Peer Partnerships and Collaboration in the Classroom Setting and Their Effects on Academic Achievement

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Peer Partnerships and Collaboration in the Classroom Setting and

Their Effects on Academic Achievement

Rachael L. Foutch

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Abstract

In this action research study, the author examined the effect of student generated peer groupings on academic achievement. The study was conducted in the author’s third grade classroom, in a public school district in rural Iowa. A student grouping attitude survey was conducted for a total of 16 third grade students who participated in the study (including ten males and six females), and revealed that most students preferred to self-select their partners/group members in the content areas of science, social studies and math. Observations of three students with diverse levels of academic achievement in the context of five different grouping scenarios (including both teacher and student generated groupings) revealed that students’ overall academic performance increased (up to 13%) in both partnerships and small grouping settings, despite who generated the groupings. Thus, indicating an overall positive correlation between peer collaboration and student achievement.
Peer Partnerships and Collaboration in the Classroom Setting and Their Effects on Academic Achievement

Many different types of student grouping scenarios have previously been experimented with in the researcher’s classroom. There have been pros and cons for each type of grouping style that has been attempted. Recently, the researcher has been trying to incorporate more speaking, listening and collaboration opportunities for students, as these 21st century skills are just as essential to a student’s development as are the literacy strands of reading, writing, and written language. In fact, there some who view peer collaboration as being “essential to students in their adult lives” (Kuhn, 2015, p. 46).

Peer accountability can be powerfully motivating within the context of learning. Gatfield (1999) notes, “groups provide a vehicle for decision making that permits multiple and conflicting views to be aired and considered” (p. 365). By digging deeper into how student groupings can be designed to target specific areas like participation and academic accountability, the action research would not be solely focusing on the use of peer tutoring, where a primary goal would be to boost student achievement and mastery of a skill(s). The goal, essentially, is to determine a connection between student collaboration and student achievement though the use of a variety of teacher and student generated grouping scenarios.

Identification of the Problem

Each year, the teacher researcher has observed students who resist collaborating with their peers for any number of reasons. It could be that students need assistance and support to develop effective collaboration strategies. Or, perhaps students require teacher input about with whom to work, in order to reap the greatest benefits from the grouping.
Through this study, the researcher would like to determine how to avoid “grouping resistance” by promoting effective peer collaboration opportunities that boost student engagement and academic achievement. It is anticipated that the results of this study will cause the teacher researcher to vary the type of student groupings that are used on a regular basis. Additionally, the data collected will allow the teacher to make better informed decisions and sound justifications for the method and type of peer partnership and groupings that are used.

**Review of Related Literature**

Several studies have been conducted about student grouping. Many of which, focus on one or two types of grouping (such as ability grouping) and the many positive and/or negative effects the grouping design had upon diverse groups of learners. My research does mirror the structure of others. For example, in the study, *Thinking Together and Alone*, Kuhn compared partner collaboration and individual work on a similar task, in order to determine the variable that leads to effective collaboration. The unique variables that I added into my own research are: student choice in group composition and the use of 5 different grouping scenarios. This section elaborates on a variety of key variables and themes found within current research on grouping.

Researchers Wiliam & Bartholomew (2004) conclude that the grouping into which students are distributed makes a very significant difference in terms of achievement. In their research, the impact of ability based groupings were analyzed in students from 6 schools in London. Findings suggested that higher ability sets (groups) tended to improve, whereas lower sets (groups) tended to decline in performance, specifically (Wiliam & Bartholomew, 2004).
Merely integrating student groupings (ability based, or otherwise) and collaboration in the classroom may not be enough. Kuhn (2015) suggests that the process of determining whether or not a collaborative experience is productive should be to identify “subsequent gain on the part of at least some of the participating individuals” (p. 47). Thus, it is important to consider the individual impacts and social/academic effects that the collaboration experience has upon each student involved.

Kuhn (2015) states, “more productive collaborations have been identified as those in which participants directly engage one another’s thinking” (p. 47). Essentially, this means that students who readily accept and integrate one another’s ideas and thinking into a shared task, are more likely to experience success as a team. Conversely, students who block or refuse to integrate their peers’ ideas, are less likely to experience a successful outcome with the collaborative task. Kuhn stresses the importance of group members who verbally communicate their thinking to one another: “Socially mediated metacognitive talk about thinking may be a key factor in conferring any benefit the collaborative activity provides” (Kuhn, 2015, p. 49).

