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Qualitative Study: Brain Breaks in Primary School Classroom

A Dissertation by

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Submitted in partial fulfillment of the requirements for the degree of

Doctor of Education in Organizational Leadership

March 2024

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Qualitative Study: Brain Breaks in Primary School Classroom

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ABSTRACT

Qualitative Study: Brain Breaks in Primary School Classroom

by Mandeep Biring

Purpose: The purpose of this qualitative phenomenological study was to identify and describe the brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). A further purpose of this study was to identify primary teachers' perceptions of which brain break strategies are most effective to support student learning.

Methodology: A phenomenological research design was used for this study. A qualitative method was used to collect data which included conducting semistructured interviews and observations with participants to gain information related to identifying, describing, and learning participants perceptions related to brain breaks.

Findings: Examination of qualitative data from the primary teachers participating in this study indicated various findings related to which brain breaks are the most effective to support student learning. After analyzing the themes that were coded from the interviews and observations, there were four findings and unexpected findings that describe specific brain break strategies that primary teachers use to support students and the brain breaks that primary teachers perceive as the most effective for support student learning.

Conclusions: Based on the findings related to the study, there were five conclusions identified from the themes and key findings in the research study. The conclusions support the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks) strategies that are the most effective to support student learning. The

conclusions also support the need to use variety of brain breaks that support the needs of learners.

Recommendations: There were many conclusions that were drawn from the findings from this study that led to implications for action. The implications support students with academic success in the classroom. All the implications support teachers by helping them build their repertoire of resources related to brain breaks. Furthermore, these resources will help teachers support students when they recognize that students need brain breaks to support learning.

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CHAPTER I: INTRODUCTION

There is no question about the importance of academic achievement in primary schools and how much it matters in the future. Studies have shown that students who excel in primary school have more prosperous futures (Paul, 2023). Academic achievement plays a key role because academic skills affect many future outcomes such as acceleration in careers and income related to careers (Peng & Kievit, 2020). According to Regier (2011), academic achievement is imperative for the successful development of primary school students because if they excel in school, they will be able to make greater transitions related to career-oriented goals.

Schools face many challenges that prevent students from succeeding academically, so schools must focus on strategies and programs that support students to learn and excel. Meador (2019) shared that schools must do all that they can to minimize the impact of challenges, such as student motivation levels and lack of interest, and focus on maximizing student learning as a key priority. There are many things that are out of the control of the school and as Meador explained, many of the challenges are societal issues, which the school cannot overcome. Schools need to support students while in school so they are engaged and will achieve academically. Regier (2011) emphasized that academic success is vital for success in the future and supports acceleration in the workplace. Likewise, educators that engage students in lessons help them gain skills that impact many aspects of their lives in the future (Reference, 2023).

Because students spend most of their time in the classroom, educators need to find ways to keep all students engaged throughout the school day, so they can achieve academically. Care et al. (2017) explained that educators need to provide an environment

in which all students can learn. They need to understand that there has been a shift in education and students need opportunities to develop cognitively and socially within the formal learning environment. Similarly, Hallerman et al. (2019) emphasized that 21st century education does not include students sitting quietly at desks and in rows but creating an environment in which students are moving around and engaged to shape their learning.

One way to increase students' academic engagement in the classroom includes offering students brain breaks in the classroom. There are many types of brain breaks that can be incorporated during the school day and that have been shown to have real benefits to support dealing with challenges that occur in the classroom, such as dealing with stress and anxiety during the school day (Morin, n.d.). Brain breaks are short breaks that are provided in the classroom by which students reset and enhance energy such as walking around the room, hopping to the carpet, and running in place (Kiser, 2020). When students have an opportunity to take movement breaks before they transition to new activities, they are more engaged and focused. Beaupre (n.d.) explained that brain breaks are essential short breaks that give students who are struggling an opportunity to reset and recenter themselves. Teachers who provide students opportunities to take short brain breaks have improved students' concentration in classrooms, resulting in higher levels of achievement (Perera et al., 2015). Thus, it is important that teachers understand how and when to provide brain breaks to best support student learning.

Background

Academic achievement in elementary schools is the key for students' success and vital for their development (Regier, 2011). Multiple early child development and learning

theories help support why teachers need to incorporate a variety of strategies to meet the needs of all students and improve student achievement in the classroom (Meador, 2019). Teachers who implement strategies that engage students in lessons help students gain skills that impact many aspects of their lives in the future (Reference, 2023). One way for students to be successfully engaged in primary school is incorporating brain breaks that include movement, breathing, and mental breaks to maximize students' learning (Weslake & Christian, 2015).

History of Elementary School Education

Elementary schools are all around the world and are the basis of the formal educational system (Guttek, n.d.). During elementary school, students learn the foundational skills to be successful in the future. Guttek (n.d.) further explained that in addition to fundamental skills, elementary schools provide students with the knowledge that they need for the early stages of education. Elementary schools today are different from the schools in the 19th century because today's schools consist of many more classrooms with students separated by ability and grade level with different needs to support them in the classroom (Chen, 2022). Furthermore, there was a shift in education in the 1990s with the development of standards for what students should learn and be able to do in each subject area. This standards movement included the implementation of standards-based testing in U.S. elementary education.

Because elementary school teachers are held more accountable with standards-based testing, instructional minutes are more valuable. The No Child Left Behind Act (NCLB) was the 2002 reauthorization of the Elementary and Secondary Act (ESEA), which provides federal funding to support disadvantaged kindergarten to twelfth grade

students (Lee, n.d.). NCLB was used to hold schools accountable for student performance. Accountability consisted of annual assessments, reporting, including targets, and penalties for schools that did not meet established targets. NCLB focused on the achievement of all students including students in poverty, students of color, students receiving special education services, and students who speak limited English. With the 2015 reauthorization of ESEA, the Every Student Succeeds Act (ESSA) replaced NCLB and shifted accountability to the state level. ESSA focuses on how students learn and achieve and providing equal opportunities for all students, and each state makes its own educational plan using a framework that is furnished by the federal government.

The higher levels of accountability with ESEA created an increased focus on how instructional time was used because even if a teacher spends 5 min of instructional minutes per day on unplanned activities, it would be a loss of 15 hr of learning opportunity over the course of 1 school year (Meador, 2019). For all instructional minutes to be used effectively, teachers need to strategically plan the day to meet the diverse needs of the students. Effective teachers have clear procedures and expectations so there is no wasted instructional time and students are engaged with instruction. To ensure that students meet academic standards, teachers need to ensure that instructional time is maximized (Gernes, 2021). Using what is known about how children develop and learn can inform teacher practice related to the use of instructional time.

Foundational Theories of Child Development

An understanding of childhood development is needed to understand how to best support students. Multiple early child development theories by John Dewey, John Locke, and B.F. Skinner address how students develop and acquire knowledge. Child

development is further explained by the learning theories that focus on how children develop and learn (Gibbon, 2020).

Learning by Doing

John Dewey was an American philosopher and educator who believed in learning by doing. At a young age children need the opportunity to do tasks for them to learn so they can show what they have learned (Roiland, 2020). When children attend preschool, they learn and gain knowledge from their experience while attending school (Roiland, 2020). When teachers present new ideas, students use past knowledge to construct meaning. Teachers facilitate and students show what they learned by doing activities. As teachers plan lessons, they teach students skills followed by the students showing what they have learned.

In correlation to Dewey, John Locke was an English philosopher and an advocate of hands-on learning. Locke also emphasized the blank slate theory which included that children have an empty mind when they come into this world, and they gain knowledge and learn through their experiences. He believed that children need to explore and engage in physical activity to enhance learning (Aleksov, 2018). In addition, and like Dewey, Locke believed that hands-on experiences allowed students to show what they learned (Gibbon, 2020).

Behaviorism

B. F. Skinner is most well-known for developing the theory of behaviorism, which describes how adults influence the behavior of children with positive and negative reinforcements (Shukla, 2022). Positive reinforcement is provided for desirable behaviors to increase those behaviors, and negative reinforcement is provided for undesirable

behaviors to decrease those behaviors. Skinner believed that behavior was a learned response and that behavior is influenced through environmental factors. As teachers design the classroom environment, they seek to reinforce desirable learning behaviors with students.

Piaget's Theory of Education

Jean Piaget's theory of cognitive development focuses on how children gain knowledge and understanding. His theory is that development consists of four stages of learning through which children progress from birth into adulthood (Cherry, 2022b). Children learn new ideas and use their previous knowledge to construct meaning. Piaget believed that children learn through interaction and build on previous knowledge when acquiring new information. According to Piaget, students learn about the world through movement and sensations and by interacting with peers. Piaget emphasized that children's thoughts start with physical activity in the early stages of a child's development. Therefore, based on Piaget's theory, students would benefit from instructional activities that incorporate movement and interaction with peers.

Howard Gardner's Theory of Multiple Intelligences

Howard Gardner believed that all humans have multiple intelligences, and they can be strengthened and nurtured, or they can be weakened and ignored (Hernden, 2018). Students have some of each intelligence, but usually have a dominant intelligence which will impact the way they learn. Gardner's multiple intelligences consist of verbal-linguistic intelligence that includes good development of verbal skills, logical-mathematical intelligence that includes thinking abstractly, spatial-visual intelligence that includes imagination of pictures, bodily-kinesthetic intelligence that includes controlling

body movements, musical intelligence that includes ability to produce rhythm, interpersonal intelligence that includes responding to moods, intrapersonal intelligence that includes self-awareness of feelings, naturalist intelligence that includes differentiation from plants and animals, and existential intelligence that includes being aware of human existence (Cherry, 2022a). Gardner explained that teachers should not focus on one of the intelligences but rather consider the different multiple intelligences when planning instruction (Hernden, 2018).

Vygotsky's Learning Theory

Lev Vygotsky's theory of learning emphasizes the importance of the zone of proximal development. According to Vygotsky, the zone of proximal development is when the student is close to developing the new skill but needs some assistance (Cherry, 2022c). In the classroom setting, teachers scaffold instruction to support students. Vinney (2019) explained that scaffolding is the support provided to students who are trying to learn something new in the zone of proximal development. Therefore, based on Vygotsky's learning theory, teachers must scaffold their instruction by incorporating a variety of strategies, so students develop new opportunities to learn above and beyond their current levels.

Instructional Day in Elementary Schools

Students spend most of their school day in the classroom with little time for breaks (Ricketts, n.d.). According to Rosenshine (2015), elementary students spend 90% of their classroom time performing academic activities while being seated in the classroom. The elementary school day has traditionally been organized with blocks of instructional time broken up with recess time when students play outside with their

classmates (Wurman, 2019). Recess enhances the cognitive, emotional, and social development that is needed for students (Ricketts, n.d.). In most elementary schools, students receive one recess in the morning and one recess during lunchtime but spend most of their day sitting in the classroom (Wurman, 2019). Recess has long been regular practice in elementary schools; however, in recent years recess time has been reduced to provide students with increased instructional time (Ricketts, n.d.) and to allow more time for focusing on skills (Wurman, 2019). When students sit in the classroom for long periods of time, they tend to lose focus and are not engaged with the instruction (Morin, n.d.).

The Importance of Breaks in Schools

Offering students brain breaks in the classroom allows for mental breaks because recess time is limited in the school day. When students have an opportunity to take brain breaks before they transition to activities, they are more engaged and focused (Willis, 2016). Similarly, Morin (n.d.) mentioned that there are many breaks that can be incorporated in the classroom and have been shown to have real benefits, such as reducing stress, anxiety, and frustration, that in turn help students focus and be more productive.

Incorporating Brain Breaks in Instruction

Some teachers argue that brain breaks take time away from instruction (Gernes, 2021). Even though brain breaks are small breaks that are 3 to 5 min and are built within lessons, instructional time is used (Willis, 2016). For brain breaks to be effective with instruction, they need to be related to the subject matter content. Similarly, Cleaver (2019) emphasized that having students take movement breaks that are related to math

activities after math lessons and reading movement activities after reading lessons would be beneficial and a good use of instructional time. Similarly, Perera et al. (2015) emphasized that teachers who provided students opportunities to take movement breaks improved students' concentration; therefore, this is an effective use of classroom instructional time.

Theoretical Framework: Three Types of Brain Breaks

Three types of brain breaks that support students during instruction include mental breaks, movement breaks, and breathing breaks (Weslake & Christian, 2015). All three types of brain breaks are used to support students by allowing them to take a mental and/or physical break from instruction. Willis (2016) shared that brain breaks are embedded in learning activities that are planned and help support the brain when students are bored or fatigued.

Mental Brain Breaks

Mental brain breaks are used to support students when they are working on activities that have high levels of concentration. Mental brain breaks help students be more productive by refocusing students' attention (Willis, 2016). Some examples of mental brain breaks that have limited levels of concentration are playing games, telling jokes, or reading stories (Weslake & Christian, 2015). Willis (2016) shared that taking mental brain breaks helps students' brains feel refreshed, so they are ready to engage in the instruction.

Movement Brain Breaks

Another type of brain break is movement breaks. Movement brain breaks consist of physical movement that allows students to release energy and then engage with the

task they need to complete (Willis, 2016). Some examples of movement brain breaks include dance and games (Weslake & Christian, 2015). Terada (2018) explained that movement breaks are an imperative part of learning, and brain breaks throughout the school day support students that need behavioral support by helping them stay on task and complete tasks. Movement brain breaks incorporated throughout the school day benefit students to reenergize, which helps them concentrate better (Ferlazzo, 2020).

Breathing Brain Breaks

The third type of brain break is breathing breaks. Breathing brain breaks consist of breathing and relaxation types of breaks. Breathing breaks are done individually to support students after activities (Morin, n.d.). Some examples of breathing breaks include stretching the arms and legs, rolling the neck, raising the arms above the head, shaking out the hands when standing, deep breathing and closing eyes and relaxing (Morin, n.d.; Weslake & Christian, 2015.). Breathing brain breaks support students' mental health and help them regroup so they can focus on tasks. Terada (2018) shared that these brain breaks give students time to relieve stress and increase their opportunities to learn and be attentive.

The Role of Elementary Teachers

Elementary teachers have many roles to ensure that students receive the education that they need to be successful. It is the teacher's responsibility to ensure that strategies are implemented in the classroom that support students to be academically successful (Kelchner, 2018). Elementary school teachers play an important role in the development of children and must ensure their educational needs are met by incorporating strategies that support all students (Yussif, 2022). Elementary school teachers develop lesson plans

that support students daily and instruct students in the classroom by checking for understanding and reinforcing the lessons learned in the classroom through assigning homework (Kelchner, 2018).

Summary

There has been a decline in the amount of time students engage in recess throughout the years with a focus more on instructional minutes because of standards-based assessments and increased accountability. Various child development and learning theories identify what is needed for children to develop and learn. Locke and Dewey both explained that children learn by doing (Cherry, 2022a, 2022b, 2022c). In addition, Gardner's theory on multiple intelligences focused on teachers considering the different multiple intelligences when planning instruction to support all students. Teachers can support student learning in elementary classrooms by incorporating brain breaks that include movement, breathing, and mental breaks to maximize students' learning (Weslake & Christian, 2015).

Research Problem

Academic achievement in primary schools is fundamental for students to be successful in the future (Paul, 2023). Research has shown that students who do well in primary school have more opportunities in the future. Regier (2011) explained that students are more successful in their careers if they excel in elementary education. Although schools face many obstacles that hinder academic achievement, they must focus on how students can learn. Meador (2019) shared that student learning is the priority, and schools must do all that they can to reduce the impact of challenges by focusing on how to engage and motivate students. There has been a reduction in recess

time to provide students with increased instructional time (Ricketts, n.d.). Breaks such as recess are needed to help students stay focused and engaged in the classroom (Morin, n.d.).

Because it is difficult for students to sit in one place for long periods of time, students need an opportunity to engage in movement throughout the school day to be successful academically. Research has shown that teachers need to create an environment that allows students to be productive (Care et al., 2017). Additionally, students develop both cognitively and socially in learning environments where they are engaged. Further research has shown that 21st century education includes establishing a learning environment in which students have opportunities to engage in movement rather than sitting quietly at their desks (Hallerman et al., 2019).

One way to engage students in movement in the classroom includes implementing brain breaks in primary classrooms to increase students' performance levels. Beaupre (n.d.) explained that brain breaks are essential short breaks that give students who are struggling an opportunity to reset. In a new study, neuroscientists have suggested that when it comes to optimizing learning, brain breaks are not valued enough (Willis, 2016).

