# HOW FLEXIBLE SEATING CAN BENEFIT STUDENTS AND THE CHALLENGES CAUSED BY COVID-19

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A thesis submitted to the University Honors Program at Southern New Hampshire University to complete HON 401, and as part of the requirements for graduation from the University Honors Program

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#### Abstract

This research project explores how flexible seating options can benefit different types of students and how this has been affected by the changes due to the COVID-19 pandemic. The research is conducted through a literature review of previous studies on the benefits of flexible seating and a survey that was completed by educators in multiple districts in NH. The survey questions focus on the outcomes of flexible seating used in previous years where classrooms followed a more traditional in-person school day, and how flexible seating can be utilized currently due to COVID-19. It also inquires about changes observed in student behavior, academic performance, and classroom community when using flexible seating to discover how these changes can be related to the lack of flexibility in classrooms currently. The results from the survey will be compared to previous research done with young learners, and learners with disabilities to discover how flexible classroom designs can assist students who have diverse needs. This research will assist current and future teachers with designing their classroom in a way that will fit these student needs in the future.

Keywords: flexible seating, educators, behavior, academic performance, community, alternative, classroom design, COVID-19

#### Introduction

When designing a classroom, there are a number of factors to consider. In the elementary grade levels, often times one small classroom is the area where every subject is taught for a group of 20-30 students. These small children are in this room for hours each day and this means that the space needs to be designed to be a second home for these students while it also helps facilitate their learning. The area and furniture should be comfortable for their growing bodies and it will encourage their best learning. To build a classroom that is accessible for all learners, providing differentiation is not only important in lessons and activities, but also the physical environment in which they are learning. It is important to consider the many types of diverse learners who the classroom population will be comprised of when choosing flexible seating and its arrangement in the classroom.

One way to introduce this differentiation is by introducing a flexible classroom. A flexible classroom is a room setup with varying student needs in mind. Setting up a flexible classroom starts with a mindset of catering to diverse learners. It begins with using objects teachers normally have in a classroom (desks, chairs, tables, etc.) and using them in new ways. Many flexible classrooms introduce flexible seating. Flexible, or alternative, seating is defined as giving "students a choice in what kind of learning space works best for them, and help them to work collaboratively, communicate, and engage in critical thinking" ("Flexible Seating Elevates", 2015, p.1). This can include different types of seating, placement of seating, new furniture, and other variations. Teachers can tailor their flexible classroom setup to the types of students they have, and every flexible classroom will be run differently but have similar benefits. Appendix A is a comprehensive breakdown of the different terms that are essential to understanding a flexible classroom, and their meanings.

# Ways to Use Flexible Seating

There are many ways and areas in which flexible seating can be utilized in an elementary classroom. For all learners at the elementary level, an important part of most classroom schedules is a morning meeting. Making a consistent spot that is home for these meetings is essential to building a classroom community. To foster this environment, putting a carpet, calendar, and library in one corner helps to make an area feel like a safe space. Another important part of this area is the class library. By placing books by the carpet, students are encouraged to read independently and together, growing their skills and love for literature. The seating in the classroom should be set up so that students can collaborate, meaning a lot of tables and less desks in solitude. These different areas in an elementary classroom are all areas in which flexible seating can be utilized. The room can be set up to be comfortable and allow choice so that students can find what best fits their learning style.

The most common flexible seating options include exercise balls, wiggle stools, inflated cushions, scoop chairs, and milk crates. All of these options have specific similarities and differences that make them suitable for unique learners. Yoga balls are large inflated rubber balls commonly used for yoga and other exercise. They are used in the classroom with tables and desks for students to sit and bounce on while working. Inflated cushions are similar to yoga balls in that they are rubber and inflated, however they are flat and can have raised bumps. They are used on top of regular chairs or on the carpet. Wiggle stools are used on their own and have a rounded bottom so that students who sit on them can rock. Like wiggle stools, scoop chairs are used to rock back and forth. They are made of plastic and are most often used on the floor for reading. Finally, milk crates are coated with a cushioned material and used with low desks and tables. These five modes of seating are only some of the more common options used in

classrooms, but many more creative objects have been used. Some teachers report using hammocks, bunk beds, canoes, benches, bean bag chairs, and more ("Flexible Seating Elevates", 2015, p. 1). Flexible seating is about knowing the learners in the classroom and choosing options that will provide the most opportunities for success.