Often times, peer partnership is most effective when students of mixed ability are paired together. Researchers have found that when a “lower-performing” student interacts and engages in collaborative process with a “higher-performing” student, they are more likely to make ongoing and “cumulative gain” (Kuhn, 2015, p. 47). However, laced within this type of grouping composition are risks for the lower performing student. Gatfield (1999) explains, “there is a fine line between students taking charge of their learning and their over-dependency on the expert”. This would suggest that mixed ability partnerships should not be utilized in such a way that the lower achiever is allowed to rely solely on the higher achieving partner to accomplish the learning task, without offering any personal contributions of their own.
Kuhn discusses further the inconsistency of the benefits of peer collaboration: “cognitive collaboration with peers does not always yield identifiable benefits, and whether it does or not appears to depend on who is learning what under what condition” (Kuhn, 2015, p. 46).

Therefore, each student’s acquisition of learning should to be assessed after completing a collaborative task. Additionally, Kuhn’s research aligns with the notion that the condition and context under which the collaboration takes place should have an impact on the success (or failure) of the grouping scenario.

There is a level of accountability that naturally accompanies students when they are engaged in a collaborative opportunity. They have a shared responsibility to complete a learning task with accuracy. Researchers Lou, Abrami and Spence (2000) identify this as “positive interdependence” and elaborate on the idea, “Individual accountability exists when students are responsible for their own learning and the learning of other group members” (Lou, Abrami & Spence, 2000, p. 102).

Research Process

Qualitative Data Collection Measures

A student survey (attitude rating scale) was used initially, as it seemed to be both a valid and reliable measure to generate baseline data, allowing the researcher to observe which students have similar cooperative learning preferences. From there, qualitative measures were utilized to collect data about student grouping trends, focusing observations on 3 of the 16 students during a 3-week period. Each type of data collection is elaborated on in the following section.

Data Collection

Prior to the three-week period of observation, the Student Grouping Survey (See Appendix A) was developed by the teacher researcher and then issued to all participants. The
survey included seven “scaled” questions and two open-ended, written responses. Two of the questions on the grouping survey asked students to consider the content area in which they did and did not prefer to work collaboratively: math, writing, science/social studies (Originally, the researcher planned to include the content area of reading. But, due to the fact that the school district requires reading groups be “ability grouped”, based on norm referenced data, it was determined that it would be pertinent to ask students about their personal grouping preferences in that content area.)

Five of the questions on the survey limited student responses to one of four possible choices: never, sometimes, often, and always, thus generating a scaled response. The final two questions on the survey were open-ended, written response, asking students to describe both something they like and dislike about working with others. These responses provided a window into student grouping perceptions and core beliefs about the practice, which were used later on to identify themes in student behavior.

During the three-week period, the level of student engagement, frequency of on-task behavior, and level of academic performance were recorded for 3 of the 16 students (2 male/1 female) of low, average, and above average academic ability in math (determined by student RIT scores on the Fall MAP (Measure of Academic Progress) Assessment). A three-point scale was used for student engagement: 1-Unengaged, 2-Partially Engaged, 3-Engaged. Additionally, each student earned a point for exhibiting the following on-task behaviors during the activity: conversation centered on learning task, student stays in the learning area (does not wander), student is focused on the learning task without reminders or prompts. A basic three-point scoring guide was used, to report academic performance. Students were evaluated based on the quality and accuracy of their work: 1-Basic, 2-Emerging, 3-Proficient. A score of one signified
that a student completed the learning task with 60-74% accuracy. A score of two denoted that a student completed the learning task with 75-90% accuracy. To achieve a three, a student would have needed demonstrate 91-100% accuracy on any given learning task.

The overall aim of the study was to determine the effect that teacher-assigned groupings and student-selected groupings had on the level of students’ academic performance. Students were observed in the following grouping scenarios: individual work (for base-line data), teacher selected partnerships, student selected partnerships, teacher assigned ability groups\(^1\) (comprised of 3-4 students), student selected groups (comprised of 3-4 students). To determine which grouping scenario was most effective, observations were narrowed down to student on-task behavior, level of engagement, and academic performance.