Studies have shown that planning brain breaks is challenging because teachers have instructional time that they must incorporate in their daily schedules, and teachers have difficulty justifying the use of brain breaks in their classrooms. Gernes (2021) also discussed that brain breaks take time away from instructional time. However, Terada (2018) emphasized that short physical activity breaks improve students' ability to stay on task. Perera et al. (2015) mentioned that teachers who provided students opportunities to

take movement breaks improved students' concentration, and that is an effective use of classroom instructional time.

Although there is substantial research that shows the effectiveness of brain breaks for elementary students, there is also research that questions the value in relation to instructional time. Terada (2022) explained that the value of breaks is underestimated, and decades of research have shown that students who are physically active outperform inactive students. To meet the needs of today's students, teachers need to provide an environment in which all students can learn and grow academically (Care et al., 2017). Additional research is needed to discover which brain break strategies are used by primary teachers to effectively support student learning for each of the three different types of brain breaks, including breathing breaks, movement breaks, and mental breaks.

Purpose Statement

The purpose of this qualitative phenomenological study was to identify and describe the brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). A further purpose of this study was to identify primary teachers' perceptions of which brain break strategies are most effective to support student learning.

Research Questions

Research Question

What brain break strategies do primary grade teachers use? Which strategies do primary teachers perceive as the most effective to support student learning?

Research Subquestions

1. What breathing brain breaks do primary grade teachers use? Which breathing brain break strategies do they perceive as the most effective to support student learning?
2. What movement brain breaks do primary grade teachers use? Which movement brain break strategies do they perceive as the most effective to support student learning?
3. What mental brain breaks do primary grade teachers use? Which mental brain break strategies do they perceive as the most effective to support student learning?

Significance of the Problem

Early education develops the foundation for students and builds their academic success in the future (Paul, 2023). Students need to be engaged academically in the classroom, so they are ready for the future. Care et al. (2017) emphasized the necessity for educators to provide an environment in which students feel connected with academics and have opportunities to develop. There is a shift to support students with 21st century education by allowing students movement around the classroom and not sitting quietly at desks in rows (Hallerman et al., 2019).

Research has shown that there are many benefits of incorporating brain breaks in primary classrooms to increase students' performance levels. Brain breaks provide students opportunities to release stress and engage with lessons (Abdelbary, 2017). Students who are struggling get occasions to reset and refocus when they are engaged in brain breaks (Beaupre, n.d.). When students have an opportunity to take brain breaks before they transition to activities, they are more focused (Willis, 2016).

This qualitative study identifies and describes the brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). A further purpose of this study was to identify primary teachers' perceptions of which brain break strategies are most effective to support student learning.

The results of this study will be beneficial to teachers as they plan brain breaks in the classroom to support students academically because it will provide information about the most effective strategies. School administrators will also benefit from this study because they will understand the effective strategies for incorporating brain breaks and can support these strategies with teachers. The California Teachers Association, which works to support educators and improve the conditions of teaching and learning in California, can use the results of study in the professional development sessions they provide to support teachers. Curriculum publishers can incorporate the information from this study in their curriculum to suggest how to incorporate brain break activities to support students' achievement. New teacher induction programs can also benefit from this study and provide teachers support on incorporating brain breaks during instruction. Teachers in California must complete an induction program within the first 5 years to complete their clear professional credential (Sheldon, 2022). This study provides needed information related to determining which brain break strategies are used by primary teachers to effectively support student learning for each of the three different types of brain break, including breathing breaks, movement breaks, and mental breaks.

Definitions

The following key terms and definitions are important to understand the significance of the study.

Academic achievement. When students have educational outcomes that show indicate levels of learning by showing mastery of specific goals related to subjects (Paul, 2023).

Brain breaks. Brain breaks are short breaks that are incorporated in the classroom to help students reset their minds (Kiser, 2020).

Breathing breaks. Breathing brain breaks are composed of breathing and relaxation types of break such as stretching the arms and legs, raising the arms above the head, deep breathing, and closing eyes and relaxing (Morin, n.d.; Weslake & Christian, 2015).

Mental breaks. Mental brain breaks are breaks that help students be more productive by refocusing students' attention when they are working on activities that require high levels of concentration (Willis, 2016). Some examples of mental brain breaks include playing games, telling jokes, or reading stories (Weslake & Christian, 2015).

Movement breaks. Movement brain breaks are composed of physical movements that allow students to engage with tasks by releasing energy (Willis, 2016). Some examples of movement brain breaks include engaging in dances, exercising, and playing movement games (Weslake & Christian, 2015).

Primary grades. Primary grades include students who are in kindergarten to third grade and are at the ages of five to eight (Paul, 2023).

Delimitations

The study focused on primary grade teachers who teach kindergarten to third grade and who are exemplary teachers who incorporated brain breaks in their classrooms. The exemplary teachers also had 2 or more years of teaching experience, were recommended by site administrators, and provided in person instruction. The study was delimited to teachers who teach in Sacramento County.

Organization of the Study

The rest of the study consists of four chapters. Chapter II consists of the review of the literature that shares how brain breaks support students' achievements by increasing students' focus, historical perspectives that include history of primary education and incorporating brain breaks as alternatives of recess, and history of brain breaks that includes the importance of brain breaks and the challenges and issues related to brain breaks. Furthermore, Chapter II focuses on various child development and learning theories that show what is needed for children to develop and learn. Many early child development theories and foundational theories by John Dewey, John Locke, B.F. Skinner, Jean Piaget, Howard Gardner, and Lev Vygotsky show how students develop and gain knowledge. Chapter II also focuses on the theoretical framework, which consists of how teachers can support student learning in elementary classrooms by incorporating brain breaks that include movement, breathing, and mental breaks to maximize students' learning (Weslake & Christian, 2015). Chapter III focuses on the methodology that includes the research design, population, target population, sample, and data collection and data analysis. Chapter IV focuses on data collection and the findings of the study. Chapter V provides a summary of the conclusions, implications, and further

recommendations related to the study. Following these chapters are references and appendices related to the study.

CHAPTER II: REVIEW OF THE LITERATURE

Chapter II consists of the review of the literature, which shares how brain breaks support students' achievements by increasing students' focus, historical perspectives that include history of primary education and incorporating brain breaks as alternatives of recess, the history of brain breaks that includes the importance of brain breaks and the challenges and issues related to brain breaks. Furthermore, Chapter II focuses on various child development and learning theories that show what is needed for children to develop and learn. Many early child development theories and foundational theories by John Dewey, John Locke, B.F. Skinner, Jean Piaget, Howard Gardner, and Lev Vygotsky explain how students develop and gain knowledge. Chapter II also focuses on the theoretical framework, which consists of how teachers can support student learning in elementary classrooms by incorporating brain breaks that include movement, breathing, and mental breaks to maximize students' learning (Weslake & Christian, 2015).

History of Elementary School Education

Students spend many hours a day in their lives attending elementary schools. Elementary schools are the source of education for students, and they are established all around the world (Guttek, n.d.). Elementary schools provide students with the foundational skills they need to be successful in the future. Chen (2022) explained that elementary schools are made up of more classrooms today, and some schools consist of differentiated instruction by which students are grouped by ability and different needs; this is a shift from how schools were made up in the 19th century. Schools look different today than they did in the past. Guttek (n.d.) further emphasized that in addition to basic skills, elementary schools provide students with the skills that they need for the beginning

stages of education. Furthermore, there was a shift in education in the 1990s with the development of standards for what students should learn and be able to do in each subject area. This standards movement included the implementation of standards-based testing in U.S. elementary education (Chen, 2022).

Standards-based assessments are used to see whether students mastered grade level standards at specific grade levels and whether students have achieved proficiency. Capone (2021) shared that standard-based assessments are an assessment used to measure whether students have mastered grade level standards. To determine whether students are meeting mastery, school districts give benchmark assessments that show whether students are making progress with the grade level standards. Some school districts create their own benchmark assessments that show whether students are making progress toward grade level standards. Teachers also use standards-based grading to see how students are progressing throughout the school year on grade level standards. Likewise, Chen (2022) shared that implementing standards-based assessments in the classroom provides educators an opportunity to engage with standards-based grading to monitor students' progress related to grade-level standards. The purpose of standards-based instruction and assessments is to ensure that students meet proficiency for the standards at their grade levels. Capone explained that providing hands-on instruction that includes hands-on projects helps students master grade level standards.

With the implementation of standards-based assessments, teachers are held more accountable because there are data provided with assessments. The NCLB was the 2002 reauthorization of the ESEA which provides federal funding to support disadvantaged kindergarten to twelfth grade students (Lee, n.d.). Another purpose of NCLB was to hold

schools accountable for students' academic performance. Chen (2022) explained that NCLB was used to hold school districts and schools accountable for their data, which were shared with parents. Accountability consisted of assessments that were given to all students annually and reporting of assessment data. Additionally, accountability consisted of specific targets, and schools were penalized when they did not meet the expected targets (Lee, n.d.). NCLB addressed the achievement of all students including students of color, students who were in poverty, students receiving special education services, and students who were English language learners. With NCLB, if schools continually had students who were not proficient with grade level standards, the students at that school were given options such as the opportunity to attend other schools in the district (Chen, 2022).

In 2015, there was a reauthorization of ESEA, and the ESSA replaced NCLB and led to a shift in accountability to the state level. The goal of ESSA was related to how students learn and provided equal opportunities for all students; each state made their own educational plan that was based on a framework furnished by the federal government. (Lee, n.d.). Because there were higher levels of accountability with ESEA, there was more focus on how teachers used instructional time. Meador (2019) shared that there would be a loss of instructional time if teachers were not planning activities that were meaningful and students would lose learning opportunities if the time was not planned. Because there is an emphasis on instructional minutes, teachers need to strategically plan the day, so student learning is maximized. Effective teachers plan lessons and use instructional time to optimize learning for students, and time spent on noninstructional processes are minimal. Likewise, Meador shared that teachers who have

clear procedures and expectations do not waste instructional time and maximize instructional minutes. Teachers who have clear procedures and routines also have well-paced lessons that support the needs of all students. Gernes (2021) explained that teachers need to ensure that instructional time is used to optimize learning, which would result in students meeting standards.

Academic Demands in Elementary School

Academic achievement during primary school is essential for students and their success in the future. Students who are successful have bright futures and are successful when they join the workforce (Paul, 2023). Peng and Kievit (2020) emphasized that academic achievement is crucial when students are in primary school, and it will affect their success finding careers that are high paying. It is imperative that students are successful in primary grades because it will affect their success in the future. According to Regier (2011), academic achievement is needed in primary schools for students to be successful and have careers that maximize their full potential.

There are many challenges that schools face to meet the academic needs of students. Schools need to support students by helping them overcome the challenges that are barriers that impede academic success. Meador (2019) emphasized that schools must help students overcome these challenges and find strategies to maximize student learning. Schools need to provide support to students while they are in school, so they relate to school and have the skills to excel academically. Because there are many challenges that schools are unable to control, schools need to support students with the things that they can control. Furthermore, Meador shared that there are situations that schools cannot control such as a students' family life including challenges they face at home. It is

imperative for schools to support students while they are at school, understanding that situations at home are out of their control. In addition, Regier (2011) elaborated on the importance of academic success for students to be successful in the workplace. When students are fully engaged academically, they increase skills that help build their future (Reference, 2023).

Students spend most of their time in the classroom, so educators need to find strategies to keep all students engaged throughout the school day so they can achieve academically. For students to excel in the classroom, they need a learning environment that promotes learning. The environment in schools needs to be one that helps students stay committed and connected to their learning (Care et al., 2017). Because there has been a transition in how students learn, they need opportunities to learn and grow both socially and academically. In the 21st century, education consists of students moving around the classroom and making connections with learning instead of sitting quietly at their desks (Hallerman et al., 2019). Students need an environment that allows them to move around to different stations within rooms instead of just working in their own seats. Education has shifted to allowing students opportunities to move around the classroom and work with peers to construct meaning. Schleicher (n.d.) shared that there is a shift in education today, and students use creative and critical thinking when it comes to solving problems and making decisions related to academics. Students need more opportunities to collaborate with peers and learn from their peers' responses to construct meaning. Students need to be ready to face the challenges of the multifaceted world that they live in. Similarly, Hallerman et al. (2019) emphasized that the teachers in the 21st century need to help students discover how to learn concepts by promoting collaboration,

encouraging creativity, and providing opportunities for critical thinking. For students to engage in these strategies, they need to be in an environment that promotes students to work in a collaborative environment and not just sit in rows. It is up to the educator to help students learn and support them in how they are going to learn (Schleicher, n.d.).

Child Development

To best meet the academic needs of students requires an understanding of how children develop. There are many child development theories by John Dewey, John Locke, and B.F. Skinner that explain how students progress and how students gain knowledge. Shonkoff (n.d.) shared that early childhood development supports students with behavior and learning for the future and supports children's development that they will need to be successful in the future. Childrens' experiences in elementary school impact their lives and success when they face the realities of the world in the future. Having positive experiences and safe and supportive environments contribute to positive development in children. Furthermore, Shonkoff explained that learning theories are also used to share how children develop, learn, and grow. Therefore, child development and learning theories show what is needed for children to develop and learn. Many early child development theories and foundational theories by John Dewey, John Locke, B.F. Skinner, Jean Piaget, Howard Gardner, and Lev Vygotsky explain how students develop and gain knowledge.

Learning by Doing

American philosopher and educator John Dewey shared his perspectives related to learning by doing. Roiland (2020) shared that children will be able to show what they have learned when they receive an opportunity to engage with tasks that allow them to

demonstrate their learning. At a young age, children need opportunities to do jobs that allow them to learn so they can show what they have learned. Furthermore, Roiland explained that for children to gain knowledge and to show learning, attending preschool is imperative. When teachers use instructional materials that promote student engagement, students make connections with the learning and have opportunities to extend their learning. Roiland shared that when students can show what they have learned, then learning is meaningful and purposeful. Students need opportunities to use past knowledge to construct meaning. When teachers build on students' comments and questions during lessons, students can learn and construct meaning. Roiland explained that the best way for students to show what they have learned is when the teacher acts as a facilitator. When teachers plan lessons for students, they focus on what students are going to learn and how they are going to show what they learned. Terango (2020) emphasized that students need to know what they will be learning, so it is up to the teacher to share it in a way that engages students.

In addition to Dewey, another English philosopher who was an advocate for hands on learning was John Locke. Price (2018) shared that Locke advocated for learning that was student centered and focused on the whole-child approach. Students need to use a wide variety of activities to maximize learning. Locke shared that it is the responsibility of the teacher to help students find themselves within their learning and then learn the content. To engage students, teachers need to facilitate learning by connecting understanding by linking learning to students' prior knowledge, life experiences, and interests. Teachers need to build on students' comments and questions during lessons to extend learning and to help students construct meaning. Locke believed that for students

to engage with learning and to construct meaning, they need to be engaged with hands-on experiences (Gibbon, 2020).

Another theory that Locke explained was the blank slate theory that children come into the world with an empty mind, gain knowledge, and learn through their experiences and connections. Locke shared that the meaning of being blank refers to students learning to have good behavior or students learning to have bad behavior (Price, 2018). For students to be successful in the future, education shapes children as to what they become. Locke also believed that children are taught by their life experiences and their personal views of those lived experiences. Teachers need to use a variety of strategies that offer students multiple ways to approach and demonstrate learning. Furthermore, Locke believed physical activity enhances learning and helps children's exploration and engagement (Aleksov, 2018). Dewey and Locke both emphasized the importance of hands-on experiences for children to construct meaning (Gibbon, 2020).

Behaviorism

B. F. Skinner, an American psychologist and behaviorist, is known for developing the theory of behaviorism (Shukla, 2022). Skinner's behaviorism theory shares that toddler and preschoolers' behavior is influenced by negative and positive reinforcements by adults. The theory elaborates on positive reinforcements given for desirable behaviors to increase those behaviors and negative reinforcements given for undesirable behaviors to decrease those behaviors. Furthermore, Skinner believed that behavior is influenced by the environment and that behavior is a learned response. For an effective classroom environment, teachers need to reinforce desirable learning behaviors with students with clear expectations. Students need established behavior expectations

that have standards for students' behavior. Implementing classroom procedures and routines related to behavior to support student learning is critical. Furthermore, Skinner explained that teachers use reinforcement strategies throughout the entire day in the classroom. Teachers have behavior expectations for students and have both consequences and rewards for students to increase the desired expectations while decreasing the negative behaviors.

