efficacy.

A teacher tasked with implementing an universal SEL program will be better able to make instantaneous responsive pedagogical decisions during implementation if their existing teaching repertoire includes high-quality practices aligned with the intervention. For example, SEL interventions commonly utilize a "gradual release of responsibility" model of instruction—a sequence where the teacher explicitly models the skill, the student practices the skill with teacher feedback, and finally the student is assessed on the skill (Pearson et al., 2019). As such, teachers who embrace this approach in their everyday teaching are more likely to implement it in the context of the intervention and be better positioned to engage in program changes that incorporate this same practice effectively. In the context of an SEL intervention, that might mean a teacher follows the prescribed order of the lesson (e.g., model the skill, practice the skill, and assess the skill), and their change of an additional practice opportunity (e.g., adding a novel video where students must identify the problem behavior) is incorporated into this prescribed sequence. As such, teachers' changes may reflect deeper understandings and expertise regarding high-quality instructional practices (e.g., gradual release of responsibility) beyond just taking up the intervention sequence in their curricular repertoire. Supporting this idea, professional development that focuses on strategies as opposed to prescriptive curricular moves is generally more effective for increasing outcomes (Kennedy, 2016); that is, teachers who engage in a practice broadly as part of a high-quality program will do so more effectively across a variety of pedagogical moments than a teacher who takes up a specific circumscribed intervention practice.

Existing studies on the advantages of teacher changes have occurred with researcher oversight through extensive training (Kim et al., 2018; Lemons et al., 2014; Troyer, 2017) and under high fidelity of implementation conditions. As such, these studies framed changes as part of program implementation quality (Dickinson & Caswell, 2007; Neugebauer et al., 2017) but not necessarily as a reflection of teacher instructional quality. In this study, we wanted to explore these implementation changes and examine a critical school-based resource, teacher instructional quality, in the context of a universal SEL program implemented in the absence of researcher supports. This study explored the prevalence and nature of program changes in this more typical and routine school context as well as the relationship between teacher quality and program use (fidelity and changes). To do so, we addressed the following research questions:

Research Question 1: How common are instructional changes when implementing a universal SEL program under routine conditions across intervention teachers, lessons, and schools?

Research Question 2: When teachers make changes, what types of changes do they tend to make, and how often do they engage in each?

Research Question 3: Is adaptive, high-quality teaching and fidelity of implementation associated with certain type of changes?

While this study was exploratory in nature, based on the existing literature (Majeika et al., 2020; Troyer, 2019), we expected that under routine conditions, the majority of teachers would engage in frequent program changes across participants, lessons, and schools. We also hypothesized that teachers with higher levels of instructional quality would be more adherent to an evidence-based intervention program (consistent with previous studies) and more likely to engage in changes aligned with adaptive teaching practices. With regard to the latter, in Figure 1, we provide a visual representation of this logic model for the relationship between instructional

quality and program changes, represented as a Venn diagram, in which program changes overlap with or consist of high instructional quality when they are aligned with adaptive teaching.

Methods

Sample

This research draws from a larger effectiveness trial to evaluate the impact of the SSIS SEL Edition Classwide Intervention Program (SSIS SEL CIP; Elliott & Gresham, 2017) when implemented under typical conditions across multiple schools. Specifically, research staff did not provide schools with any professional development or coaching; all training and preparation were conducted and driven by the schools and teachers. The larger study was conducted over the course of 2 years. Program implementation occurred from January through May. We focus the current study on the first cohort from the larger study. Participating schools (N=13) were from three socio-economically and geographically diverse regions of the United States.

We focus the current investigation explicitly on teachers who implemented the intervention. Randomization of the larger study occurred at the school-level to allow for coordination and collaboration among teachers within the same grade as this reflects typical practice within most schools when rolling out a new instructional program. Schools were randomized to first-grade or second-grade implementation with the other grade serving in a wait-list control condition. All teachers across both grade levels were invited to participate. The current study focuses on the 41 teachers randomized to the intervention group at the 13 different schools. Participating teachers ranged in their level of experience (1 - 35 years) and on average had 14.5 years of experience (SD = 9.78). None of the participating teachers had experience implementing the SSIS SEL CIP before participating in the current investigation. Consistent with national numbers regarding the race and ethnicity of elementary teachers (Taie & Goldring, 2020), participating intervention teachers were predominately White (78%), with 10%

identifying as Latinx, 5% identifying as Black, 2% identifying as Asian, other, or preferred not to answer and 1% not filling out the information on race. Ninety percent identified as female and reported that their primary language was English, compared with 10% that reported Spanish to be their primary language.

Classrooms were composed on average of 20 students (*SD* = 3.99) and ranged between 11- 26 students per class, with the number of students receiving special education services ranging from 0 - 7 students in a classroom. The number of students of color in each class being approximately 12 on average (*SD* = 7.75), with some classrooms being entirely white and other classrooms having up to 24 students of color. At the school level, approximately half of the participating schools were composed largely of Black students, and the remaining half were composed predominately of White students. Six schools were 25% Latinx, and more than 40% of the student population qualified for free and reduced price lunch at almost all schools.

The Universal SEL Program

The SSIS Social-Emotional Learning Edition Classwide Intervention Program (SSIS SEL CIP; Elliott & Gresham, 2017) is a universal program for Grades K-8 that focuses on social and classroom behaviors aligned with five core SEL competencies identified by the Collaborative for Academic, Social, and Emotional Learning (CASEL, 2020): self-awareness (e.g., “Ask for help”), self-management (e.g., “Listen to others”), social awareness (e.g., “Do nice things for others”), relationship skills (e.g., “Take turns when you talk”), and responsible decision-making (e.g., “Own your own actions”). The SSIS SEL CIP was developed for easy implementation without extensive formal training, with a manual that clearly guides implementation and provides monitoring resources and scripts (SSIS CoLab, 2020). More specifically, materials provided to teachers to support program implementation include a teacher manual with scripted,

short, free-standing lesson plans for 10 Core units (3 lessons per unit requiring about 25 minutes each; Gresham & Elliott, 2019), and supplemental online resources (e.g., video clips, role play cards, etc.). Teachers can also implement 13 Advanced units focused on more complex social-emotional skills. Lessons follow a standard format of steps including Tell, Show/Do, Practice, Monitor Progress, and Generalize.