Focusing on specific patterns of learning behavior made this a reliable measure, as did limiting my observations to one subject area – math – and, more specifically, multi-step problem solving activities. The choice to observe groupings only in math was in response student feedback from the initial survey, indicating that students preferred collaborating in math. Furthermore, math problem solving tasks seem to lend themselves more to a variety of collaborative designs, as opposed to just peer partnerships or individual work.

**Analysis Techniques**

All data analysis techniques that were used were qualitative in nature. Methods of coding, analyzing antecedents and consequences, and identifying themes were employed:

I. Coding – Results of the rating scale were organized by similar themes/preferences.

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\(^1\) In order to determine membership within teacher assigned ability groups, MAP (*Measure of Academic Progress*) data was used to group students according to RIT scores. *Comparative Data to Inform Instructional Decisions* is a document published by NWEA Research to confirm that it is a valid and reliable tool for student groupings.
II. Analyze Antecedents & Consequences – Student groupings were organized by type. A determination was made about the effect that each type of grouping had on student engagement, on-task behavior, and academic performance.

III. Themes were identified, in order to determine if there was a positive or negative correlation between student-generated learning teams and academic accountability in math.

Results of the Study

Student Grouping Preferences

In terms of student grouping preferences within specific subject areas, the vast majority of students who were surveyed revealed that their preference in working with a partner or small group was within the context of math (31%) or science/social studies (50%). A large percentage of students acknowledged that writing was the content area in which they did not prefer to work collaboratively (60%). These results seem to correspond to the nature of the learning tasks in which students engage in within the three contexts. In science and social studies, students often engage in investigations, experiments, and PBL (project-based learning) experiences. Conversely, in the content area of writing, students engage in a much more individual, creative, and often personal process as they plan, draft, revise and edit their own pieces of writing. However, in my classroom, partnerships are frequently formed in the teaching of writing to assist with the revision/editing process.

Now shifting to how partnerships are created, survey results revealed that 50% of students (five males, three females) acknowledged that they sometimes prefer for the teacher to choose their partner, while 37% of students (four males, two females) preferred that the teacher
never choose their partner. Only about 13% of students (one male, one female) exposed that they often prefer to have the teacher choose their partner, and no students submitted that they always prefer to have teacher-selected partners. Only 6% of students (one female) stated that she never likes to choose her own partner, which seems a bit out of alignment with data received in terms of student preferences on teacher-selected partnerships, as the assumption would be that this student must always prefer the teacher to choose for her. However, this student selected that her preference having the teacher sometimes choose her partner.

Another inconsistency was in the large number of students (63% -- seven males, three females) who acknowledged that they always liked to choose their own partner. For a few students, this response did not directly align with their preferences toward teacher-selected partnerships. In fact, four of the students (three males, one female) noted that they sometimes or often prefer their teacher to choose their partner. Much attention should be placed, however, on the fact that positive responses (sometimes, often, always), corresponding to a preference of student-selected partnerships, included 94% of students who participated in the survey.

In terms of student preferences about working in small groups, the majority of students were neither strongly in favor nor strongly opposed. Though many students did not appear to favor small group collaboration either way, there was a slightly negative and slightly positive response to this type of grouping scenario. 25% of students (three males, one female) submitted that they never prefer to work in small groups. 25% of students (three males, one female) conveyed that they either always or often prefer to work in small groups. And, 50% of students (four males, four females) reported that they only sometimes prefer to work in small groups.

In the written response portion of the survey, many students revealed that the reason why they like working with others is the teamwork aspect. One student shared, “we work as a team to
finish,” while still another student wrote, “I get to share and hear their opinion, too.” Other students focused on the efficiency of working with others as part of what they liked best: “If I can’t think of an answer, I can ask my partner,” and, “The time goes by faster.”

Students also provided insight into what they disliked about working with others. Many students eluded to struggles that can arise when group members share a different point of view. One student submitted, “It bugs me when we don’t always use my idea.” Other students mentioned that they dislike the off-task behaviors that sometimes occur and referred to those behaviors as “messing around”, “extra chatting” and “yelling”. Still other students identified feelings of unfairness, due to an imbalance in effort. To elaborate, a student of high academic ability (according to MAP, and other norm-referenced student achievement data) shared: “They ask me again and again what the right answer is.”