Piaget's Theory of Education

Another psychologist, Jean Piaget, developed the theory of cognitive development. Piaget's cognitive development theory shares how children gain knowledge and construct understanding. Cherry (2022b) explained that Piaget's theory consists of four stages of learning through which children progress from birth into adulthood. Students construct meaning by connecting their prior knowledge and life experiences to learning.

Piaget emphasized that children learn by interacting with peers and building on their previous knowledge when learning new information (Cherry, 2022b). Furthermore, Piaget expressed that students learn about the world by engaging in movements that allow them to interact with peers. Similarly, Piaget shared that children's thinking begins with physical movement in the early stages of a child's development. From Piaget's theory, students benefit when instructional activities have movement and interaction with peers in the classroom. According to Hargraves (2021), Piaget believed that learning occurs when students are engaged with hands-on activities and interactions, and students need to interact with things in their environment to construct meaning.

Howard Gardner's Theory of Multiple Intelligences

Another American psychologist, Howard Gardner, shared that humans have multiple intelligences. Hernden (2018) explained that the multiple intelligences that humans have are nurtured or strengthened, or they are weakened and ignored. Students will be stronger in some intelligences and weaker in others. Hernden explained that Gardner shared how students have strengths and weaknesses in varied intelligences, and teachers need to present materials to meet the needs of all students. Furthermore, students have a dominant intelligence along with some of each intelligence, and the dominant intelligence impacts the way they learn.

Gardner's multiple intelligences consisted of verbal-linguistic intelligence that includes strong development of verbal skills, logical-mathematical intelligence that includes thinking abstractly, spatial-visual intelligence that includes imagination of pictures, bodily-kinesthetic intelligence that includes controlling body movements, musical intelligence that includes ability to produce rhythm, interpersonal intelligence that includes responding to moods, intrapersonal intelligence that includes self-awareness of feelings, naturalist intelligence that includes differentiation from plants and animals, and existential intelligence that includes being aware of human existence (Cherry, 2022a). Furthermore, Gardner explained that teachers should not pay attention to only one of the intelligences but should consider all the multiple intelligences when planning instruction for all students to maximize learning (Hernden, 2018). Teachers need to plan instruction that meets the needs of students and materials in multiple ways. Hernden (2018) explained that teachers need to plan lessons that touch on all the multiple intelligences, so students gain confidence. Furthermore, students' learning is strengthened

when instruction has varied activities that focus on multiple intelligences with appropriate activities to support all students. Lawless (n.d.) emphasized that when teachers use multiple modalities during lesson planning, they increase student achievement. Furthermore, students need opportunities to use multiple learning styles to support student learning.

Vygotsky's Learning Theory

Lev Vygotsky's theory of learning focuses on the importance of the zone of proximal development. Cherry (2022a) shared that Vygotsky explained that the zone of proximal development is related to a student being close to developing a new skill but needing some assistance. Similarly, Mcleod (2024) shared that the zone of proximal development is the gap between the level of development, what the child can do independently, and the level of potential development, what a child can do with the assistance of more advanced individuals. Teachers need to scaffold instruction to support students in the classroom to promote the zone of proximal development. Scaffolding is the support provided to students who are trying to learn something new in the zone of proximal development (Vinney, 2019). Therefore, based on Vygotsky's learning theory, it is imperative that teachers scaffold their instruction, so students gain and develop new opportunities to learn above their current levels (Vinney, 2019).

Vygotsky's theory encourages collaborative and cooperative learning between children and teachers or peers. Scaffolding and reciprocal teaching are effective educational strategies based on Vygotsky's ideas. Scaffolding involves the teacher providing support structures to help students master skills just beyond their current level. Similarly, Mcleod (2024) shared strategies such as reciprocal teaching, which includes

teachers and students taking turns and leading discussions using strategies like summarizing and clarifying. When using scaffolding and reciprocal teaching during instruction, teachers emphasize the shared construction of knowledge, which supports Vygotsky's theory.

Instructional Day in Elementary Schools

Students spend the majority of their school day in the classroom and little time taking breaks (Ricketts, n.d.). Furthermore, elementary students spend 90% of their classroom time performing academic activities while being seated in the classroom (Rosenshine, 2015). Wurman (2019) explained that the traditional structure of an elementary school day has been organized with blocks of instructional time broken up with recess. Recess is when students have opportunities to play outside, which supports the cognitive, emotional, and social development that is needed for students (Ricketts, n.d.). In most elementary schools, students receive one recess in the morning and one recess during lunchtime while spending most of their day sitting in the classroom (Wurman, 2019). Recess has long been a regular practice in elementary schools; however, in recent years recess time has been reduced to provide students with increased instructional time (Ricketts, n.d.) and to allow for more time focusing on skills (Wurman, 2019). When students sit in the classroom for long periods of time, they tend to lose focus and are not engaged with the instruction (Morin, n.d.).

Williams (2018) explained that it is hard for teachers to find time for students to play outside of the classroom within the school day because of high demands on instructional time that students need to be getting. For these reasons, it is imperative that teachers plan lessons that provide maximum quality instruction and incorporate

movement breaks within the lessons. In addition, student achievement can only be obtained when students are given opportunities to optimize their educational experience. For students to achieve and maximize learning, they need opportunities to engage in movement (Morin, n.d.).

The Importance of Breaks in Schools

Because of the high demands of instructional time and instructional minutes in the classroom, one way to support students is by offering them breaks in the classroom. Because elementary students have multiple subjects and assignments that they are engaged in throughout the school day, offering students effective and efficient breaks during transitions is an effective way to improve engagement and learning. Willis (2016) shared that students are more focused when they have an opportunity to take breaks prior to moving to a new activity. Similarly, Morin (n.d.) explained that breaks provide students a reset from activities that they are engaged in and give their brains an opportunity to focus and shift their attention to the new activity. Breaks support students and allow them to be refreshed and focused for upcoming instruction. Furthermore, Mills (2023) elaborated that breaks support students because they allow students to move around, which boosts concentration and focus.

Students also need breaks to support them when they feel frustrated with schoolwork. Morin (n.d.) explained that some benefits of providing students breaks involve reducing anxiety, stress, and frustration which in turn help students gain focus and be more productive. When students have breaks, they can be emotionally and mentally ready to engage with their assignments. Similarly, Mills (2023) explained

students that have disruptive and attention-seeking behaviors benefit from brain breaks because the brain breaks allow them to restore concentration.

Turner (2024) states that brain breaks benefit students regardless of age. Brain breaks are productive when they are varied and support students' needs. Turner (2024), further states that brain breaks are an important part of the learning process when used in the appropriate situation. Lastly, the Collaborative for Academic, Social, and Emotional Learning (CASEL) identifies brain breaks as one of the three signature practices that support student engagement.

Alternatives of Recess (How Brain Breaks Can Support With the Decline of Recess)

Morin (n.d.) shared that breaks such as recess are vital for students to support them with focus and engagement. Students struggle sitting in one spot for long periods of time, so students need opportunities to take part in brain breaks throughout the school day to be successful academically. Because of the emphasis on instruction, there has been a reduction in recess times for students (Ricketts, n.d.). Because recess time is limited during the school day, one alternative is incorporating brain breaks within the school day. Brain breaks support students when they transition from one activity to the next because they get an opportunity to refocus and reenergize (Willis, 2016). Similarly, Morin explained that there are brain breaks that help students focus and be productive and support them when they are frustrated. Giving students a short break within the classroom gives them an opportunity to recharge, which helps them be successful with the following activities. Mills (2023) shared that brain breaks are short breaks that help students with concentration, and these breaks can be done in the classroom and do not require students to go outside for recess.

Gernes (2021) shared that brain breaks take time, and some teachers feel that they take away instructional minutes. Likewise, Willis (2016) shared that brain breaks are incorporated in lessons and take instructional time. Most importantly, for brain breaks to be meaningful to students, they need to be aligned with what students are learning. Moreover, Cleaver (2019) shared some examples of relating brain breaks to lessons include having movement activities that are related to math after students' complete math lessons. Perera et al. (2015) agreed that the instructional time used for brain breaks is valid because the breaks support students by increasing concentration and focus.

Furthermore, research has shown student productivity is improved if teachers have an environment that promotes learning (Care et al., 2017). In addition, students show both cognitive and social development in learning environments where they are connected. Further research has shown that 21st century education includes creating and maintaining learning environments where students have opportunities to engage in brain breaks and are not required to sit silently at their desks (Hallerman et al., 2019).

Brain Breaks and Student Achievement

Teachers use brain breaks in the classroom to support students with academic engagement. Kiser (2020) shared that for students' brains to learn and grow, they need to be stimulated, to reach this stimulation, students need to engage in varied brain breaks throughout the school day to maximize learning. Because breaks are needed for students to be successful, brain breaks give students time to reset. Brain breaks support students' cognitive functioning and develop a joy for learning as students feel successful. Many researchers such as Willis (2016) and Kiser shared that brain breaks need to support what

students are learning in the classroom and should always be planned and structured to be purposeful for students.

Brain breaks support students' success in the classroom because students need time to reset their brains and continue learning. Kiser (2020) explained that brain breaks are needed in classrooms because they give students an opportunity to engage and enjoy school. Because the school day consists of many hours, brain breaks are used to help students with concentration and engaging with subject matter because recess is limited for students. Kiser also shared that brain breaks help students quiet their minds and allow them to have opportunities to engage in time outs and have think time to process information.

Studies have shown that brain breaks increase students' academic achievement in the classroom. Kiser (2020) and Cleaver (2019) shared that brain breaks support teachers and students. Brain breaks reduce frustration and stress and increase students' engagement with academics. Allowing students time to take a break in the classroom gives them an opportunity to refocus and reenergize. Meador (2019) explained that with the emphasis on student learning, schools must prioritize how they can support students by focusing on how to engage and motivate them. One way to engage students with academics includes implementing brain breaks in classrooms. Beaupre (n.d.) shared that brain breaks are imperative short breaks that provide students who are struggling with a chance to reset their brains. Furthermore, according to neuroscientists, for learning to be optimized and maximized, brain breaks are not given enough credit for their benefits (Willis, 2016).

Brain Breaks and Student Engagement

Teachers have been incorporating brain breaks in classrooms to support students' social needs with both engagement and focus. In addition, brain breaks support students by promoting engagement and ensure academic success by providing students opportunities to reenergize their brains (Desautels, 2016). Moreover, Morin (n.d.) shared that brain breaks reduce stress and frustration when incorporated and ensure that students are more focused and productive in the classroom. Incorporating meaningful brain breaks in the classroom ensures that students are more engaged with instruction.

Kiser (2020) emphasized that brain breaks are vital in classrooms and provide students opportunities to engage and enjoy academics. Some examples of movement breaks that help students with engagement include acting out stories, jumping to numbers, and moving to different stations. Furthermore, Cleaver (2019) mentioned that brain breaks promote refocus and help students be successful. Brain breaks provide students opportunities to engage with subject matter and complete tasks. In addition, Desautels explained that brain breaks support students by enhancing engagement and ensure academic success by increasing work completion.

Furthermore, research has shown that students benefit from brain breaks because they are more engaged with the instruction. Perera et al. (2015) shared that brain breaks improve students' concentration and allow opportunities to reenergize and refocus. Many researchers, such as Willis (2016) and Kiser (2020), shared that brain breaks are short breaks that give students opportunities to reset and refocus with instruction. Incorporating brain breaks in the classroom support students' engagement. Willis (2016) pointed out that incorporating brain breaks in the classroom enhances and boosts learning and

increases engagement. Thus, brain breaks are imperative for students to be engaged with instruction.

Instructional Minutes and Brain Breaks in the Classroom

Research has shown that students that are successful in primary school will be more successful in the future. Paul (2023) shared that academic achievement is vital for students in primary schools to succeed in the future. Likewise, Regier (2011) shared that one benefit of students' success in primary school is that they show more success in their careers because of it. Because schools are facing many obstacles related to academic achievement, schools must do whatever they can to support students to master academics.

Some studies have shown that implementing brain breaks is challenging because teachers have instructional time that is part of their daily schedules, and teachers struggle justifying the use of brain breaks in their classrooms. Gernes (2021) pointed out that implementing brain breaks in the classroom reduces instructional time. On the other hand, Terada (2018) emphasized that incorporating short brain breaks enhances students' ability to focus and stay on task. Perera et al. (2015) shared that when students have opportunities to engage in brain breaks, there is an increase in focus and the use of instructional time is justified. There is considerable research that has proven the effectiveness of brain breaks for primary students. Terada (2022) explained that the breaks are underestimated, and decades of research have shown that students who are engaged in brain breaks outperform students who are not engaged in movement throughout the school day. To meet the needs of today's students, teachers need to provide an environment in which all students can prosper academically (Care et al., 2017).

Because there has been a decline in recess and more emphasis on instructional minutes with an increase in standards-based assessments and accountability, there is a need to incorporate brain breaks in the classroom. Multiple child development and learning theories have identified what is needed for children to develop and learn academically. Locke and Dewey both emphasized that children learn by doing. Furthermore, Gardner's theory on multiple intelligences focused on teachers implementing the different multiple intelligences when planning instruction to support all students. Teachers can support student learning in elementary classrooms by incorporating brain breaks that include movement, breathing, and mental breaks to optimize students' learning (Weslake & Christian, 2015).

Theoretical Framework: Three Types of Brain Break

There are three different types of brain breaks that support students during instruction: mental breaks, movement breaks, and breathing breaks (Weslake & Christian, 2015). Using different types of brain breaks is beneficial for students. Furthermore, when mental, movement, and breathing brain breaks are planned in the classroom, students do not get bored and are more engaged in the lesson (Willis, 2016). When students are working independently, brain breaks are beneficial because they help students refocus. Students lose focus after 10 to 30 min, so it is vital to schedule brain breaks to help them stay attentive and focused (Clever, 2019). Many researchers, such as Willis (2016) and Clever (2019), shared that brain breaks embedded in the school day also result in improved behavior because students are more on task and the breaks support their comprehension skills.

Mental Brain Breaks

The first type of brain break is mental brain breaks, which support students when they are engaged with activities that require high levels of focus. Willis (2016) shared that the mental brain breaks help students refocus their attention. Some examples of mental brain breaks to support students include engaging in games, telling stories, telling jokes, or reading stories (Weslake & Christian, 2015). In addition, mental brain breaks help students feel refreshed so students are ready to engage with instruction (Willis, 2016). Furthermore, Willis explained that mental brain breaks help students focus because brain networks get the opportunity to reset and students feel calmer, which supports attention and memory. When mental brain breaks are planned within instruction students are able to reset and focus on the task.

Movement Brain Breaks

Another type of brain break is movement breaks. Movement brain breaks allow students to engage with physical movement to burn off energy, refocus, and engage with the task that they need to complete (Gernes, 2021). Movement breaks are short breaks that give students the opportunity to reset and release energy such as walking, hopping, running, and dancing in place (Kiser, 2020). Weslake and Christian (2015) shared some examples of movement brain breaks that include dance, exercise, stretches, games. Movement brain breaks are beneficial because they help students move around by engaging in physical activity and take a break from learning. Desautels (2016) shared that when students are engaged in movement breaks throughout instruction, they take a break from memorizing and problem solving, and that gives students an opportunity to process the new information.

Breathing Brain Breaks

The final type of brain break is breathing breaks. Breathing brain breaks support relaxation. Morin (n.d.) shared that breathing breaks are breaks that students can engage with independently. Some examples of breathing breaks include stretching the body such as the arms, neck, and shoulders—raising the arms above the head, shaking out the hands and feet, and deep breathing, which consists of closing eyes (Weslake & Christian, 2015). One of the benefits of breathing brain breaks is supporting students' mental health by helping them refocus and feel calmer. Desautels (2016) shared that when students learn new standards and skills, breathing brain breaks help support students' emotional states by giving them an opportunity to focus their attention and support with calmness. In addition, breathing brain breaks are beneficial because they support students by quieting their minds and helping their brains shift focus and be engaged with learning (Morin, n.d.).

The Role of Elementary Teachers to Support Learning

Elementary teachers have varied roles to meet the needs of all students and ensure that they are successful in elementary schools. Teachers are responsible for embedding strategies and planning lessons that support students in the classroom who have diverse needs (Kelchner, 2018). Furthermore, Yussif (2022) shared that elementary school teachers play an imperative role in the development of children both academically and socially and need to incorporate strategies that support all students for success. Lesson plans are developed by teachers to support students with strategies that check for understanding throughout the lessons so teachers know what students have learned and what they need to learn to be successful (Kelchner, 2018).