#### **Physical Health Benefits**

Using these options to build a flexible classroom has many benefits for the students.

Using options like wiggle stools and scoop chairs makes it so that students are active. Physical activity increases oxygen flow to the brain, blood flow, and core strength (Cole, 2018, p.1).

Students in the classrooms that utilize physical activity are healthier physically and mentally. Their metabolisms are increased in these environments. They also burn more calories. Their mind will be more alert and focused from the increased oxygen (Cole, 2018, p.1). Focus will ultimately lead to improved learning and academic performance.

# **Cognitive and Developmental Benefits**

Physical health is not the only thing that is improved. Providing students with the opportunity to choose the seating option that works best for them gives them the opportunity to take responsibility for their education. It will empower students to make the best choices on what they sit on, and who they sit with (Cole, 2018, p. 1). Allowing freedom of choice in the classroom helps students gain self-esteem and teaches them at a young age to feel responsible for their learning.

Most importantly, flexible seating builds community and encourages collaboration (Cole, 2018, p.1). Since students are encouraged to be active, they will have more opportunity to work in groups. Traditional desks can make students feel like their education is solitary, but flexible seating and tables encourages them to cooperate and collaborate. They will be able to change

their positions often to work with a variety of students in the classroom, leading to a stronger sense of classroom community.

#### Flexible Seating in a Preschool Setting

Flexible seating will differ according to each educational environment. Younger students in particular have proven the many benefits of flexible seating. A study was done in 2016 on four preschool classrooms. Two of the preschool classrooms in the study were used as a control group, and the other two classrooms alternated between their usual seating and wiggle cushions for one-week intervals during their circle time (Seifert & Metz, 2016, p. 414). The study showed that there were significant differences in the levels of engagement between the classes. The classes that were introduced to the wiggle cushions had a significantly higher level of engagement compared to the classes without (Seifert & Metz, 2016, p. 417). This proves that the cushions can have a positive effect on the learning of younger students.

The teachers who participated in this study reported that many of their students showed rambunctious energy when flexible seating was first introduced. This is the most common fear of teachers that have not yet introduced alternative seating into their classroom, and it is essential to address these concerns before starting to build the flexible classroom. The teachers reported that students used the cushions "as surf boards and to bounce on" (Seifert & Metz, 2016, p. 417). They also said that, "students moved their bodies more than they had done while seated on the floor. Students more frequently rocked side to side and front to back, and occasionally the students fell off the cushion from the movements" (Seifert & Metz, 2016, p. 417). These results originally scared the teachers and made them feel like the seating was not providing its purpose. However, once the students adjusted to the seating, these behaviors stopped. Students ceased the unintended movement and showed higher engagement and classroom activity (Seifert, 2016, p.

417). Observing these results dispelled the misconception that flexible seating is distracting and causes poor behavior once the students become adjusted. These findings can be reassuring to the teachers who are apprehensive about introducing flexible options. If students are provided with guidance, practice, and time, positive results will be apparent. Although some students did show more improvement than others when using the cushions.

# Flexible Seating with Specific Disabilities

Students who benefit the most from these seating options are often students with Autism Spectrum Disorder and Attention Deficit and Hyperactivity Disorder (ADHD). A study was conducted in 2003 on the effects of therapy balls on students with ADHD. Observations showed that students with ADHD's behavior improved greatly when seated on therapy balls. One student in the study, referred to as John, showed frequent occasions of sleeping in class when seated in a traditional chair. When using a therapy ball John did not fall asleep in class (Schilling, et al., 2003, p. 537). Another student in the study showed less distracted movement when seated on the ball compared to the chair (Schilling, et al., 2003, p. 537). In addition to behavior, observations were also made in "legible word productivity". Students on the therapy balls produced more written work on average than when they were seated in chairs (Schilling, et al., 2003, p. 537). In addition, the students self-reported on preferring the seating due to "comfort, writing, and productivity" (Schilling, et al., 2003, p. 537). Flexible seating demonstrates many benefits as an accommodation for students with Attention Deficit and Hyperactivity Disorder.

