5-2022

The impacts of cooperative learning in classrooms on student social skills

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The Impacts of Cooperative Learning in Classrooms on Student Social Skills

A Master's Project

In Partial Fulfillment of the Requirements for the Degree

Master of Science in Teaching

State University of New York College at Cortland

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April 29, 2022

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Date____May 2nd, 2022____

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Abstract

This mixed-methods action research study investigates potential effects of cooperative learning strategies on observed and self-reported student social skills in a fourth grade classroom. Baseline data is collected at a time when the classroom is predominantly whole-group and is then compared to ensuing data collected during and after cooperative learning interventions. Opportunities for students to work in interdependent partnerships and small groups ramps up gradually and culminates in a 3-week period which includes 3 different jigsaw-style lesson activities. Data suggests that students who are unaccustomed to working with peers may struggle to exhibit required social skills that make cooperative learning strategies successful, and that student experiences in social learning groups may be frustrating or stressful if the classroom has not adequately set a foundation for a social learning model. However, data also indicates that both academic performance and exhibited student social skills in cooperative groups may improve with repeated exposures. The presentation also clarifies the elements that teachers should look to include when implementing cooperative learning and provides insights into how it should be introduced.

Cooperative Learning (CL) describes instructional strategies that encourage students to work with peers in cooperative groups to achieve learning objectives (Goor and Schwenn, 1993). Common elements of CL as identified by D. Johnson, R. Johnson, and Holubec (2008) include face-to-face interaction, positive interdependence, individual accountability, and group process, which together seek to promote interpersonal social skills. Cooperative learning contrasts with traditional teaching strategies by seeking to position students as active learners through opportunities to work with peers on projects, and not merely as passive recipients of knowledge from teacher instruction. As cooperative learning has become a more popular and widespread approach among classroom teachers, a large body of research has emerged to investigate how students and teachers respond to CL, and in particular the effects CL has on student learning outcomes and social skill development. At the elementary level, many students lack experiences working with peers on academic tasks. The skills involved in making cooperative learning effective, such as listening, taking turns, leadership, and keeping group members together can take time to develop. Teachers may be reluctant to implement cooperative learning opportunities in their instruction because of the anticipated difficulties students may have in these tasks without a lot of support. Traditional whole-group instruction, which remains the dominant methodology in many elementary classrooms, can result in some students feeling disengaged or disconnected to learning . Cooperative learning has proven promising academically to a variety of students of diverse needs and backgrounds, but these academic benefits are contingent on the development of positive social skills in group work contexts. In a classroom in which students have limited prior experiences with cooperative learning, it is worth studying how introducing a series of cooperative learning opportunities might produce changes in student social skill perceptions and behaviors over time. For the purposes of this review, the focus of inquiry is as follows: How might cooperative teaching strategies affect student social skills in the classroom?

Literature Review

Though the most common studies in this field pertain to the academic and motivational effects of CL strategies on students, there is a subset of literature that looks more closely at effects of CL on student social skills. For this literature review, studies and case studies that yielded quantitative and qualitative data related to social skills represented the global reach of cooperative learning strategies in education. Five research studies were identified; one each from the United Kingdom (Davison, et al., 2008); the United States in a special education context (Prater, et al., 1998); South Korea (Han & Son,); Kuwait (Ebrahim, 2010); and Romania (Popa & Pop, 2019). In addition, a literature review reinforced some of the themes found within the other studies (Perez Jimenez, 2018). Three themes emerged from the reviewed studies' findings. Firstly, and most predominantly, were results that show positive pro-social interpersonal effects of CL on students. A second theme identifies student independence from the teacher as a positive effect. A third theme discusses the importance of explicit instruction of social skills within CL in order for it to have a positive interpersonal effect.

Positive Pro-social Interpersonal Effects

Davison et al. studied the effects of a school-wide implementation of CL over an academic year as teachers were trained in and then integrated CL structures such as "doughnut", "think-pair-share", and "jigsaw" into their classroom content lessons (2008, p. 310). The study recorded quantitative data from both teachers and students. Teachers reported that after a year of CL, students "no longer needed to be prompted to help each other" in cooperative tasks, that behavior problems of some students were "brought in line by group influence", and how group work became "much easier" (Davison et al., 2008, p. 312). Students surveyed in Davison's study demonstrated understanding of the concepts of active listening, which included maintaining eye contact and listening closely (p. 311). Ebrahim's study in Kuwait found some similar results. In this study, a 5th grade team at a girls' school contrasted the effects

of learning in traditional classrooms versus learning in classrooms that adopted cooperative learning strategies. The results of the study summarized that "cooperative learning strategies had significantly more positive effects on both students' achievement and social skills than teacher-centered strategies" (Ebrahim, 2010 , p. 293). Quantitative results in Ebrahim's study were collected from student surveys taken pre and post-study; the social skills survey included 12 yes/no questions such as "I learned in science class how to work with others to solve problems or answer questions" and "I did not like to work in groups because my friends in the group would not allow me to talk" (p. 312). Through a points-scale tallying of student surveys, Ebrahim calculated that, though the pre-test social skill scores were higher in the teacher-centered classrooms, the post-test social skills scores were higher in the cooperative learning classrooms, demonstrating significant effects of CL on student social skills (p. 307). In a South Korea university classroom, Han and Son also conducted a study using pre- and post-test student surveys (2020). These surveys included questions relating to the character traits of agreeableness and extroversion, along a 1-5 scale, though students did not know that their observed character traits were the object of the study. Han and Son argued that the trait of *agreeableness*, which includes trust, straightforwardness, altruism, and compliance; and the trait of *extroversion*, which includes warmth, gregariousness, assertiveness, and activity, form the basis of pro-social interactions within classroom groups. Like Ebrahim's study, Han and Son used quantitative measures based on a survey points system to conclude that "cooperative learning of PBL increased the students' "agreeableness" up to an average of 2.38" and "also increased the students' "extraversion" up to an average of 1.44" (p. 22), both statistically significant increases. Students were also allowed to give feedback on CL and group work at the end of the course, and demonstrated highly positive impressions. One student in Han and Son's study showed both agreeableness and extroversion in their feedback given, writing

"I loved the mood of our team. It was always friendly and cheerful. We all knew every

member's ability and tried to assign the right work to the right person. …we had many

conversations… I tried to help team members. I found pleasure in understanding my team

members" (p. 24).

Thus, through both qualitative and quantitative data, and in both teacher and student feedback across

cultural and geographic boundaries, cooperative learning has been shown to have a positive effect on

student pro-social interpersonal skills. Perez Jimenez summarizes his literature review by writing "CL's

effects equate to social etiquette training and are based on tried and proven social learning methods that

hold their own" in 21st century classroom contexts (2018, p. 67).

Student Independence from Teacher as a Positive Effect

While not strictly an interpersonal skill, the skill of demonstrating independence in achieving

academic outcomes could also be viewed as a social-emotional skill that directly impacts academic

performance. This idea was clearly shown in some of the research. In particular, Popa and Pop (2019)

found this to be a significant finding in their 15-week CL intervention across academic disciplines in a

Romanian 4th grade curriculum. The study quantitatively measured a decrease in both student attitudes

of requiring teacher support, and in attitudes of needing to work independently from peers (Popa &

Pop, 2019). Thus, as measured on survey tallies, students found themselves more willing to work with

peers as a result of CL interventions, while simultaneously being less dependent on teacher guidance.

The study found that students loved being given opportunities to freely express ideas to their peers and

became aware that the opinion and contribution of each group member matters (2019). Popa & Pop

observe that "gradually, the children stopped asking questions to the teacher and started communicating

with one another" and "that learning can be also achieved when working in groups, not only when one

learns by himself/herself" (2019, pp. 85-86). Ebrahim assents to this theme in the reflection of his

study's results, saying "[CL places] more emphasis on the students and their learning than on teacher and teaching performance" (p. 308), and further posits that this developing skill of independence from the teacher increases student responsibility, challenge, and motivation for learning (2010). Perez Jimenez summarizes this important aspect of CL: "interdependence, as well as individual accountability, requires that all members be involved in the lesson and group talk involves that the whole group participate" (2018, p. 66). Potential pitfalls of group work, namely a lack of participation by some group members and the "carrying" of the group by others, can be mitigated by this developing sense of independence and accountability for one's own learning. A clear link emerges between the pro-social benefits of CL, students' developing independence apart from the teacher, and resulting academic gains.