Cleaver (2019) emphasized the importance of teaching brain breaks by modeling brain breaks and allowing students time to practice them. Just as in learning new concepts, students need to be taught how to engage with brain breaks for them to be effective. The purpose of the mental brain break is to help students refocus on the work at hand. Teachers need to determine how long the brain breaks need to be for students to reset and refocus and engage with the task. These breaks can last from 1 min up to 5 min.

It is essential for teachers to plan lessons that engage all students because research has shown that students who are successful in primary school are more successful in the future. Academic achievement is imperative for students in primary schools to achieve success in their future (Paul, 2023). There are many benefits of being successful in primary school, and there is a connection to being more successful with careers in the future (Regier, 2011). Because schools face many challenges related to increasing academic achievement, teachers must promote student learning in elementary classrooms by incorporating brain breaks that include movement, breathing, and mental breaks to maximize students' learning (Weslake & Christian, 2015).

Synthesis Matrix

The purpose of a literature review is gathering and synthesizing relevant data (The Learning Hub, n.d.). The literature review enables the researcher to conduct research related to the topic and construct meaning (see Appendix A). I used the synthesis matrix to gather and interpret data. I also made connections to literature related to the theoretical framework used in this study and the three different types of brain breaks that support students during instruction (mental breaks, movement breaks, and breathing breaks; Weslake & Christian, 2015).

Summary

Chapter II focused on multiple child development and learning theories that explain what is needed for children to develop and learn. Many early child development theories and foundational theories by John Dewey, John Locke, B.F. Skinner, Jean Piaget, Howard Gardner, and Lev Vygotsky show how students develop and gain knowledge. Chapter II also focused on how teachers can support student learning in elementary classrooms by implementing brain breaks that include movement, breathing, and mental breaks to maximize students' learning (Weslake & Christian, 2015). Chapter III explains the methodology used in this study including the research design, population, target population, sample, data collection, and data analysis.

CHAPTER III: METHODOLOGY

Overview

Chapter III focuses on the methodology that was used for this research study. The first part of the chapter includes the study's purpose statement, research questions, and research subquestions. The next part of Chapter III consists of the population of the study and the method used for sample selection. It includes an explanation of which instruments were used to conduct the study and information related to the validity and the reliability of the research. Next, there is an explanation of how the data in the research study were examined and the limitations that were related to the research study.

Purpose Statement

The purpose of this qualitative phenomenological study was to identify and describe the brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). A further purpose of this study was to identify primary teachers' perceptions of which brain break strategies are most effective to support student learning.

Research Questions

Research Question

What brain break strategies do primary grade teachers use? Which strategies do primary teachers perceive as the most effective to support student learning?

Research Subquestions

1. What breathing brain breaks do primary grade teachers use? Which breathing brain break strategies do they perceive as the most effective to support student learning?
2. What movement brain breaks do primary grade teachers use? Which movement brain break strategies do they perceive as the most effective to support student learning?
3. What mental brain breaks do primary grade teachers use? Which mental brain break strategies do they perceive as the most effective to support student learning?

Research Design

The purpose of this qualitative phenomenological study was to identify and describe the brain break strategies used by exemplary primary grade teachers and to identify teachers' perceptions of which brain break strategies are most effective to support student learning. Qualitative data were used for this research study. Bhandari (2020) emphasized that qualitative research includes gathering and interpreting nonnumerical data such as interviews, focus groups, and questionnaires to comprehend concepts, opinions, or experiences. Qualitative research was used to gain more insight by gaining thoughts and views of teachers. Similarly, qualitative research methods use data collection that includes group discussions and individual interviews (Carol, 2016). Teachers described their feelings, values, and perceptions regarding their experiences with brain breaks and which brain breaks are the most effective. Qualitative research was appropriate for this study because it was used to help me understand what some of the

underlying opinions are regarding brain breaks based on the experiences of exemplary teachers.

The specific qualitative research method for this study was phenomenological research. Phenomenological studies seek to answer the core question “What is the meaning, structures, and essence of the lived experience of this phenomenon for this person or group of people?” (Patton, 2015, p. 98). This method identifies a phenomenon as perceived by individuals in situations and describes their lived experiences (Dumlao, n.d.). The specific phenomenon that study participants have experienced is the use of brain breaks to support student learning. A phenomenological method was appropriate for this study because it revealed teachers’ views on their experiences and perspectives related to supporting student learning with brain breaks.

Population

McMillan and Schumacher (2010) explained that population consists of a group of individuals with certain standards that is used to generalize the results related to research. Furthermore, Bhandari (2022) explained that population consists of the whole group who have similar characteristics. The population for this study was primary teachers who teach in California. According to the California Department of Education (n.d.), there are 146,521 elementary school teachers in California, but they are not sorted by grade level, so approximately about 74,000 are primary grade teachers, about half the K-6 grade teacher population.

Target Population

Target population is a set or group of individuals who are chosen from the population (McMillan & Schumacher, 2010). For this study, the target population

included primary teachers who teach in schools located in Sacramento County in California. According to Ed Data (n.d.), there are approximately 12,433 elementary school teachers in Sacramento County, so approximately 6500 teachers are primary teachers which is about half of the K-6 grades teacher population. I focused on conducting research in Sacramento County because that is where I lived at the time of this study. Convenience sampling, which refers to a sampling method in which individuals are easy to contact, was used (Nikolopoulou, 2022). Teachers were selected from Sacramento County because they were the easiest for me to access and connect with.

Sample

McMillan and Schumacher (2010) explained that sample is the group of individuals who are selected as participants for the study. Bhandari (2022) explained that sample is the certain group who are used to gather data from, and the population size is always greater than the sample size. For this study, a sample of eight exemplary primary school teachers who incorporate brain break strategies to support student learning was used. According to Ndjama (2020), the sample size needs to be large enough for understanding the study and small enough to allow for case-oriented analysis to provide strong conclusions. Purposeful sampling was used to conduct this research. Purposeful sampling refers to the researcher selecting individuals from the population who will provide information related to the intended topic of study (McMillan & Schumacher, 2010). Exemplary teachers engage students in learning by successfully impacting students' lives (Gagnon, 2019). For the purposes of this study, exemplary teachers were required to meet the following criteria:

- had a minimum of 2 years teaching experience
- recommended by site administrators as successfully engaging students in learning
- provided students in person instruction

The sample was identified by expert recommendation from school site administrators who were asked to recommend potential participants. The first six teachers who agreed to participate in the study were selected. Although it was my intention to include teachers from different districts, this was not possible due to requiring both interviews and classroom observations. I received permission to conduct the study with teachers from one school and worked with the site administrator to identify study participants who met the study criteria and represented a variety of ages and experiences.

Instrumentation

The researcher is the primary instrument that is used to obtain qualitative data for this study. McMillan and Schumacher (2010) shared that when collecting qualitative data, the researcher is the primary instrument. I conducted interviews and observations with eight participants. The interview questions and observations supported the research question and provided the observations, feelings, and perceptions of teachers related to the theoretical framework that focused on the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks) and identified their perceptions of which brain break strategies were most effective in supporting student learning (Weslake & Christian, 2015). Using multiple assessments such as observations and interviews ensured that the meaning of the results was not tied to the operational variable, and using varied measures ensured the reduction of any irregularities (McMillan & Schumacher, 2010).

Qualitative Interviews

Bhandari (2020) emphasized that qualitative research includes gathering and interpreting nonnumerical data such as interviews, focus groups, and questionnaires to comprehend concepts, opinions, or experiences. Interview questions were used to gain more insight by eliciting thoughts and views of teachers related to the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks) and identifying their perceptions of which brain break strategies were most effective in supporting student learning. The interview protocol used included eight open-ended, semistructured questions developed by me. The interview questions were designed around each of the three types of brain breaks (breathing breaks, movement breaks, and mental breaks). They were reviewed by two educators who have been in the profession for 10 plus years, have knowledge of brain breaks used in the classroom, and have experience developing and conducting interview questions. My dissertation committee reviewed the interview questions, and examined their clarity, potential bias, and alignment to the study's research questions. An alignment table demonstrating the relationship between each interview question and the correlating research question can be found in Appendix B. The interview was field-tested as described in the following section, and the field test's feedback was used to revise the final interview protocol.

Moreover, qualitative research was used to help describe feelings, values, and perceptions regarding how teachers felt about the study. Patton (2015) shared that interviews with people who have lived experiences are more beneficial than second-hand experience. Interview questions were like investigational research because they were used to help me understand what some of the underlying opinions were related to brain

breaks. In addition, interviews allow me to identify trends in thoughts and opinions by gaining more insight related to brain breaks.

Qualitative Observations

The qualitative observations consisted of observing the same eight exemplary primary school teachers who participated in the interviews. Patton (2015) emphasized that observations help the researcher understand what is happening and are conducted by taking notes during the observations. I took notes by using a note-taking tool created by me that consisted of a section to tally the frequency with which the participants used the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks) along with a section to provide examples of each type of brain break (see Appendix C). The observation was field-tested as described in the following section, and the field test's feedback was used to revise the final instrument.

Patton (2015) shared the importance of taking organized and structured notes during observations. The purpose of the observations was to observe the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks) and write specific examples that supported each brain break and frequency of each brain break.

Field Testing

Interview Questions Field Testing

Before I conducted the study with the sample population, I conducted a pilot test by selecting two teachers to field-test the interview questions. Both participants met the criteria to be a part of the study but were not included in the study. McMillan and Schumacher (2010) explained that a pilot test helps determine whether the questions related to the study are clear and fulfill the intended purpose. While conducting the pilot

test, I observed the expressions of the participants and made modifications to the interview questions based on their feedback. An observer with experience in conducting interviews observed the field-test interviews. The observer provided feedback and completed a questionnaire (see Appendix D). The questionnaire reflected on the teachers' body language and facial expressions as they answered the interview questions. After completing the pilot test interviews, I also had the participants complete a field-test participant questionnaire (see Appendix E). The data from the questionnaire were used to modify the questions for the study. I also completed a reflection form related to the pilot test (see Appendix F). Conducting the pilot test ensured that the interview questions gave the teachers' perceptions, feelings and knowledge related to brain breaks (Patton, 2015).

Observations Field Testing

Before I conducted the study with the sample population, I conducted a pilot test by observing the same teachers who were interviewed for the field test. I recruited a site administrator who works at the same site as the two field-test teachers to also conduct the field-test observation. Prior to the field-test observation, I met with the administrator and shared the note-taking form (see Appendix C) that I designed and solicited feedback from the administrator. The feedback from the administrator was used to modify the note-taking form. The administrator and I then conducted the two observations, independently completing the observation form. After completing the pilot test observations, I and the administrator set up an in-person meeting and compared the note-taking form by analyzing the frequency of each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks) along with the examples describing each type of brain break. The observer provided feedback and completed a questionnaire (see

Appendix D). I also completed a reflection form related to the pilot test (see Appendix F). After completing the pilot test observations, I also had the participants complete a field-test participant questionnaire (see Appendix E). The feedback and discussion from the administrator were used to modify the observation form. While conducting the pilot test, the administrator and I did not engage in conversations and individually completed the forms on our computers. Patton (2015) explained that a phenomenological study shows the lived experiences of people and what they are experiencing. The observations were used to record the lived experiences of teachers using brain breaks.

Validity

Validity was used to see how accurate methods such as interviews and observations were to measure the intention of the study. McMillan and Schumacher (2010) explained the importance of validity in a study to show understanding and congruency between the study and observed behaviors and perceptions of participants. Throughout this study, there were many examples of validity. McMillan and Schumacher shared that validity is when results of a study are generalized to other subjects, situations, or conditions.

Interview Questions Validity

According to McMillan and Schumacher (2010), validity in qualitative research explains the credibility of the data that are gathered. To minimize the threat to validity, I took specific steps. To begin with, the interview questions were reviewed by the administrator who was part of the pilot test of the observation protocol. In addition, two field-test interviews were conducted with a qualified observer to ensure that questions were not posed with bias, and a reflection form was completed as described previously.

Another method of ensuring the validity of this study was recording the actual interviews and having the transcripts reviewed by the participants. Patton (2015) emphasized that recording interviews allows researchers to focus on the key points related to the study rather than focusing on writing notes verbatim. Additionally, the interview questions matched the research questions and were designed to elicit the feelings and views of teachers related to the theoretical framework that focused on the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks) and identifying their perceptions of which brain break strategies were most effective in supporting student learning (Weslake & Christian, 2015). Patton (2015) emphasized that the interview questions need to share peoples' feelings and perceptions with key points from participants.

Observations Validity

According to Patton (2015), validity in qualitative research explains whether the data were interpreted accurately. To ensure validity of the observation form, the field-test data from the administrator and me were both compared to check for calibration. Patton shared the importance of taking notes during observations in a systematic manner. The observation tool was aligned to the research questions and provided evidence of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). It provided a space to tally the frequency of each type of brain break and to take notes on the specific brain break strategies.

Reliability

Patton (2015) shared that data needs to be analyzed by paying attention to reliability, triangulation, and validity. Triangulation means using multiple methods to

collect data. Kulkarni (2013) explained that to ensure the validity of research, multiple methods need to be used to collect data on the same topic and multiple different types of method need to be used to collect data on the same topic. In this study, I used two measures—interviewing teachers and conducting classroom observations—to support the reliability of the results. Because participants have different learning styles, using varied assessments such as observations and interviews ensured that the meaning of the results was not tied to the operational variable, and using multiple measures helped reduce any threats during the study (McMillan & Schumacher, 2010). Using multiple sources increased the credibility of the study because there were more qualitative data that were available. Additionally, I used intercoder reliability.

Intercoder Reliability

According to Cheung and Tai (2021), intercoder reliability is achieved when two researchers code data independently and compare the common themes. To obtain intercoder reliability, the transcript from one interview (10% of the interview data) was analyzed independently by a peer who has experience coding qualitative data and using NVivo. Creswell (2013) shared that intercoder reliability focuses on agreement between multiple coders when analyzing data from transcripts. The themes and codes identified by the peer and me were compared to ensure intercoder reliability. Patton (2015) explained that to gain agreement, 10% of the interviews analyzed for common codes and themes need to have 80% or higher reliability. Coded data between the participant and me matched with at least 90% accuracy, and agreement was confirmed.

Data Collection

The sample was identified by expert recommendation by school site administrators who were asked to recommend potential participants in Sacramento, California. I sent emails to administrators and explained the research study and the selection criteria for teachers (see Appendix G). Furthermore, I explained in the email that I would need to conduct both interviews and observations with the teachers for the study. I met with each site administrator and reviewed the selection criteria. The administrators responded whether they wanted teachers from their school to participate in the study and provided recommendations for participants. After reviewing the principals' recommendations, emails were sent to the teachers with a description of the study explaining that the teachers had to participate in interviews and observations (see Appendix H). The first eight teachers who agreed to participate in the study were selected.

Selection Criteria

Exemplary teachers engage students in learning by successfully impacting students' lives (Gagnon, 2019). For the purposes of this study, exemplary teachers were required to meet the following criteria:

- had a minimum of 2 years teaching experience
- recommended by site administrators as successfully engaging students in learning
- provided students in person instruction

Data Collection Procedures

The purpose of this qualitative phenomenological study was to identify and describe the brain break strategies used by exemplary primary grade teachers and to

identify teachers' perceptions of which brain break strategies are most effective to support student learning. Qualitative data were used for this research study by conducting interviews and observations. Bhandari (2020) emphasized that qualitative research includes gathering and interpreting nonnumerical data such as interviews and observations to comprehend concepts, opinions, or experiences. Qualitative research was used to gain more insight by gathering thoughts and views of teachers and conducting observations.

Interviews

I scheduled interviews with each of the eight participants by emailing them to get feedback on a time that best worked for each participant. After finding the best time for the interview with collaboration with the participant, the time of the interview was emailed to each participant along with a Google Calendar invite for the meeting. Each interview was scheduled for 1 hr, and a Zoom link was provided to each participant in the Google Calendar invite (see Appendix I). Each participant received an email with the 10 interview questions 3 days prior to the interview (see Appendix J). The interview protocol script was used for each interview (see Appendix K). Along with the interview questions, each participant received definitions of key terms related to the study. The participants also received the University of Massachusetts Global Informed Consent Document (see Appendix L) and the University of Massachusetts Participant's Bill of Rights (see Appendix M).

