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Enhancing Social and Emotional Competencies in Rural Middle School Students: A Cluster-Randomized Study on Character Playbook

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Cover Page Footnote

Impact Statement: The findings from the current study suggest that Character Playbook has the potential to enhance rural middle-school student SEL knowledge and confidence. These skills can support building healthy relationships and coping with life's challenges, which rural students tend to face more than their suburban peers. Data Availability Statement: The data are not publicly available because the participants in this study and their guardians consented to sharing data only in aggregate; they did not give written consent for their individual data to be shared publicly.

Research Article

Enhancing Social and Emotional Competencies in Rural Middle School Students: A Cluster-Randomized Study on Character Playbook

Gina Ricker
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This cluster-randomized pre-post study examined the effectiveness of Character Playbook, a digitally delivered, universal social-emotional learning (SEL) program, in enhancing social and emotional knowledge and confidence among rural middle school students. Pre- and post-assessments and surveys measured students' knowledge and self-reported confidence related to social and emotional skills. The sample consisted of 128 students from two rural middle schools. Analyses of covariance with multiple imputations to account for missing data revealed that students who participated in Character Playbook demonstrated significantly higher knowledge and more positive confidence toward their social and emotional learning competency than the control group. These findings, with acknowledged limitations, suggest that Character Playbook holds promise as an effective SEL program for rural middle school students, but further research is needed for confirmation. The study provides valuable preliminary insights into how a brief, digitally delivered, universal SEL program could benefit students in rural classrooms.

Adolescence is a critical developmental period characterized by various life changes, including relationship challenges, increased social comparison, and anxiety (Green et al., 2021), but research indicates that the social and emotional competencies essential for maintaining healthy relationships and making responsible decisions tend to decline during middle and high school (Duckworth et al., 2010; Eccles et al., 1991; West et al., 2020; Wigfield et al., 2006). Compounding these changes, students in rural school settings experience adverse childhood events at a higher rate compared to their suburban or urban counterparts, such as poverty, neglect, and substance abuse within their families, which can have a lasting impact on their well-being (National Advisory Committee on Rural Health and Human Services, 2018; Nichols et al., 2017; Schaefer et al., 2016). While social-emotional learning (SEL) programs have been shown to positively benefit student success, mental health, prosocial behaviors, and academic outcomes (Durlak et al., 2011, 2022; Taylor et al., 2017), research specifically regarding how digitally delivered programs address the needs of students in rural schools has been limited (Durlak et al., 2011; Lavalley, 2018; Reynolds, 2017). Given that SEL research conducted in non-rural school settings shows consistently promising results (Zolkoski et al., 2021), the lack of attention to rural settings is unfortunate. Additionally, digitally delivered programs are widely underresearched, despite the ubiquity of technology in classrooms

(Oades-Sese et al., 2021; Saleme et al., 2020). Considering the significance of this stage in child development and the unique challenges facing youth in rural settings, it is imperative to address this gap in research by evaluating the effectiveness of adolescent SEL programs and how such programs can be leveraged by educators to support students' needs in rural classrooms.

Social-Emotional Learning

SEL and Rural Students

Social-emotional competencies have long been linked to a variety of positive student outcomes, such as improved classroom behavior; an increased ability to manage stress and depression; and better attitudes about themselves, others, and school (Jones & Kahn, 2017; Katzman & Stanton, 2020; Mahoney et al., 2018; Zins et al., 2007). More specifically, students with higher SEL competency are more likely to adjust successfully to middle school surroundings, making it a good time to target such skills (Hall & DiPerna, 2017; January et al., 2011). However, students in rural settings face distinct challenges due to geographic isolation, limited mental health resources and associated stigma, lower school funding, and higher poverty rates (Mitchell, 2020; Nichols et al., 2017; Zolkoski et al., 2021) and have been shown to enter school with lower social and emotional skill proficiency (Meyers et al., 2015). Research indicates that students from economically

disadvantaged areas report lower social-emotional competency than their higher socioeconomic status peers (West et al., 2020). These challenges can lead to increased social and emotional concerns (Mitchell, 2020) and academic struggles for rural students when compared to their suburban and urban counterparts (S. E. Graham & Provost, 2012). With 19% of students in the US attending a rural elementary, middle, or high school (National Center for Education Statistics [NCES], 2023), the school environment can play a critical role in supporting student social-emotional needs. While SEL has demonstrated effectiveness in addressing these challenges and could be especially beneficial for rural students, research on its effectiveness for this not-insignificant portion of students is lacking.

SEL and Rural Implementation

Support is growing for SEL and academic curriculum to be held in equal importance to student education and success (Carroll et al., 2020; Taylor et al., 2017). Research has recommended that schools adopt evidence-based universal SEL programs with explicit instruction to support student skill development (Mitchell, 2020; Thierry et al., 2022). While a variety of school personnel has been known to support the delivery of SEL programs, classroom educators are the most vital, as they spend the most direct time with students (Thierry et al., 2022). Despite their proximity to students, educators who implement SEL programs (or character education programs, as they are sometimes called) face a variety of complex challenges. To start, an increasing number of states and districts recognize the importance of SEL and are incorporating K–12 standards for SEL, and the related area of mental health and wellness (Dusenbury et al., 2019; Eklund et al., 2018), for educators to meet. Many SEL programs and solutions have been created to address the rising need to meet these new standards, resulting in a variety of programs that differ widely in content, their target population, program administrators, and delivery format. Additionally, the adoption and implementation of these SEL programs, often dictated by administrators, are not consistent (Zolkoski et al., 2021). School-based SEL programs also can vary depending on state or district funding, state initiatives, or administrator or parental buy-in. All these factors can leave educators conflicted or confused about how to best proceed in using SEL programs to support students.