Explicit Instruction of Social Skills

While Davison et al. (2008) , Ebrahim (2010) and Han and Son (2020) incorporated cooperative learning into their content area instruction and found social skill improvements as a result, Prater et al. (1998) disagrees. Prater et al. advocates for explicit delivery of social skills instruction in special education contexts rather than through cooperative learning (1998). In the study, three classroom instructional strategies were compared: Teacher-directed explicit instruction of social skills (group A); student-generated social skill descriptions (group B); and a student-generated cooperative session (group C). Prater et al. found that observed gains in student social skills during follow-up role play scenarios were quantitatively greatest for the students who had been in instructional group A, while the CL-analogous group C had minimal gains in demonstrating social skills. The authors note that, in group C,

> "when students were asked to cooperate they usually interacted inappropriately, and the teacher had no basis for instructing what constituted appropriate and inappropriate interactions. Over

time, the responses to social situations in the role-play situations and in cooperative groups declined." (169)

Prater et al. (1998) further argues that in a special education setting, the memorization of explicit social skills and their steps was necessary so that teacher could ask the students self-monitoring questions. Without this explicit instruction, students had no behavioral reference for the social skills terms they were being asked to adopt. Thus, the article concludes that "Cooperative group social skills instruction should be the backbone of cooperative learning experiences" (p. 170). This is in contrast with how cooperative learning was manifested in other research settings, where the format of peer-centered group work hoped to elucidate social skill growth, rather than via direct instruction. Though in both Popa and Pop (2019) and Davison et al. (2008), students were gradually adjusted to the social skills expectations of group learning, this was not done through direct instruction alone, but was instead practiced through games and activities. So while they would agree with Prater et al. that establishing some background knowledge and norms with the students as an early phase of CL is necessary, they would not consider teacher-directed instruction as key to the growth of student social skills in CL work. Ebrahim (2008) actually argues that teacher-centered strategies are antithetical to cooperative learning, writing that when "dominance of the teacher takes center stage...the students rely on their teachers to decide what, when, and how to learn" (p. 298). Additionally, Han and Son reference the five factors covered in Socratous (2014) as the key: positive interdependence, social skills, face-to-face interaction, individual accountability, and equal participation/opportunity. Han and Son (2020) state that a "well-organized program of cooperative learning" should integrate these factors (p. 19). It would appear that Prater et al.(1998) are in the minority in advocating for a teacher-centric and explicit instructional approach to teaching social skills in CL, and that this theme is in contrast to the theme of student independence from the teacher as a positive effect. It is likely that the context of special education settings in the

Prater et al. study, rather than the general educational setting of the other studies, influences these divergent findings.

Summary

The focus of inquiry for this literature review was "How might cooperative teaching strategies affect student social skills in the classroom?". Upon closer examination of the articles, some themes become clear. The dominant theme of the literature supports that cooperative learning strategies, which focus on peer-centered group tasks, have positive effects on pro-social interpersonal skills of students. Studies that compare and contrast case studies of CL learning to traditional teacher-centered learning, as well as those that have applied a pre and post- intervention analysis to students, have come to similar results. That is, social skills such as active listening, willingness to work together, agreeableness, and support for group members have increased as an effect of cooperative learning. This effect has been shown across a diverse set of studies and in both student and teacher reflections. A secondary theme is that cooperative tasks also have a positive effect on students' sense of independence, responsibility, and accountability for their own learning. This empowerment of students as learners who do not rely only on their teacher can positively correlate with academic performance. While the procedures of most of the studies reflect the importance of implementing CL structures by well-trained teachers with clear and well-defined expectations, the third emergent theme recommending an explicit teacher-centered instruction of social skill education does not find support in the majority of the literature. Rather, most studies suggest that if students are given the opportunity to work together in thoughtfully designed content-specific tasks, improvements in social skills can be expected as a result.

Methods

Setting

Research was conducted in a 4th grade classroom in an intermediate school in Central New York. The school has approximately 400 students in 3rd - 5th grade.   At the host school, about half (49%) of students are economically disadvantaged. The school has been targeted by the state Education Department for support and improvement, defined as "struggling to prepare subsets of students", which is reflected in low standardized test scores (New York State Education Department, 2020). At the time of placement at the school, there was no library or computer lab facility for students to access, so library services were provided in the classrooms by the librarian on a rotating schedule. The school district, including the intermediate school, had a partnership with Family Counseling Services (FCS) to provide a school-based mental health clinic staffed by professionals within the school building, along with an on-staff school counselor and social worker. The intermediate school had a specialist on staff for remedial reading services, speech, and for OT; but there were no regularly provided remedial math services offered at the school. Students rotate through a weekly schedule of specials including music, art, and PE. There is also a school band teacher, and 4th grade is when students can begin to learn an instrument. The school demographics are 91 % white, 4% hispanic or latino, 4% mixed race, and small numbers (~1% each) of African or Asian Americans (New York State Education Department, 2020). Within the host classroom, demographics reflected this school-wide pattern, with 16 total students; 14 White, one mixed race Hispanic, and one Asian American. The classroom had nine boys and seven girls, with the student body reflecting a typically broad range of academic and social competencies.

Participants

The research was conducted primarily within a whole-class structure, where lessons and assignments were presented to all students at once. All 16 students were typically present in the host classroom during instructional blocks, including ELA, math, and social studies, though some students

were occasionally "pulled" for specialized services. The classroom teacher was in her 14th year of teaching, and her 8th in the host school. She had been teaching fourth grade every year since beginning at the host school, and had previous teaching experience in a city school, at a Native American reservation school, and had also served in special education capacities. The students in the class had a wide, but typical, range of academic achievement. Several students were performing below grade level in writing and math. A few students received scheduled tier three interventions outside the classroom. No students at the time of placement had an IEP, but two students did have 504 plans. One student diagnosed with ASD and ADHD had several accommodations and a behavior plan. Three students had some form of behavior plan which required the teacher to take daily observational data on a checklist and check-in with them. One student was diagnosed with a learning disability related to speech, reading, and writing. The classroom teacher usually taught whole-group, and students only occasionally worked in groups during lessons or on projects. Due to the cooperative learning nature of the research, interventions for this study had students working in small peer groups more often than they did prior to intervention. Survey data was gathered from participant students individually, while other data gathered concerned small-group or cooperative learning contexts.

Materials

Three data collection tools were used throughout the study. Firstly, a checklist (see Appendix A) was kept by the researcher as they made quantitative observations and notes on students working in groups. This simple checklist gathered data on positive and negative student social behaviors within peer work groups, notating with a + (positive), 0 (neutral), or - (negative) for each peer group on six categories such as "Taking turns talking" or "Keeping each other on task". For each category, a space for researcher notes was also used to give clarity to observations. Secondly, an anonymous five-point Likert Scale survey (see Appendix B) was given to all students individually pre- and post-intervention.

The survey asked students to evaluate both themselves in social situations (8 items) and their classroom social climate (3 items). To do so, students marked "strongly disagree", "disagree", "not sure", "agree", or "strongly agree" for each item. Individual evaluations were phrased in statements such as "I get along well with others" and "I prefer to work in groups instead of alone". Classroom climate items included "we help each other and work together well". For the final data collection tool, a continuum scale was used to plot targeted students' behaviors on a given social skill of turn-taking during a series of jigsaw lesson activities (see Appendix C). This case study data allowed for the tracking of individuals' social behavior patterns in academic groups over time. Along with these three tools, the researcher wrote informal observational notes shortly after each jigsaw activity (see Appendix J). The purpose of the jigsaw series of lessons was to have students work in various groups to research and compile information, which requires observable social skills such as listening, focus on a shared goal, and turn-taking in order to be successful. All the above methods provided valuable data for the research purpose of studying cooperative learning and its effects on student social skills.