Students with Autism Spectrum Disorder have been proven to benefit from the use of flexible seating as well. A study was conducted in 2004 with students with Autism Spectrum Disorder (ASD) and their use of therapy balls in the classroom. The students with Autism Spectrum Disorder showed results similar to the findings for students with ADHD in that their

behavior improved greatly when using the therapy balls. In this study, not only did positive behavior increase with introduction of the balls, but over time after the therapy balls were removed from the classroom, behavior started a substantial decline (Schilling & Schwartz, 2004, p. 428). In addition to positive behavior increasing with the therapy ball use, there was a significant increase in engagement among all of the students observed (Schilling & Schwartz, 2004, p. 429). When asked about the introduction of this style of seating into the classroom, teachers were in unanimous agreement that it was a positive change for their students diagnosed with Autism Spectrum Disorder (Schilling & Schwartz, 2004, p. 429). The results in this study show a substantial benefit for students with ASD when introduced to flexible seating.

#### **Changes Due to COVID-19**

In March of 2020, the presence of the COVID-19 virus began increasing in the United States. Due to safety precautions, New Hampshire was shut down with only essential businesses open. This meant that schools were moved to a completely remote model, in many cases without warning. Students and educators were using video conferencing tools such as Zoom and Google Meets to conduct all instruction. Even now, many school districts in the state have opted to choose different models of instruction that include complete in person instruction with restrictions (social distancing, masks required, increased cleaning procedures), hybrid (some inperson instruction, some remote), and full remote instruction (all online). With all of these options, classrooms look much different. Students have limited access to flexible seating and its learning benefits.

#### Methodology

# **Hypothesis**

This thesis seeks to understand the benefits of flexible seating and their role in education given the current state of the worldwide pandemic. My hypothesis is that flexible seating has many benefits in face to face instruction including improvement in the following areas: behavior, academic performance, and classroom community. This possibility is limited due to COVID-19 policies; therefore, students are at a disadvantage without flexibility and this will show in poorer academic performance, behavior, and lack of classroom community.

# **Survey Research**

To help prove or disprove the thesis, a survey was created that was comprised of 18 total questions regarding observations made when using flexible seating both before and during the pandemic. The survey was created using the Qualtrics database, utilizing skip logic and conditional branching. This means the way in which the questions appeared was different based on how the individual responded to previous questions. This survey was sent out via a hyperlink in an email, with an introduction describing the project. Overall, the goal of creating and sending out this survey was to receive data from teachers to either support or refute the hypothesis that flexible seating can help improve behavior, academic performance and classroom community. It will also include information on how COVID-19 has affected the offerings of flexible seating options and how that has changed behavior, academics, and classroom community. The survey is included in the following graphic.

#### Southern New Hampshire University Institutional Review Board

Informed Consent Form for How flexible seating can benefit students and the challenges caused by COVID-19

You are being invited to participate in a research project conducted by Hannah Gemas, who is an undergraduate student at Southern New Hampshire University.

You are invited to participate in a research study about flexible seating and its benefits during a traditional school model, and how these alternative options have had to change due to COVID-19.

You will be asked to fill out a Qualitrics survey that will take about 5-10 minutes of your time.

If you select yes to participate in this project, please understand that your participation is voluntary and that you have the right to withdraw your consent or discontinue participation at any time with no penalty. You also have the right to refuse to answer any question(s) for any reason with no penalty.

In addition, your individual privacy will be maintained in all publications or presentations resulting from this study. The answers to the survey will remain anonymous.

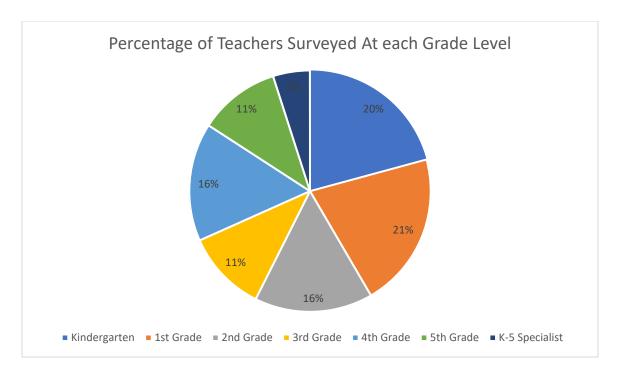
If you have any questions regarding this project, you may contact the researcher at <a href="mailto:hannah.gemas@snhu.edu">hannah.gemas@snhu.edu</a>. If you have questions regarding your rights as research participant or any concerns regarding this project, you may report them – confidentially, if you wish – to the UC Institutional Review Board Chairperson at IRB@snhu.edu.