As mentioned previously, training and professional development decisions were made locally within each participating school. To provide context for our findings, a small number of teachers in only two of the schools reported that they received formal training, with only 33% *(N* = 2) and 25% (*N* = 1) of teachers at these two schools reporting receiving school-provided trainings. By contrast, 100% of teachers at nine other schools reported that their preparation was self-directed during their existing planning period, and more than 50% of teachers at four of the schools reported that their preparation and planning was self-directed during their existing planning time. Some teachers did prepare with other colleagues, but only one school had 100% of teachers say they collaborated with colleagues, and only half of teachers at that same school reported being provided with extra time to collaborate with colleagues as opposed to fitting intervention related work into their existing shared planning period. Only two schools reported any extra time provided for colleague collaboration. These data indicate that, by and large, teacher intervention practices were primarily self-directed, with little additional support in the form of school-based training or extra time, although there was some variation in the latter.

The off-the-shelf delivery model of the SSIS SEL CIP created a fertile space for the current investigation focused on program changes because teachers could engage with materials in a self-guided way that likely introduced additional variability in how teachers decided to implement the intervention and exercise their own expertise. To address our research questions

related to teachers' behaviors specific to the intervention (i.e., fidelity to the intervention as well as program changes) and general teaching (i.e., teacher use of high-quality instructional practices), we used different sets of classroom observation data. Figure 2 provides a visual representation of the different ways observational data was used in the current study.

Measures

SSIS SEL CIP Lesson observations

Research staff were trained to complete independent real-time observations of the SSIS SEL CIP lessons using a standardized observation protocol. Most observers had a Bachelor's- or Master's degree and experience in education and/or data collection. They completed a 2-hour training on intervention observation procedures with opportunities for practice. The training included examples and non-examples of significant modifications, with any disagreement in ratings discussed.

Program Fidelity. Observers rated teachers' adherence to prescribed lesson activities and content of the specific steps outlined in the lesson plan using ratings from 1 to 5 of *not observed*, *minimally observed*, *partially observed*, *mostly observed*, and *completely observed*. Observers marked teachers on the level (i.e., 1 to 5) at which they engaged in each of the following lesson steps: *Tell* (introduced/reviewed the skill using the scripted skill steps), *Show* (model the skill with role plays, videos and teacher modeling), *Do* (discussed the skills with students such as its importance and any associated emotions), *Practice* (asked students to role play the skill), *Monitor Progress* (asked students to record their skill development progress), and *Generalize* (discussed situations outside the classroom where the skill could be used). An average of 5.39 lessons were observed per teacher (range = 3-7). The research team collected in

total 221 observations across teachers. An average was calculated across lesson steps and observations to yield a total average fidelity score.

Frequency of Program Changes. We used a dichotomous variable to capture the proportion of observed lessons that included a change as well as different teacher-change profiles (i.e., the number of teachers who changed the program in every observed lesson, for some of observed lessons, or not at all across all observed lessons). Specifically, data generated from the observation protocol related to the prompt "Did the teacher significantly adapt (add) or modify the lesson in any way?" where observers provided a yes (1) or no response (2). Of all observations only 7% showed any disagreement between the two paired observers regarding the presence or absence of a significant modification.

Types of Program Changes. In addition to this dichotomous variable for noting changes during each observed lesson, observers also responded to two open-ended items (i.e., "please briefly explain how the teacher changed the lesson" and "please provide any additional observations regarding lesson implementation in the space below") to describe any changes made by teachers. Qualitative responses to these two questions were explored across all observations using an iterative process of content analysis (Krippendorff, 2012; Neuendorf, 2002; Schreier, 2012) to understand the nature of teachers' changes. Data were broken into units that facilitated analysis and coding, with data units circumscribed by observers' descriptions of teacher behaviors (e.g., activities, material) that deviated from rigid adherence to the program.

Our first round of coding aimed to chunk the data into larger categories that incorporated Blakely and colleagues' (1987) conceptions of *reinventions* (i.e., modifications and additions) as initial constructs for identifying codable practices. We then coded a randomly selected subsample of transcripts, further refining these categories and iteratively developing substantive

and theoretical categories (Maxwell, 2005). In the case of the *reinvention-modifications* category, this included refining categories to include *removing* and *combining practices/lesson features*. In the case of refining the *reinventions-additions* category, we used *augmenting content or material* as the overarching code and developed an additional code of *dosage* to capture using prescribed content and materials for longer than indicated by the program or beyond the lesson period. We also developed subcodes for the overarching additions code as part of Research Question 3. (We describe these more fine-grained subcodes in the Results section.)

Once these substantive and theoretical categories were defined, exemplars of each category from the data were compiled to anchor these codes. We provide definitions of these codes and corresponding exemplars in Table 1. The coding team generated this array of focused codes and a codebook (Corbin & Strauss, 2008); then returned to the data, coding another group of observer responses, testing the effectiveness of the codes, and collaboratively refining the codebook and confirming the dependability of the codes by engaging processes of constant comparison (Corbin & Strauss, 2008; Saldana, 2015).

Across the coding process, the research team wrote memos about the coding process and emergent findings (Luttrell, 2010). We also engaged in collaborative conversations with our interpretive community of scholars to enhance the trustworthiness of our analysis (Gee, 1999; Maxwell, 2005). Using the final codebook, each observation transcript was coded twice by two separate coders. All discrepancies in coding were discussed, and disagreements in coding were resolved by consensus. Interrater reliability based on 20% of the data was 90%.

Classroom Assessment Scoring System. To better understand teachers' quality of instruction, we completed additional classroom observations using the Classroom Assessment Scoring System (CLASS, Pianta et al., 2008). The CLASS is a systematic observation system

that assesses the quality of teachers' interactions with students by capturing 10 dimensions (Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspectives, Behavior Management, Productivity, Instructional Learning Formats, Concept Development, Quality of Feedback, and Language Modeling) which represent three primary domains: Emotional Support (i.e., teachers' warmth and sensitivity to student needs and everyday experiences), Classroom Organization (i.e., teachers' facilitation of a productive classroom, use of effective behavior management and varied learning modalities), and Instructional Support (i.e., teachers' use of strategies that develop concepts and cultivate higher-order thinking and language skills). Each dimension is rated on a 7-point scale from *low* to *high* use of high-quality practices, with ratings assigned after an observer completes an observation cycle. Each cycle is composed of 20 minutes of observation and 10 minutes of assigning ratings for dimensions. In previous research (Hamre et al., 2008) and the current investigation, this measure was found to be valid and demonstrate acceptable reliability (Hunter et al., in press).