The interviews were recorded using the features embedded in Zoom, and permission was obtained by each participant prior to recording each interview. I recorded each interview and took paper pencil notes for each interview. At the end of each

interview, Zoom transcripts were reviewed for accuracy. The transcript of each interview was then shared with the participant to review and verify accuracy. All interview recordings and Zoom transcripts were saved and secured by me, and only I had access to the information because a password and username were required to access the computer and Zoom recordings and transcripts. The data from this study were stored for 3 years; at that time, the data were discarded.

Observations

I conducted observations in the participants' classrooms. The observations took place during the school day with students present and lasted for 45 min. I scheduled observations with participants at the conclusion of the interviews. After a time and date were established by the participant and me collaboratively, I sent the participant an email confirming the time and date, and a Google Calendar invite was sent to the participants. I conducted observations by using the observation form developed for this study.

Data Analysis

Data Analysis of Interviews

The purpose of qualitative data are to discover how interviews of different participants are related (Patton, 2015). I reviewed the Zoom transcripts and recordings multiple times and had each participant review the Zoom transcripts for accuracy. I used NVivo software to analyze the data from the interviews for themes and codes that showed similarity. Creswell (2013) shared that data need to be analyzed to find codes and themes that are connected. Cheung and Tai (2021) explained that the importance of intercoder reliability consists of the researcher identifying the same codes and themes related to the interview transcripts. The transcript of one interview was coded by a peer/fellow doctoral

student as described previously in the intercoder reliability section. I used NVivo software to analyze the data for themes. Cabraal (2012) shared that NVivo supports grouping, categorizing, and finding patterns in text.

Data Analysis of Observations

Patton (2015) emphasized that data analysis consists of finding explanations by reviewing qualitative data. The observation tool was analyzed to see the different types of brain breaks that were observed for mental, movement, and physical brain breaks. The observations allowed me to see participants' lived experiences. Classroom observations and interviews were conducted so that I could see the types of brain breaks that teachers were using in their classrooms and the specific strategies used. Patton validated that interviews and observations are appropriate tools for qualitative data analysis.

Data Analysis Limitations

The specific qualitative research method for this study was phenomenological research, which can lead to limitations in a study. Patton (2015) shared that phenomenological studies focus on lived experiences of people and their perceptions. This study was only focused on the perceptions of a selected group of teachers who teach in Sacramento County. As a way to avoid limitations and bias, I conducted field tests for both interviews and observations. I also worked with administrators and participants who qualified but were not part of the study to solicit feedback to modify and adjust the observation tool and interview questions prior to interviewing the eight participants and observing their classrooms. Another example of limitations was the classroom observations and whether the brain breaks that were conducted during the observation were reflective of those used regularly in the classroom to support students' learning.

During the interviews, another limitation was that all of the questions may not have been answered honestly with true perceptions related to brain breaks in the classroom.

Summary

Chapter III focused on the methodology of the qualitative study by focusing on the purpose statement and the research questions. The research design was explained with the population, target population, and the sample population that was used in the study. Next, the instrumentation process was explained along with the validity and the reliability of the study. Finally, the data collection and data analysis process were shared with the intercoder reliability and the limitations related to the study. I also completed the required course work for being certified by the Institutional Training Initiative (see Appendix N). The following chapter, Chapter IV, includes the data collection, data outcomes, and data findings of the research to make future recommendations for the study.

CHAPTER IV: RESEARCH, DATA COLLECTION, AND FINDINGS

Overview

According to Regier (2011), for students to be successful in the future, academic achievement is essential during elementary school. Additionally, several early child development and learning theories emphasize the importance of teachers planning a variety of strategies to meet the academic needs of all students that will improve student achievement in the classroom (Meador, 2022). Because students learn differently, it is vital to incorporate strategies that support engagement in the classroom. Teachers who incorporate strategies that engage students in lessons ensure that students develop skills that influence many aspects of their lives (Reference, 2023). Incorporating brain breaks that include movement, breathing, and mental breaks maximize students' learning and ensure that students are successfully engaged in primary education (Weslake & Christian, 2015). Prior to conducting the phenomenological qualitative study, I also completed the required course work to be certified by the Institutional Training Initiative, which refers to CITI (see Appendix N).

Chapter IV explains the overview of the study along with the purpose statement and research questions related to the study. Additionally, Chapter IV focuses on the methodology, data collection process, population, sample, and instrumentation related to the study. The chapter also consists of demographic data, a component of the study. Furthermore, Chapter IV explains the data analysis along with a summary that explains the key findings related to the study.

Purpose Statement

The purpose of this qualitative phenomenological study was to identify and describe the brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). A further purpose of this study was to identify primary teachers' perceptions of which brain break strategies are most effective to support student learning.

Research Questions

Research Question

What brain break strategies do primary grade teachers use? Which strategies do primary teachers perceive as the most effective to support student learning?

Research Subquestions

1. What breathing brain breaks do primary grade teachers use? Which breathing brain break strategies do they perceive as the most effective to support student learning?
2. What movement brain breaks do primary grade teachers use? Which movement brain break strategies do they perceive as the most effective to support student learning?
3. What mental brain breaks do primary grade teachers use? Which mental brain break strategies do they perceive as the most effective to support student learning?

Research Methods and Data Collections Procedures

Because the purpose of this study was to identify and describe the brain break strategies used by exemplary primary grade teachers and to identify teachers' perceptions

of which brain break strategies are most effective to support student learning, qualitative data were conducted for this research study through interviews and observations. The interviews consisted of questions that were used to determine the thoughts and perceptions of teachers related to which brain break strategies are the most effective to support student learning. I conducted observations in the participants' classrooms during the school day with students present in the classroom. The observations were used to investigate participants' lived experiences (Patton, 2015).

Population

A population is the group of individuals who that are used to generalize the results related in a study (McMillan & Schumacher, 2010). Similarly, Bhandari (2022) shared that a population is composed of a group who have like characteristics. The population for this study was primary teachers in California. According to the California Department of Education (n.d.), there are 146,521 elementary school teachers in California, but they are not sorted by grade level, so approximately about 74,000 are primary grade teachers, which is about half the K-6 grade teacher population.

Sample

According to McMillan and Schumacher (2010), a sample consists of the group of people who are chosen to participate in study. Likewise, Bhandari (2022) also shared that sample is the specific group who will be used to collect data from, and the population size is larger than the sample size. For this study, a sample of six exemplary primary school teachers who incorporate brain break strategies to support student learning was used. Purposeful sampling was used, which refers to selecting individuals from the population who will provide information related to the proposed topic of study

(McMillan & Schumacher, 2010). For the purposes of this study, all six of the exemplary teachers met the following criteria:

- had a minimum of 2 years teaching experience
- were recommended by site administrators as successfully engaging students in learning
- provided students in-person instruction

For this study, the sample was identified by expert recommendations from school site administrators and consisted of six teachers from Sacramento County who met the required criteria. Although I intended to include teachers from different districts, this was not possible because I required both interviews and classroom observations. It was challenging to find participants to commit to both interviews and observations for this study. Therefore, I received permission to conduct the study with teachers from one school and worked with the site administrator to identify study participants who met the study criteria and represented a variety of years of experience, as noted in the demographic data section.

Demographic Data

Demographic data were collected for each of the six participants who were a part of the research study, and each participant was labeled by a letter to maintain confidentiality. For this study, the sample population consisted of six exemplary primary grade teachers who were selected by using criteria mentioned previously, and each participant was approved by the school site administrator. All of the participants in this study had taught at more than one school and have a bachelor's degree. Two of the

participants had fewer than 10 years of teaching experience. Table 1 includes the participant demographic data.

Table 1

Participant Demographic Data

Participant letter	Total years in education	Number of schools taught at
Participant A	30–40	4
Participant B	10–20	2
Participant C	1–10	2
Participant D	10–20	3
Participant E	20–10	3
Participant F	1–10	2

Presentation and Analysis of Data

The data, which consisted of observations and interviews, were aligned with the theoretical framework that focuses on the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks; Weslake & Christian, 2015) and identified teacher perceptions of which brain break strategies were most effective to support student learning. To find patterns, I conducted data analysis by organizing the data that were collected during the interviews. The purpose of qualitative data is to find how interviews of multiple participants are similar (Patton, 2015). I reviewed the Zoom transcripts and recordings multiple times and had each participant review the Zoom transcripts for accuracy. I used NVivo software to analyze the data from the interviews to find themes and codes that showed similarity. Data need to be analyzed to find codes and themes that are similar (Creswell, 2013). The transcript of one interview was coded by a peer doctoral student as described in Chapter III. Cheung and Tai (2021) shared that reliability consists

of the researcher finding the same codes and themes related to the interview transcripts. I used NVivo software to analyze the data for themes.

The observation tool was analyzed to see the different types of brain breaks that were observed for mental, movement, and physical brain breaks in each of the classrooms of the six participants. The observations allowed me to see participants' lived experiences using brain breaks in the classroom (Patton, 2015). The observations provided data triangulation by incorporating a second data source in the study (Patton, 2015).

Central Question

What brain break strategies do primary grade teachers use? Which strategies do primary teachers perceive as the most effective to support student learning?

The central research question was addressed in the findings related to each of the three subquestions that focused on each of the types of brain breaks. The data are organized by the subquestions and the findings related to each subquestion.

Research Subquestion 1: Breathing Brain Breaks

What breathing brain breaks do primary grade teachers use? Which breathing brain break strategies do they perceive as the most effective to support student learning?

Breathing brain breaks give students an opportunity to relax in the classroom. According to (Morin, n.d.) breathing breaks are breaks that students can engage in independently and help students relax after taking this type of break. There were two questions that participants were asked during the interviews to gather data for Research Subquestion 1. The questions were

1. What are some specific breathing brain breaks that you use?

2. What are the breathing brain breaks that you perceive as the most effective to support student learning?

Three themes were identified for Research Subquestion 1. Table 2 shows the themes that were identified for breathing breaks. Table 2 also shows the frequency of occurrence for each theme based on data collected during interviews and observations.

Table 2

Breathing Brain Breaks

Theme	Number of interview participants	Interview references	Number of classroom observations	Observation frequency	Total frequency of references
Focused breathing techniques	6	20	4	5	25
Yoga related breaks	5	16	3	3	19
Cross body breaks	4	8	2	2	10

Focused Breathing Techniques

Participants shared focused breathing techniques that are examples of breathing breaks in the classroom. This theme was reference by all participants and was evident five times in four classrooms. It was the theme with the highest frequency, and the total frequency of references was 25 times. During the observation, Participant A had students take a deep breath after the students came in from lunch recess and Participant B had students engage with three deep breaths before transitioning to their seats. In addition, Participant E had the students take deep breaths before sharing the math learning target for the lesson, and Participant F had students take a deep breath and then exhale prior to starting the guided work math lesson. Participant F stated that “students also have the

opportunity to come up with their own breathing techniques and it is a new strategy that has helped students focus on the classroom.” Participant E shared that students liked butterfly breathing, which involves students sitting on the carpet and moving their arms up and down like a butterfly because it helps them reset their minds and engage with the task. Another example of breathing brain breaks shared by Participant B was “having students take some deep breaths helps them. The deep breaths are not planned but are done when students need a break in the classroom.” Participant A shared the importance of having students take breathing breaks because they cannot sit in one place for long periods of time. In addition, Participant A shared, “Students need more breaks such as breathing breaks after lunch and as they day is coming to an end to help students focus and engage with academics.” Similarly, Participant D shared a similar perspective: “Having students take a 2-minute breathing break helps them focus on the task and also gives the teacher a brain break.” Participant E emphasized that “it takes some instructional time to do breathing brain breaks, but students are more focused, complete their work the time, and it is worth spending the time as students show academic success.”

Yoga Related Breaks

This theme was identified by five of the six participants and was observed three times in three classrooms. Carroll (2019) shared that yoga is an example of a breathing brain break because it consists of breathing exercises, and it gives students an opportunity to engage in academics after taking this type of breathing brain break. It was the theme with the second highest frequency for this category of brain break, and the total frequency of references was 19 times. Participant D shared how implementing quick

yoga breaks in the classroom helps students focus and reset for the next activity. An example of an observation included students sitting on the carpet and making an arch on top of their heads for 10 s. Another example of an observation included students stretching their arms above their head and then bringing them down to their laps. A benefit of effective yoga-related brain breaks was shared by Participant B who stated, “Students that are frustrated benefit from yoga brain breaks and are less stressed when they get back on the task.” Participant C commented, “Students like taking yoga breaks that consist of crossbody movement.” Similarly, Participant A shared, “Students like yoga brain breaks that allow them to move around the room.” Participant E said, “Doing these types of brain breaks every 7 to 10 minutes helps students reset and focus on the assignment and they have to be quick yoga breaks, so students do not get off task.”

Crossbody Related Breaks

This theme was identified by four of the six participants and was observed twice in two classrooms. It was the theme with the lowest frequency for this category of brain breaks and the total frequency of references was 10 times. An example of an observation included students standing on the carpet and taking deep breaths as they moved their hands up and down in Participant C’s classroom. Another example of an observation included students closing their eyes, listening to music, and taking a deep breath by making an arch on top of their heads when Participant D instructed them to do so. A benefit of crossbody brain breaks was shared by Participant E, who stated, “Students that are frustrated benefit from crossbody brain breaks as they can reset and recharge by relaxing and moving their body.” Participant A commented, “Students like taking crossbody brain breaks pretending to breathe like an animal and doing the motions.”

Similarly, Participant A shared, “Students like crossbody brain breaks that allow students to move and pose like animals.” Participant B said, “Students like doing crossbody types of breaks, so they can move their bodies and be ready for instruction.”

Research Subquestion 2: Movement Brain Breaks

What movement brain breaks do primary grade teachers use? Which movement brain break strategies do they perceive as the most effective to support student learning?

Movement breaks are another type of brain break used in the classroom. Gernes (2021) shared that movement brain breaks give students the opportunity to engage with physical movement, which helps them to refocus and engage with academic tasks. There were two questions that participants were asked during the interview to gather data for research Subquestion 2. The questions were

1. What are some specific movement brain breaks that you use?
2. What are the movement brain breaks that you perceive as the most effective to support student learning?

Three themes were identified for Research Subquestion 2. Table 3 shows the themes that were identified for movement breaks. Table 3 also shows the frequency of occurrence for each theme based on data collected during interviews and observations.

Table 3

Movement Brain Breaks

Theme	Number of interview participants	Interview references	Number of classroom observations	Observation frequency	Total frequency of references
Movement games	6	13	4	6	19
GoNoodle	5	12	1	1	13
Dancing	4	10	2	2	12

Movement Games

This theme was referenced by all participants and was observed six times in four classrooms. It was the theme with the highest frequency, and the total frequency of references was 19 times. An example of an observation related to movement games included Participant B having the students take a break and sit in a circle holding hands. Participant B would say, “This is a game of contemplation, no repeats or hesitations, the category is ____.” Students took turns and all engaged by clapping hands with their partner and sharing the topic related to the category. In addition, Participant A had the students play the head, shoulders, knees, and toes game by doing the movement as the participant said each body part when students were going to transition to their table groups. Another example of an observation included Participant C giving each student an index card with a number on it from one to 20, and students had to play a game by working collaboratively and lining up in number order. Participant F had the students get in a circle on the carpet and find a number on the number table that was on the carpet. Once students were on a number, they had to subtract 10 and add 10. An example of effective movement breaks related to movement games was shared by Participant E who stated, “Students love playing movement games that have songs and patterns and these activities support students with math.” Participant C commented, “Students like the heads, shoulder, knees and toes game when they play with the teacher, and it helps them with listening skills and also gives students an opportunity to take a structured break.” Participant D shared, “Students enjoy the morning meeting that students engage in daily as they play a game that has movement such as passing the ball, doing stretches, etc.” Participant C said, “Students enjoy the games that enable students to work with peers

such hopping across the room with their partner.” Participant A shared that having students take a walk around the perimeters of the room or having them hop to their desks from the carpet are all movement games that help students take a break from instruction and refocus on the task.