Rural teachers may encounter additional obstacles when implementing SEL programs. School-based universal SEL programs typically are administered in classrooms, most commonly by teachers, but also by non-classroom personnel like consultants, school support staff, or academic researchers (Durlak et al., 2011; Thierry et al., 2022). These programs present limitations in terms of time requirements and specialized training, which can be particularly challenging for rural schools with fewer resources (Zolkoski et al., 2021). Teacher preparation programs often fail to provide adequate training in SEL, leaving teachers to learn on the job (Schonert-Reichl, 2017), which is especially challenging for rural teachers, who earn lower salaries and have limited access to professional development (Johnson & Howley, 2015; Player, 2015). Compounding these issues, Zolkoski et al. (2021) found that rural educators are less likely to adopt and implement SEL programs with their students if they have low self-efficacy on SEL concepts themselves, are not confident teaching diverse groups of students, or have negative perceptions of their school climate. Educators are essential to ensure that students are getting the SEL needed to support their learning (Nichols et al., 2017). Therefore, it is critical that research continue to evaluate program effectiveness in rural settings to identify evidence-based resources that best support educators navigating the myriad of options at their disposal.

Digital SEL Programs

To try to overcome some of the challenges surrounding implementation, digital SEL programs have emerged as a potentially promising solution. Digital programs offer greater reach, flexible formatting, and personalized learning experiences (Burbules et al., 2020). They also can help address the needs of rural schools by complementing other classroom instruction and supporting the delivery of SEL instruction when educators may not already be specially trained to do so or do not have access to professional development resources. Even in the most rural classrooms, technology is a part of learning (Wargo et al., 2021), but the effectiveness of digitally delivered universal SEL programs, especially in rural classrooms with limited support and resources, remains underexplored. Previous research has supported the efficacy of digital programs on other student outcomes, such as health behaviors (Champion et al., 2019) and mental health (Garrido et

al., 2019; Kuosmanen et al., 2019), yet the use of digital SEL programs has not been studied as widely (Oades-Sese et al., 2021; Saleme et al., 2020).

Digital SEL programs are uniquely positioned to reach the most students and are developed to promote the skills necessary for student psychosocial functioning and well-being while reducing the barriers to adoption that teachers, specifically those in rural settings, face. While digital delivery can address some adoption challenges, the rationale for SEL programming in schools is still largely driven by the efficacy evidence of how these programs support the development of SEL skills as well as the overall well-being of students (Carroll et al., 2020; Dowling et al., 2019; Jones et al., 2017). Despite the overall evidence promoting SEL program implementation in schools, and recent reviews suggesting that digital programming is an effective delivery method for other subject areas, research is lacking specifically on the effectiveness of digitally delivered universal SEL programs. Consequently, the goal of the current study was to expand understanding of the effectiveness of digital SEL programs, particularly in rural classrooms.

The Current Study

This study aimed to evaluate the effectiveness of a digitally delivered, universal SEL program implemented in rural classrooms that often face limited support and resources. The current study focused on the Character Playbook program and its impact on students' knowledge of SEL concepts and their confidence in their own SEL competency. The two research questions of importance were:

1. After controlling for possible additional influences, did students who completed Character Playbook, compared to those in the control condition, have more knowledge of social and emotional concepts?
2. After controlling for possible additional influences, did students who participated in Character Playbook, compared to those in the control condition, have more positive self-reported confidence in their SEL competency?

The possible additional influences were student pre-scores on the assessment of knowledge and survey of confidence, grade level, school location, and student self-reported race and gender identity. Because random assignment at the classroom level may not have achieved baseline equivalence for both

the test and control conditions, any differences in prior levels of SEL knowledge or confidence among the groups were controlled for. Furthermore, there is reason to believe that knowledge and confidence related to SEL skills differ according to students' gender, especially during adolescence, when females tend to demonstrate higher self-management and social awareness than their male peers (West et al., 2020). Additionally, given the universal nature of the program being researched, student race was controlled for because there is a lack of consensus on how SEL levels differ among varying student groups (West et al., 2020), and such differences were not the focus of the current study. Lastly, given the effects that varying SEL exposure and proficiency across grade levels and school locations could have on the outcomes of interest, grade level and school location were included as controls.

Character Playbook

The Collaborative for Academic, Social, and Emotional Learning (CASEL, 2020) established a theoretical framework with a five-factor model for SEL: self-management (regulating one's emotions, thoughts, and actions), responsible decision making (making caring and constructive choices), relationship skills, social awareness, and self-awareness. Most SEL programs or interventions use this framework of competencies as the foundation for their content and curriculum; this framework is considered the standard of SEL-related competencies (Lawson et al., 2019). SEL competencies have been shown to predict overall well-being and academic success (Green et al., 2021; Khazanchi et al., 2021), as well as health, work, and life success (Soto et al., 2022; Taylor et al., 2017; West et al., 2018; Yoder et al., 2020). SEL programs can also be designed to target select subgroups of students, like those who show signs of needing more intensive behavioral or emotional support (indicated programs). However, many programs target all students (universal programs; Carroll et al., 2020; Payton et al., 2008). One such program, Character Playbook, was developed by EVERFI as a universal program for middle school students and is composed of five lessons that are aligned to the CASEL five-factor framework of SEL competencies (see Table 1 outlining Character Playbook's lesson objectives, online only https://scholarsjunction.msstate.edu/rural educator/vol45/iss3/). It was first released in 2017 and was revamped and released again in 2021.