CLASS observers were formally trained by a CLASS-certified instructor and reached the required criterion of 80% accuracy before completing observations. Consistent with CLASS guidelines (Pianta et al., 2008), two observation cycles were completed in each classroom and then averaged for each dimension and domain. We focus on domains in the current analysis as they have consistently demonstrated structural validity and strong psychometric support (Sandilos et al., 2017; Hamre et al., 2007). In total 80 observations were conducted. Thirty-nine teachers were observed for the recommended back-to-back cycles, and two teachers completed one cycle on two different occasions due to an unexpected scheduling conflict. CLASS observations were not conducted during the intervention period in order to capture classroom instructional quality broadly. Observations conducted during other parts of the day included the

Language Arts period (57.5%), social studies period (2.50%), math period (31.25%), science period (1,25%) and other periods involving morning work or play time (7.5%).

Data analysis

To address our first research question regarding how common program changes are in the context of a universal SEL program, across classrooms, we explored the frequency of teachers' changes across observed lessons and change-making profiles (i.e., the number of teachers who changed the program in every observed lesson, changed some of the observed lessons, or made no changes across all observed lessons). We also calculated an intra-class correlation to explore whether there was more within school or between school variance in program changes to understand whether these changes were primarily driven by individual teacher decisions or schools. To address our second research question, we engaged in qualitative content analysis, described above, to explore types of program changes. We then explored the prevalence of the different types of program changes to understand whether certain types of changes were more or less common within this program and teacher sample.

To address our third research question regarding the potential associations among teachers' implementation fidelity, overall use of adaptive high-quality instructional practices, and frequency of program changes, we generated descriptive statistics for these additional instructional variables. We then examined Pearson *r* correlations using SAS version 9.3 to examine whether teachers who engaged more frequently in high-quality teaching practices more highly adhered to the program and/or more frequently undertook particular program changes. Based on our findings regarding particular program changes associated with high quality instruction, we also analyzed the nature of these program changes using open coding. In the supplementary appendix we provide an example of our multiple iterative rounds of coding to

show how our open-coding process began with overarching etic codes from Blakely and colleagues (1987), i.e., reinvention modifications and additions, with additional codes emerging in our subsequent round of coding (condensing, removing, augmentations, dosage). We also highlight a third round of coding (specific to Research Question 3) in the appendix that further reveals substantive and theoretical categories specific to augmentations (Maxwell, 2005).

Results

Research Question 1: Prevalence of Program Changes

Across all observations, 73% of implementing teachers made at least one change to the program during their observed lessons. Of teachers who changed the program in some way, teachers made one or more changes to 61% of lessons observed. Closer examination of the data indicated there were three teacher-change profiles: those who never made changes across any observation (27%), teachers who always made changes (7%), and teachers who changed the program depending on the lesson (66%). Our finding that the majority of teachers made changes depending on the lesson provided additional support for the idea that many teachers were selectively changing content, as opposed to strictly adhering to the program without tailoring practices to their classroom context or, equally problematic, consistently disregarding the prescribed practices. Table 2 shows the number of program changes across lesson observations for all teachers across schools. A review of this table shows considerable variability in the amount of program changes across and within sites. The intra-class correlation indicated that less than 1% of the variance in engaging in a program change was between schools, indicating that teachers varied considerably within a school in the amount of changed lessons.

Research Question 2: Types and Frequency of Changes

Teachers who engaged in changes typically made three types: *reductions*, i.e., removing content and materials, or combining/condensing lessons intended to cover multiple lessons into one lesson; *increased dosage*, i.e., teachers extended the content beyond the allotted time or to another part of the day; and *augmentations*, i.e., teachers augmented and provided supplementary material or content such as a student-centered video, teacher-generated poster with lesson-specific images and symbols, or a thematically related classroom book.

The prevalence of specific changes (augmentations, reductions, and increased dosage) varied considerably. Specifically, of those teachers who engaged in reductions, i.e., 60% of the total teacher sample (N = 25), 96% removed particular material or content, and 16% condensed material or content intended to be multiple lessons into one lesson period. One teacher removed some content across all six of her observed lessons, while 84% of teachers that removed material or content did so more selectively as a function of the lesson content.

Seven percent of the total teacher sample increased the intervention dosage, and 24% of teachers augmented the materials or content, with teachers often adding across multiple observations (e.g., 5% of the total sample of teachers augmented materials on three different observation occasions).

Research Question 3: Associations between Teacher Implementation Behaviors and Adaptive Teaching

Before describing associations among the different instructional variables, we review descriptive statistics for instructional variables that capture pedagogical behavior beyond teachers' reductions, augmentations, and increased dosage. Specifically, the mean fidelity score (M = 3.80, SD = .87) indicated that teachers implemented most steps with fidelity; however, teacher adherence to the steps ranged from minimally implemented (1.58) to completely

implemented (5). On average, teachers in the current sample received low- to mid-range scores (M = 2.57, SD = .96) for the CLASS Instructional Support domain, indicating that they rarely or sometimes used strategies to support concept development and cultivate higher order thinking and language skills. Teachers, on average, demonstrated the highest scores on Emotional Support, with high mid-range scores (M = 5.71, SD = .97), indicating teachers were consistently warm and sensitive to students' everyday experiences and needs. Teachers also demonstrated, on average, mid-range scores in the domain of Classroom Organization (M = 5.43, SD = .90), indicating that teachers were sometimes able to facilitate a productive classroom environment with varied learning modalities. There was considerable variability within the sample, with teachers receiving low- to high-range scores across domains, with the exception of Instructional Support in which teachers, at most, received mid-range scores. This trend of lower Instructional Support scores for elementary teachers has been reported in other studies (e.g., Burchinal et al., 2008; Hamre et al., 2014; National Center on Quality Teaching and Learning, 2013).

Table 3 shows the associations among teachers' diverse instructional behaviors. The same two domains of the CLASS were associated with both program fidelity and program augmentations. Specifically, a statistically significant positive association emerged, with highly adherent teachers also receiving high scores on Emotional Support (r = .33, p < .05) and Classroom Organization (r = .35, p < .05). The positive association between fidelity and the Emotional Support and Classroom Organization domains of the CLASS is not surprising in that the former is related to the program's focus on helping students develop relationship skills and social awareness, and the latter domain incorporates teacher practices aligned with instruction to support self-awareness and self-management skills. In Table 4, we map CLASS domains and their respective dimensions to content covered in the SSIS CIP SEL program to show how

program topics resonate with teacher practices that support a classroom environment and interactions that bolster these skills.