I understand the above information and voluntarily consent to participate in the research. Yes, I consent to partipate in the research. No, I do not consent to participate in the research. What grade level do you teach? Have you utilized flexible seating options in past school years? O Yes O No In what ways have you utilized alternative seating / flexible classroom options in past school years? Did you observe changes in student behavior while using flexible seating? Yes, positive change O Yes, negative change O No change Did you observe changes in student academic performance while using flexible seating? O Yes, positive change Yes, negative change O No change Did you observe changes in classroom community while using flexible seating? Yes, positive change O Yes, negative change O No change

| What model of instruction is your school currently using due to the pandemic?   |  |
|---|--|
| All In-Person Instruction   |  |
| Hybrid Model  |  |
| All Remote Instruction  |  |
| f instruction is fully in-person or hybrid, can flexible seating be utilized at all?  |  |
| Yes Yes   |  |
| No No   |  |
|   |  |
| What changes do you notice in classroom behavior this year versus in past years, if any?  |  |
|   |  |
|   |  |
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|   |  |
| What changes do you notice in academic performance this year versus in past years, if any?  |  |
| What changes do you notice in academic performance this year versus in past years, if any?  |  |
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| What changes do you notice in academic performance this year versus in past years, if any?  f instruction is fully remote, which students do you notice having better behavior during remote class time?  |  |
|   |  |
| f instruction is fully remote, which students do you notice having better behavior during remote class time?  |  |
| f instruction is fully remote, which students do you notice having better behavior during remote class time?  Students with a designated school space (ex: log on at desk, table, etc.)   |  |
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| f instruction is fully remote, which students do you notice having better behavior during remote class time?  Students with a designated school space (ex: log on at desk, table, etc.)  Students that don't have a designated school space (ex: log on in bed, on the couch, etc.) |  |

# **Demographics**

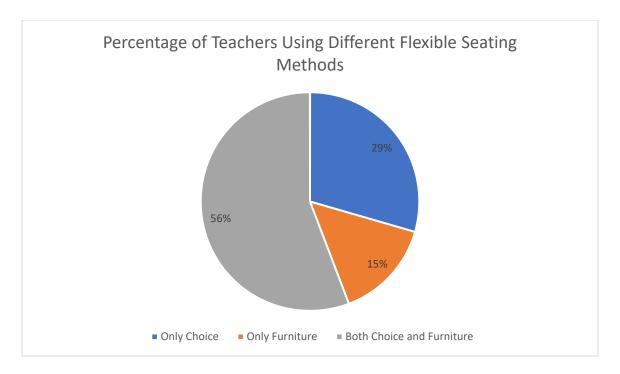
The survey was sent out to teachers at the elementary education level. All teachers who contributed to this study were from New Hampshire school districts. Some teachers were currently working in schools in the Rochester School District in Rochester, New Hampshire while others were graduate student teachers enrolled in the Clinical M.Ed. program at Southern New Hampshire University, and were affiliated with the Manchester School District in Manchester, NH. The following graphic shows the grade levels of teachers surveyed.



#### Results

# **Past Flexible Seating**

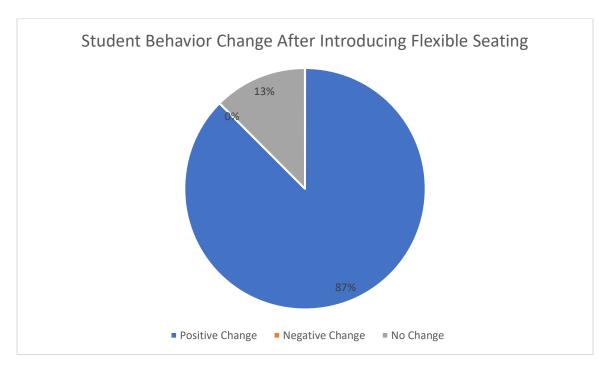
Out of the teachers surveyed, 90.5% reported that they had used flexible seating at some point during past school years. This group who reported yes to this question continued on to the following survey questions regarding flexible seating in past school years where instruction was fully in person with no strict guidelines. Among the group that used flexible seating options in the past, the ways that they utilized these options varied. As this was a short answer question on the survey, the responses have been categorized in the chart below. One category is titled "only choice", meaning that students have regular desk or table seats but are allowed to choose which seat they would like. Another option was "only furniture" meaning that the teacher had alternative furniture in their classroom as opposed to only the traditional desks/tables and chairs but chose the furniture for students. Lastly, there is a category titled, "both choice and furniture". Teachers are included in this category if they have acquired alternative furniture and allow students to choose which of this furniture they use.

