

Student-Buddy Academic Games

“Using academic games in the classroom is associated with a 20 percentile point gain in student achievement. This is a relatively strong finding.”

Robert Marzano, 2010

Academic games make learning enjoyable for students and teachers. Students want to come to school when they know that they will have fun and feel connected with cooperative classmates. The evidence that supports these claims is powerful. For example, Koch Elementary School, in the Riverview Gardens School District (RGSD), St. Louis, Missouri, conducted an experiment with academic games that focused on math and some reading games.

The structure of the intervention included older students leading younger students in academic games. Most of the EnTeam activities used math games that built skills pertinent to the Discover Education Assessment (DEA) category of *Number Sense and Operations*.

Classes were pair with younger student buddies:

- 5th graders led games with 2nd graders
- 4th graders led games with 1st graders
- 3rd graders led games with kindergarteners

Each week or two, the older students went to classrooms of their younger buddies and led an EnTeam Game such as [Partners Produce Problems](#). Prior to the game, the teachers of the older students let them play the game with their own math work. Then the older students knew the game and could help their younger schoolmates play together. The teachers of the younger students set the parameters of the game.

Results

EnTeam Organization conducted professional development for teachers at Koch Elementary School beginning December 14, 2011 and ending early in March 2012 when the Discovery Education Assessment benchmark tests were administered.

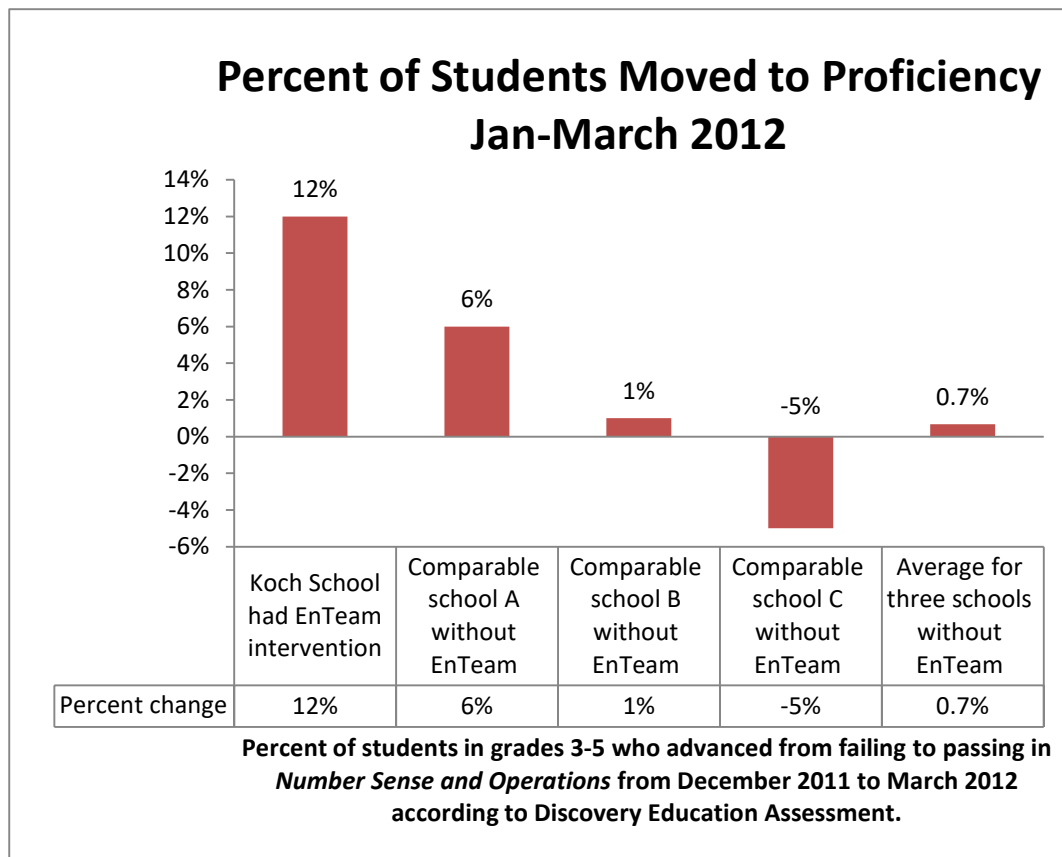
Twelve percent of students moved from failing (*basic* and *below basic*) to passing (*advanced* and *proficient*) in *number sense and operations* according to DEA tests administered in December 2011 and March 2012.