Procedures

The research presented many opportunities for students to learn and work in small groups. Prior to research-guided intervention, the class largely operated in a traditional format with the teacher instructing the whole class from the front, and students producing individual notes or work samples. Cooperative learning required that not only were students to discuss academic content together, but that students within groups would be both individually and jointly accountable for each other's work outputs. This process included short information-gathering and sharing exercises using such Kagan cooperative learning strategies as "think-pair-shares" and "turn and talks". It also involved longer academic group tasks, such as small groups acting out a drama or collaborative partner work where the members had a different roles. The final interventions involved students going through a series of three

planned lessons using the "jigsaw" cooperative learning structure, where students would first work with an expert group to gain specific content knowledge, and then return to a mixed group to share their own findings while learning other specific content from peers. These structures incorporated the cooperative learning principle of interdependence and increasingly depended on student social skills to be successful.

Baseline data was collected in the form of a class wide pre-intervention survey. Each student was given an identical survey to answer honestly and anonymously, along a five-point likert scale, as the researcher read aloud a list of social statements one at a time (see Appendix B for survey). Through this method of administration, all students were given the time to thoughtfully respond, regardless of their reading comprehension skills. Besides this survey, early checklist samples (Appendix A) of students working in group settings also contributed to "before" intervention baseline data. Though not conclusive, these tools attempted to take a snapshot of classroom social skill perceptions and behaviors prior to, or towards the beginning of, the student teacher's research-guided interventions.

Type of Research Conducted

Both qualitative and quantitative data was gathered as part of the research project. Qualitative research "uses systemic observations" to understand phenomena, and is best done by an impartial observer in a way that is purposeful to the research question at hand (Johnson, 2012, p. 129). Quantitative research, on the other hand, "is based on the collection and analysis of numerical data" (Johnson, 2012, p. 103). Qualitatively, the researcher gathered observational notes and checked for specific social behaviors from student work groups in the checklist. Positive and negative social interactions were judged by the researcher based on qualitative observations. Likewise, in assessing case study student behaviors on the jigsaw activities, qualitative observations were placed on a continuum based on student social interactions and theie productivity working with peers.

Quantitatively, much of the data gathered was able to be compiled: the checklists by balancing the positive to negative observations over time; the student surveys by assigning a numeral 1-5 to each student response (with higher summative scores indicating higher perceived individual and classroom social skills); and the case study scale by visually representing individual student progress on a continuum. Thus, the research could be described as mixed-methods, seeking to provide both qualitative and quantitative data analysis based on social skill observations and reflections. The various sorts of qualitative and quantitative data collected in the study sought to adhere to Johnson's (2012) recommendations of fitting the needs of the research study, remaining focused on a narrow question, and minimizing bias while suggesting larger patterns in the classroom phenomena.

Phases/Timeline

The researcher had eight weeks in the host classroom to conduct the research project, being present Monday – Friday for the entire school day each week. The gathering of usable data, however, did not begin right away, as the researcher needed to communicate, plan, and phase in their research objectives into the classroom teacher's curriculum over time. The research thus had three main phases. First was a familiarization and instructional phase, where students were introduced and acquainted to certain cooperative learning strategies (Kagan), as well as having discussions on norms for working in small groups. This phase took about two weeks. After this phase, the initial student social skills survey was administered. Next was the group learning phase, where students gradually began to do more work in teams as curriculum content lessons were adapted to accommodate these structures. This phase did not result in every lesson being cooperative in nature, but did result in less teacher-centric instruction and more group work over the next four weeks or so. Finally, there was a specific intervention phase, where students were introduced to and participated in a series of specific "jigsaw" cooperative learning lessons. The post-intervention student survey was taken at the very end of the placement period,

checklist data collection on the part of the student teacher was taken throughout the second half of 8-week process, and the case study data was collected during the course of the jigsaw interventions.

Weeks	Description	Data collected
1 and 2	Familiarization and instructional phase: establishing norms, introducing partner/peer discussion strategies	Pre-intervention survey (appendix B)
3 through 8	Group learning phase: increased use of group and cooperative learning in daily lessons	Group work checklists (appendix A)
6 through 8	Series of three "jigsaw" cooperative learning structured lessons	Case study data (appendix C)
8	Post-intervention data collected	Post-intervention survey

Description of Intervention and its Implementation

The jigsaw intervention was a specific cooperative learning strategy chosen to fit into the demands of the classroom lesson plans and time schedule. This learning structure was first created in 1971 as a tool to help students work together amid an environment of hostility and distrust among students after desegregation (Aronson). It has become popularly adopted in many cooperative learning curriculums such as Kagan's for its academic and social benefits for students. Along with more general group working opportunities provided, the three jigsaw-structured lessons provided students with learning tasks where they were interdependent on each other's work. In jigsaws, the lesson's content is broken down into segments. In an initial phase, students are broken into "expert groups" studying separate content segments. Afterwards, students must share their findings in a new grouping where everyone is an expert on something different (Aronson). Communication with peers is a requirement for compiling and understanding all the information pertinent to the task. Since each member of a table group holds information on just one of several related topics, the members of the group must communicate, take turns, and listen effectively to receive the full benefit of the lesson and to accomplish their task. The social skills required in the cooperative task made the jigsaw interventions a

useful object of study for how increased exposure to cooperative learning might show observable changes in a small set of case study students over time. A similar research study on the effects of cooperative learning on student social skills, conducted in another 4th grade classroom (Magnesio & Davis, 2010) was influential in this study's decision to include the jigsaw intervention. In that study, a teacher who implemented Kagan cooperative learning strategies, including jigsaw, notes in her findings that, initially, students lacked the ability to share [their innovative ideas, skills, and talents] with each other...". However, as a result of a six-week period of exposure to cooperative structures in this teacher's study, data showed that students "became more aware of the behaviors needed to complete a group task successfully" and had marked increases in measurable social skills (Magnesio & Davis, 2010).

The planned jigsaw lesson activities took place in three concurrent weeks. Performance in group work related to the skills of communicating, listening, and participating with others was qualitatively observed by the researcher as the three jigsaw activities took place (Appendix C), though other anecdotal notes were also taken (Appendix J). Case study data focused on a small number of students who were pre-selected as having goals of working with peers. The jigsaw intervention thus served both as a case study for a small number of students, as well as three (of many) instances for the whole class to have increased social interaction during cooperative learning activities throughout the study. Thus, the intervention's impact could also be reflected in the other more cumulative data collection tools (see appendix A and B). It is noted, that, due to scheduling constraints on the study, one of the three students observed in Appendix C did not participate in the third planned jigsaw activity, and thus observations of this student during a morning meeting cooperative activity were used instead.

Limitations

The research project was confined to a relatively short time period. Due to this, variations in

data collected prior to and after the intervention expected to have modest results. It can take a long time for a teacher to build student expectations and a productive learning climate. In the host classroom, students had become accustomed to a fairly traditional instructional approach over the previous half-year, and thus many new expectations and pro-social group norms had to be developed. In addition, data on social observations and reflections can be difficult to collect objectively, and may be influenced by assessor or student biases, expectations, or research goals. Student behaviors can also be difficult to predict from day to day. Other variables outside the researcher's control could effect their moods and actions. Finally, the curriculum itself was fairly non-negotiable in order to cover the required instructional content, and many lessons were difficult to implement or adapt to cooperative learning due to the limitations in planning time and classroom teacher goals. Thus, while there was a concerted effort to study and analyze effects of cooperative learning on student social skills, it was impossible to isolate this variable in a dynamic classroom and social environment.