The lessons in Character Playbook take around 15–20 minutes each and cover key concepts around positive character development, SEL, and building healthy relationships, providing students with true-to-life situations and scenarios in which students interact with characters who need help navigating challenging social and emotional situations. Students complete various digital activities, including simulated texting conversations between the characters and self-reflection opportunities. The self-paced student program is intended to be used during classroom time on a desktop, laptop, or tablet device. Through these lessons and activities, students can acquire a better understanding of thought recognition and self-esteem, the dynamics of emotions, and the process of responsible decision making that may result in improved resiliency to challenges, emotion regulation, and problem-solving skills critical to this period in development (Green et al., 2020). The program also provides educators with resources (discussion guides, worksheets, and role-playing activities) that complement the digital curriculum that they can use alongside the digital lessons to reinforce the SEL concepts in the classroom. Character Playbook, albeit brief, represents the wide variety of SEL tools, programs, and resources educators have at their disposal to supplement or complement their overall SEL instruction. The current study is the first to research the effectiveness of this program.

Method

Participants

Recruitment took place over the course of five months by digital outreach and school district applications to 42 schools serving sixth through eighth grades across rural and remote areas of the US. Schools were invited via email to participate and if they wanted to use Character Playbook in a complementary way to their current SEL programming or as a sole solution. Schools previously could have used Character Playbook or have never used it at all. Educator incentives were offered in the form of $100 classroom donations and free professional development to learn about the platform and creating student logins. School administrators were offered incentives of $150 donations for school supplies. Recruitment efforts largely suffered due to the social and political climate surrounding SEL/character education; educator burnout; and/or that schools already were

participating in research, with which the current study would interfere. Therefore, after four schools responded to the call for participants, ultimately only two schools were successfully recruited.

Setting

This study occurred in two Title I schools in a rural eastern U.S. school district that served kindergarten through eighth grade. School A served approximately 220 students, with 72% of the student population classified as economically disadvantaged by the state. The demographic composition of School A was 69% White and 31% Hispanic. School B served approximately 180 students, with 52% of the student population classified as economically disadvantaged. The demographic composition of School B was 85% White, 9% Hispanic, and 5% multiracial. Students had access to desktop computers or Chromebooks and smartboards, but they had inconsistent access to headphones to listen to Character Playbook audio (reflecting the level of resources in these rural classrooms). Classrooms had both individual seating and group table seating for students to work independently or collectively. The two schools were not using any other SEL program with their students during this school year, but they had tried elementary and middle school programs in the past and were looking for a new program.

Informed consent for opting out of participation was provided to the guardians of 128 students in the nine classes (six classes from School A and three classes from School B) in both English and Spanish. Students were told about the research study's goals and were given an opportunity to opt out by their educator. While only one guardian opted their student out of participation, a nontrivial number of students chose not to participate or only partially participated, resulting in missing data (see Figure 1, online only https://scholarsjunction.msstate.edu/ruraleducator/vol45/iss3/), which will be discussed later.

Procedure

An experimental cluster-randomized, pretest-posttest design was used to identify the unique effects of Character Playbook on rural middle school students' knowledge of SEL concepts and confidence toward their SEL competency through digital student assessments of knowledge and surveys, respectively. Implementation and data collection occurred digitally during Career and Technology Education (CTE) class time at both schools in the fall of 2022. The schools

sectioned students into CTE classrooms by grade level. Given that students were already sectioned into classrooms, individual randomization was not reasonable or feasible, as is common in research conducted in educational settings (Dreyhaupt et al., 2017). Depending on the school's scheduling system, whole classrooms were randomly assigned to deliver (test group) or delay delivering (control group) *Character Playbook* to students via a random number generator or A/B week randomizer. Randomization procedures resulted in five classes (three from School A and two from School B) assigned to the test condition and four classes (three from School A and one from School B) assigned to the control condition.

Students assigned to the control condition completed a pre-survey of their self-reported confidence and a pre-assessment of their knowledge at the beginning of a school week. At the end of the school week, students in the control condition then completed the same post-survey and post-assessment. Before beginning their first lesson, students assigned to take *Character Playbook* (the test group) completed a pre-survey of their confidence towards their SEL skills and a pre-assessment of their knowledge of social and emotional concepts. Students in the Character Playbook condition took the five lessons in a single week, taking one lesson per day during CTE class-time. During the study window, *Character Playbook* was the primary SEL program administered to the students. After their final lesson one week later, students in the *Character Playbook* condition completed the same post-survey and post-assessment.

Measures

Knowledge

A custom assessment was developed by EVERFI to be used in a pre-post manner to measure student knowledge and competence on SEL concepts based on the lesson objectives in Table 1 (online only https://scholarsjunction.msstate.edu/ ruraleducator/vol45/iss3/). Students were asked to complete a 25-item assessment on topics related to the five CASEL core competencies. Questions had four response choices with one correct answer. An example question was, "Social identity groups can give you a sense of...," with answer choices being "distance," "rejection," "belonging," and "comparison." The correctly answered items from students' first attempt on the assessments were

summed to create a pre- and post-assessment score representing knowledge. The assessment items had a high level of internal consistency, as determined by a reliability analysis of the post-assessment (Cronbach's $a = 0.90$).