GoNoodle Movement

According to Ofgang (2022), GoNoodle is an online exercise program available to educators at no cost, and these activities are designed to help students move physically in the classroom. Participants shared that GoNoodle activities are examples of movement breaks in the classroom. This theme was shared by five of the six participants and was evident once in one classroom. It was the theme with the second highest frequency, and the total frequency of references was 13 times. During the observation, Participant C had the students engage in a “Count to 20 Go Noodle” video and students counted aloud and engaged by doing a movement activity, such as jumping, jogging, and stretching, for each number. Participant C stated, “After doing GoNoodle, it takes students longer to come back [together] as a class, but they benefit from taking the GoNoodle break as it is interactive and engaging.” Participant B shared that watching GoNoodle videos and allowing students an opportunity to engage in the movement gives them an opportunity to release energy and engage in the upcoming lesson. Participant E stated, “When students are antsy, they like engaging in GoNoodle and it gives them an opportunity to reset and follow classroom directions.” Participant A explained the importance of allowing students to engage with GoNoodle because they need to move around every 7 to 10 min, and GoNoodle is an interactive and engaged way for students to take a movement break. Participant A shared, “Students need more breaks such as GoNoodle after lunch as the

day is coming to an end and they are more tired.” Participant D shared a similar view which was “that movement breaks help students focus and engage, but for GoNoodle to be effective, teachers need to find the video that pertain the most to their students and matches what students are learning” Participant B emphasized that she does not plan GoNoodle in her lessons but gives students a GoNoodle movement break when she sees they need a break and GoNoodle provides quick and structured movement breaks for students.

Dancing

This theme was referenced by four of the six participants and was observed twice in two classrooms. It was the theme with the lowest frequency, and the total frequency of references was 12 times. Participant A shared that the students love when they are going to do the wiggle dance or the dinosaur dance from Danny Go! According to the Danny Go! (n.d.) website, Danny Go! consists of educational videos that incorporate movement and music for children. An example of an observation included Participant C having the students dance while counting to 20 on the carpet. Another example of an observation included Participant A having the students put their hands on their tummy and do a quick dance move of their choice. An example of effective movement breaks was shared by Participant B who stated, “Students that are frustrated benefit engaging in dancing brain breaks as it gives them an opportunity to shift from sitting to dance movement.” Participant A shared, “Having the students walk to the whiteboard and allowing students to dance to the screen allows students to engage in movement that focuses on dancing.” Participant C said, “Students enjoy doing songs such as the Macarena which involves students moving their body.” Participant F shared that instead of walking around the

room students can dance around the room, which allows students to engage in movement, and they also get choice of which dance movement that they want to engage in.

Research Subquestion 3: Mental Brain Breaks

What mental brain breaks do primary grade teachers use? Which mental brain break strategies do they perceive as the most effective to support student learning?

Mental brain breaks are breaks that are incorporated in the classroom to support students when they are engaged with activities that have high levels of focus. Mental brain breaks are breaks that help students with attention because they provide students an opportunity to refocus. There were two questions that participants were asked during the interviews to gather data for Research Subquestion 3. The questions were

1. What are some specific mental brain breaks that you use?
2. What are the mental brain breaks that you perceive as the most effective to support student learning?

Three themes were identified for Research Subquestion 3. Table 4 shows the themes that were identified for mental breaks. Table 4 also shows the frequency of occurrence for each theme that was identified during interviews and observations.

Table 4

Mental Brain Breaks

Theme	Number of interview participants	Interview references	Number of classroom observations	Observation frequency	Total frequency of references
Sharing with peers	5	10	3	3	13
Quiet time	4	9	1	1	10
Affirmations	3	6	1	1	7

Sharing With Peers

This theme was referenced by five of the six participants and was observed three times in three classrooms. It was the theme with the highest frequency, and the total frequency of references was 13 times. An example of an observation related to sharing with peers was included in Participant A's class as students had to think about the next mammal that was on the screen and share with their peers. Participant C had the students talk to their peers, and they had to figure out how they would line up in number order from one to 20. Another example of an observation that was related to mental breaks involving sharing with peers included Participant C having students find a peer and discuss how to compare fractions. An example of effective mental brain breaks was shared by Participant E, who stated, "Students enjoy writing stories and jokes when they need a break and sharing them with their peers." Participant F commented, "Students like working on activity bins with peers that have games such as puzzles, blocks, and sticks as they get to engage with peers to figure out solutions and take a break from instruction." Participant C shared, "Students enjoy collaborating with their peers when asked questions which gives them an opportunity to take a break from their written work and share responses with peers verbally." Participant C said, "Students enjoy the games that enable them to work with peers such hopping across the room with their partner." Like Participant E, Participant B shared, "Students enjoy telling stories and jokes to their peers and are refocused after they take a short break that has structure." Participant D also shared that students like to reflect on their affirmations with their peers.

Quiet Time

This theme was referenced by four of the six participants and was observed once in one classroom. It was the theme with the second highest frequency, and the total frequency of references was 10 times. An example of a quiet time mental break in the observations included students having quiet time for about ten minutes after recess prior to starting math in Participant F's classroom. For quiet time, students could engage in activities such as drawing, reading, and coloring prior to engaging in the math lesson. An example of effective quiet time mental brain breaks was shared by Participant B:

Students enjoy quiet time as they can engage in an activity of their choice after lunch, and they can also move around the room or lay down on the carpet. This gives students an opportunity to focus prior to moving on to instruction after lunch.

Participant D commented, "Students like drawing and coloring during quiet time and quiet time gives students an opportunity to transition from lunch to the classroom and students are more engaged in learning after they take a mental quiet time break."

Participant A shared that students like quiet time because it is a preferred activity, and it helps students reset after lunch. Participant F said, "Students look forward to quiet time and get an opportunity to wind down after lunch by doing purposeful activities that give students an opportunity to reset and be ready for instruction."

Affirmations

This theme was referenced by three of the six participants and was observed once in one classroom. It was the theme with the lowest frequency, and the total frequency of references was seven times. An example of a mental break observation related to

affirmations was evident in Participant B's class as students gave a positive comment to their peer as they came to the whiteboard and shared the a correct short vowel sound such as "good job and saying the student's name." An example of effective mental brain breaks related to affirmations was shared by Participant C: "Students enjoy reflecting on their own affirmation goals that they have set and commenting on what their peers are doing well." Participant B commented, "Students like taking a mental break in the classroom and with learning when they get to share a positive aloud." Participant F shared, "Students enjoy working with their peers and also giving them one positive after they have worked together, which gives students a reset and also an opportunity to make their peers feel good and valued in the classroom." Participant F said, "Students engage in morning meeting and have many opportunities to give their peers affirmations as they learn about them and also boost their peer's self-esteem."

Central Question

Which strategies do primary teachers perceive as the most effective to support student learning?

During the interviews, participants were asked the following question as the final question: "Overall, what type of brain breaks do you find most effective for supporting student learning?" Table 5 shows which brain breaks each participant perceived as the most effective to support student learning.

Table 5 indicates that two participants shared that mental brain breaks are most effective for supporting student learning, and three participants shared that movement brain breaks are the most effective for supporting student learning. Breathing breaks received the most frequent references because they are easier to do than movement and

mental brain breaks. Breathing breaks require less planning and can be done at the students' seats. Although breathing breaks are the most frequently referenced, movement and mental brain breaks were identified as the most effective for supporting student learning.

Table 5

Participant Brain Break

Participant letter	Brain break that is most effective
Participant A	Movement
Participant B	Mental
Participant C	Movement
Participant D	Movement
Participant E	Movement
Participant F	Mental

Summary of Themes

Many themes emerged after engaging with qualitative data, which included interviews and observations related to this study. The data were based on brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks) through observations. Furthermore, interviews were conducted, and participants, which included primary teachers, shared their perceptions of which brain break strategies were most effective to support student learning. Table 6 provides a summary for the different types of brain breaks and the themes that emerged in the study along with the number of participants, interview references, number of classrooms, observation frequency, and total frequency of references. Nine major themes emerged

from the study with a frequency range of seven to 25 with the six participants who engaged in interviews and observations.

Table 6

Summary of Themes and Frequency Count

Theme	Number of interview participants	Interview references	Number of classroom observations	Observation frequency	Total frequency of references
Breathing breaks					
Focused breathing techniques	6	20	4	5	25
Yoga related breaks	5	16	3	3	19
Cross body breaks	4	8	2	2	10
Movement breaks					
Movement games	6	13	4	6	19
GoNoodle	5	12	1	1	13
Dancing	4	10	2	2	12
Mental breaks					
Sharing with peers	5	10	3	3	13
Quiet time	4	9	1	1	10
Affirmations	3	6	1	1	7

Key Findings

After analyzing the nine themes that were coded from the interviews and observations, I discovered many findings that described the brain break strategies that primary teachers use to support students and the strategies that primary teachers perceive as the most effective to support student learning. The key findings that support the research questions were found through the themes with the highest number of frequency references. Key findings include finding themes with the highest number of frequency

references for each type of brain break. Through observations and interviews, I learned that the type of breathing break with the highest frequency reference was focused breathing techniques to help students reset and focus in the classroom. Participants planned these breaks when students needed to refocus on instruction, and they varied from having students take a variety of types of breathing brain breaks. Through observations and interviews, I learned that the type of movement break with the highest frequency reference was movement dance breaks because they give students the opportunity to release energy by engaging in movement throughout lessons. Through observations and interviews, I learned that the type of mental break with the highest frequency reference was interacting with peers, which helps students take a break when activities require students' high levels of focus. Furthermore, through the interviews, I learned that two participants shared that mental brain breaks were the most effective for supporting student learning, and three participants shared that movement brain breaks were the most effective for supporting student learning. The four key findings support the research questions and were found through analyzing the themes with the highest number of frequency references for each type of brain break.

Key Finding 1

Focused breathing techniques are the breathing brain break strategies that primary teachers use and perceive to be the most effective to support student learning.

Key Finding 2

Movement games are the movement brain break strategies that primary teachers use and perceive to be the most effective to support student learning.

Key Finding 3

Sharing with peers is the mental brain break strategy that primary teachers use and perceive to be the most effective to support student learning.

Key Finding 4

Although breathing breaks were the most frequently referenced, movement and mental brain breaks were identified as the most effective to support student learning.

Summary

Based on the interviews and observations that supported the research questions, I discovered several themes that supported which brain break strategies primary grade teachers use, and which brain break strategies primary teachers perceive as the most effective to support student learning. For breathing brain breaks, focused breathing techniques generated the highest number of frequency of references from the interviews and observations. For movement brain breaks, movement games generated the highest number of frequency of references from the interviews and observations. For mental brain breaks, sharing with peers generated the highest number of frequency of references from the interviews and observations. Overall, four of the six participants felt that movement brain breaks were the most effective for supporting student learning, and two of six felt that mental brain breaks were the most effective for supporting students learning.

Chapter IV focused on the in-depth analysis of the data that were gathered, explained how the themes relate to the data, and stated the key findings related to what brain break strategies primary grade teachers use and what brain break strategies primary teachers perceive as the most effective to support student learning. Chapter V focuses on

the findings, conclusions, implications, and recommendations for future research related to this study.

CHAPTER V: FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter provides a summary of the study's purpose statement, research questions, methodology review, population, and sample. From the six key findings outlined in Chapter IV, five major findings were discovered for this study. The major findings are discussed in this chapter and are expanded to determine conclusions and implications for action. Unexpected findings and recommendations for future research are also included, and Chapter V ends with concluding remarks and reflections.

Purpose Statement

The purpose of this qualitative phenomenological study was to identify and describe the brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). A further purpose of this study was to identify primary teachers' perceptions of which brain break strategies are most effective to support student learning.

Research Questions

Research Question

What brain break strategies do primary grade teachers use? Which strategies do primary teachers perceive as the most effective to support student learning?

Research Subquestions

1. What breathing brain breaks do primary grade teachers use? Which breathing brain break strategies do they perceive as the most effective to support student learning?

2. What movement brain breaks do primary grade teachers use? Which movement brain break strategies do they perceive as the most effective to support student learning?
3. What mental brain breaks do primary grade teachers use? Which mental brain break strategies do they perceive as the most effective to support student learning?

Research Methods and Data Collections Procedures

Because the purpose of this study included identifying and describing the brain break strategies used by exemplary primary grade teachers and identifying teachers' perceptions of which brain break strategies were most effective to support student learning, qualitative data were gathered for this study. The qualitative data were collected by conducting interviews and classroom observations. Qualitative research was appropriate for this study because the interviews helped me understand what the teachers' perspectives were regarding brain breaks based on their experiences. Patton (2015) shared that open-ended interview questions are an appropriate strategy to use when conducting qualitative research because it helps the researcher gain the participants' perspectives. The observations were used to perceive participants' lived experiences related to brain breaks. Bhandari (2020) shared that qualitative research includes finding opinions and perspectives of participants by gathering and interpreting nonnumerical data from interviews and observations.

Population

A population is the group of participants who have specific standards that are used to find the results related in a study (McMillan & Schumacher, 2010). The population for this study consisted of primary teachers who teach in California.

According to the California Department of Education (n.d.), there are 146,521 elementary school teachers in California, but they are not classified by grade level, so approximately 74,000 are primary grade teachers, which is about half the K-6 grade teacher population.

Sample

According to McMillan and Schumacher (2010), sample includes the group of people who are chosen to participate in study. For this study, a sample of six exemplary primary school teachers who incorporate brain break strategies to support student learning was used. Purposeful sampling was used, which refers to selecting individuals from the population who will provide information related to the proposed topic of study (McMillan & Schumacher, 2010). For the purposes of this study, all six of the exemplary teachers met the following criteria:

- had a minimum of 2 years teaching experience
- were recommended by site administrators as successfully engaging students in learning
- provided students in person instruction

For this study, the sample was identified by expert recommendations by school site administrators and consisted of six teachers from Sacramento County who met the required criteria. Although it was my intention to include teachers from different districts, this was not possible because I required both interviews and classroom observations. I was granted permission to conduct the study with teachers from one school and worked with the site administrator to identify study participants who met the study criteria and represented a variety of ages and experiences, as noted in the demographic data.

Key Findings

After analyzing the themes that were coded from the interviews and observations, there were many findings that described the brain break strategies that primary teachers use to support students and the strategies that primary teachers perceive as the most effective to support student learning. The key findings that support the research questions were found through the themes with the highest number of frequency references. Key findings include themes with the highest number of frequency references for each type of brain break through interviews and observations. The four key findings support the research questions and were found through analyzing the themes with the highest number of frequency references for each type of brain break.

Key Finding 1

Focused breathing techniques are the breathing brain break strategies that primary teachers use and perceive to be the most effective to support student learning.

Breathing techniques, which is a type of breathing brain break, was referenced by all participants and was evident five times in four classrooms during observations. It was the theme with the highest frequency. Participant E had the students take a deep breath before they transitioned to the carpet. Participant F had students take a deep breath before they started the guided practice for math and as they transitioned to their seats. Participant F also shared that allowing students to come up with their own breathing breaks has been successful. Similarly, Participant E shared that one of the students' favorite focused breathing breaks includes doing butterfly breathing because they get to sit on the carpet and move their arms up and down, which helps students engage in

learning tasks. Willis (2016) shared that students are more focused when they engage in brain breaks that let them reset their minds.

Key Finding 2

Movement games are the movement brain break strategies that primary teachers use and perceive to be the most effective to support student learning.

Movement games, which are a type of movement brain break, were referenced by all participants and were observed six times in four classrooms. Furthermore, the theme had the highest frequency, and the total frequency of references was 19 times. An example of an observation related to movement games included Participant A incorporating movement by having students engage in a head, shoulders, knees, and toes game. Another example of an observation included Participant C having students line up by giving each student an index card and telling them that they had to line up in the correct number order. Participant A shared that students like the heads, shoulder, knees, and toes game when they play with the teacher because students get to take a break from instruction and reset by moving their bodies. Participant B said that students like games that allow students to collaborate with their peers and engage in movement. Mills (2023) shared that movement-related breaks support students because they give students opportunities to move around, which helps students focus on learning tasks. Willis (2016) shared that students are more focused when they have an opportunity to engage in movement breaks prior to moving to new learning tasks.

Key Finding 3

Sharing with peers is the mental brain break strategy that primary teachers use and perceive to be the most effective to support student learning.

The mental brain break strategy related to sharing with peers was a theme that was referenced by five of the six participants and was observed three times in three classrooms. It was the theme with the highest frequency, and the total frequency of references was 13 times. During the observation, Participant C incorporated peer interaction because the students had to work collaboratively to line up in order from one to 20. Another example of an observation that was related to mental breaks involving sharing with peers included Participant C's students getting in pairs and discussing how to solve fractions by choosing the area in the room that they wanted to collaborate in. Participant F shared that students like to interact with their peers in small groups and work on activity bins that have puzzles and blocks. Participant D said that students enjoy activities that let students work with peers and interact with peers so students can reset and engage. Mills (2023) shared that brain breaks are short breaks that help students with concentration, and having students do them with peers allows them to take those breaks. Piaget shared that students learn and grow by engaging in movements that allow them to interact with peers (Cherry, 2022b).