Analysis

Data was categorized into pre-implementation, post-implementation, and within-implementation. Student surveys were tabulated and analyzed (with the 1-5 scale resulting in a numerical value) to see which, if any, categories of individual social skill perception or classroom social climate changed significantly as a result of increased cooperative learning conducted in the study. Since surveys remained anonymous, only classroom cumulative data sets were used to conduct a class-wide analysis. As for checklist notes and observations, each data set was dated in order to observe patterns and anomalies in student work-group dynamics over the course of time. At the end of the study, these checklists were tabulated to analyze overall positive or negative social trends over time. Finally, working effectively with others was noted by the researcher as a goal for specific case study students, who were observed during three separate jigsaw activities. The case study students'

performance of working with others over the progression of the three lessons was then analyzed to examine any evidence of progress in that area. The overarching purpose of all compiled data was to analyze how the increased exposure of students to cooperative learning over the course of the study factored into their expressed social skills and their evolving attitudes towards working with others.

Findings

The compiled data collected from the tools shown in Appendices A, B, and C began to present some interesting, and at times, conflicting findings. The data gathered from these tools can be referenced in appendices G, H, and F respectively.

Students struggled to work socially in academic groups, but their performance and final work products showed some improvements over time

From tool A. The small-group social skills checklists (see Appendix A) were completed by the researcher for 15 group interactions in the class over a period of approximately four weeks. Positive and negative group interactions related to identified social skills were tallied, which sometimes included brief explanatory notes. The group interactions included partner work and small group work. These activities spanned across ELA, math, and social studies content areas. They included simple turn and talk discussions, interactive lesson elements, cooperative class activities, and the three jigsaw interventions. Interactions were put into the categories of "Taking turns talking"; "Assisting each other to complete an objective"; "Staying together as a group"; "Listening to each other's ideas"; "Keeping each other focused / on task"; and "Using friendly, respectful, or encouraging language". Over the course of using this data tool, a total of twenty-five positive and eleven negative social interactions were qualitatively observed by the researcher as students worked together (see Appendix G). Broken into roughly equal week-length segments, the most negative interactions occurred during week two (N=6), which was a notable outlier, with no other weekly segment recording more than three negative

behaviors. Week four had the highest ratio of positive to negative behaviors noted (10:2), with weeks one and three having similar ratios.

Among social skills that received negative notations, "Assisting each other" was the skill with the most negative tallies (six), with negative notes related to group members choosing to work alone, getting stuck, and lacking leadership. The skill of"Keeping on task" followed with three negative tallies; notes included being silly and joking around. The skill of "Listening to each other" received two negative tallies. Regarding the frequency in which negative social behaviors were observed, "Assisting each other" received negative tallies throughout the duration of the study, while both "Listening to each other" and "Keeping on task" did not receive any negative tallies after week two.

From tool C. For the data collection tool observing three specific case-study students in jigsaw groups (Appendix C), findings showed low qualitative student scores in the initial jigsaw observation. Over the next two jigsaw activities or observed cooperative activities, each student's qualitative score improved. Looking further into each case study demonstrates this pattern. This information and notes about the three students studied is found in Appendix F.

Student 1 refused to participate with their group in the first jigsaw activity, feeling frustrated and overwhelmed. During the second jigsaw, this student began a conflict with group members over where to sit, but eventually settled in and was able to be productive as a communicator of their own findings and recorder of peers' information. In the third jigsaw, which was admitedly a simpler task, Student 1 successfully talked and listened, finding her matching group without issue.

Student 2 began appropriately working with their group in the first jigsaw, but the group devolved into silliness and off-task conversations before they could accomplish their tasks. In the second jigsaw, this student had initial conflict with his assigned partner during the expert phase and refused to work with this partner, claiming that they "didn't get along". The student then chose to work

alone for this phase. However, in the second phase of the jigsaw (cross-group sharing), this student was very successful with other peers, effectively communicating and recording findings while staying on task. For the last jigsaw, Student 2 seemed hesitant to mingle and communicate with peers at first, preferring to talk only with one or two friends in the class. With teacher facilitation, however, the student was able to find their group and successfully communicate their information.

Student 3 struggled in both the initial and second jigsaw activities. In the first, they quarreled with their group and was unable to productively work with them. In the second, they were having a bad day, feeling hungry and tired, and initially refused to join the activity in any way. Eventually, the student was coaxed to join a group, and was able to copy information, though they still refused to share or communicate their own ideas. For student 3, there was no official third jigsaw, so the researcher instead substituted a cooperative class sorting activity during a morning meeting. Though this task was admittedly less demanding and less academic in nature than the jigsaws, the student did respond more appropriately – participating and listening, though still not taking a leadership role or communicating much with peers.

From student work samples (appendix K) and teacher observations (appendix J). The first implemented jigsaw activity was the least successful. As described in Appendix J's researcher notes from just after that lesson, several negative social and academic outcomes were observed. Some students refused to work with certain groups, while other groups devolved into bickering or silliness and off-task behaviors. While some groups were able to produce work related to the academic task of locating cause and effect in a text, some groups ended the activity with blank worksheets or failed to even read or discuss the text passage together. As a result of the class-wide difficulties in their initial expert groups, and their lack of cohesive findings, the second part of the jigsaw has to be facilitated by the teacher-researcher. Instead of students sharing findings with each other in mixed groups, the teacher

compiled the group findings verbally from students in a whole-group setting, while responding to and adapting student responses for the class to reference and copy from the document reader. The teacher's guide can be seen in appendix K. This decision to return to teacher-guided instruction was made based on what the teacher determined that the students needed in order to gain any content knowledge from the lesson.

In contrast, the second jigsaw was more successful at having students create their own work products from collaboration with their small groups. Students did not have to revert to a teacher-centered instruction in this activity. For the most part, students were able to record findings for all three parts of the activity (related to the Three branches of U.S. government) from student-generated ideas. The image in appendix K shows a student work sample to this effect. Some social skill obstacles were still present in this activity, however, noted in the researcher's observations. Some students had trouble transitioning into their work groups; either by arguing about who they were working with, being unsure of the group roles and dynamics, or for one student, arguing about where in the room the group would sit to get started. In general, the researcher observed that communication skills were still a struggle. Some students did not appear confident in sharing what they thought with others, and students were not observed having back-and-forth discussions requiring listening to and referring to each other's ideas. In shared groups, students were commonly observed simply copying each other's findings rather than discussing them or taking turns sharing. Despite these challenges, the activity proved to be more successful than the first jigsaw, with less off task behavior and more evidence of productivity.

The final jigsaw activity was designed to be simpler and less elaborate than the previous ones, due to the teacher's observations of continued student struggles with complex social-academic tasks. This activity also took place in a smaller setting of only about 10 students, rather than 15, and in a different content area, for reasons outside the control of the researcher. These discretions aside, the

final jigsaw was similar to the second in its efficacy, with some successes and some observed challenges in student social patterns. Students were, after some deliberation, able to sort themselves into small groups based on matching assorted vocabulary words, definitions, and sample sentences. Student groups were then able to communicate their word/definition/sentence verbally to the rest of the class to complete the "mixed groups" sharing portion of the exercise. Socially, the class still struggled in some ways, as noted in appendix J. The researcher noted that students seemed hesitant to mingle or share information across friendship or gender lines. For the matching activity to be successful, students needed to talk with many different peers, but only some seemed willing to do so, while others needed teacher or peer prodding to share what they had or what they were looking for. A few students adopted roles as leaders for the activity - figuring out who else they needed to talk to and asking questions – but other students were much more passive. Overall, the activity was able to be completed successfully, but obstacles related to self-guided communication between students remained apparent.

Student perceptions of their own social skills, as well as their attitudes towards working in groups, declined over the course of the study

From tool B. The pre and post surveys assessing students' perceived social skills, attitudes, and classroom climate (Appendix B) were delivered five weeks apart. The pre-survey was administered while small group work was just beginning and data was yet to be compiled, and the post-survey was administered on the last day of the study. Students were anonymous, so only cumulative quantitative data for the class was taken, with "strongly disagree" for each item assigned 1 point, and "strongly agree" assigned 5 points. For all data findings described related to the class survey, see Appendices H and I.