This improvement was substantially greater than the results achieved by comparable schools serving students with similar demographic profiles:

Mathematics: Number Sense and Operations

School	December Test			March Test			Improvement
	Number of Students	Number of Students Scoring Advanced or Proficient	Percent Advanced or Proficient	Number of Students	Number of Students Scoring Advanced or Proficient	Percent Advanced or Proficient	
Danforth	147	53	36%	149	46	31%	-5%
Meadows	189	48	25%	181	60	33%	+6%
Moline	203	78	38%	203	80	39%	+1%
Koch	145	36	25%	142	53	37%	+12%

Data source: Discovery Education Assessment and Riverview Gardens School District, 2012



The Director of Assessment for RGSD provided DEA benchmark test data for Koch and three other schools. Between December and March, the students at Koch in third, fourth, and fifth grades improved in *Number Sense and Operations* more than the students at comparison schools.

The number of Koch students who were advanced or proficient in *Number Sense and Operations* increased from 36 students to 53 students. The comparable changes by students in grades 3-5 in the other three schools for which we have data were:

- Meadows increased in *Number Sense and Operations* by 8 percentage points.
- Moline increased in *Number Sense and Operations* by 1 percentage points.
- Danforth decreased in *Number Sense and Operations* by 5 percentage points.

Comparison of Similar Schools

These four schools are comparable in terms of the demographics and socio-economic status of the students:

Percent of students who qualify for free or reduced lunch

Danforth	91.6%
Meadows	95.2%
Moline	96.1%
Koch	97.8%

Data source: Missouri Department of Elementary and Secondary Education, 2011

Activities

The professional development that EnTeam provided at Koch between December and March prepared teachers to guide older students in activities that naturally apply the principles of differentiated instruction with younger students. In other words, teachers developed their understanding of differentiated instruction by teaching older students to lead differentiated activities to younger students.

The older students did not tutor the younger student. The older students led games in which the younger students worked together on activities aligned with the curricular objectives that the teachers identified.

For example, the teachers in fifth grade identified a significant number of students who were having trouble solving problems in division because their basic multiplication skills were weak. One of the strategies for helping older students develop their skills in multiplication was to challenge them to lead activities involving skip-counting using tables that required the older students to use multiplication skills.

Outcomes

- Older students strengthen their understanding of academic principles because they build higher-order thinking skills as they help younger students learn.

- Younger students improve their academic achievement because they have support from older students.
- Teachers feel supported because students become more collaborative during peer mentoring.
- Student behavior improves because mentors become leaders promoting learning and character education.

Academic benefits

- Teachers gain more tools for reaching diverse learning styles.
- Students increase their ability to apply higher levels of depth of knowledge.
- Educators – teachers, administrators, and parents – use tools that help people collaborate and measure their ability to bring out the best in each other.

Teacher feedback

Toward the end of the program, the teachers had the opportunity to assess the impact of the EnTeam program on the learning environment at Koch:

24 Present, 21 Surveys Returned

[Teachers wrote] I learned...

1. How to trust my students who struggle with behavior to be engaged responsibly in the mentoring activities.
2. That it is possible to work along with an older grade and have all the students involved (even the ones with behavior issues).
3. That the EnTeam project has made my co-workers appreciate the impact of cooperation learning even more.
4. The staff have many same beliefs and feeling from 6 weeks ago to today. The students are engaged and the teachers are excited.
5. About the ways in which academic mentoring benefits students as well as teachers' perceptions (then and now) about mentoring and its impact on students and teachers.
6. That this process was successful and not as difficult to do.
7. That students can be responsible and caring when given the tools and opportunity.
8. Students enjoy working with one another and look forward to the activities.
9. The children are learning to appreciate relationships.
10. That the students really do learn from each other and enjoy working together.
11. It can work. The students like the activities planned.
12. I learned that this program (Mentoring Project) can make a difference.
13. Mentoring is working.
14. That everyone can experience success no matter how big or small.
15. That students enjoy working with younger/older students.
16. That there is a possibility that some of our students are actually compassionate.
17. The value of what we are doing as it applies to students.
18. That cooperation was possible between grades.