Notably, program augmentations also demonstrated a positive association with these same domains. That is, adding materials and content to the intervention was significantly and positively associated with teachers' scores on the Emotional Support domain ($r = .45$, $p < .001$) and Classroom Organization domain ($r = .35$, $p < .05$). By contrast, most program reductions (i.e., removing, combining) were not statistically significantly correlated with CLASS domains. Increased dosage was positively associated with Classroom Organization ($r = .34$, $p < .05$) and Instructional Support ($r = .49$, $p < .001$).

There was no association between augmenting content and materials and program fidelity, indicating that program additions were unrelated to teachers' ability to adhere to program procedures and practices. The absence of an association between fidelity and augmentations is reasonable in that teachers can add the reading of a story book as part of the Generalize step and maintain high fidelity or receive a lower score on fidelity because they decided to read a story book in place of the Practice step. By contrast, higher program reductions were associated with lower fidelity (i.e., removing $r = -.55$, $p < .0001$; condensing $r = -.35$, $p < .05$). This negative association is exemplified in the qualitative data by teachers who removed or condensed materials and in so doing eliminated a critical step in the intervention. However, the absence of a stronger correlation is exemplified in qualitative data examples where teachers, removed a recommended format for activities but maintained the same content. For example, role plays are encouraged in the manual to be conducted in student pairs, however, multiple teachers saw this practice as unwieldy to implement and instead had students engage in role

plays in front of the class with support. This change was not captured by the fidelity measure as the teachers still engaged in the targeted skill step focused on practice using role plays.

Adaptive high-quality general instructional practices were only positively associated with augmentations or increased dosage. Teachers who extended the program followed the program practices beyond the allotted time or during a different period of the day, yet teachers who engaged in augmentations enacted very diverse practices to supplement the program. We describe these augmentations further to shed light on the nature of these practices that were associated with adaptive high quality instructional practices.

From our content analysis of program additions, five sub-codes emerged or types of augmentations: *literacy-related connections*, *adding assessments*, a *home-school component*, augmenting the lesson with a *hands-on activity* or providing additional *multimedia material*. In Table 5 we provide definitions of these codes and exemplars. Similar to our initial coding, after we had defined these codes and generated exemplars for each category, we immersed ourselves in this subsample of the data that included teacher augmentations (10 teachers, 17 incidences across all observations) to test the effectiveness and dependability of the codes (Corbin & Strauss, 2008). We review these sub-codes in detail below.

Literacy Connections. Teachers who engaged in literacy connection augmentations found ways to incorporate literacy materials and skill building during the SSIS SEL CIP lessons. The original program and materials do not focus on literacy-related skills or include books or writing prompts as part of the program materials. Teachers who made literacy connection changes (7 teachers and 9 literacy connection incidences across all observations) chose thematically related books to discuss during the program time or made references and connections to curricular books for which the target SEL skill was relevant. For example, during the program implementation

time, a teacher reread a particular part of Avalon James's *Infinity Year* where the characters were having trouble getting along to help students analyze how the program's skill steps related to the characters' behaviors.

Beyond the inclusion of literature, teachers also found other ways to infuse literacy skill building in the lesson, for example, asking students to write about a personal situation related to the lesson content (e.g., a time when they did or didn't do the right thing) or drawing their attention to language (e.g., morphologically similar words *self*-awareness, *self*-management). These additions not only facilitated conversations about the SSIS SEL CIP content but also included a supplementary literacy component.

Instructional Planning Assessments. While the SSIS SEL CIP does include progress monitoring materials, teachers who engaged in augmentations coded as *Instructional Planning Assessments* were those who created their own informal assessments of students' knowledge of the skill steps and program themes (4 teachers, and 5 total incidences across all observations). Several teachers were observed using Google to generate their own assessments during every observation and using these assessments to inform their lesson planning.

Home-School Connections. Home-School Connections were augmentations that increased family engagement with the program or connected SSIS SEL CIP content to students' family or home experiences. The program does not include a formal scripted family engagement component beyond a provided form letter to send home to parents at the beginning of the implementation period, although it did encourage teachers to communicate with families and discuss scenarios relatable to students' lives when practicing the skill steps. By contrast, home-school augmentations (2 incidences across all observations) explicitly incorporated students' families and home lives into classroom activities and learning related to the intervention. An

example of this type of program augmentation is a teacher who sent home the prompt "Next school year, I will be more ___ because _____" with students and asked them to share their response and discuss it with their families.

Hands-on Activities. Hands-on activity augmentations were incidences when teachers (*N* = 9) included a more interactive component for learning, often involving more active student participation. The SSIS SEL CIP includes role-plays, which do involve active student participation. However, teachers also found innovative ways to further opportunities for active participation. Examples of these teacher-generated, hands-on participatory learning additions included chants with hand gestures and actions to help students memorize and remember the skill steps. One teacher helped get her students more involved in the program-prescribed role plays by dramatizing the experience and giving students manipulatives to help them act out scenarios as part of a fictitious movie shoot, such as providing a director's board and opportunities to close it and yell "start scene" or "cut."

Multimedia. Teachers also augmented the program content with more diverse learning modalities, such as multimedia. The program does provide brief videos with scenarios that involved the skill steps, although many include relatively homogenous groups of students (e.g., white, monolingual, and able bodied) and limited scenarios for elucidating the target skill. (For example, the video for the skill "taking turns when you talk" includes two kids taking turns on a slide in a playground, which provides limited opportunity to scaffold how to develop the target skill for a back-and-forth conversation). In response to perceptions of a mismatch between the videos and the everyday experiences of students, some teachers (*N* = 4) used videos not prescribed by the program to explore program themes and content further. For example, one teacher incorporated the video "Howard Wigglebottom Gets Along with Others" that features a

diverse troupe of animals and familiar songs by connecting this well-known material and content to the program's prescribed skill steps. Another teacher, eager to provide more diverse representation in the example scenarios, showed her students the video "The Present" about a boy and a dog that both have a physical disability.