Confidence

Surveys were used to assess students' self-reported confidence in their competence in social and emotional skills in a pre-post fashion. The validated short-form Washoe County School District Social-Emotional Competencies Assessment (WCSD-SECA; Crowder et al., 2019; Davidson et al., 2018) was used because of its alignment to Character Playbook's underlying theoretical social and emotional learning CASEL framework. The 17-item survey was amended and reduced to 14 items via item bank replacement to align more closely with the Character Playbook program's learning objectives. Students were asked to rate their confidence on three items each for self-awareness, self-management, relationship skills, and responsible decision making, and two items for social awareness. The items were also formulated as questions ("How easy is it…") rather than statements to reflect research-based survey best practices (Gehlbach & Artino, 2018). Each item had a five-point Likert scale ranging from "not easy at all" to "extremely easy." Overall confidence was calculated using the average student Likert response, with higher scores indicating more confidence related to their SEL skill competency. The survey items had a high level of internal consistency, as determined by a reliability analysis of the post-survey (Cronbach's $a = 0.85$). In addition, the pre-survey also collected self-reported demographics to assess sample representativeness and, in the final analyses, to account for any variance among different student groups.

Data Analysis

Each outcome (knowledge and confidence) was analyzed separately to determine the effect of Character Playbook on students who took the program compared to those who did not. The nested nature of the data is acknowledged, but given the very small number of clusters present in the sample, traditional analyses of covariance (ANCOVA) were performed to examine differences in knowledge and, separately, confidence following the study window as a function of study condition, controlling for baseline scores, school location, grade level (classroom

assignment), and demographic variables (gender and race/ethnicity). An ANCOVA provides a straightforward evaluation of whether the outcome (knowledge or confidence) is different for the control and test classrooms while removing the effect other factors, such as gender, may have on the outcome.

To ensure the test group for the knowledge analyses reflected students were fully exposed to all concepts tested in the Character Playbook program assessments, only students who completed all the lessons were retained. Additionally, students did not need to be exposed to all the lessons to experience a shift in confidence related to their SEL competency. Therefore, the test group students for the survey analyses who completed at least four Character Playbook lessons were retained in the sample to reflect students who had sufficient exposure to content to experience confidence shifts.

Using SPSS Statistics 28.0, two ANCOVA models with group (test or control) specified as a factor and average pre-survey rating or total pre-assessment score, gender, race, grade level, and school location as covariates were executed. Two additional ANCOVA models on the complete data for each outcome were also interpreted for comparison and transparency. However, the interpretation of imputed data is prioritized in the findings as it reflects the all students who participated in this study. Partial eta squared (η^2_p) is provided as a measure of effect size, with .14 indicating a large effect, .06 indicating a medium effect, and .01 indicating a small effect (Cohen, 1988).

Missing Data

The percentage of missing values across the seven variables of interest to the current study varied. Data were missing at random and were largely related to covariates or post-surveys due to these self-report items, along with demographic questions, being completely optional to answer. It is possible that missing data is related to the two schools historically not having a consistent SEL program—they were not familiar with implementing or conducting data collection for this type of program.

Instead of trimming the data and introducing bias to the analyses, multiple imputation was conducted to create and pool five imputed datasets for each analysis and to predict the values of missing data from the values of present or complete data (J. W. Graham, 2009). Multiple imputation is regarded as a reputable technique because it improves accuracy and

statistical power relative to other missing data techniques, even when sample sizes are small and/or the level of missing data is high (Kang, 2013; Madley-Dowd et al., 2019). SPSS 28.0 automatically selected linear regression as the best imputation method given the nature of the data. Variables with missing data (see Tables 2 and 3, online only https://scholarsjunction.msstate.edu/ruraleducator/vol 45/iss3/) were imputed five times with 10 iterations each using impute and predictor specifications in SPSS. Because they had complete data, group (test or control), school (A or B), and pre-assessment scores were used as predictors only in the imputation process. Post-assessment scores, post-survey average, pre-survey average, race, grade level, and gender were set to impute and as predictors.

Imputations were conducted at the composite level for assessments and, separately, surveys (rather than the construct or individual item level) due to the small sample size and level of missing information (Rombach et al., 2018). Variable values had minimum and maximum possible values set to what was possible or observed in the data. The variables with partial data were estimated via linear regression in each imputed dataset separately and then pooled for analysis. The demographic summary for both complete and pooled data for each outcome analysis is summarized in Tables 4 and 5 (online only https://scholarsjunction.msstate.edu/ruraleducator/vol 45/iss3/).

Findings

Knowledge

Before the analysis of pooled data to answer the first research question, assumptions were tested. There was a linear relationship between pre- and post-assessment averages for each group, as assessed by visual inspection of a scatter plot. There was homogeneity of regression slopes as the interaction term was not statistically significant, $F_{pooled}(1, 81) = 2.89, p = .09$. Standardized residuals for the groups were normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$). There was homoscedasticity, as assessed by visual inspection of the standardized residuals plotted against the predicted values. Variances were homogeneous, as assessed by Levene's test of homogeneity of variance ($p = .90$).

Average knowledge at pre-assessment was higher for the test classrooms ($M = 13.65$) compared to the control classrooms ($M = 11.54$), resulting in

moderate baseline differences (Hedges' $g = .47$). After adjusting for pre-assessment scores, grade level, gender, school, and race, there was a statistically significant difference in post-survey averages for the students who participated in Character Playbook, $F_{pooled}(1, 78) = 246.69$, $p < .001$, partial $\eta^2 = .76$ (see Table 6, online only https://scholarsjunction.msstate.edu/ruraleducator/vol45/iss3/). Student knowledge of SEL concepts and skills was statistically significantly greater in the test group ($M = 17.64$) compared to the control group who did not participate in Character Playbook ($M = 8.57$), with a mean difference of 9.07, 95% CI [7.91, 10.22], $p < .001$.

The ANCOVA results for the subset of complete cases met statistical significance with a large effect favoring the students who finished the Character Playbook program, $F_{complete}(1, 34) = 37.82$, $p < .001$, partial $\eta^2 = .53$. Student knowledge was greater in the test group ($n = 13$, 17.60) compared to the control group who did not participate in *Character Playbook* ($n = 28$, 9.11); the difference of 8.49, 95% CI [5.68, 11.29] was significant $p < .001$.