19. In order to develop a learning community among the students, it's important to have them interact across grade levels.

[Teachers wrote] I hope...

1. This continues the reminder of the year and will continue into the next years. The mentor/mentee relationships carry over to the community and building.
2. Academic mentoring will continue at Koch and that it will be a mutually beneficial experience for students and teachers that is aligned to GLEs and learning targets.
3. That 1st and 4th grade students continue to be role models in and out of the mentoring activities.
4. That we continue to work together; that we could find common planning time.
5. That as a building we can continue the mentoring project.
6. That the relationships can continue to build the rest of the school year.
7. That students make a connection between their experience as a mentor or mentee and their roles as responsible students.
8. The activities have truly made a difference in students' academic as well as socio-moral development.
9. The students continue to have an open mind about the activities and relationships.
10. That the process will continue and teachers don't give up on it.
11. The kids are really learning, gaining self-esteem; they keep working, learning together.
12. I hope that we continue with the mentoring project next year.
13. We can get time to work with buddy teams.
14. My students feel success and are able to build stronger relationships.
15. That the program does not fizzle out after EnTeam leaves.
16. That our students will generalize the skills they have exhibited in caring for their mentees.
17. We can translate this into relationships in the classroom.
18. To have more time to plan with 3rd grade to move on to a new concept.
19. We can continue the respect and caring that has developed between mentors/mentees and carry it over between similar grade peers.
20. To see the transference of the progress made in academic mentoring transferred to extend to individual classrooms; the overall culture of the community will be positively impacted.
21. Students can treat each other as they treat their mentees.

[Teachers wrote] I wish...

1. For more time. Time to plan, time to enjoy the activity and process. I also wish for this to be a lasting impression and growth for all of our students both academically and socially.
2. Our school climate and culture were one represented by positive interactions with students and staff and that the mentor/mentee relationships and interactions were represented in classroom/school interactions.

3. We had started this program in August! 😊
4. That we had more time to plan with the teachers from the upper grade; that we continue the program.
5. I had first-hand experience with the project.
6. We had more time to plan together.
7. There was more time to fully plan and prepare.
8. We could have started this back in August.
9. The students, through mentor program could see the importance of learning how to treat each other.
10. There was more guidance and time to plan.
11. We had time to talk or plan. There is never enough time.
12. The mentors can play more active role in the mentees' daily lives. For example, mentors spending time with mentees tutoring or problem solving.
13. We had more time in our day.
14. There was more time to plan.
15. We had "relaxed" time to be able to plan with other grade level.
16. We would have started sooner.
17. We could have started this at the beginning of the year.
18. To have mentors come to room at other times besides mentor times.
19. I could be here for the activities.

[Teachers wrote] I still need...

1. Time with my team to plan and reflect on this process.
2. Time!!!
3. To understand how the lessons and schedules are created.
4. Support from the EnTeam.
5. More time to plan activities.
6. [I still would like to see...] Students involved during mentor/mentee activities.
7. To know when we will have time to plan with other grade level, since we don't have a common plan time.
8. Time for students to reflect and see how they feel.
9. More time with team to reflect and plan.
10. Time.
11. Additional time to prepare fully.
12. More planning time.
13. More planning time.

Recommendation of future steps

1. Teachers have recommended starting earlier in the school year with cooperative learning activities that measure cooperative performance to give students the opportunity to learn the habits that enable them to bring out the best in each other.

2. Teachers have recommended simplifying the movement of students when they transition from their home classroom to the rooms where academic mentoring takes place.
3. Teachers have recommended that the number of students allowed to participate in academic mentoring be limited to those who are fully ready and able to lead the activities.
4. Teachers have recommended increasing the time devoted to planning together across grade levels.