All of the documented augmentations provided students with more diverse contexts for applying their program-based learning and, in many cases, connected existing or familiar knowledge sets through relatable books, videos, or choral response chants. Program augmentations honored students' outside of school experiences by inviting families to participate, supported moment-to-moment decision making through teacher designed assessments, and centered on students' interests and motivations with hands on activities, multimedia content, and engaging literature.

Discussion

To bolster the social and emotional development of students, elementary schools around the country are implementing universal SEL programs (Clark et al., 2015; Department of Education, 2015; U.S. Department of Education, 2016). Results from the current investigation provide insight regarding how teachers implement universal SEL practices in a diversity of classroom contexts in two essential ways.

First, results from this study uniquely contribute to a growing body of literature on teachers' use of class wide interventions in the absence of external resources and support. The current findings demonstrate that, when left to make their own decisions under routine conditions, many teachers engage in their own changes that alter programs in unique ways. This investigation found teachers' expertise (i.e., instructional quality) in areas related to the

intervention (e.g., practices for regulating emotions and behaviors) were positively associated with higher levels of program fidelity and program augmentations that enhanced the curriculum. These augmentations included drawing upon familiar knowledge sets via relatable books, videos, family participation, or choral response chants that honored students outside of school experiences, supported moment-to-moment decision making, and centered on students' interest and motivations—core features of adaptive teaching. Results revealed that program augmentations, increased dosage, and implementation fidelity were not significantly associated, suggesting that teachers who add and/or extend the time of a universal SEL program may be able to do so without necessarily sacrificing core program-specific active ingredients.

Second, this study adds to the existing literature by centering our investigation on teacher expertise. Teacher-driven changes to interventions, specifically increased dosage and augmentations, are commonly framed as examples of teacher implementation quality. Instead, this study more fully investigated the role of teacher instructional quality beyond the intervention implementation and in turn identified the potential benefits of teacher expertise for student learning. Results from this study suggest that teacher expertise may be at the heart of scaling up intervention efforts in schools, generate usable knowledge for bolstering teachers' use of interventions, and can help schools capitalize on a school-grown resource for innovations in schools: effective teachers. We elaborate in greater depth on these findings and their implications for practice next.

Prevalence of Instructional Changes to the Universal SEL Program

In the current study, the majority of teachers engaged in changes when implementing a universal SEL program under routine conditions – even when provided with highly scripted lessons plans. Approximately 75% of participating teachers changed the intervention at least

once, with the majority of teachers making multiple changes across observations. This more malleable approach to program adoption was situated in school contexts where teachers received little formal support via school-level training (only two schools provided formal workshops), extra allotted time (only six schools provided extra teacher planning time) or opportunities to collaborate with peers (only two schools provided extra time for teachers to plan and collaborate). Without these structures in place, teachers largely planned and prepared for implementation on their own, which may have contributed to the amount and ways—some associated with positive teacher instructional practices and some not—in which teachers individually tailored interventions to their classroom context, with little consistency in frequency of changes at any given school.

Common and Uncommon Types of Changes

A range of types of program changes emerged in the current study that are consistent with existing research on adaptions and reinventions. Teachers reduced (removed or condensed), extended (i.e., increased dosage), and augmented components. Removing content was the most frequent program change (24 teachers), while only 10 teachers engaged in program augmentations. This finding is consistent with work by Blakely and colleagues (1987) where intervention additions were a less common reinvention under typical school conditions. The lower frequency of program augmentations compared with other types of changes differs from studies where teachers received more researcher support. For example, Troyer (2019) completed four case studies of teachers who engaged in sustained implementation of a literacy intervention after completion of a research trial and found that program additions were the most common adaptation compared with modifications and omissions. However, in the preceding years these teachers received formal professional development and support with significant oversight from

the research team about the nature and kind of changes teachers should implement. Given that the teachers in Troyer's study received preparation and were aided in making high quality pedagogical judgements by the research team, their findings lend support to the important role of instructional quality and preparation for understanding teachers' efforts to tailor interventions.

Adaptive High Quality Instruction and Program Use

Teachers who scored higher on the Emotional Support and Classroom Organization CLASS domains demonstrated higher levels of implementation fidelity. This finding is not surprising given that the focus of the Emotional Support domain on teachers' warmth, sensitivity and attunement to the needs of others is highly aligned with the target skills of the SSIS SEL CIP program (see Table 4 for lesson content tied to CLASS domains). Similarly, Classroom Organization focuses on teachers' use of effective behavior management strategies, productive classroom routines, and varied learning modalities, which are consistent with the skills and instructional approaches of the SSIS CIP SEL program. To elaborate, the SSIS CIP SEL program includes use of multiple learning modalities with role plays, discussions that use videos, and a highly structured routine with specific skill steps to facilitate a well-oiled classroom environment with minimal behavior disruptions.

Noteworthy is that the teacher practices emphasized within the Emotional Support and Classroom Organization domains are also those that support adaptive teaching. These adaptive teaching practices - such as respect for students' backgrounds (Emotional Support) or motivating materials (Classroom Organization) - may explain the positive association that emerged in this study between these CLASS domains and program augmentations. Specifically, our close analysis of teachers' program augmentations, such as incorporation of hands-on activities, more engaging and responsive multimedia, and connections to meaningful literature, suggested that all

can be viewed as anchoring teaching in real-world learning opportunities that relate to student interests and motivation, a central component of adaptive teaching. The adaptive teaching principle of inviting students' cultures, languages and worlds into the classroom was present in teachers' program augmentations that honored and included students' families in classroom learning. Lastly, tailoring assessments (e.g., using Google classroom as informal mastery checks at the end of each lesson) to guide instruction shows how teachers' augmentations strove to provide opportunities for reflection on student progress, and consistent with principles of adaptive teaching, facilitated informed instructional decision making. These augmentations can be viewed through the lens of strong adaptive teaching approaches, with such practices undergirding instructional behaviors that cut across both the CLASS and the documented teacher program augmentations.