In the pre-survey results, students generally perceived themselves to have strong social skills. The highest items scored included "I am patient with others" (pre-survey mean of 4.5, mode of 5); "I

get along well with others" (mean of 4.3, mode of 5); and "I have leadership skills" (mean of 4.3, mode of 5). Average cumulative pre-survey scores for social skills questions framed "for me" (individual students scoring themselves) were 4.0, with questions framed for the class (students rating the entire classroom social environment) were 3.7. The pre-survey summative average score across all tested items was 46.5.

In the post survey results, student perceptions of their own social skills declined significantly. Average cumulative post-survey scores for social skills framed "for me" (individual students scoring themselves) were 3.3. Questions framed for the class (students rating the entire classroom) also declined, but only slightly, with an average cumulative post-survey score of 3.5. The post-survey summative average across all tested items was 40.4.

Comparisons of average scores per tested item from pre to post survey indicated a decrease in average score for every single test item (see Appendix I). The largest decreases were in "I get along well with others" (averaged difference of 0.9), "I have leadership skills" (averaged difference of 0.9), and "I can keep myself and others on task" (averaged difference of 0.8). Looking at comparisons in median and mode scores per item from pre to post survey showed drops in some, but not all, items in the "for me" questions, but no change in "for our class" questions. A notable difference was found in the pre and post mode data for the item "I prefer to work in groups instead of alone": the pre-survey mode was 5 while the post-survey mode was 2.

From qualitative observations. Researcher notes indicated patterns of hesistancy and resistance of students to work with groups. For one think-pair-share, for example, students were observed "working alone or not discussing" with their partners. In the researcher notes for the jigsaws, it was noted that students seemed disinterested in the content or in discussing it with peers. Some students asked the teacher at various junctures throughout the study if they could just work alone, or if

they *had* to work with others. Communication and leadership in group academic settings became evidently difficult for students as they were exposed to cooperative tasks. Working in groups did not appear to be a motivating factor in academic work, but rather a stressor. Students seemed unsure and frustrated once it became clear to them that the teacher would not be fully guiding their learning. The realization that they were required to take a more active role in their learning made some students uncomfortable.

Discussion

The findings of this study regarding the development of student social skills from cooperative learning experiences were mixed. Qualitative observations showed some modest improvements over time in students' abilities to produce work in peer groups and stay focused on academic tasks when working with others. Noted negative social behaviors within student groups declined over the course of the study. Improvements in student work groups were specifically observed concerning decreases in off-task behaviors and more successful instances of listening to one another. Students who were identified as having social skills-related goals showed patterns of struggling greatly at first on CL tasks, but gained some comfort and improved in their performances over time. It appears that these students, and others, had a "settling in" period where a very new learning environment could be overwhelming and scary at first, but that over time they could adapt and be productive. These signs of progress were encouraging, especially considering that they only reflected a few short weeks and only three small glimpses along a path onto which a student might continue to move forward. Students also became more successful at producing work independent of the teacher, which was notably observed as the study progressed from the first to the second jigsaw intervention. This evidence of developing student independence from the teacher aligned with positive research outcomes described in Popa & Pop (2019), Ebrahim (2010), and Perez Jimenez (2018).

Cooperative learning environments proved to be stressful and socially challenging for the students throughout the study as they tried to figure out how to work together with diverse groupings and novel academic tasks. Methods of peer-to-peer communication were particularly difficult for students to navigate. Students remained hesitant and unsure throughout the study how to share and discuss their ideas with peers. While some students attempted to take on roles as leaders, their own inexperience with social working environments made this daunting, especially as many peers proved to be passive, uncertain, or resistant to working together. These observations echo the initial observations of Magnesio and Davis (2010), who noted that, before interventions, their students lacked the communication skills to productively discuss ideas together.

The study's findings of the class' continued social struggles over time is supported by the findings of Prater, et al. (1998), whose study found that teacher-directed instructional techniques were more effective in teaching and developing social skills than student-led experiences were. While the academic outcomes of the cooperative learning tasks in the current study may have improved over time, this was only in comparison to other group tasks, and did not compare to more traditional teacher-guided instruction. Though not captured in data's scope in this study, the researcher observed that the students in the class appeared more comfortable with and engaged in academic discussions and lectures facililitated by the teacher rather than in academic activities where discovery and discussion were student-generated. Students did not appear especially excited about either the content or the process of CL activities in the researcher's observations. This contrasted with the review of cooperative learning literature by Perez Jimenez (2018), who pointed out a major "selling point" of CL is its positive impacts on students motivation and engagement.On student surveys post-implementation, it became clear that students had not generally had positive experiences working in peer groups; mean scores decreased from 5 to 2 for "I prefer to work in groups instead of alone".

The findings of this study were contrary to some of the research which had indicated positive student attitudes and social skill development resulting from cooperative learning experiences. Han and Son (2020) and Ebrahim (2010) both reported generally positive student experiences working in groups. Han and Son (2020) had found that positive social traits of agreeableness and extroversion showed increases in post-study student reflections, while Ebrahim (2010) had also measured increases in social skill-related survey responses as a result of cooperative learning. However, in this current study's quantitative survey data, student perceptions towards working with others broadly declined after increased exposures to cooperative learning, and students' self-perceived social skills declined even more. Thus, Prater's (1998) findings advocating direct instructional methods for social skill development- though an outlier in CL research - were more congruent to the findings of this study than studies which reported more positive social outcomes of CL among students.

A possible explanation for this finding is that students in the study had previously had limited exposure to working together. In the studied classroom, the host teacher tended to lecture and have students copy notes from the front board as a normative lesson routine. The recent COVID-19 pandemic had also forced students to isolate from peers for much of the previous two years of their schooling, further limiting their exposure to social learning experiences. The short time frame of the study did not allow for a comprehensive build-up of the expectations, norms, strategies, and values that allow cooperative learning to be successful. While the researcher did attempt to preview and model some of these social skill foundations throughout the study, there was not enough time to do this thoroughly. Evidence of previewing skills for the class and discussing what worked and did not work in CL groups was recorded in appendix J, but much more modelling and discussion could have been done. It can be argued that cooperative learning experiences *can* develop social skills over time, but that they *also* require a lot of groundwork to be laid. Explicit social skill instruction, modelling, and practice

prior to a CL implementation gives students the prerequisite skills needed to embark on such complex tasks. Davison, et al. (2008) supports this idea of laying a groundwork. Their study emphasizes that an intentional process of adoption of the culture of CL across disciplines in the classroom was critical. Their study also asserts that at a school level, training of staff and strong leadership and follow-up from the school's administration were critical to a CL program's success.

Another interesting finding to note is that student pre-survey responses indicated very high self-perceived social skills, but that these perceptions appeared to be challenged when students were actually asked to perform in social-academic tasks. It is notable that in post-survey data, shown on Appendix I, the most significant declines in scores were related to self-perceptions ("for me"), while perceptions of classroom culture ("for our class") were less negatively affected. Thus, whether positive or not, the study did have a strong impact on how students viewed themselves. Students may have understood social skills terminology on paper, and recognized that these skills sounded like good things to have, but had not actually been tested to see how they could exhibit these skills in real working environments. In practice, it seems that students became more aware of their own weaknesses as groups struggled to establish positive working dynamics. Realization of social skill deficits may have emerged when group discussions failed to take off, when frustrations grew, when communication or group organization were unclear, or when a lack of leadership became apparent. Students did not have enough time to develop these skills from a position of relative inexperience during the study, but they appeared to have at least developed an awareness of what they lacked. They began to realize what self-guided learning apart from a teacher might require of them. Students were still on the journey of developing the individual accountability that is outlined by Johnson, Johnson, & Holubec (2008) as a core element of cooperative learning.

Recommendations for Cooperative Learning in Classrooms

Despite the mixed findings of the study, the potential of continued student social skill development as cooperative learning interventions are pursued further remains promising. It is recommended that a teacher who wishes to implement cooperative learning in their classroom set a strong foundation where student independence is fostered and learning from peers is valued. It is antithetical to cooperative learning for a teacher to set a climate where the teacher is the source of all learning and knowledge. Teachers should emphasize to their students not only the outcome of gaining content knowledge, but the active social processes that are involved in learning it more deeply. As Ebrahim (2010) summarizes, "Teacher-centered approaches purport to focus on content understanding, while cooperative learning approaches purport to focus on social development" (p. 300).