Confidence

Before the analysis of pooled data to answer the second research question, assumptions were tested. There was a linear relationship between pre- and post-survey averages for each group, as assessed by visual inspection of a scatter plot. There was homogeneity of regression slopes as the interaction term was not statistically significant, $F_{pooled}(1, 88) = 3.68$, $p = .06$. Standardized residuals for the groups were normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$). There was homoscedasticity, as assessed by visual inspection of the standardized residuals plotted against the predicted values. Variances were homogeneous, as assessed by Levene's test of homogeneity of variance ($p = .65$).

Average confidence at pre-survey was slightly higher for the test classrooms (3.00) compared to the control classrooms (2.88), resulting in small baseline differences (Hedges' $g = .19$). After adjusting for pre-survey average, grade level, gender, school, and race, there was a moderate statistically significant difference in post-survey averages for students who participated in Character Playbook, $F_{pooled}(1, 85) = 10.66$, $p < .01$, partial $\eta^2 = .11$. After the program, student confidence toward their SEL competence was statistically significantly greater in the test group (3.18) compared to the control group who did not

participate in Character Playbook (2.88), with a mean difference of .30, 95% CI [.12, 0.48], $p < .01$.

The results of the analysis of only complete cases showed a moderate, but insignificant difference in post-survey averages for Character Playbook students, $F_{complete}(1, 38) = 3.85$, $p = .06$, partial $\eta^2 = .09$. Student confidence was directionally more positive in the test group ($n = 16$, $M = 3.08$) compared to the control group who did not participate in Character Playbook ($n = 29$, $M = 2.74$). Still, the difference of .32, 95% CI [-0.02, 0.66] was not significant at traditional levels ($a < .05$), $p = .06$ (see Table 7, online only https://scholarsjunction.msstate.edu/ruraleducator/vol45/iss3/).

Discussion

Nearly one in five students attend a rural school in the US (NCES, 2023), yet rural contexts are often overlooked in research. Despite evidence that universal SEL or character education programs are an essential part of supporting students (Corcoran et al., 2018; Durlak et al., 2011; Mahoney et al., 2018), research is lacking on how effective SEL programs, specifically digitally delivered programs, are when implemented in rural classrooms. The findings from this study provide preliminary evidence for implementing a brief digital SEL program to support rural students' knowledge of SEL concepts and their confidence in their SEL skills.

During middle school especially, students encounter new relationship challenges, social comparison, and increased anxiety (Duchesne et al., 2012; Green et al., 2021). These challenges are often deepened for rural students, who are more likely to experience poverty and other circumstances that impact their wellness. Brief digital SEL programs like Character Playbook can provide consistent and flexible support to underprepared educators teaching SEL in classrooms during this formative time (Caukin et al., 2020). The findings from the current study, albeit with limitations, show promising evidence that students who took Character Playbook gained key knowledge in areas of emotional awareness, self-management, social awareness, relationship skills, and responsible decision making they did not already know. This knowledge is crucial to navigating some of the challenges they may encounter in middle school and later in life. Additionally, student survey results indicated those who participated in Character Playbook reported more confidence in their SEL competency. Having

more confidence in their ability to leverage SEL skills can help students foster healthy relationships with themselves, and others, as well as help them cope with difficulties they may encounter in life (Green et al., 2021).

These findings do not assert that the brief digital program transformed student behaviors, or that this program alone can have lasting impact. Rather, Character Playbook can be an effective tool for rural educators to teach students critical social-emotional concepts and boost student confidence in their SEL skill competency when the educators may not be specifically trained to do so. Future research would benefit from focusing on implementation, how SEL is integrated throughout the student's learning day, and feasibility of digital tools for rural educators to better understand the factors that can impact the effectiveness of digital SEL programs.

Although the Character Playbook program is brief, and the study suffered from limitations that prohibit causal inference, the directionally and statistically positive nature of the findings were still meaningful. Analyses were limited by sample size and missing data, but multiple imputations proved to be a reliable and efficient statistical approach to retain as much information about the full study sample as possible. Ultimately, the results highlighted that the program likely had a positive impact on student SEL knowledge and skill confidence, suggesting that universal digital SEL programs, even short ones, can be an efficient way for rural educators to integrate and promote the SEL knowledge students need to navigate and adapt successfully to the middle school environment. While further research with a larger sample is needed to confirm these initial findings, the positive results from this evaluation support, at the very least, the continued implementation of Character Playbook with rural middle school students. The findings especially add to the broader body of research affirming the positive impact of SEL (or character education programs) on students. During a time when classrooms are digitally laden, it is critical to transparently evaluate program effectiveness so that educators, especially those in rural contexts who may or may not have their pick of resources, can feel more supported in which programs they could be using to best support students.

Limitations

The current study has several limitations worth noting. While students were sampled from two diverse schools, both were small and located in the same rural district the same state. Additionally, the current study experienced varying levels of missing data. While most missing data were related to covariates and not the outcome variables of main interest, it is important to note the impact on the analyses; the effectiveness of Character Playbook cannot be definitively determined by the current findings. Multiple imputation was a successful method as demonstrated by shorter confidence intervals and lower p-values in the pooled analyses than those of the limited sample of complete data. However, a wider sampling of rural students using Character Playbook is strongly recommended to determine if the program's effects hold outside imputation methods employed in the current study and generalize to the wider population.