Key Finding 4

Although breathing breaks were the most frequently referenced, movement and mental brain breaks were identified as the most effective for supporting student learning.

During the interviews, participants were asked the following question as the final question: "What type of brain breaks do you find most effective for supporting student learning?" After I reviewed the participants' responses to this question, I found that two participants shared that mental brain breaks are most effective for supporting student

learning, and three participants shared that movement brain breaks are the most effective for supporting student learning.

Although breathing breaks were the most frequently referenced, movement and mental brain breaks were identified as the most effective for supporting student learning.

Breathing breaks were most frequently mentioned because they are easier to do.

Participant E shared that breathing breaks are easier to do because students can do them in their seats, and they can easily get back on the task that they need to accomplish.

Participant D shared that breathing breaks are easier for students to do because they do not have to move around the room, and they promote more calmness. Morin (n.d.) shared that breathing brain breaks make the classroom feel calm and make it easier for students to transition from one activity to the next. Three of six participants shared that movement

brain breaks were the most effective because they help students focus when they get the opportunity to release energy. During the interviews, Participant D shared that students enjoy engaging in morning meetings because they get to play games that involve movement such as tossing a ball and engaging in body movements. In addition,

Participant A shared that students like to engage in activities, such as walking around the classroom or hopping to their desks from the carpet, that allow them to move around.

Willis (2016) explained that students are more focused when they get to take movement breaks because they increase the amount of blood flow and oxygen supply in the brain.

Although breathing breaks were the most frequently referenced in this study, movement and mental brain breaks were shared as the most effective for supporting student learning for the final interview question.

Unexpected Findings

After reviewing the results of this study, two unexpected findings emerged. One unexpected finding was that breathing breaks were the most frequently referenced in the study, and movement and mental brain breaks were shared as the most effective to support student learning for the final interview question. I believe that breathing breaks were shared with the highest number of frequencies because they are easier to do. Furthermore, after doing breathing brain breaks, it is easier for teachers to get the students back on task because they are not moving around the room, and they can take breathing brain breaks at their seats.

Another unexpected finding was that teachers also benefit from taking brain breaks in the classroom. Participant D shared that brain breaks also give the teacher a break from teaching and help teachers reset by engaging in an activity that requires the brain to take a short break. Because teachers have limited breaks in the school day, Participant D felt that brain breaks support teachers because they also get to take a break in the classroom to refocus.

Conclusions

This qualitative phenomenological study was designed to identify and describe the brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). Another purpose of this study was to identify primary teachers' perceptions of which brain break strategies are most effective to support student learning. Observations and interviews were used to find the perceptions and opinions

related to the most effective types of brain breaks and brain break strategies to support student learning.

The following conclusions were identified from the themes and key findings in the research study. The conclusions include brain break conclusions for all three of the brain breaks (breathing breaks, movement breaks, and mental breaks) and conclusions related to specific brain breaks.

Conclusion 1

When teachers incorporate brain breaks during the school day it helps students reset and engage in the learning task.

Because breaks are needed for students to be engaged in learning tasks, brain breaks give students time to reset. Kiser (2020) shared that brain breaks support students' cognitive functioning and help student develop a joy for learning. Many researchers such as Willis (2016) and Kiser shared that brain breaks need to be planned and structured and be purposeful for students. Participant A emphasized the importance of having students move around because they cannot sit for long periods of time. Participant C shared that students need to incorporate brain breaks every seven to ten minutes for students to stay engaged with the learning tasks. In addition, Participant E shared that brain breaks help students reset their minds and engage with the task. Participant A supported this claim by sharing that allowing students to engage in brain breaks during instruction is necessary for students to reset and engage with the instruction.

Conclusion 2

Brain breaks are most effective when teachers use a variety of types and can apply them strategically when students need them to refocus.

Incorporating varied brain breaks in the classroom ensures that students are more engaged because they get the opportunity to refocus. Kiser (2020) emphasized that brain breaks are essential in classrooms and provide students opportunities to engage and enjoy academics by having a chance to reset. Participant C shared that using a variety of brain breaks is essential and depends on students' needs. Participant A shared that brain breaks are critical for students, need to be varied based on the needs of the students, and benefit students. In addition, Cleaver (2019) explained that brain breaks help students refocus and be successful in the classroom. Participant E shared that brain breaks provide students opportunities to engage in subject matter and show academic success. Participant C shared that using many types of breaks such as rainbow breathing, quiet time activities, stretches, and dancing are brain breaks that help students refocus and are used when students need breaks to complete tasks. Desautels (2016) explained that brain breaks support students by enhancing engagement and ensure academic success by increasing work completion. Turner (2024) shared that brain breaks are most successful when they are planned to meet the needs of students and are planned during different times of the day depending on the situation.

Conclusion 3

Providing students opportunities to move around the classroom and engage in movement breaks, helps students transition from one activity to the next.

Because there is a demand related to instructional minutes in the classroom, one way to support students is by offering them breaks in the classroom during transitions. Because elementary students have multiple assignments, offering students transition breaks that incorporate movement is an effective way to improve engagement. Willis

(2016) explained that there is an increase in focus when students have an opportunity to take breaks prior to transitioning to activities. Moreover, Morin (n.d.) shared that movement brain breaks provide students an opportunity to reset from one activity to the next activity. Participant E shared that students have an opportunity to move around the classroom, which enhances focus as students transition to different activities throughout the school day. Similarly, Participant B shared that movement breaks help students refresh prior to moving to the next learning task. In addition, Mills (2023) elaborated that movement breaks allow students to move around, which boosts concentration and focus when they are engaged in learning.

Conclusion 4

Providing students breathing breaks are the most commonly used brain breaks and cause minimal disruptions.

Implementing brain breaks is challenging because teachers have instructional time that is included in their daily schedules, and teachers must explain the use of brain breaks in their classrooms. Gernes (2021) shared that using brain breaks in the classroom reduces instructional time. Participant E shared that breathing breaks are easier to do because students can do them in their seats and students can easily get back on the task with little instructional time used. Participant D shared that breathing breaks are easier for students to do because they do not have to move around the room, and they promote more calmness. Desautels (2016) shared that breathing brain breaks support with calmness.

Conclusion 5

Mental brain breaks support student engagement by facilitating peer interaction.

Mental brain breaks support students when they are engaged with activities that require high levels of focus and engaged with peers. Willis (2016) shared that mental brain breaks help students refocus and interact with their peers. There are many mental brain breaks that students like to take with peers. Some examples include that Participant B shared that telling jokes helps students reset their brains. Likewise, Participant E shared that students like writing short stories and telling jokes to their peers. Participant F commented that students like working on activity bins with peers that have games such as puzzles, blocks, and sticks because they get to engage with peers to figure out solutions and take a break from instruction. Participant C shared that students enjoy collaborating with their peers when asked questions which gives them an opportunity to take a break from their written work and share responses with peers verbally. Willis (2016) explained that engaging in mental brain breaks with peers helps students focus and gives them an opportunity to reset. Piaget's theory also explains that students benefit from activities that incorporate movement and interaction with peers (Cherry, 2022b).

Implications for Actions

Many conclusions were drawn from the findings of this study that led to implications for action. The following implications are actions that would support students with academic success in the classroom. All these implications would support teachers by helping them build their toolbox of resources related to brain breaks so teachers can use them when they recognize that students need brain breaks.

Implication 1

Schools and districts must provide teachers with professional development opportunities on brain break strategies that are effective and support student learning. In

the professional development sessions, teachers should learn why brain break strategies are needed in the classroom and effective ways to use them. Teachers should get an opportunity to share effective brain break strategies that they use in the classroom with peers. Teachers should have an opportunity to engage in leadership roles at school sites by teaching staff about effective brain break strategies that they use in the classroom. School administrators should allow teachers time to present effective strategies for incorporating brain breaks and support these strategies with teachers by having them share with their colleagues in the sessions led by other teachers. Furthermore, teachers can develop shared documents that they use as a resource to find effective brain breaks.

Implication 2

School administrators would also benefit from this study to gain an understanding of which brain breaks are the most effective to support students. School administrators can work with fellow administrators and share strategies related to brain breaks. When school administrators give teacher formative feedback, they can also incorporate and acknowledge the use of effective brain breaks. Additionally, school administrators can incorporate cross-level collaboration so teachers can share effective brain break strategies within grade levels.

Implication 3

The California Teachers Association (CTA), which works to support educators and improve the conditions of teaching and learning in California, can use the results of this study in the professional development sessions they provide to support teachers. CTA can have professional development that supports teachers by giving them training and resources related to effective brain break strategies. Furthermore, CTA can share how

other schools and districts are incorporating brain break strategies to improve academic achievement.

Implication 4

New teacher and administrative induction programs should provide teachers and administrators support on incorporating brain breaks during instruction. Teachers who are new to education will benefit from the importance of incorporating brain breaks in the classroom. By giving new teachers resources related to brain breaks, teachers can plan break breaks when they lesson plan and learn to be cognizant when students need brain breaks in the classroom.

Implication 5

Curriculum publishers should incorporate explicit brain break activities in their curriculum to support students' achievement. Because curriculum publishers give many resources, they can incorporate a resource that focuses on brain breaks. They can also include recommendations to incorporate brain breaks in the lesson planning guides. In addition, curriculum publishers can recommend brain breaks based on the concepts that are being taught in the curriculum and vary them based on standards.

Recommendations for Further Research

The following recommendations are made for further research based on the findings and conclusions of this study. The following recommendations require further research and are needed to support brain breaks and student learning.

Recommendation 1

It is recommended that a phenomenological qualitative study be conducted with various age groups (e.g., upper elementary, middle school, high school) to see what brain

breaks teachers at those grades use and perceive as the most effective types of brain breaks to support student learning.

Recommendation 2

It is recommended that a phenomenological qualitative study be conducted to see what brain break strategies students perceive as the most effective and which brain break strategies students perceive that help them reset and be academically successful.

Recommendation 3

It is recommended that a comparative quantitative study be conducted to see how the implementation of brain breaks supports students learning by looking at data from teachers who incorporate brain breaks and teachers who do not incorporate brain breaks. Teachers can analyze quantitative data such as different assessments to see how students are progressing and compare the data for teachers who incorporate brain breaks and teachers who do not incorporate brain breaks.

Recommendation 4

It is recommended that a quantitative study be conducted to see discipline data related to students who are sent out of class for causing disruptions in the classroom. For quantitative data points, teachers' classroom referral numbers would need to be analyzed to see whether the numbers of referrals are lower for teachers who incorporate brain breaks in the classroom.

Recommendation 5

It is recommended that a phenomenological qualitative study be conducted to see what brain break strategies teachers perceive as the most effective for keeping students on task and focused based on the specific needs of the students they have. Teachers can

share their perspectives and opinions on which brain break strategies help them take a break and reset in the classroom.

Concluding Remarks and Reflections

I have had the opportunity to be in education for the past 20 years and have enjoyed every moment of it. As the researcher for this study, I had an opportunity to interview and observe six amazing educators, see how they incorporate brain breaks in their classrooms, and hear about their perceptions related to brain breaks. All these teachers were passionate about incorporating brain breaks in the classroom and enhancing students' success. Furthermore, teachers used varied brain break strategies to support their students and ensured that they were engaged in the classroom.

My experience of conducting this study was a learning and growing experience because I learned so much about brain breaks through the observations and interviews. The teachers that I interviewed and observed had a love for teaching and understood the importance of incorporating brain breaks. Hearing teachers' perceptions related to brain breaks and observing brain breaks in their classrooms was a rewarding experience for me. The most valuable information that I gained from this study includes the understanding of how imperative brain breaks are for student learning. I feel empowered to continue to learn and grow as an educator and support students and teachers to enhance student learning. Furthermore, I would like to offer professional development to teachers at the school where I work and offer district-wide professional development related to brain breaks. By completing my study, I believe my passion for working with students and educators will continue.

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APPENDICES

APPENDIX A

Literature Review Matrix

Brain Breaks in Elementary School	Learning by Doing: - Dewey	Behaviorism B.F Skinner	Piaget Theory of Education	Howard Gardener' s Theory of Multiple Intelligences	Lev Vygotsky' s Learning Theory	Mental Breaks	Movement Breaks	Breathing Breaks	Academic Benefits of Brain Breaks	Social Benefits of Brain Breaks	Brain Breaks
Abdelbar y, M. (2019)				X					X	X	X
Brooks, A. (2018)	X				X					X	X
Beaupre, J. (n.d.).		X					X		X		X
Care, E., Kim, H., Scoular, C. (2017)			X								
Chen, G. (2022)							X		X		X
Cherry, K. (2022)		X	X	X	X						
Cleaver, S. (2019)									X	X	X
Desaultes , L. (2016).		X							X		X
Ferlazzo, L. (2020)							X				
Gernes, A. (2021)			X						X		
Gibbon, J. (2020)	X										X
Guterk, G. (n.d.)									X	X	X
Hallerma n, S. (2019)	X					X				X	X
Hernden, E. (2018)				X							

Kiser, S. (2020)									X	X	X
Kelchner, L. (2018)		X			X					X	X
Lee, A. (n.d.)									X	X	
Meador, D. (2019)	X								X		X
Morin, A. (n.d.)				X				X		X	
Paul, M. (2022)										X	X
Peng, P. & Kievit, R.A. (2020)	X								X		
Perera, T., Frei, S., Frei, B., & Bohe, G. (2015)					X				X	X	X
Regier, J. (2011)	X								X		X
Rashad, K. (2018)									X		X
Ricketts, D. (n.d.)		X		X			X				X
Roiland, D. (2020)	X								X	X	X
Rosenshine, B. (1981)				X					X	X	
Sheldon, J. (2020)						X				X	X
Terada, Y. (2020)									X	X	X
Terada, Y. (2019)									X	X	X
Vinney, C. (2019)			X	X	X				X		
Westlake, A. & Christian, B. (2015)						X	X	X	X	X	X
Willis, J. (2022)				X		X		X	X	X	X
Wurman, J. (2019)		X	X		X					X	
Writer, S. (2020)					X				X		X
Yussif. (2022)					X					X	X

APPENDIX B

Interview Question Alignment Table

Purpose Statement

The purpose of this qualitative phenomenological study is to identify and describe the brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). A further purpose of this study was to identify primary teachers’ perceptions of which brain break strategies are most effective to support student learning.

Research Questions

Research Questions: What brain break strategies do primary grade teachers use? Which strategies do primary teachers perceive as the most effective to support student learning?

Sub question #1: What breathing brain breaks do primary grade teachers use? Which breathing brain break strategies do they perceive as the most effective to support student learning?

Sub question #2: What movement brain breaks do primary grade teachers use? Which movement brain break strategies do they perceive as the most effective to support student learning?

Sub question #3: What mental brain breaks do primary grade teachers use? Which mental brain break strategies do they perceive as the most effective to support student learning?

Research Questions	Interview Questions
<p>Research Questions: What brain break strategies do primary grade teachers use? Which strategies do primary teachers perceive as the most effective to support student learning?</p>	<p>Q1: Tell me about how you use brain break strategies?</p>
<p>Sub question #1: What breathing brain breaks do primary grade teachers use? Which breathing brain break strategies do they perceive as the most effective to support student learning?</p>	<p>Q2: What are some specific breathing brain breaks that you use?</p> <p>Q3: What are the breathing brain breaks that you perceive as the most effective to support student learning?</p> <p>Probe: Are there any other strategies you use for breathing breaks? Why are you using these breathing brain breaks in your classroom?</p>

	<p>Probe: Have you ever tried breathing breaks such as stretching the body such as the arms, neck, and shoulders, raising the arms above the head, shaking out the hands and feet, and deep breathing which consists of closing eyes); Tell me more about these?</p>
<p>Sub question #2: What movement brain breaks do primary grade teachers use? Which movement brain break strategies do they perceive as the most effective to support student learning?</p>	<p>Q4: What are some specific movement brain breaks that you use?</p> <p>Q5: What are the movement brain breaks that you perceive as the most effective to support student learning?</p> <p>Probe: Are there any other strategies you use for movement breaks? Why are you using these movement brain breaks in your classroom?</p> <p>Probe: Have you ever tried movement breaks such as walking, hopping, running, and dancing in place. Tell me more about these?</p>
<p>Sub question #3: What mental brain breaks do primary grade teachers use? Which mental brain break strategies do they perceive as the most effective to support student learning?</p>	<p>Q6: What are some specific mental brain breaks that you use?</p> <p>Q7: What are the mental brain breaks that you perceive as the most effective to support student learning?</p> <p>Probe: Are there any other strategies you use for mental breaks? Why are you using these mental brain breaks in your classroom?</p> <p>Probe: Have you ever tried such as engaging in games, telling stories, telling jokes, or reading stories. Tell me more about these?</p> <p>Q8: Overall, what type of brain breaks do you find most effective for supporting student learning?</p>

	Q9: Final question: Is there anything else about how you use brain breaks?
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APPENDIX C

**Observation Tool for Classroom Observations for 3 Types of Brain Breaks
(Breathing, Movement, and Mental Breaks)**

Name of Participant: _____

Date of Observation: _____

Time of Observation: _____

Movement Breaks	Examples (Repeated use is indicated by a check mark)	On Task Behavior after break	Off Task after break
Breathing Breaks	•	•	•
Brain Breaks	•	•	•
Movement Breaks	•	•	•

Notes:

APPENDIX D

Interview Field-Test Observer Reflection Form

Since you have experience with conducting interviews, I look forward to your feedback prior to conducting the interviews with participants. After the interview, please answer the following questions. While conducting the interview, please take notes that we can discuss after the interview.