Popa and Pop (2019) explain that teachers often misunderstand cooperative learning models as superficial "group work" that students must figure out by themselves, but then clarify that true cooperative learning requires explicit teaching of "the ABCs of cooperation" and careful monitoring of this over time (p. 86). Perez Jimenez agrees, writin "Students require modeled lessons in which they see and understand what a cooperative learning environment requires" (2018, p. 66). Students can learn social skills through explicit instruction, modelling, and practice. Norms and expectations for group interactions should be developed by students with teacher facilitation. Social and emotional skill development should be regularly taught or discussed by the teacher in everyday "learning moments", as well as in intentional mini-lessons. Peer interactions, such as think-pair-shares and turn-and-talks, should be common parts of everyday instruction. Classrooms should practice staging academic discussions as a part of teacher-led lessons, so that students have practice learning how to speak, listen, and respond productively in academic contexts. Modelled activities such as "fishbowl" role playing can have students observe sample groups of their peers conducting such discussions as they reflect on what skills are helpful to group work and what behaviors detract from it. As Davison, et al. (2008)

recommend, cooperative learning cultures also need to be set and reinforced at the school-wide level.

On the teacher's end, it is critical that cooperative learning activities be structured and well-planned. Groups should be strategically chosen by the teacher in advance. It can be helpful if roles are defined within student groups before the activity begins (Popa and Pop, 2018). Cooperative learning opportunities may be best introduced in simple, non-academic contexts, and then gradually evolve to be more complex and tied to content areas as students build up their skills of working together. These recommendations are considered "lessons learned" by the researcher of the study, and following them more intentionally may have created a smoother transition to the cooperative learning model in the host classroom.

Conclusion

This study began with the question: How might cooperative teaching strategies affect student social skills in the classroom? As the data shows, the answer does not appear to be a simple positive or negative relationship, but a confluence of factors. Cooperative learning strategies seem to hold promise as a tool for developing student social skills, but this development can include a lot of growing pains if CL is introduced without a strong foundation. Findings suggest that students who have not had much experience working in social learning situations may find that their social skills are lacking as they embark on cooperative tasks. This can lead to frustration as groups struggle and run into obstacles related to communication and teamwork. At the same time, findings suggest that students can gradually increase their competence in cooperative groups as they are given repeated exposures to these sorts of tasks and have the chance to "settle in" to the tasks at hand. Early attempts at cooperative learning may fail, but students can learn from their own failures if they are allowed to reflect on them and discover what they can do differently next time. Negative student attitudes towards working with others are likely a reflection, in part, of their own perceived social growing pains and the awareness that they

have skills to work on. The establishment of a supportive classroom climate is important for the success of cooperative learning. Teachers should approach this model of learning with both academic and social goals in mind. The journey might not look ideal at every step of the way, and teacher-centered instruction may continue to prove necessary at various junctures. However, this research suggests that students can learn a lot about themselves, others, and what social skills are important to acquire as they are allowed to struggle on the path of cooperative learning. Patterns in observable behavioral data throughout the study indicate that through repeated exposures and practice, CL strategies coupled with strong teacher support can help develop social skills and productivity in student-led learning groups.

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Appendix A

Checklist: During student collaborative work, note the presence of the following traits and social skills withing groups

0: neutral, trait not observed
(-): lack of trait causing negative group response
(+): presence of trait causing positive group response

Date:	Group members:___boys and ___girls	
Description/subject of assignment: ELA MATH SCI/SS OTHER:		
Social skill	(+) / 0 / (-)	Notes or quotes
Taking turns talking		
Assisting each other to complete the objective		
Staying together as a group		
Listening to each other's ideas		
Keeping each other focused / on task		
Using friendly, respectful, or encouraging language		

Date:	Group members:___boys and ___girls	
Description/subject of assignment: ELA MATH SCI/SS OTHER:		
Social skill	(+) / 0 / (-)	Notes or quotes
Taking turns talking		
Assisting each other to complete the objective		
Staying together as a group		
Listening to each other's ideas		
Keeping each other focused / on task		
Using friendly, respectful, or encouraging language		

Appendix B

Student Survey:
For each question, put one check mark along the continuum that matches your feelings.

For me:	1 Strongly disagree	2 disagree	3 not sure/ neutral	4 agree	5 strongly agree
I get along well with others					
I prefer to work in groups instead of alone					
I am a good listener					
I feel that others listen to me					
I feel valuable to my group					
I am patient with others					
I have leadership skills					
I can keep myself and others on task					

For our class:	1 Strongly disagree	2 disagree	3 not sure/ neutral	4 agree	5 strongly agree
Respect is expected of everyone, every day					
Our classroom is a kind place					
We help each other and work together well					
Everyone participates, everyone matters					

Appendix C

For individual case study students who have been targeted for work on the specific social skill of turn taking, quick observational notes are taken here on a continuum. The student is observed during each of 3 classroom "jigsaw" structured activities during the "mixed group share" phase.
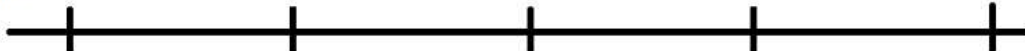
Student initials: _____

Jigsaw 1 _____   Date _____
<center>(describe activity here)</center>

less positive social
learning experience

more positive social
learning experience

disengaged,
refuses to
participate or does
not wait turn to
share and listen

has one or the other:
-speaking when it is
their turn
-engaged and listening
when it is not their turn

listens and learns
from peers when it is
others' turn to speak,
shares own work with
group effectively

Jigsaw 2 _____   Date _____
<center>(describe activity here)</center>

less positive social
learning experience

more positive social
learning experience

disengaged,
refuses to
participate or does
not wait turn to
share and listen

has one or the other:
-speaking when it is
their turn
-engaged and listening
when it is not their turn

listens and learns
from peers when it is
others' turn to speak,
shares own work with
group effectively

Jigsaw 3 _____   Date _____
<center>(describe activity here)</center>

less positive social
learning experience

more positive social
learning experience

disengaged,
refuses to
participate or does
not wait turn to
share and listen

has one or the other:
-speaking when it is
their turn
-engaged and listening
when it is not their turn

listens and learns
from peers when it is
others' turn to speak,
shares own work with
group effectively

Appendix D

Sample checklists from field research

Appendix A

Checklist: During student collaborative work, note the presence of the following traits and social skills withing groups

0: neutral, trait not observed
(-): lack of trait causing negative group response
(+): presence of trait causing positive group response

Date: 2/15	Group members: _boys and _2_ girls	
Description/subject of assignment: (ELA) MATH SCI/SS OTHER: Role play/skit		
Social skill	(+) / 0 / (-)	Notes or quotes
Taking turns talking	+	all contributing
Assisting each other to complete the objective	+	
Staying together as a group	+	
Listening to each other's ideas	+	
Keeping each other focused / on task	—	joking around
Using friendly, respectful, or encouraging language		

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Appendix A

Checklist: During student collaborative work, note the presence of the following traits and social skills withing groups

0: neutral, trait not observed
(-): lack of trait causing negative group response
(+): presence of trait causing positive group response

Date: 3-1-21	Group members: _2_ boys and _1_ girls	
Description/subject of assignment: ELA MATH SCI/SS OTHER: Cause and effect ID (~3 minutes)		
Social skill	(+) / 0 / (-)	Notes or quotes
Taking turns talking		
Assisting each other to complete the objective	—	many working alone or not discussing
Staying together as a group		
Listening to each other's ideas		
Keeping each other focused / on task	—	many off-task or unfocused conversations
Using friendly, respectful, or encouraging language	—	wouldn't let a boy participate

| Date: | Group members: _3_ boys and _1_ girls |

Date: 3-3-21	Group members: _3_ boys and _1_ girls	
Description/subject of assignment: ELA MATH SCI(SS) OTHER: cause + effect (15 mi)		
Social skill	(+) / 0 / (-)	Notes or quotes
Taking turns talking	+	
Assisting each other to complete the objective	—	not able to accomplish goal on own
Staying together as a group	+	
Listening to each other's ideas	—	not taking turns
Keeping each other focused / on task	—	being silly
Using friendly, respectful, or encouraging language		

Appendix A

Checklist: During student collaborative work, note the presence of the following traits and social skills withing groups

0: neutral, trait not observed
(-): lack of trait causing negative group response
(+): presence of trait causing positive group response

Date: 3-10-21	Group members: _2_ boys and _0_ girls Partners	
Description/subject of assignment: (ELA) MATH SCI/SS OTHER:		
Social skill	(+) / 0 / (-)	Notes or quotes
Taking turns talking	+	on task
Assisting each other to complete the objective	+	traded journals to fill in details
Staying together as a group		
Listening to each other's ideas	+	referencing each other's notes
Keeping each other focused / on task		
Using friendly, respectful, or encouraging language		

Appendix E

Sample student social skill surveys.