It is important also to acknowledge limitations in measurement. Student confidence was evaluated using a self-reported instrument, which while validated is still subject to threats to the internal validity (specifically, social desirability bias). Additionally, the assessment of student knowledge was developed by the same organization that developed the Character Playbook program. Even though reliability metrics were satisfactory, the lack of an externally developed and validated measure of student knowledge is a potential source of bias.

Depending on the ANCOVA being interpreted, the effect of Character Playbook on students' confidence in their SEL competency may or may not be statistically significant. Given the large amount of missing data for student post-surveys, the analysis of complete data should be relied on more. It could be argued that given the small sample size and medium effect size observed, the findings as a starting point are still contextually meaningful and significant.

Lastly, the study window between pre- and post-measurements was brief (one school week), albeit aligned with the nature of supplemental digital SEL programs. To fully explore the impact of *Character Playbook* implementation on the knowledge and skill confidence of rural middle school students, additional future research that examines sustained effects of the knowledge and confidence changes could be explored over a longer period.

References

Burbules, N. C., Fan, G., & Repp, P. (2020). Five trends of education and technology in a sustainable future. *Geography and Sustainability*, *1*(2), 93–97. https://doi.org/10.1016/j.geosus.2020.05.001

Carroll, A., Houghton, S., Forrest, K., McCarthy, M., & Sanders-O'Connor, E. (2020). Who benefits most? Predicting the effectiveness of a social and emotional learning intervention according to children's emotional and behavioural difficulties. *School Psychology International*, *4*(3), 197–217. https://doi.org/10.1177/0143034319898741

Caukin, N., Trail, L., & Hover, A. (2020). How edtech can support social and emotional learning at School and at home. *International Journal of the Whole Child*, *5*(1), 57–63. https://libjournals.mtsu.edu/index.php/ijwc/article/view/1712

Champion, K. E., Parmenter, B., McGowan, C., Spring, B., Wafford, Q. E., Gardner, L. A., Thornton, L., McBride, N., Barrett, E. L., Teesson, M., & Newton, N. C. (2019). Effectiveness of school-based ehealth interventions to prevent multiple lifestyle risk behaviours among adolescents: a systematic review and meta-analysis. *The Lancet Digital Health*, *1*(5), e206–e221. https://doi.org/10.1016/S2589-7500(19)30088-3

Cohen J. (1988). Statistical Power Analysis for the Behavioral Sciences. *Routledge Academic.*

Collaborative for Academic, Social, and Emotional Learning. (2020). *CASEL's SEL Framework.* https://casel.org/casel-sel-framework-11-2020/

Corcoran, R. P., Cheung, A. C., Kim, E., & Xie, C. (2018). Effective universal school-based social and emotional learning programs for improving academic achievement: A systematic review and meta-analysis of 50 years of research. *Educational Research Review, 25*, 56-72. https://doi.org/10.1016/j.edurev.2017.12.001

Crowder, M. K., Gordon, R. A., Brown, R. D., Davidson, L. A., & Domitrovich, C. E. (2019). Linking social and emotional learning standards to the WCSD Social–Emotional Competency Assessment: A Rasch approach. *School Psychology*, *34*(3), 281–295. https://doi.org/10.1037/spq0000308

Davidson, L. A., Crowder, M. K., Gordon, R. A., Domitrovich, C. E., Brown, R. D., & Hayes, B. I. (2018). A continuous improvement approach to social and emotional competency measurement. *Journal of Applied Developmental Psychology*, *55*, 93–106. https://doi.org/10.1016/j.appdev.2017.03.002

Dreyhaupt, J., Mayer, B., Keis, O., Öchsner, W., & Muche, R. (2017). Cluster-randomized studies in educational research: principles and methodological aspects. *GMS Journal for Medical Education*, *34*(2), Article 26. https://doi.org/10.3205/zma001103

Dowling, K., Simpkin, A. J., & Barry, M. M. (2019). A cluster randomized-controlled trial of the MindOut social and emotional learning program for disadvantaged post-primary school students. *Journal of Youth and Adolescence*, *48*(7), 1245–1263. https://doi.org/10.1007/s10964-019-00987-3

Duchesne, S., Ratelle, C. F., & Roy, A. (2012). Worries about middle school transition and subsequent adjustment: The moderating role of classroom goal structure. *The Journal of Early Adolescence*, *32*(5), 681–710. https://doi.org/10.1177/0272431611419506

Duckworth, A. L., Tsukayama, E., & May, H. (2010). Establishing causality using longitudinal hierarchical linear modeling: An illustration predicting achievement from self-control. *Social Psychological and Personality Science*, *1*(4), 311–317. https://doi.org/10.1177/1948550609359707

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*(1), 405–432. https://doi.org/10.1111/j.1467-8624.2010.01564.x

Durlak, J. A., Mahoney, J. L., & Boyle, A. E. (2022). What we know, and what we need to find out about universal, school-based social and emotional learning programs for children and adolescents: A review of meta-analyses and directions for future research. *Psychological Bulletin*, *148*(11–12), 765–782. https://doi.org/10.1037/bul0000383

Dusenbury, L., Yoder, N., Dermody, C., & Weissberg, R. (2019). *An examination of frameworks for social and emotional learning (SEL) reflected in state K–12 learning standards* (Frameworks Brief). Collaborative for Academic, Social, and Emotional Learning.

https://measuringsel.casel.org/wp-content/uploads/2019/02/Framework-C.3.pdf

Eccles, J. S., Lord, S., & Midgley, C. (1991). What are we doing to early adolescents? The impact of educational contexts on early adolescents. *American Journal of Education*, *99*(4), 521–542. https://doi.org/10.1086/443996

Eklund, K., Kilpatrick, K. D., Kilgus, S. P., & Haider, A. (2018). A systematic review of state-level social–emotional learning standards: Implications for practice and research. School *Psychology Review*, *47*(3), 316–326. https://doi.org/10.17105/SPR-2017.0116.V47-3