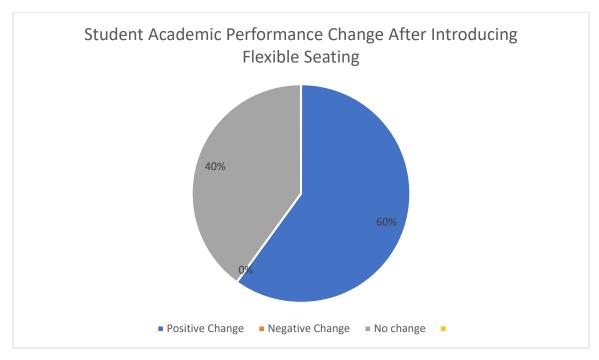


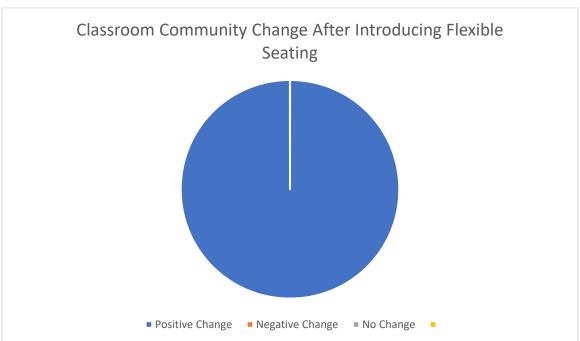
Out of the teachers reporting that they offer alternative furniture options as a part of flexible seating in their classroom, many different types of furniture were explained. Some teachers said that they use flexible seating that was designed with the classroom in mind. These include wiggle stools and standing desks/tables. Wiggle stools are commonly used with students who have ADHD and are designed with a slightly curved bottom so that students can move and rock back and forth while working in a quiet manner. Standing desks/tables are designed at a height so that students can comfortably work at them without sitting down. Other options offered in the survey were slightly more creative in their educational usage. Teachers reported using yoga mats, yoga balls, and other carpeted floor options for students. These methods may not be made specifically for classroom usage but provide students with different options that work for them.

When using flexible seating in past school years, teachers reported with a vast majority that they observed a positive change in student behavior after introducing flexible seating options. Of the teachers who answered this question, 87.5% reported a positive change. When

asked about student academic performance, the results were less drastic. Teachers answered that 60% observed a positive change in academic performance after introducing flexible seating, and 40% observed no change. Teachers were then prompted in the survey to indicate any changes observed in classroom community while using flexible seating. One hundred percent of educators who responded to this question observed a positive change in classroom community. The three charts below illustrate the teachers' observations in the three areas of student behavior, academic performance, and classroom community while using flexible seating.





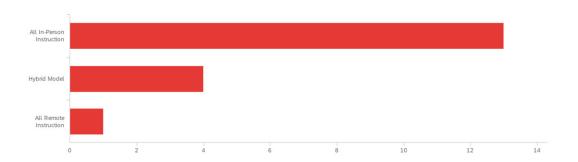


# **Changes to Flexible Seating Options Based on COVID-19**

After the questions about previous usage of flexible seating, the survey shifts in focus to current flexible seating options offered. To identify what options can be offered, it was first important to identify the current mode of instruction as being fully in person, hybrid, or fully

remote. Although many of these formats have changed throughout the school year due to the constantly changing nature of COVID-19 in the United States, at the time of this study 73.7% of teachers reported that their students were fully in person. The graph below shows the other methods of instruction that teachers reported to following.





Of the teachers who saw their students in person in some capacity (either fully in person or hybrid), 43.8% reported being able to use flexible seating in some capacity. The other 56.2% stated that they cannot use flexible seating even though they are in person. This could be due to social distancing precautions, cleaning measures, etc.