Another interpretation for the association between the CLASS domains most aligned with the intervention content and program augmentations- particularly when considering the additional positive association between these domains and implementation fidelity - is that teachers enact "evidence-based SEL kernels" in their everyday practice that are highly consistent with SSIS SEL CIP. High impact practices that commonly occur across evidence-based programs (Chorpita & Daleiden, 2010) and reflect strong practice are sometimes referred to as practice elements (PEs; Chorpita & Daleiden, 2010) or evidence-based kernels (Embry & Biglan, 2008). While evidence-based kernels are usually applied as a framework for distilling the active ingredients in a program that are essential for efficacy, we can also view these kernels as general strategies for teachers' pedagogical toolkits that need not be tied to a specific intervention. Introducing teachers to these evidence-based kernels as part of their training, instead of exposure simply through intervention implementation, speaks directly to concerns that (a) successfully

scaling up evidence-based programs first requires a competent workforce (McHugh & Barlow, 2010) and (b) program dissemination rarely affect practices or problems that fall outside the scope of a program (Chen et al., 2010). Teachers with knowledge of these SEL evidence-based kernels used these skills and strategies in their everyday practice and apparently were able to draw upon them when using an SEL intervention in their classroom. Existing research shows that teacher competence mediates intervention efficacy (Sutherland et al., 2018), and the current findings provide further support that teachers who had expertise in evidence-based kernels related to the intervention were able to bring these strengths to their adaptive teaching of the intervention and add components in sync with program practices.

While both implementation fidelity and program augmentations were positively associated with these two CLASS domains, they were not significantly associated with each other. The absence of an association between implementation fidelity and program augmentations is consistent with previous studies demonstrating that adherence to an intervention is not necessarily at odds with supplementary practices and instead, when in concert, they may support best practice (Kim et al., 2017; Lemon et al., 2014). In the current study we found a negligible relationship between fidelity and augmentations indicating that some teachers who engaged in augmentations demonstrated high intervention fidelity while others demonstrated low fidelity. In part, this finding may reflect the fact that we explored the various types of augmentations at the aggregate level, rather than the subcode level, given the small sample sizes for each augmentation type. It is important to future research whether some of these augmentations may be more or less correlated with fidelity scores as well as student performance. Such data may prove useful for identifying ranges of "acceptable variation" and important measurement specificity distinctions for fidelity instruments (Remillard, 2005, p. 240).

In the current study, not all changes were associated with high quality instructional practices. The most common practice of removing materials was not significantly associated with high-quality instruction, nor was combining materials or content. It is possible that these program reductions may have reflected logistical constraints as much or more than pedagogical goals. For example, 8% of program observations included a teacher removing material because of a technical difficulty (e.g., program-specific videos or PowerPoint presentations would not play on their computer). Teachers may feel pressure to spend most if not all their time on academic instruction due to state testing and accountability, which could lead to the shortening of time spent on SEL interventions or removing or combining material that seems less essential (Schonfeld et al., 2015).

It is also possible that some instances of teachers removing content or material were driven by pedagogical goals. As such, a second important area for future research is examining why teachers choose to engage in particular changes and whether such decisions reflect student characteristics (e.g., role-plays not reflecting the lived experiences of students of color) or teacher characteristics (e.g., a preference for student-directed learning leading a teacher to remove the explicit modeling component of the skill steps). Troyer (2019) found that teachers' pre-existing orientations toward the focus of a reading program was the core driver of the types of changes/adaptations they made (e.g., their value of reading, creativity, fidelity, and content influenced the adaptations they made). Teacher comments on our end-of-year exit survey provided some insight into their pedagogical decisions, with their responses highlighting student characteristics (e.g., "the role play cards are sometimes too difficult for specific students") as well as teacher characteristics (e.g., "I created a power point for each lesson. I like to teach from a PowerPoint. It helps me stay focused") as driving their instructional changes. These data

provided some additional insight regarding teachers' pedagogical decisions; however, they were retrospective and thus did not fully capture how a teacher's approach, belief, or value directly translated to an instructional decision to remove or condense certain lesson components. Future research should take a mixed method approach to explore personal characteristics of the classroom (teacher and student) as well as teacher espoused beliefs that may contribute to these choices in situ, i.e., exploring specific daily decision-making.

In the current study, program dosage was also positively associated with general instructional quality. Dosage has been found in other studies to be associated with more positive outcomes (Kim et al., 2017 Rosenblatt & Elias, 2008; Schonfeld et al., 2015). The finding that program dosage was significantly correlated with Instructional Support may reflect the fact that back-and-forth interchanges, feedback loops, and teacher elaborations - all central components of Instructional Support - take additional instructional time. If teachers engaged in these high-quality instructional practices when delivering SSIS CIP SEL lessons, their instruction would likely run over the typical time without such enhancements. Teachers who extended the intervention time may put at the center of their practice teacher-student interactions focused on developing content knowledge, which is time consuming.

The association between dosage and Classroom Organization may simply reflect, as mentioned earlier, that there is some overlap between program content and practices captured in the Classroom Organization domain, and teachers who extended these practices to other spaces received higher ratings for these practices beyond the intervention context. In addition, the Instructional Learning Formats dimension of the Classroom Organization domain focuses on teachers' use of new learning materials and modalities to meet students' needs. It is possible that teachers who frequently engage in this practice of amending materials and including additional

modes of learning did so in the context of SSIS SEL CIP implementation, which lengthened the intervention time.

Limitations

This study had several limitations. First, the sample size of 41 implementing teachers is relatively small. However, the 221 classroom observations of these teachers' lesson implementation provided a robust dataset (i.e., average of 5.4 observations per teacher) for our analyses. Nonetheless, further work with additional samples is necessary to determine the generalizability of the current findings. Relatedly, the program changes observed in this study only reflect observed behavior; we do not know how teachers behaved across every single lesson of the program. However, the number of observations conducted per teacher still goes beyond what has been done previously and provides a representative snapshot of teacher behaviors, and one that has fewer methodological shortcomings than self-report data (DiPerna et al., 2017).

This study took a fine-grained approach to exploring teacher instructional behaviors in the context of an SEL intervention program. This study was exploratory and completed within the context of a larger ongoing effectiveness trial, as such our focus was not on student outcomes. However, it is worth noting that part of the theory of change embedded in this investigation is that high-quality teacher practices directly translate to improved student outcomes (Rimm-Kaufman et al., 2009). Given our focus on the impact of teachers' adaptive teaching across intervention and non-intervention practices, we encourage future work to capture a variety of student outcomes, not only those SEL competencies that are the primary focus of universal SEL programs but also distal impacts on student affective and academic performance.