**Student Grouping Outcomes**

A few interesting trends and correlations emerged after implementing a variety of student grouping scenarios during math. As whole, regardless of the grouping type, the high-achieving student consistently performed at a proficient level (a mean score of three) of academic performance. The most noticeable differences in academic performance, were observed with the lower-achieving student. In every grouping scenario, regardless of being teacher or student selected, the lower achiever made a minimum gain in academic performance of 100% and a maximum academic gain of 130% (from a mean of one while working individually to a mean of 2.3 in both the student selected group context and teacher selected partner scenario).

After analyzing the results of the individual scenario (no collaboration/partnership with peers), the lower achieving student demonstrated significantly lower academic performance (a mean score of one) than in all other grouping scenarios. The average achiever showed only
slightly lower academic performance (mean score of two) when working within the individual context, compared with most other grouping scenarios (excluding the teacher selected partner scenario, which resulted in a mean score of two for the average student). As for the high achiever, academic performance in the individual context was proficient at a mean score of three and remained constant across all grouping types.

Level of learner engagement was similar between the student selected small group and the teacher assigned ability group for the high and average achieving students. In both grouping scenarios, the higher achiever maintained a mean score of three (engaged) and the average achiever continued a mean score of 2.3 (slightly engaged). However, the low achiever increased his engagement with the learning task when working in the context of a teacher assigned ability group. Beginning with a mean score of one (unengaged) in student selected small group, to a mean of 1.7 in the teacher assigned ability group, the average level of engagement for the lower achieving student increased noticeably, by 70%.

Within the contexts of student and teacher assigned partnerships, the level of learner engagement had noticeable trends. Engagement with the learning task(s) was greater for both the higher achiever and the average achiever in the student selected partner scenario, in comparison with the teacher selected partner setting. Conversely, for the lower achieving student, the level of engagement was slightly lower in the student selected partner setting than it was within the teacher selected partnership.

Students’ on-task behavior revealed different trends than that of students’ level of engagement. In both types of partnerships (teacher and student generated), on average, all students demonstrated more on-task behaviors when their partners were teacher-selected than when they choose their own partners. In terms of percent difference, the higher achiever
demonstrated 10% more on-task behavior with a teacher-selected partner, the average achiever demonstrated 30% more on-task behavior, and the lower achiever displayed a 54% more on-task behavior.

In contrast, when comparing the on-task behavior in teacher assigned ability groups and student selected small groups, the high and average achieving student’s on-task behaviors were more prevalent in the context of student selected groups. Specifically, for the higher achiever, 11% more on-task behavior was observed in the student selected grouping scenario. More significantly, for the average achiever in the same grouping scenario, 35% more on-task behavior was observed. The lower achiever’s on-task behavior, however, actually increased in the context of ability grouping compared to the student selected grouping scenario, by nearly 31%.

Taking into account the overall average score of all three participants’ gains in academic achievement, partnerships and groupings were compared to the individual work setting. All students in both teacher selected and student selected partnerships experienced a 12.5% gain in academic performance from what they achieved individually. Furthermore, when comparing the academic performance of both teacher assigned (ability-based) grouping and student selected grouping to the individual context, all students demonstrated at 13% gain.

**Discussion**

In this study, the grouping type that ultimately had the most impact on the students’ academic performance was the small group scenario (both student selected and teacher assigned). When considering the research of William and Bartholomew (2004), they determined, “Ability grouping does not raise average level of achievement, and, if anything, tends to depress achievement slightly.” That was not the case for ability grouping in the study,
however, if the study had included more than just three participants, perhaps the results would more closely align with the conclusions of William and Bartholomew.

The average achieving student was the only participant in which academic performance was higher in the self-selected groupings, rather than the teacher-selected groupings. Furthermore, the level of engagement was noticeably higher for the average achieving participant during the student selected partnership scenario, than it was during the teacher-selected partnership setting. It could be possible that the average achiever simply had more self-awareness about the kind of peers they could work with successfully.

Based on trends observed with the lower achieving participant, teacher-selected partnership and ability grouping yielded the most positive results, in relation to academic performance, on-task behavior and level of engagement. This leads to the conclusion that lower achieving students may not yet have the ability to independently determine with whom they work well, or maybe are not cognizant of the idea that peer collaboration can be used as an opportunity to strengthen their academic performance. Researchers Lou, Abrami & Spence (2000) established the following conclusion, which should be considered, especially with lower achieving students: “When assigning students to groups, consideration should be given to group-ability composition as well as other criteria that teachers judge to be appropriate to ensure that group members have both the ability and the motivation to engage in cognitive interactions.”