The last questions in the survey were open response. They ask teachers to report directly on any changes they have observed in this school year versus previous school years when it comes to the following areas: behavior, academic performance, and classroom community. When asked about behaviors one teacher explains, "Students struggle with focus and concentration. They can take movement breaks, but are not able to collaborate with peers. It is challenging to stay in one place for the duration of the day". Another teacher writes, "I have a lot of students with behaviors this year. I feel like some behaviors are caused by being in their seats too long" and "kids are more wiggly and have shorter attention spans". In contrast to these teachers reporting worse behavior problems, one teacher wrote, "Students are currently at their

own desks 3 feet apart. This has cut down on the amount of behaviors but has also cut down on collaboration". There were also responses about students lacking social skills and not collaborating enough to create the classroom community. One teacher even explained noticing a difference in teacher-student relationships not just student peer relationships. They wrote, "requiring physical distance between Kindergarteners means teachers need to be monitors rather than collaborators in learning" and "added workload and strain for teachers while being pulled farther away from curriculum and teachable moments".

When asked about academic performance the results were not as clear when it comes to seating options. Many teachers reported lower academic performance levels that were directly related to a gap in understanding from the previous grade level, and not the current school year.

#### **Discussion**

The results of this survey support the hypothesis that flexible seating has had many benefits in face-to-face instruction including improvement in the following areas: behavior, academic performance, and classroom community. Teachers who were surveyed responded with a large majority that they observed positive behavior changes when using flexible seating. With a percentage of 87% reporting positive behavior changes, these observations strongly line up with the hypothesis and previous research. These flexible seating methods help students regulate their bodies and minds and it shows in the survey results. This correlates with the results of the studies conducted with the pre-school students, and students with ADHD and autism. The students involved in these previous studies proved to be more engaged similar to the students of the surveyed teachers. The effects on academic performance were not as strong in either direction. Although most teachers reported a positive change, 40% observed no change at all in academic performance when using flexible seating in their classroom. Teacher observations on academic

performance do weigh in favor of flexible seating, however it is important to note that the percentage was not overwhelmingly high. When it comes to fostering a classroom community and sense of culture though, 100% of teachers surveyed said that they witnessed a positive change. This number strongly supports the hypothesis and supports the conclusion that allowing choice, alternative furniture, etc. leads to a closer-knit classroom dynamic and allows more collaboration between peers.

It is important to also note that although some teachers reported seeing no changes when using flexible seating in classroom setting pre-COVID, not a single teacher reported to seeing a negative change in student behavior, academic performance, or classroom culture when using flexible seating. The information gathered in this study shows that no teachers felt flexible seating negatively impacted their students. As previously noted, one of the main reasons that teachers may feel apprehensive to introduce flexible seating is that it may cause issue with behavior management, focus, or other challenges with students. This data proves that this is not the case. For some teachers it was not necessarily a positive change, but they did not see anything negative with it. The study also shows the wide range of flexible seating that teachers can use to be successful. All those surveyed had different ways of using flexible seating and still achieved success.

Shifting from these past uses to a COVID-19 classroom, the survey results support the idea that there is a lack of flexibility in classrooms because of the pandemic and this is affecting students negatively in the areas of behavior and classroom community. Since classrooms have a stricter and more rigid structure if using in-person instruction, many schools cannot offer flexible seating. Because of this, students are losing focus resulting in increased behavior challenges.

Since students are at traditional desks, three to six feet apart they are not socializing and creating

the same classroom community. These results lead to the conclusion that a lack of flexible seating is impacting students negatively.

#### Conclusion

According to previous research, utilizing flexible seating is of extreme benefit to help fulfill diverse student needs. This alternative seating can vary in how teachers use it, but it all serves the same purpose. After conducting a study that surveyed teachers in elementary level grades in New Hampshire, the results support the hypothesis that flexible seating has many benefits in face-to-face instruction; including improvement in the following areas: behavior, academic performance, and classroom community. Changes have occurred to how classrooms can be conducted due to COVID-19 and the survey results showed that the lack of flexibility in current classrooms has negatively impacted both behavior and classroom environment. As the pandemic continues and changes alter school settings, it is important to recognize the value of allowing students to have the flexibility to meet their own learning needs.