Garrido, S., Millington, C., Cheers, D., Boydell, K., Schubert, E., Meade, T., & Nguyen, Q. V. (2019). What works and what doesn't work? A systematic review of digital mental health interventions for depression and anxiety in young people. *Frontiers in Psychiatry*, *10*, Article 759. https://doi.org/10.3389/fpsyt.2019.00759

Gehlbach, H., & Artino, A. R. (2018). The survey checklist (manifesto). *Academic Medicine*, *93*(3), 360–366. https://doi.org/10.1097/ACM.0000000000002083

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology*, *60*(1), 549–576. https://doi.org/10.1146/annurev.psych.58.110405.085530

Graham, S. E., & Provost, L. E. (2012). *Mathematics achievement gaps between suburban students and their rural and urban peers increase over time* (National Issue Brief No. 52). Carsey School of Public Policy, University of New Hampshire. https://doi.org/10.34051/p/2020.172

Green, A. L., Ferrante, S., Boaz, T. L., Kutash, K., & Wheeldon-Reece, B. (2021). Social and emotional learning during early adolescence: Effectiveness of a classroom-based SEL program for middle school students. *Psychology in the Schools*, *58*(6), 1056–1069. https://doi.org/10.1002/pits.22487

Hall, G. E., & DiPerna, J. C. (2017). Childhood social skills as predictors of middle school academic adjustment. *The Journal of Early Adolescence*, *37*(6), 825–851. https://doi.org/10.1177/0272431615624566

January, A. M., Casey, R. J., & Paulson, D. (2011). A meta-analysis of classroomwide interventions to build social skills: Do they work? *School Psychology Review*, *40*(2), 242–256. https://doi.org/10.1080/02796015.2011.12087715

Johnson, J., & Howley. C. B. (2015). Contemporary education policy and rural schools: A critical policy analysis. *Peabody Journal of Education*, *90*(2). 224–241. https://doi.org/10.1080/0161956X.2015.1022112

Jones, S. M., Barnes, S. F., Bailey, R., & Dolittle, E. J. (2017). Promoting social and emotional competencies in elementary school. *The Future of Children*, *27*(1), 49–71. https://doi.org/10.1353/foc.2017.0003

Jones, S. M., & Kahn, J. (2017). *The evidence base for how we learn: Supporting students' social, emotional, and academic development*. Aspen Institute, National Commission on Social, Emotional, and Academic Development. https://www.aspeninstitute.org/publications/evidence-base-learn/

Kang, H. (2013). The prevention and handling of the missing data. *Korean Journal of Anesthesiology*, *64*(5), 402–406. https://doi.org/10.4097/kjae.2013.64.5.402

Katzman, N. F., & Stanton, M. P. (2020). The integration of social emotional learning and cultural education into online distance learning curricula: Now imperative during the COVID-19 pandemic. *Creative Education*, *11*(9), 1561–1571. https://doi.org/10.4236/ce.2020.119114

Khazanchi, R., Khazanchi, P., Mehta, V., & Tuli, N. (2021). Incorporating social–emotional learning to build positive behaviors. *Kappa Delta Pi Record*, *57*(1), 11–17. https://doi.org/10.1080/00228958.2021.1851581

Kuosmanen, T., Clarke, A. M., & Barry, M. M. (2019). Promoting adolescents' mental health and wellbeing: Evidence synthesis. *Journal of Public Mental Health*, *18*(1), 73–83. https://doi.org/10.1108/JPMH-07-2018-0036

Lavalley, M. (2018). *Out of the loop*. Center for Public Education. https://www.nsba.org/-/media/NSBA/File/cpe-out-of-the-loop-report-january-2018.pdf

Lawson, G. M., McKenzie, M. E., Becker, K. D., Selby, L., & Hoover, S. A. (2019). The core components of evidence-based social emotional learning programs. *Prevention Science*, *20*(4), 457–467. https://doi.org/10.1007/s11121-018-0953-y

Madley-Dowd, P., Hughes, R., Tilling, K., & Heron, J. (2019). The proportion of missing data should not be used to guide decisions on multiple imputation. *Journal of Clinical Epidemiology*,

110, 63–73. https://doi.org/10.1016/j.jclinepi.
2019.02.016

Mahoney, J. L., Durlak, J. A., & Weissberg, R. P.
(2018). An update on social and emotional
learning outcome research. *Phi Delta Kappan*,
100(4), 18–23. https://doi.org/10.1177/
0031721718815668

Meyers, A. B., Tobin R. M., Huber, B. J., Conway,
D. E., & Shelvin, K. H. (2015). Interdisciplinary
collaboration supporting social-emotional
learning in rural school systems. *Journal of
Educational and Psychological Consultation*,
25(2–3), 109–128. https://doi.org/10.1080/
10474412.2014.929956

Mitchell, T. L. (2020). Facilitating social emotional
learning in rural schools: a systematic review of
strategies. *European Scientific Journal*, 95–103.
https://eujournal.org/index.php/esj/article/view/1
4095

National Advisory Committee on Rural Health and
Human Services. (2018). *Exploring the rural
context for adverse childhood experiences
(ACEs): Policy Brief and Recommendations.*
U.S. Department of Health & Human Services.
https://files.eric.ed.gov/fulltext/ED591840.pdf

National Center for Education Statistics. (2023).
Enrollment and School Choice in Rural Areas.
https://nces.ed.gov/programs/coe/pdf/2023/LCB
_508c.pdf