It is truly difficult to assess if this study had any major impact on the higher achieving student, regarding academic gains. There were a few group settings in which the high achiever demonstrated slightly less on-task behavior, but nothing significant enough to suggest that a particular grouping scenario was not a good fit for the high achiever. Because of the fact that no significant academic gains were observed with various grouping scenarios, it may be that the
challenge of the tasks was not complex enough. However, it is important to note that in one study, researchers found that “teachers overestimated the capability of students in the top set, giving them work that was often too demanding, and expecting them to be able to do it quickly” (Wiliam & Bartholomew, 2004).

**Limitations and Implications for Future Study**

This study was conducted within the confines of one curricular content area – math. It may be beneficial to conduct the study in other content areas, such as science and social studies, where opportunities for collaboration (such as PBL – project-based learning) often emerge. Grouping scenarios could remain the same, but new conclusions could be made as to whether student grouping is more or less effective in one subject area compared to another, or if there are other conclusions to be made about the impact of the actual learning task.

The learning tasks could be modified in future studies, to include a variety of designs, rather than just problem-solving type tasks. In the context of a PBL problem-solving scenario, Kuhn (2015) found that regardless of the grouping context into which students were assigned (groups of three, individually, or as passive observers of the task), both groups and individuals showed “equivalent mastery”. Thus, Kuhn (2015) concluded that “the benefit (of academic gain) appears to come from the goal-directed experience of working on the problem rather than from social collaboration” (p. 48).

Though an entire classroom of students were surveyed on their personal grouping preferences, only a small percentage of students were observed across various grouping scenarios in this study. The research could be expanded to include observations of more students in each achievement category: high, average and low achiever. Furthermore, future studies
could include more than one classroom of the same grade level or even different grade levels, focusing on other variables such as, classroom environment conducive to student collaboration, and class size.

On an even larger scale, this study could be expanded to include student participants from other elementary schools. No school is the same and each have unique variables (such as student demographics, teacher experience, etc.) to consider. Researchers, Wiliam and Bartholomew (2004), share their insight into ability grouping, which can be applied to other grouping scenarios, with respect to variance: “The practices of ability grouping are likely to vary from school to school, and if we are to understand how ability grouping impacts on attainment and influences attitudes, it is necessary to look in detail at how setting is put into practice in schools” (Wiliam & Bartholomew, 2004, p. 282).

**Conclusion**

Considering each of the trends observed within the five grouping scenarios, it can be concluded that collaborative grouping in the classroom setting does have a positive impact on academic performance, in comparison with students working individually. The variable of who formed the groupings (teacher or student) did not seem to matter, overall, as long as students had the opportunity to collaborate. If collaboration is the key, then there is a level of responsibility on the part of the teacher that must accompany it, in order to reap continued benefits. Kuhn (2015) noted that “collaboration does not come naturally” (p. 51). Collaboration takes cultivation; it is not a process that magically comes together when we ask students to work together. Much practice must be dedicated to the practice, in order for intellectual collaboration to be effective (Kuhn, 2015).
References


Appendix A

Student Grouping Survey

1. I **like** to work with a partner or small group during __________.
   a. Math
   b. Writing
   c. Science/Social Studies

2. I **do not like** to work with a partner or small group during __________.
   a. Math
   b. Writing
   c. Science/Social Studies

3. I __________ like my teacher to choose my partner(s).
   a. Never
   b. Sometimes
   c. Often
   d. Always

4. I __________ like to choose my own partner(s).
   a. Never
   b. Sometimes
   c. Often
   d. Always

5. I __________ prefer to work with 1 other person.
   a. Never
   b. Sometimes
   c. Often
   d. Always

6. I __________ prefer to work in small groups.
   a. Never
   b. Sometimes
   c. Often
   d. Always

7. I __________ prefer to work by myself.
   a. Never
   b. Sometimes
   c. Often
   d. Always

8. Describe one thing you **like** about working with others.

   _______________________________________________________

9. Describe one thing you **do not like** about working with others.

   _______________________________________________________


Appendix B

Table B1 – Student Grouping Survey Results (Question 1)

Q1: "I like to work with a partner/small group during ______."  