One challenge for conducting this type of research is that in some cases there is a fine line distinguishing a program-promoted practice and a program change (augmentations,

increased dosage, or reductions). On several occasions we found that the program manual encouraged certain practices—with limited explicit guidance—which made it harder for the research team to determine whether a teacher practice that followed developer recommendations was a change or part of the program itself. For example, the SSIS CIP SEL guidebook encourages teachers to provide role-plays and examples specific to students' experiences beyond those explicitly included in the program materials. Most of our participating teachers took the liberty to come up with their own role-play scenarios that they believed to be tailored to their students' everyday lives. Teachers who developed scenarios in ways consistent with the skill steps might be considered as simply implementing the program with high fidelity. Yet, the ability of these teacher-generated examples to fulfill the intent of the program—to make examples student-centered and relatable—depends on teachers understanding of responsive instruction (i.e., being able to identify the needs and motivations of a specific student population), a critical pedagogical skill that is not guided or scaffolded by the program. We ultimately did not consider these as changes because they were encouraged by the program explicitly; however, these more subtle examples of flexibility within fidelity may still contain important insights regarding useful information about the ways teachers take up interventions with consequences for program success. Future research is necessary to create more nuanced frameworks for interpreting the role teachers' play in enacting universal SEL programs in unique and flexible ways.

Implications and Conclusions

The current study provides insight regarding the central role of teachers in implementing universal SEL programs within their classrooms. In particular, this study found that teachers commonly augment, extend, or reduce aspects of standardized universal programs. Not all changes to a program are created equal, though, as some of these changes may reflect quality

practice and others may not. We also found that teachers who typically engaged in higher quality instructional practices consistent with social-emotional learning programs (i.e., warm and sensitive classroom interactions, positive classroom behaviors and learning modalities) also augmented program content and materials. Specifically, these program additions reflected adaptive, exemplary teaching practices that honored students' experiences beyond school, centered on students' interests and motivations, and supported moment-to-moment decision making. Future work should explore the overlap between teacher-generated program augmentations and adaptive high quality teaching in instructional areas beyond SEL.

Findings from this study underscore the importance of having a highly qualified and well-trained teaching force with knowledge of strategies and practices that can inform responsive and adaptive uptake of universal SEL programs. Inservice and preservice teachers report having inadequate training in preparatory programs and feeling ill-prepared to support students' socio-emotional wellbeing in the classroom (Martinez et al., 2016, Heineke & Vera, 2021). Essential for moving the field forward are providing teachers with opportunities to develop evidence-based kernels specifically related to adaptive teaching that support scaling up SEL programs in ways that are responsive and evidence-based.

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Table 1. Program Changes Codes, Definitions, and Examples

Codes	Definition	Examples
Augmentations (N=10; 24%)	Adding material or content	• A skills "chant" for students to repeat and use • An activity where students had to "take a stand" on a skill step related issue
Reductions (N=25; 60%)	Removing material or content (N=24; 96%)	• Teacher removes role play cards • Teacher does not use explicit instruction portion of the lesson
	Combing and condensing material or content (N=4; 16%)	• A teacher focuses on two or more skills, designed for separate lessons • A teacher uses role play cards for a lesson other than the lesson it was designed for.
Increased Dosage (N=3; 7%)	Increasing time spent on the intervention without introduction new material or content	• Lesson extends beyond the allotted time to keep a discussion going • Supplementary time spent on the lesson at an additional time during the day to deepen content learning

Note. *N*s represent the number of teachers that engaged in a specific type of program change. Notably, some teachers engaged in multiple types of changes and are thus represented in multiple change categories. The *N* for the Reductions, which includes two subcategories of changes, captures teachers who engaged in either of these practices. Of the 4 teachers who engaged in combining and condensing material and content, 3 also engaged in removing material or content. Thus, the total number of teachers who engaged in reductions (removing or condensing) is 25.

Table 2. *Frequency of Changes across Lesson Observations and Schools*

Teacher	Grade	School	Lessons Observed	Lessons with Changes	Increased Dosage	Removals	Augmentations	Combining
A	1	12	5	2	0	2	0	0
B	1	12	6	3	0	4	0	0
C	1	12	4	1	0	1	0	0
D	1	12	6	6	0	6	0	1
E	1	12	3	1	0	1	0	0
F	1	12	3	1	0	1	0	0
G	1	14	6	1	0	1	0	0
H	1	15	6	4	0	5	1	0
I	1	15	6	4	0	3	2	0
J	1	15	5	1	0	0	1	0
K	1	15	6	5	0	4	1	0
L	1	18	6	3	1	0	2	1
M	1	18	6	1	0	1	0	0
N	1	18	5	1	0	0	1	0
0	1	22	5	1	0	1	0	0
P	1	22	5	2	0	2	0	0
Q	1	22	5	1	0	1	0	0
R	2	11	4	3	0	3	0	1
S	2	11	4	1	1	0	0	0
T	2	11	4	4	1	4	2	1
U	2	11	4	1	0	1	0	0
V	2	11	4	4	0	4	0	0
W	2	13	6	1	0	1	0	0
X	2	16	6	2	0	2	0	0
Y	2	16	6	2	0	2	0	0
Z	2	16	6	4	0	3	3	0
AA	2	17	6	3	0	0	3	0
BB	2	17	4	1	0	0	1	0
CC	2	20	7	4	0	4	0	0
DD	2	20	6	1	0	1	0	0

Table 3. *Correlations between Change Types and Pedagogical Variables (CLASS Domains)*

Change Type	Emotional Support	Classroom Organization	Instructional Support
Dosage	.29	.34*	.49**
Removing	-.05	-.04	-.05
Augmentations	.45**	.35*	-.09
Combining	-.02	.04	.21
Fidelity	.33*	.35*	.05

Note: * = <.05, ** < .01, *** < .001

Table 4. *Alignment of CLASS Domains and Dimensions and SSIS SEL CIP Lesson Content and Materials*