Nichols, L. M., Goforth, A. N., Sacra, M., & Ahlers,
K. (2017). Collaboration to support rural student
social-emotional needs. *The Rural Educator*,
38(1), 38–48. https://doi.org/10.35608/
ruraled.v38i1.234

Oades-Sese, G. V., Cahill, A., Allen, J. W. P., Rubic,
W. L., & Mahmood, N. (2021). Effectiveness of
Sesame Workshop's Little Children, Big
Challenges: A digital media SEL intervention for
preschool classrooms. *Psychology in the
Schools*, *58*(10), 2041–2067. https://doi.org/
10.1002/pits.22574

Payton, J., Weissberg, R. P., Durlak, J. A., Dymnicki,
A. B., Taylor, R. D., Schellinger, K. B., &
Pachan, M. (2008). *The positive impact of social
and emotional learning for kindergarten to
eighth-grade students: Findings from three
scientific reviews*. Collaborative for Academic,
Social, and Emotional Learning.

Player, D. (2015). *The supply and demand for rural
teachers: The Rural Opportunities Council of
Idaho (ROCI)*. Rural Opportunities Consortium
of Idaho.

Reynolds, W. (Ed.). (2017). *Forgotten places:
Critical studies in rural education.* Peter Lang.
https://doi.org/10.3726/b11118

Rombach, I., Gray, A. M., Jenkinson, C., Murray, D.
W., & Rivero-Arias, O. (2018). Multiple
imputation for patient reported outcome
measures in randomised controlled trials:
advantages and disadvantages of imputing at the
item, subscale or composite score level. *BMC
Medical Research Methodology*, *18*, Article 87.
https://doi.org/10.1186/s12874-018-0542-6

Saleme, P., Pang, B., Dietrich, T., & Parkinson, J.
(2020). Prosocial digital games for youth: A
systematic review of interventions. *Computers in
Human Behavior Reports*, *2*, Article 100039.
https://doi.org/10.1016/j.chbr.2020.100039

Schaefer, A., Mattingly, M. J., & Johnson, K. M.
(2016). *Child poverty higher and more persistent
in rural America* (National Issue Brief No. 97).
Carsey School of Public Policy, University of
New Hampshire. https://doi.org/10.34051/
p/2020.256

Schonert-Reichl, K. A. (2017). Social and emotional
learning and teachers. *The Future of Children*,
27(10), 137–155. https://doi.org/10.1353/
foc.2017.0007

Soto, C. J., Napolitano, C. M., Sewell, M. N., Yoon,
H. J., & Roberts, B. W. (2022). Going beyond
traits: Social, emotional, and behavioral skills
matter for adolescents' success. *Social
Psychological and Personality Science.* Advance
online publication. https://doi.org/10.31234/
osf.io/be73v

Taylor, R. D., Oberle, E., Durlak, J. A., Weissberg,
R. P. (2017). Promoting positive youth
development through school-based social and
emotional learning interventions: A meta-
analysis of follow-up effects. *Child
Development*, *88*(4), 1156–1171.
https://doi.org10.1111/cdev.12864

Thierry, K. L., Page, A., Currie, C., Posamentier, J.,
Liu, Y., Choi, J., Randall, H., Rajanbabu, P.,
Kim, T. E., & Widen, S. C. (2022, December).
How are schools implementing a universal
social–emotional learning program? Macro-and
school-level factors associated with
implementation approach. *Frontiers in
Education*, *7*, Article 1044835. https://doi.org/
10.3389/feduc.2022.1044835

Wargo, E., Carr Chellman, D., Budge, K., & Canfield
Davis, K. (2021). On the digital frontier:
Stakeholders in rural areas take on educational

technology and schooling. *Journal of Research on Technology in Education*, *53*(2), 140–158. https://doi.org/10.1080/15391523.2020.1760753

West, M. R., Buckley, K., Krachman, S. B., & Bookman, N. (2018). Development and implementation of student social-emotional surveys in the CORE Districts. *Journal of Applied Developmental Psychology*, *55*, 119–129. https://doi.org/10.1016/j.appdev.2017.06.001

West, M. R., Pier, L., Fricke, H., Hough, H., Loeb, S., Meyer, R. H., & Rice, A. B. (2020). Trends in students social-emotional learning: Evidence from the first large-scale panel student survey. *Educational Evaluation and Policy Analysis*, *42*(2), 279–303. https://doi.org/10.3102/0162373720912236

Wigfield, A., Byrnes, J. P., & Eccles, J. S. (2006). Development during early and middle adolescence. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (pp. 87–113). Lawrence Erlbaum Associates.

Yoder, N., Atwell, M. N., Godek, D., Dusenbury, L., Bridgeland, J. M., & Weissberg, R. (2020). *Preparing youth for the workforce of tomorrow: Cultivating the social and emotional skills employers demand*. Collaborative for Academic, Social, and Emotional Learning. https://eric.ed.gov/?id=ED617392

Zins, J. E., Bloodworth, M. R., Weissberg, R. P., & Walberg, H. J. (2007). The scientific base linking social and emotional learning to school success. *Journal of Educational and Psychological Consultation*, *17*(2–3), 191–210. https://doi.org/10.1080/10474410701413145

Zolkoski, S. M., Aguilera, S. E., West, E. M., Miller, G. J., Holm, J. M., Sass, S., & Stokes, E. L. (2021). Teacher perceptions of skills, knowledge, and resources needed to promote social and emotional learning in rural classrooms. *The Rural Educator*, *41*(3), 1–11. https://doi.org/10.35608/ruraled.v41i3.1098

Data Availability Statement:

The data are not publicly available because the participants in this study and their guardians consented to sharing data only in aggregate; they did not give written consent for their individual data to be shared publicly.

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