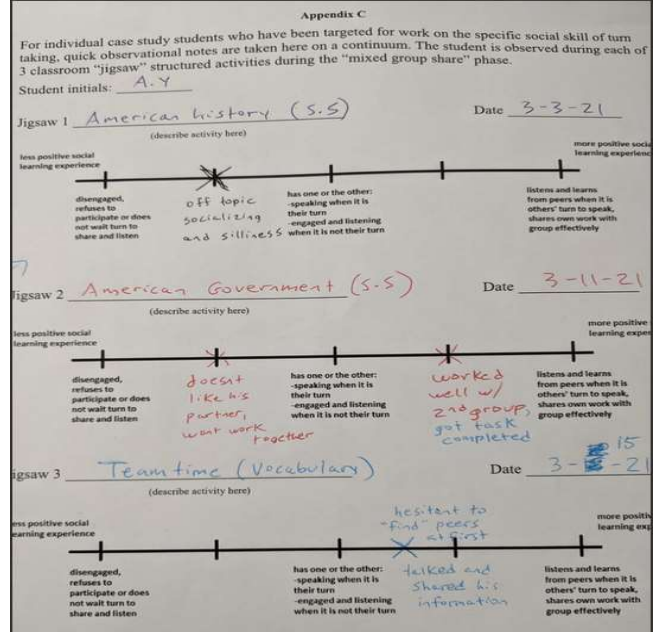Pre-implementation (date: 2/1//21)

Post-implementation (date: 3/18/21)
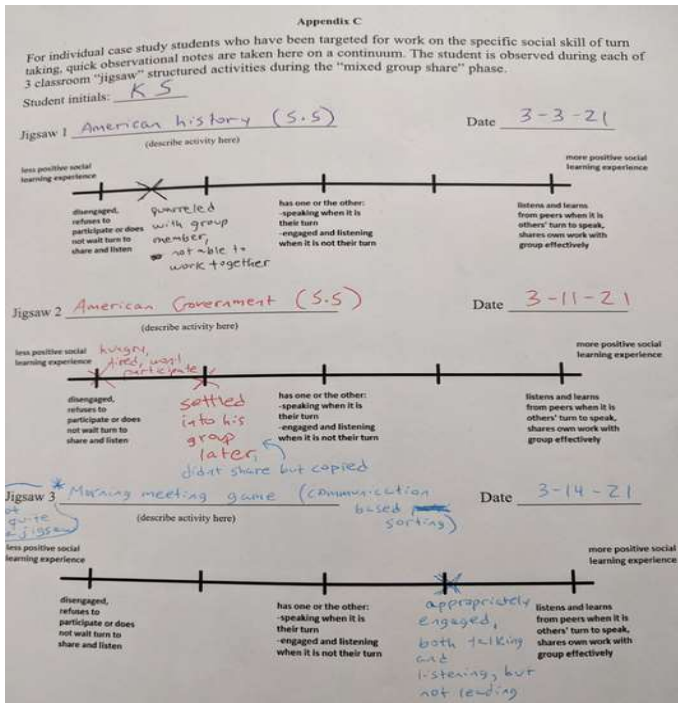
Appendix F

Case study observational notes as students worked in jigsaw groups
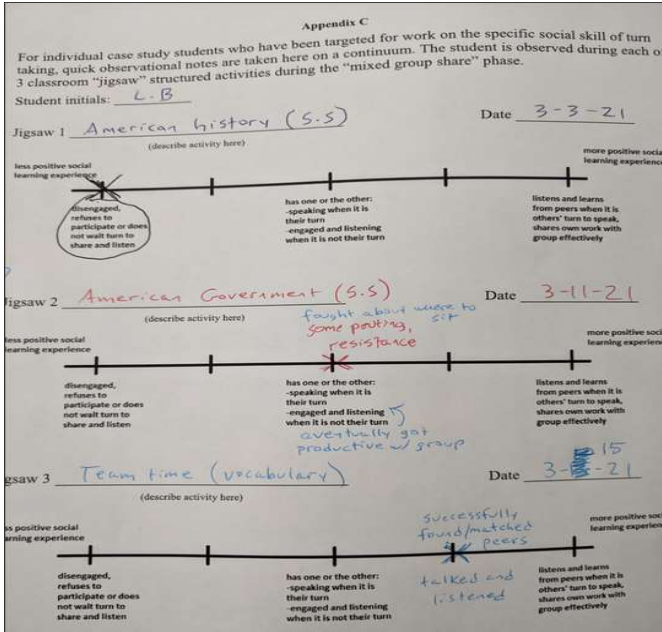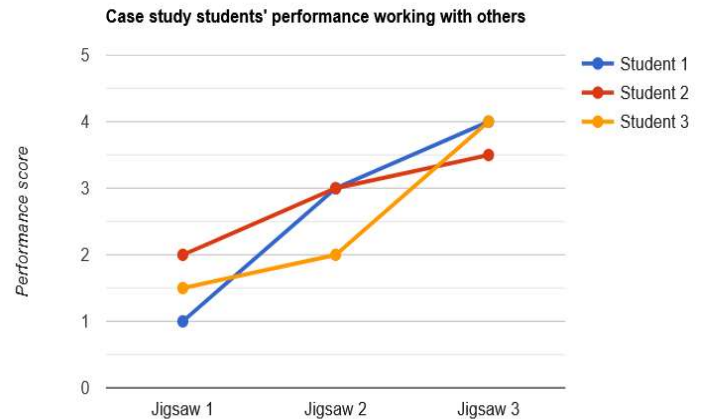

Girl (LB): Can be emotional. Leadership qualities. Withdraws when upset.

Boy (AY): Socially outgoing. Sensitive to disagreement or conflict.

Boy (KS): Gifted academically. Often has emotional outbursts or causes conflicts with others.