	Dimension	Description	Examples of Observable Teacher Behaviors	Lesson Content	Materials
Emotional Support	Positive Climate	The emotional connection, respect, and enjoyment demonstrated between teachers and among students.	● Positive expectations ● Respectful language ● Shared activities	• Listen to Others • Relationship skills • Get along with others • Do nice things for others • Respect other peoples things • Show concern for others	● Emotion Cue Cards
	Regard for Student Perspectives	The degree to which teachers' interactions with students and classroom activities place an emphasis on students interests, motivations, and point of view	● Encourages student ideas/opinions ● Allows choice ● Connects content to students' lives		
	Teacher Sensitivity	Teacher's' awareness of and responsivity to students' academic and emotional needs	● Notices difficulties ● Acknowledges emotional ● Provides individualized support	• Ask for help ● Tell others about your skills	
	*Negative Climate	The level of expressed negativity such as anger, hostility, or aggression exhibited by teachers and/or students in the classroom	● Humiliation, sarcasm ● Yelling ● Irritability	• Make others feel better ● Listen to different ideas	
Classroom Organization	Behavior Management	How effectively teachers monitor, prevent and redirect behavior	● Explicit/consistent expectations ● Subtle redirect cues ● Anticipation of problem behaviors	• Take turns when you talk • Get along with others • Stay calm with others • Do the right thing • Stay calm when pushed or hit • Make compromises • Take criticism without getting upset ● Show kindness to others when they are upset Resolve disagreements calmly	● scripted lesson ● Skill steps cue card ● Digital lessons ● Videos ● Role Play cards
	Productivity	How well the classroom runs with respect to routines and the degree to which teachers organize activities and directions so that maximum time can be spent in learning activities	● Minimal disruptions ● Little time wasted in transitions ● Materials ready/accessible	• Follow rules ● Pay attention to your work	

	Instructional Learning Formats	How teachers facilitate activities and provide interesting materials so that students are engaged and learning opportunities are maximized	• Variety of materials • Clear, organized presentation of information • Effective pacing	• Do your part in a group	
Instructional Support	Concept Development	How teachers use instructional discussions and activities to promote students' higher-order thinking skills in contrast to a focus on rote memorization	• Integrates with previous knowledge • Related to students' lives • Why and/or how questions		• Screening/ progress monitoring tool
	Quality of Feedback	How teachers extend students' learning through their responses to students' ideas and comments, and work	• Follow-up questions • Hints/assistance • Specific feedback		
	Language Modeling	The extent to which teachers facilitate and encourage students' language	• Extends and elaborates • Variety of words • Connected to familiar words or ideas	• Use appropriate language when upset	

Table 5. *Codebook for Program Augmentations*

Type of Addition	Description	Example
Literacy connections	Teacher includes additional language and literacy materials or curriculum	Teacher read a Big book related to the theme of that day's SSIS CIP SEL lesson.
Instructional Planning Assessments	Teacher administers or provides a non-program assigned assessment to support instruction	Teacher created regular quizzes on Google classroom to assess student knowledge of SSIS CIP SEL content.
Home-school connections	Teacher engages in an activity, or provides materials that involve students' home or family engagement	Teacher assigned a take-home writing activity in which students had to complete the prompt: "Next school year, I will be more ___ because _____." and share their response with their families.
Hands on activities	Teacher engages in activities or provides materials that require more hands on learning/interactive/participatory engagement	Teacher taught students a chant and corresponding hand movements for "Stop, think, and do the right thing" to complement that week's SSIS CIP SEL content.
Multimedia	Teacher incorporates multimedia materials	Teacher showed a short film called "The Present" an SSIS CIP SEL Skill Steps into classroom discussion about the film

Appendix A: Iterative Content Analysis Example

Round 1		*Round 2*		*Round 3*	
Code	*Example*	*Code*	*Example*	*Code*	*Example*
Modifications	• "Teacher used discussion instead of most of materials in leading lesson. Went in a different order than what is said in the PowerPoint or book. Student-led discussions were the primary source for the lesson." • "Teacher led discussion on unit 13 and 14 combined. Used one example to talk about both"	*Combining*	"Teacher led discussion on unit 13 and 14 combined. Used one example to talk about both"	*Combining*	"Teacher led discussion on unit 13 and 14 combined. Used one example to talk about both"
		Removing	"Teacher used discussion instead of most of materials in leading lesson. Went in a different order than what is said in the PowerPoint or book. Student-led discussions were the primary source for the lesson."	*Removing*	"Teacher used discussion instead of most of materials in leading lesson. Went in a different order than what is said in the PowerPoint or book. Student-led discussions were the primary source for the lesson."
Additions	"She gave them a quiz after the lesson, on Chromebook under Google Classroom" "After the lesson was over, as they were preparing for the students to divide up into centers, the teacher once again referred to the chart for the skill steps in this unit, which was about asking for help. She was expanding the content of this lesson into their usual daily routine, reminding the children of the steps they can take." "The final activity was introduced as private and personal. "What is happening on the inside of you will always	*Augmentations*	"She gave them a quiz after the lesson, on Chromebook under Google Classroom" "The final activity was introduced as private and personal. "What is happening on the inside of you will always come out on the outside of you". "Complete this and share with your parents/family: Next school year, I will be more ___	*Literacy-Related Connection*	" She read a book. "following rules in school."
				Adding Assessments	" She gave them a quiz after the lesson, on Chromebook under Google Classroom"
				Home-school connection	The final activity was introduced as private and personal. "What is happening on the inside of you will always come out on the outside of you". "Complete this and share with your parents/family: Next school year, I will be more ___ because _____". "Fold the paper when you are done"

	come out on the outside of you". "Complete this and share with your parents/family: Next school year, I will be more ___ because _____". "Fold the paper when you are done” “ She read a book. "following rules in school" ” “They also played a game red light, green light to show students the importance of following the rules. It was very engaging. " “She played a video :Howard wigglebottom learns to get along with others. The children were familiar with it and sang along with it”		because _____". "Fold the paper when you are done” “ She read a book. "following rules in school" ” “They also played a game red light, green light to show students the importance of following the rules. It was very engaging. " “She played a video :Howard wigglebottom learns to get along with others. The children were familiar with it and sang along with it”	*Hands on activities*	They also played a game red light, green light to show students the importance of following the rules. It was very engaging. "
				multimedia	“She played a video :Howard wigglebottom learns to get along with others. The children were familiar with it and sang along with it”
		Dosage	“After the lesson was over, as they were preparing for the students to divide up into centers, the teacher once again referred to the chart for the skill steps in this unit, which was about asking for help. She was expanding the content of this lesson into their usual daily routine, reminding the children of the steps they can take.”	*Dosage*	“After the lesson was over, as they were preparing for the students to divide up into centers, the teacher once again referred to the chart for the skill steps in this unit, which was about asking for help. She was expanding the content of this lesson into their usual daily routine, reminding the children of the steps they can take.”