#### References

- Amazon. (n.d.). [Photograph of scoop chair]. Retrieved from <a href="https://images-na.ssl-images-amazon.com/images/I/619XBG17LHL">https://images-na.ssl-images-amazon.com/images/I/619XBG17LHL</a>. AC\_SX425\_.jpg
- Cole, N. (2018, April 16). How teachers use alternative seating to engage students. Retrieved from <a href="https://www.parenttoday.org/how-teachers-use-alternative-seating-to-engage-students/#:~:targetText=Flexible%20seating%20allows%20them%20to,minds%20more%20alert%20and%20focused.">https://www.parenttoday.org/how-teachers-use-alternative-seating-to-engage-students/#:~:targetText=Flexible%20seating%20allows%20them%20to,minds%20more%20alert%20and%20focused.</a>
- Flexible Seating Elevates Student Engagement. (2015, August 4). Retrieved from <a href="https://www.edutopia.org/practice/flexible-classrooms-providing-learning-environment-kids-need">https://www.edutopia.org/practice/flexible-classrooms-providing-learning-environment-kids-need</a>.
- Gemas, H. (2019). Flexible Seating in the Classroom.
- [Photograph of milk crates with cushions]. (n.d.). Retrieved from <a href="https://www.milkcratesdirect.com/blog/milk-crate-uses-that-improve-our-lives.html">https://www.milkcratesdirect.com/blog/milk-crate-uses-that-improve-our-lives.html</a>
- [Photograph of student writing while standing at standing desk]. (2014). Retrieved from <a href="https://images-na.ssl-images-amazon.com/images/I/619XBG17LHL">https://images-na.ssl-images-amazon.com/images/I/619XBG17LHL</a>. AC\_SX425\_.jpg
- [Photograph of wobble cushions]. (2017). Retrieved from https://www.sensorydirect.com/blog/benefits-wedge-wobble-cushions/
- Rourke, M. (2013). [Photograph of children in a classroom sitting on yoga balls]. Retrieved from <a href="https://www.sandiegouniontribune.com/sdut-teachers-ditch-student-desk-chairs-for-yoga-balls-2013feb19-story.html">https://www.sandiegouniontribune.com/sdut-teachers-ditch-student-desk-chairs-for-yoga-balls-2013feb19-story.html</a>
- Schilling D.L, & Schwartz I.S. (2004). Alternative seating for young children with autism spectrum disorder: effects on classroom behavior. *Journal of Autism and Developmental Disorders*, 34(4), 423-432. Retrieved from

https://search.ebscohost.com/login.aspx?direct=true&db=ccm&AN=106592665&site=eds-live&scope=site

- Schilling D.L., Washington K., Billingsley F.F., & Deitz J. (2003). Classroom seating for children with attention deficit hyperactivity disorder: therapy balls versus chairs.

  \*American Journal of Occupational Therapy, 57(5), 534–541. Retrieved from <a href="https://search.ebscohost.com/login.aspx?direct=true&db=ccm&AN=106718580&site=ed-s-live&scope=site">https://search.ebscohost.com/login.aspx?direct=true&db=ccm&AN=106718580&site=ed-s-live&scope=site</a>
- Seifert, A. M., & Metz, A. E. (2017). The effects of inflated seating cushions on engagement in preschool circle time. *Early Childhood Education Journal*, *45*(3), 411–418. https://doi.org/10.1007/s10643-016-0797-7
- Shein, T. (2016). [Photograph of students in classroom sitting on wobble stools]. Retrieved from <a href="https://www.dallasnews.com/news/education/2016/10/19/wobble-chairs-bouncy-balls-let-students-wiggle-while-they-work/">https://www.dallasnews.com/news/education/2016/10/19/wobble-chairs-bouncy-balls-let-students-wiggle-while-they-work/</a>

Appendix A

# **Important Terms**

**Flexible Classroom** – a classroom environment that does not follow traditional set up. Allows for differentiation in environment depending on student needs

**Flexible Seating** – allowing student choice in seating, alternative furniture options, etc. in a physical aspect outside of traditional classroom norms

Yoga/therapy balls - inflated rubber balls commonly used for yoga and other exercise.

Commonly paired with desks for students to work on.



(Rourke, 2013)

**Inflated cushions** – rubber and inflated disc that sits on top of chairs or on the ground. Flat and can have raised bumps for movement and stimulation



(Amazon, n.d.)

**Wiggle stools** - stools with a slightly rounded bottom so that students who sit on them can rock and movement is possible



(Shein, 2016)

**Milk crates** – plastic crates with padded cushion on top. Used in conjunction with desks or tables for younger learners



([Photograph of milk crates with cushions], n.d.)

**Scoop chairs** – plastic seats with rounded back and no legs. Students use these on the ground and are able to rock back and forth



**Standing desks** - desks/tables are designed at a height so that students can comfortably work on them without sitting down



([Photograph of student writing while standing at standing desk], 2014)