1. Do you think there was enough time to conduct the interview?
2. Were the interview questions asked in a clear manner?
3. How did the participant feel during the interview?
4. What parts of the interview were positive?
5. What parts of the interview need some improvement?
6. What are changes that can be made to make the interview process?
7. What are ways that I can modify and adjust the interview process?

Observation Field-Test Administrator Reflection Form

Since you have experience with conducting observations and have used the observation tool, I look forward to your feedback after conducting observations of participants. After the observation, please answer the following questions.

Observation Field Test Administrator Reflection Form

1. How did the feedback observation tool work for you?
2. Was there enough time for the observation? Do you feel it was too much time or too less time?
3. Do you have any suggestions to improve the process or tool for the observations for my study?

APPENDIX E

Interview Field-Test Participant Feedback Form

Interview Field Test Feedback

You will have a copy of the questions prior to the interview and at the interview. Please use this sheet to take notes. The feedback will be used by the researcher to improve the interview questions.

1. How did the interview go for you?
2. Did you have enough time to answer each question?
3. Were the questions clear and easy to understand?
4. Are there any questions that you feel were hard to answer?
5. Did I make you feel comfortable during the interview?

Observation Field-Test Participant Feedback Form

Thank you for participating in the observation. After the observation, please answer the following questions. The feedback will be used by the researcher to improve the observation process.

Observation Field Test Feedback:

1. Were you comfortable during observation?
2. Do you feel I spend enough time in your classroom? Was it too much or too little time?
3. Is there anything that would make you more comfortable?

APPENDIX F

Interview Self-Evaluation Form for Researcher

The researcher will be reflecting on these questions after the interview has been conducted. After the researcher conducts the interview and completes the self-reflection, the researcher will discuss the reflection with the observer. Insight will be gained, and interview questions will be adjusted.

1. Do you think there was enough time to conduct the interview?
2. Were the interview questions asked in a clear manner?
3. How did the participant feel during the interview?
4. What parts of the interview were positive?
5. What parts of the interview need some improvement?
6. What are changes that can be made to make the interview process?
7. What are ways that I can modify and adjust the interview process?

Observation Self-Evaluation Form for Researcher

The researcher will be reflecting on these questions after the observation has been conducted. After the researcher conducts the observation and completes the self-reflection, the researcher will discuss the reflection with the observer. Insight will be gained, and the observation protocol will be adjusted.

Observation Field Test

1. Do you think there was enough time to conduct the observation?
2. Was the observation tool easily used?
3. How did the participant feel during the observation?
4. What parts of the observation tool was positive?
5. What parts of the observation tool needs improvement?
6. What are changes that can be made to make the observation process more smooth?

What are ways that I can modify and adjust the observation process?

APPENDIX G

Email to School Administrators for Participant recommendations

My name is Mandeep Biring. I'm a doctoral candidate at UMass Global University in the Department of Educational Leadership. My research will focus on a qualitative phenomenological study that will identify and describe the brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). A further purpose of this study was to identify primary teachers' perceptions of which brain break strategies are most effective to support student learning.

For this study, a sample of six exemplary primary school teachers that incorporate brain break strategies to support student learning will be needed. The teachers will participate in both interviews and observations. The interviews and observations will focus on strategies that are used to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks) as a part of my research. The interviews will give primary teachers' opportunities to share their perceptions of which brain break strategies are most effective to support student learning.

Purposeful Sampling will be used to conduct this research and if you can please recommend me the names of teachers that meet the following criteria:

- Teacher has a minimum of two years teaching experience
- Teacher successfully engages students in learning
- Teacher provides students in person instruction

Recommended individuals will be sent an email with all the information that is needed for them to participate in an interview and observation. The interview protocol which includes answering open-ended semi structured interview questions will be shared with the participants. The interview questions are designed around each of the three types of brain breaks (breathing breaks, movement breaks, and mental breaks). The time allotted for the interview will be 45 minutes and the interview will be audio recorded, so all information and responses are accurate for my study. Although participants will be a part of my dissertation, all information provided will be unanimous and it will be confidential.

Please let me know participants that you would recommend for this study and their email addresses. An informative email will be sent to the participants, and they can decide if they want to participate as participation is voluntary.

APPENDIX H

Email Invitation for Participants to Participate in Study

Dear: _____

My name is Mandeep Biring. Currently, I am a doctoral student at UMass Global. I am emailing you as I am going to be conducting a study related to brain breaks and am looking for participants to participate in my study and participation is voluntary.

The purpose of this qualitative phenomenological study will be to identify and describe the brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). A further purpose of this study will be to identify primary teachers' perceptions of which brain break strategies are most effective to support student learning.

You were recommended for my study by your school administrator, and you have met the criteria for participants that were set for this study. If you volunteer to participate, you will be involved in an interview which includes answering 8 open-ended semi structured interview questions and a forty-five-minute observation. The interview questions are designed around each of the three types of brain breaks (breathing breaks, movement breaks, and mental breaks). The time allotted for the interview will be 45 minutes and the interview will be audio recorded, so all information and responses are accurate for my study. Although you will be a part of my dissertation, all information provided will be anonymous and your identity will be kept confidential.

Thanks for your time and I hope you are willing to identify and describe the brain break strategies that you use to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). Furthermore, your perceptions of which brain break strategies are most effective to support student learning will be used in my study.

Please let me know if you are willing to participate in my study. If you are interested, I will send you the times that we can meet for the interview. I will send you the interview questions and the key terms and definitions are important to understand the importance of the study prior to our interview.

Sincerely,
Mandeep Biring
Doctoral Candidate, UMass Global University

APPENDIX I

Email Communication Participant Interview and Observer and Google Invite

Thank you for participating in my study. Below is the date, time, and location of the interview:

Date:

Time:

Where:

Thank you for participating in my study. Below is the date, time, and location of the observation:

Date:

Time:

Where:

APPENDIX J

Email to Verify Participation in Study

Thank you for agreeing to be a part of my study and participate in interviews and observations. My research will focus on identifying and describing the brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). A further purpose of this study will be to identify primary teachers' perceptions of which brain break strategies are most effective to support student learning.

You will participate in an interview which includes answering 8 open-ended questions. The interview questions are designed around each of the three types of brain breaks (breathing breaks, movement breaks, and mental breaks). The time allotted for the interview will be 45 minutes and the interview will be audio recorded, so all information and responses are accurate for my study. Although you will be a part of my dissertation, all information provided will be anonymous and your identity will be kept confidential.

Here are the interview questions:

Interview Questions:
Q1: Tell me about how you use brain break strategies?
Q2: What are some specific breathing brain breaks that you use?
Q3: What are the breathing brain breaks that you perceive as the most effective to support student learning?
Q4: What are some specific movement brain breaks that you use?
Q5: What are the movement brain breaks that you perceive as the most effective to support student learning?
Q6: What are some specific mental brain breaks that you use?
Q7: What are the mental brain breaks that you perceive as the most effective to support student learning?
Q8: Overall, what type of brain breaks do you find most effective for supporting student learning?
Q9: Final question: Is there anything else about how you use brain breaks?

Here are the key terms that you can review prior to our interview:

Academic Achievement. When students have educational outcomes that show levels of learning by showing mastery of specific goals related to subjects (Paul, 2022).

Brain Breaks. Brain breaks are short breaks that are incorporated in the classroom that help students reset their minds (Kiser, 2020).

Breathing Breaks. Breathing brain breaks are composed of breathing and relaxation types of breaks such as stretching the arms and legs, raising the arms above the head, deep breathing and closing eyes and relaxing (Morin, n.d.; Weslake, & Christian, 2015.)

Mental Breaks. Mental brain breaks are breaks that help students be more productive by refocusing students' attention when they are working on activities that require high levels of concentration (Willis, 2016). Some examples of mental brain breaks include playing games, telling jokes, or reading stories (Weslake, & Christian, 2015).

Movement Breaks. Movement brain breaks are composed of physical movement that allow students to release engage with tasks by releasing energy (Willis, 2016). Some examples of movement brain breaks include engaging in dances, exercising, and playing movement games (Weslake, & Christian, 2015).

Primary Grades. Primary grades include students that are in kindergarten to third grade and are at the ages of five to eight (Paul, 2022).

Thanks for your time and I look forward to having you identify and describe the brain break strategies that you use to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). Furthermore, your perceptions of which brain break strategies are most effective to support student learning will be used in my study.

I plan on doing interviews and observations from January 10, 2024 to January 20, 2024. Google calendar invites will be sent once times and dates are confirmed. If you have further questions, please call me on my cell phone.

APPENDIX K

Interview Protocol

Introduction Script

My name is Mandeep Biring. I'm a doctoral candidate at USMASS Global in the Department of Organizational Leadership. I'm conducting research related to brain breaks in primary classrooms.

The purpose of this qualitative phenomenological study was to identify and describe the brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). A further purpose of this study was to identify primary teachers' perceptions of which brain break strategies are most effective to support student learning.

Thank you for participating in my study and for participating in this interview and taking time from your schedule to support my study.

During this interview, please feel free to ask for any clarification on any of the questions.

I sent you the definitions of the three types of brain breaks, were you able to review those definitions?

The interview will be audio recorded, so all information and responses are accurate for my study. Although you will be a part of my dissertation, all information provided will be unanimous and it will be confidential. I will be getting verbal agreement to record the interview and reviewing that you have the participant bill of rights.

I will start recording the interview if you agree to all the above.

APPENDIX L

Participants Bill of Rights



UMASS GLOBAL INSTITUTIONAL REVIEW BOARD Research

Participant's Bill of Rights

Any person who is requested to consent to participate as a subject in an experiment, or who is requested to consent on behalf of another, has the following rights:

1. To be told what the study is attempting to discover.
2. To be told what will happen in the study and whether any of the procedures, drugs or devices are different from what would be used in standard practice.
3. To be told about the risks, side effects or discomforts of the things that may happen to him/her.
4. To be told if he/she can expect any benefit from participating and, if so, what the benefits might be.
5. To be told what other choices he/she has and how they may be better or worse than being in the study.
6. To be allowed to ask any questions concerning the study both before agreeing to be involved and during the course of the study.
7. To be told what sort of medical treatment is available if any complications arise.
8. To refuse to participate at all before or after the study is started without any adverse effects.
9. To receive a copy of the signed and dated consent form.
10. To be free of pressures when considering whether he/she wishes to agree to be in the study.

If at any time you have questions regarding a research study, you should ask the researchers to answer them. You also may contact the UMASS GLOBAL Institutional Review Board, which is concerned with the protection of volunteers in research projects. The UMass Global Institutional Review Board may be contacted either by telephoning the Office of Academic Affairs at (949) 341-9937 or by writing to the Vice Chancellor of Academic Affairs, UMASS GLOBAL, 16355 Laguna Canyon Road, Irvine, CA, 92618.

APPENDIX M

Informed Consent Document UMASS Global

INFORMATION ABOUT: Launching the Next Generation of School Leaders: An Ethnographical Look at Leadership Coaches and Their Experiences on the Development of Transformational Leadership Skills in New School Administrators as a Result of Participating in the Blended Coaching Model.

RESPONSIBLE INVESTIGATOR: Mandeep Biring, Doctor of Educational Leadership in Organizational Leadership

PURPOSE OF STUDY: You are being asked to participate in a research study conducted by Mandeep Biring, a doctoral student from the Doctoral of Education in Organizational Leadership at UMass Global. The purpose of this qualitative phenomenological study research study is to identify and describe the brain break strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). A further purpose of this study is to identify primary teachers' perceptions of which brain break strategies are most effective to support student learning.

This study will fill in the gap in the research regarding the use of brain breaks and describe most effective strategies used by exemplary primary grade teachers to support student learning for each of the three different types of brain breaks (breathing breaks, movement breaks, and mental breaks). The results of this study may assist teachers as they plan brain breaks in the classroom to support students academically as it will provide information about the most effective strategies. School administrators will also benefit from this study as they will understand the effective strategies for incorporating brain breaks and can support these strategies with teachers. The California Teachers Association (CTA), which works to support educators and improve the conditions of teaching and learning in California, can use the results of study in the professional development sessions they provide support teachers. Curriculum publishers can incorporate the information from this study in their curriculum to suggest how to incorporate brain break activities to support students' achievement. New teacher induction programs can also benefit from this study and provide teachers support on incorporating brain breaks during instruction. This study will provide needed information related to determining which brain break strategies are used by primary teachers to effectively support student learning for each of the three different types of brain breaks which includes breathing breaks, movement breaks, and mental breaks.

By participating in this study, I agree to participate in an individual Interview. The interview will last approximately 45 minutes and will be conducted in person or Zoom. I also agree to participate in an observation. The observation will last approximately 45

minutes and will be conducted in my classroom. Completion of the interview and the observation will take place in January, 2024.

I understand that:

- a) There are minimal risks associated with participating in this research. I understand that the Investigator will protect my confidentiality by keeping the identifying codes and research materials in a locked file drawer that is available only to the researcher.
- b) I understand that the interview will be audio recorded. The recordings will be available only to the researcher and the professional transcriptionist. The audio recordings will be used to capture the interview dialogue and to ensure the accuracy of the information collected during the interview. All information will be identifier-redacted and my confidentiality will be maintained. Upon completion of the study all recordings will be destroyed. All other data and consents will be securely stored for three years after completion of data collection and confidentially shredded or fully deleted.
- c) The possible benefit of this study to me is that my input may help add to the research regarding coaching programs and the impact coaching programs have on developing future school leaders. The findings will be available to me at the conclusion of the study and will provide new insights about the coaching experience in which I participated . I understand that I will not be compensated for my participation.
- d) If you have any questions or concerns about the research, please feel free to contact Mandeep Biring at [redacted]@mail.umassglobal.edu or by phone at XXX-XXX-XXXX; or Dr. Carol Anderson-Woo, Dissertation Chair [redacted]@umassglobal.edu.
- e) My participation in this research study is voluntary. I may decide to not participate in the study and I can withdraw at any time. I can also decide not to answer particular questions during the interview if I choose. I understand that I may refuse to participate or may withdraw from this study at any time without any negative consequences. Also, the Investigator may stop the study at any time.
- f) No information that identifies me will be released without my separate consent and all identifiable information will be protected to the limits allowed by law. If the study design or the use of the data is to be changed, I will be informed, and my consent re- obtained. I understand that if I have any questions, comments, or concerns about the study or the informed consent process, I may write or call the Office of the Vice Chancellor of Academic Affairs, UMass Global, at 16355 Laguna Canyon Road, Irvine, CA 92618, (949) 341-7641.

I acknowledge that I have received a copy of this form and the “Research Participant’s Bill of Rights.” I have read the above and understand it and hereby consent to the procedure(s) set forth.

Signature of Participant: _____

Signature of Principal Investigator: _____

Date _____

APPENDIX N

CITI Certificate



Completion Date 18-May-2022
Expiration Date N/A
Record ID 49006697

This is to certify that:

Mandeep Biring

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Human Subjects Research
(Curriculum Group)
Social-Behavioral-Educational Researchers
(Course Learner Group)
1 - Basic
(Stage)

Under requirements set by:

University of Massachusetts Global



Verify at www.citiprogram.org/verify/?w311a5542-0007-459c-98c4-e50d74366bca-49006697