<table>
<thead>
<tr>
<th>Student Gender and Curricular Content Areas</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Math</td>
<td>1</td>
</tr>
<tr>
<td>Female Math</td>
<td>2</td>
</tr>
<tr>
<td>Male SS/Science</td>
<td>3</td>
</tr>
<tr>
<td>Female SS/Science</td>
<td>3</td>
</tr>
<tr>
<td>Male Writing</td>
<td>5</td>
</tr>
<tr>
<td>Female Writing</td>
<td>1</td>
</tr>
<tr>
<td>Male No Response</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
</tr>
</tbody>
</table>

Table B2 – Student Grouping Survey Results (Question 2)

Q2: "I do not like to work with a partner/small group during ______."  

<table>
<thead>
<tr>
<th>Student Gender and Curricular Content Areas</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Math</td>
<td>2</td>
</tr>
<tr>
<td>Female Math</td>
<td>1</td>
</tr>
<tr>
<td>Male SS/Science</td>
<td>1</td>
</tr>
<tr>
<td>Female SS/Science</td>
<td>1</td>
</tr>
<tr>
<td>Male Writing</td>
<td>2</td>
</tr>
<tr>
<td>Female Writing</td>
<td>4</td>
</tr>
<tr>
<td>Male No Response</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
</tr>
</tbody>
</table>
Table B3 – Student Grouping Survey Results (Question 3)

Q3: "I like my teacher to choose my partner."

<table>
<thead>
<tr>
<th>Student Gender and Preference</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Number of Students</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Table B4 -- Student Grouping Survey Results (Question 4)

Q4: "I like to choose my own partner(s)."

<table>
<thead>
<tr>
<th>Student Gender and Preference</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Number of Students</td>
<td>2</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>
Table B5 -- Student Grouping Survey Results (Question 5)

Q5: "I prefer to work with 1 other person."

<table>
<thead>
<tr>
<th>Gender</th>
<th>Preference</th>
<th>No Response</th>
<th>Always</th>
<th>Never</th>
<th>Often</th>
<th>Sometimes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Always</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Male</td>
<td>Never</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Female</td>
<td>Sometimes</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Table B6 – Student Grouping Survey Results (Question 6)

Q6: "I prefer to work in small groups."

<table>
<thead>
<tr>
<th>Gender</th>
<th>Preference</th>
<th>Always</th>
<th>Never</th>
<th>Often</th>
<th>Sometimes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Always</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Female</td>
<td>Never</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Male</td>
<td>Sometimes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table B7 – Student Grouping Survey Results (Question 7)

Q7: "I prefer to work by myself."

<table>
<thead>
<tr>
<th>Student Gender and Preference</th>
<th>Female Never</th>
<th>Female Sometimes</th>
<th>Male Often</th>
<th>Male Sometimes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Number of Students</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Appendix C

Table C1 – Mean scores of individual work scenario. MAP Math RIT scores are included next to each student, to qualify them into specified achievement categories.

<table>
<thead>
<tr>
<th></th>
<th>High Achiever (205)</th>
<th>Average Achiever (196)</th>
<th>Low Achiever (181)</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Task Behavior</td>
<td>3</td>
<td>2.3</td>
<td>1</td>
</tr>
<tr>
<td>Level of Engagement</td>
<td>3</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>Academic Performance</td>
<td>3</td>
<td>2.3</td>
<td>1</td>
</tr>
</tbody>
</table>

Table C2 – Mean rating scores of student selected partnership scenario. MAP Math RIT scores are included next to each student, to qualify them into specified achievement categories.

<table>
<thead>
<tr>
<th></th>
<th>High Achiever (205)</th>
<th>Average Achiever (196)</th>
<th>Low Achiever (181)</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Task Behavior</td>
<td>2.7</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>Level of Engagement</td>
<td>3</td>
<td>2.7</td>
<td>2</td>
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<tr>
<td>Academic Performance</td>
<td>3</td>
<td>2.3</td>
<td>2</td>
</tr>
</tbody>
</table>
Table C3 – Mean rating scores of teacher selected partnership scenario. MAP Math RIT scores are included next to each student, to qualify them into specified achievement categories.

Table C4 – Mean rating scores of teacher assigned ability grouping scenario. MAP Math RIT scores are included next to each student, to qualify them into specified achievement categories.
Table C5 – Mean rating scores of student selected grouping scenario. MAP Math RIT scores are included next to each student, to qualify them into specified achievement categories.

Table C6 – Average rating scores of academic performance for all learners, by grouping type.