Case study students' performance working with others

Appendix G

Small group checklist compiled data

Appendix A Collaborative Working Groups Checklist							
Date	Activity	Taking turns talking	Assisting each other	Staying together	Listening to each other	Keeping on task	Friendly / helpful language
02/15/22	ELA Role play (skit) G1	all contributing				joking around	
02/15/22	ELA Role play (skit) G2			focused, organized			
02/17/22	SS groups, short reading task		some working alone rather than with their group		copying, not sharing ideas	discussing text	
03/01/22	SS Cause and effect discuss and ID		many working alone or not discussing			off task or unfocused conversation	wouldn't let a boy participate
03/03/22	SS Jigsaw (#1) G1			team reading			respectful and trying to help each other
03/03/22	SS Jigsaw (#1) G2		not able to accomplish goal, lack of leadership		not taking turns	being silly	
03/07/22	ELA Acting a scene G1		different roles taken			directing in the group, all stayed focused on task	
03/07/22	ELA acting a scene G2		over an argument of roles. Group disbanded				
03/10/22	ELA trading journals collab		traded journals to fill in details		referenced each other's notes and ideas		
03/10/22	Team time circle activity		Teacher had to facilitate as students became "stuck"				Trying to get eachother involved, despite confusion
03/11/22	SS Jigsaw (#2) G1	one reads at a time		reading articles together			
03/11/22	SS Jigsaw (#2) G2				come to an agreement after comparing thoughts		
03/15/22	Team time Jigsaw (#3)		finding peers to share with. Required teacher facilitation		class attended during group share	"leaders" are focused, though others unsure	groups able to share with the class
03/16/22	Math partners for exam prep				modelling how to solve for each other		
03/17/22	Tower building challenge		delegated tasks and then shared		strategizing		getting frustrated, giving up

	Positive Social Behaviors noted	Negative social behaviors noted
Week 1 (2/14-2/18)	11	3
Week 2 (2/28 – 3/4)	5	6
Week 3 (3/7 – 3/11)	9	2
Week 4 (3/14 – 3/18)	10	2

Social skill areas of greatest challenge:

Assisting each other (6 negative notes)

Keeping on task (3 negative notes)

Listening to each other (2 negative notes)

Appendix H

Student survey compiled data

Pre-implementation survey data

Appendix B Class Survey Results

	I get along well with others	I prefer to work in groups instead of alone	I am a good listener	I feel that other listen to me	I feel valuable in my group	I am patient with others	I have leadership skills	I can keep myself and others on task	Respect is expected of everyone, every day	Our classroom is a kind place	We help each other and work well together	Everyone participates, everyone matters	
Student 1	4	3	4	3	4	3	4	3	3	5	5	4	
Student 2	5	5	4	2	3	5	4	5	5	4	2	5	
etc	5	2	4	4	3	5	4	4	4	4	3	3	
	3	2	3	3	5	5	3	2	3	2	1	2	
	5	5	5	5	5	5	5	5	3	2	3	5	
	4	5	3	4	5	4	3	4	5	5	4	5	
	5	4	3	5	3	5	5	4	4	4	5	4	
	3	2	3	3	2	5	3	5	3	1	4	2	
	5	5	5	3	4	5	5	5	5	3	4	5	
	3	2	4	3	5	2	5	2	5	3	2	2	
	4	5	5	3	4	5	4	4	3	2	4	5	
	5	2	4	3	4	5	5	4	4	4	4	4	
	5	1	5	5	4	5	5	3	5	5	5	2	
	4	5	3	2	3	3	5	3	5	3	4	4	
N = 15	5	5	5	3	3	5	5	3	5	3	3	5	Sum
mean	4.3	3.5	4.0	3.4	3.8	4.5	4.3	3.7	4.1	3.3	3.6	3.8	46.5
median	5	4	4	3	4	5	5	4	4	3	4	4	
mode	5	5	3	3	3	5	5	4	5	3	4	5	

Pre-implementation Date: 2/11/22. All students anonymous. 1 = strongly disagree. 5 = strongly agree.
Orange questions are "for me". Average = 4.0
Pink questions are "for our class". Average = 3.7

Post-implementation survey data

	I get along well with others	I prefer to work in groups instead of alone	I am a good listener	I feel that other listen to me	I feel valuable in my group	I am patient with others	I have leadership skills	I can keep myself and others on task	Respect is expected of everyone, every day	Our classroom is a kind place	We help each other and work well together	Everyone participates, everyone matters	
Student 1	4	3	3	2	2	1	2	1	5	3	3	3	
Student 2	2	2	3	2	3	2	3	2	2	3	3	3	
etc	1	3	1	3	3	1	1	3	1	3	1	1	
	4	5	3	4	5	4	3	4	5	4	4	5	
	4	3	4	3	3	4	4	3	1	1	1	1	
	3	1	5	3	3	5	5	3	4	4	5	5	
	3	5	3	2	3	3	2	1	5	3	4	4	
	5	5	5	4	5	4	5	4	5	4	4	5	
	4	2	3	4	4	5	4	3	4	2	3	5	
	3	4	4	3	4	4	4	4	5	5	5	4	
	3	3	5	3	1	4	1	3	3	1	2	1	
	5	2	4	4	3	4	4	4	5	3	4	5	
	4	5	5	1	2	5	5	5	5	4	5	4	
	5	1	4	4	4	5	5	4	4	4	4	4	
N = 15	2	2	2	3	5	3	5	1	4	2	3	2	Sum
mean	3.5	3.1	3.6	3.0	3.3	3.7	3.5	2.9	3.9	3.1	3.4	3.5	40.4
median	4	3	4	3	3	4	4	3	4	3	4	4	
mode	4	2	3	3	3	5	4	3	5	3	4	5	

Post-implementation Date: 3/18/22. All students anonymous. 1 = strongly disagree. 5 = strongly agree.
Orange questions are "for me". Average = 3.3
Pink questions are "for our class". Average = 3.5

Appendix I

Comparisons of pre-implementation and post-implementation survey data

	I get along well with others	I prefer to work in groups instead of alone	I am a good listener	I feel that other listen to me	I feel valuable in my group	I am patient with others	I have leadership skills	I can keep myself and others on task	Respect is expected of everyone, every day	Our classroom is a kind place	We help each other and work well together	Everyone participates, everyone matters
Pre implemented mean	4.3	3.5	4.0	3.4	3.8	4.5	4.3	3.7	4.1	3.3	3.6	3.8
post implemented mean	3.5	3.1	3.6	3.0	3.3	3.7	3.5	2.9	3.9	3.1	3.4	3.5
difference	0.9	0.5	0.4	0.4	0.5	0.7	0.9	0.8	0.3	0.3	0.2	0.3
pre implemented median	5	4	4	3	4	5	5	4	4	3	4	4
post implemented median	4	3	4	3	3	4	4	3	4	3	4	4
difference	1	1	0	0	1	1	1	1	0	0	0	0
pre implemented mode	5	5	3	3	3	5	5	4	5	3	4	5
post implemented mode	4	2	3	3	3	5	4	3	5	3	4	5
difference	1	3	0	0	0	0	1	1	0	0	0	0

Appendix J

Observational notes and reflections taken right after each jigsaw activity

Jigsaw Day1, Part1

Notes: Things went **badly** for many groups after they were left to work on thier own. Some groups had

- fighting, bickering, or refusal to work with others
- silliness and lack of group direction
- blank worksheets after 20+ minutes of work time
- some seemed unable to even begin (reading the passage)

I had a talk w/ whole class afterwards explaining what expectations weren't met and what skills needed to be practiced to help students work together.

2nd Jigsaw Reflection

+ Better than last time. Students were (for most part) able to record thoughts and share with mixed groups

- In many groups, a barrier was communicating and taking turns while sharing. Groups often shared work by copying but without much discussion.

+ Most students completed all 3 recorded/ parts of assignment

- A few (see case study data) struggled to transition into thier groups or had conflicts working with certain peers.

Note: I made sure to better frontload expectations for working in teams during morning meeting and before activity began compared to 1st cooperation lesson
- Less goofing off   Still communication issues

1st jigsaw: Social studies, finding cause and effect in text

2nd Jigsaw: Social studies, research branches of government

3rd Jigsaw (vocab matching)

- Students are generally unsure how to communicate as problem solvers in a "puzzle" task
- A few leaders (not designated, but naturally occurring) figured out who they needed to talk to and sought them out
- Groups were not pre-disclosed. Boys and girls did not readily mingle and talk. Some struggled to find thier matches out of hesitancy to talk w/ many different peers
- Sharing of final vocab words/definitions/sentences was successful. Made activity feel validated

3rd Jigsaw: Vocabulary cards matching

Appendix K

Work samples

Jigsaw #1: Students were unsuccessful in small groups, so the teacher facilitated compiling student findings onto a teacher's model (pictured) from the document reader for the class to copy.

Jigsaw #2 student work sample.

Students each researched samples from 1 branch of Government in a small group, then joined with representatives of the other 2 branches to complete the worksheet. Many students produced good work with minimal teacher intervention, such as this student work sample.