Conference Proceedings

Examining the Effects of a Multi-Sensory Class on Teachers' Classroom Practices

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Abstract

This research examined the impact of a graduate-level course, “Teaching All Students: A Multi-Sensory Approach to Learning,” on teachers' practices and student learning. The research results supported the hypothesis that the course would positively impact teachers and students.

Keywords: multi-sensory, occupational therapy, education

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The notion that learning through the senses—visual (sight), tactile (touch), gustatory (taste), olfactory (smell), and kinesthetic (movement)—aids in memory of the learned experience is well documented within the field of education. A multi-sensory approach is defined as any learning that combines two or more sensory strategies.

Numerous studies have supported the use of a multi-sensory approach for students who are neurotypical and neurodiverse. Neurotypical refers to individuals whose neurological development is within the typical range of functioning. Neurodiverse refers to variations within human brain development and may include, but is not limited to, individuals who have attention deficit disorder, autism, and learning differences.

Dev et al. (2002) used the Orton-Gillingham reading approach, which combines visual, auditory, and kinesthetic elements, with first-grade special education students. The study concluded that the students within the experimental group advanced their reading abilities and subsequently were able to exit from special education services. The students in the experimental group were evaluated after two years, and all the students maintained their skills. None of the students within the experimental group returned to special education.

Obaid (2013) examined the effect of a multi-sensory approach for teaching sixth graders with learning disabilities. The study found a statistically significant difference that favored the experimental group, supporting a multi-sensory approach as beneficial.

DeSimone et al. (2002) conducted a study of 207 teachers in 30 schools in five states over 3 years. The longitudinal study concluded that professional development, which provided educators with specific teaching practices, increased educators' use of the practices in their classrooms. Studies have found that professional development which included active learning opportunities can have a substantial positive influence, not only on teachers'

classroom practices but also on student achievement (Birman et al., 2000; Garet et al., 2001; Wilson & Lowenberg, 1991).

Balcı & Çayır (2017) found that a multi-sensory learning model increased phonological awareness, reading, and writing of fourth graders. Sinclair (2018) concluded that multi-sensory learning increases creativity within the practice of teaching. Rau et al. (2020) found that both teachers and students benefited from a multi-sensory approach, and the approach was highly efficient, reducing distraction.

Stoffers (2011) examined how multi-sensory learning can impact general education second graders. Stoffers found that a multi-sensory approach can have a positive impact on the school community, enhancing student motivation, aiding teachers in assessing students' needs, and enabling teachers to develop a positive learning environment.

A multi-sensory approach is one of the most effective teaching methods for student success in the classroom (Shams & Seitz, 2008; Balcı & Çayır, 2017). When teachers utilize a multi-sensory approach, students' learning is comprehensive, permanent, and meaningful (Huyck & Wright, 2013; Mehrabi et al., 2014). The multi-sensory learning model allows students to be active participants in the learning process (Hazoury et al., 2009). A multi-sensory approach promotes retention and memory of educational materials (Birsh, 2011; Nurjanah, 2017). A multi-sensory approach supports all learners (Gazioglu & Karakus, 2023).

Wild and Steeley (2018) examined the effect of movement breaks on students who displayed sensory processing difficulties. Results revealed that training for classroom teachers with students who have sensory processing differences was practical. The study noted that despite research about the benefits of movement breaks and multi-sensory

strategies in schools, these remain areas within the domain of occupational therapy practitioners.

Purpose

The purpose of this research is to understand and assess teachers' current teaching practices and to determine what impact the graduate-level course, "Teaching All Students: A Multi-Sensory Approach to Learning," had on teachers' classroom practices and subsequently on student learning outcomes.

With the findings of Wild and Steeley (2018) in mind, the graduate course was developed and taught by an occupational therapist to provide knowledge of a multi-sensory approach, which has historically been within the domain of occupational therapists, and disseminate the approach to classroom teachers. The focus of the study was on a graduate course specifically designed for early childhood and elementary school teachers. The teachers first experienced all the learning through their senses, with the intention that they would take what they learned into their classrooms and create immersive sensory learning environments for their students.

Method

Participants

The participants were 15 Massachusetts pre-kindergarten, elementary, and middle school teachers who enrolled and attended all the classes within a free graduate course titled "Teaching All Students: A Multi-Sensory Approach to Learning." The course took place over the summer. After the conclusion of the course, students had the opportunity to purchase graduate credits for the course. However, this was optional. Early childhood and elementary schools teachers who taught within the Five District Partnership composed the target audience. The partnership is a collaboration of five urban districts with diverse student

populations in Massachusetts. Any classroom teacher in Massachusetts could potentially enroll in the course. The teachers in the course taught early childhood through Grade 8.

Procedures

Teachers took part in the study voluntarily. On the first day of the graduate course, students were presented with a pre-survey to complete. Two months after the end of the summer course in September, students received an email with a link to the post-survey. All survey responses were anonymous.

Instruments

The pre-survey consisted of the following four questions:

1. What grade do you currently teach?
2. What is your primary teaching method? How do you present lessons?
3. What area would you like to incorporate more into your classroom?
4. What do you believe is the biggest barrier to incorporating one or more of the above areas into the classroom?

Question 1 had the following answer choices: PK-5, 6-8, 9-12.

Question 2 had the following answer choices: visual, auditory, tactile, kinesthetic, two of the above, three of the above, all of the above.

Question 3 had the following answer choices: visual, auditory, tactile, kinesthetic, two or more of the above.

Question 4 was an open-response question in which respondents typed their answers.

The post-survey consisted of the following five questions:

1. What grade do you teach?

2. Have you or do you plan to incorporate any strategies from the course into your teaching practice?
3. Which area have you or do you plan to incorporate more into your teaching practice?
4. What student outcomes (i.e., improved student attention) have you observed since this change in teaching practice?
5. Two months after the course, do you have any additional reflections since last we met?

Question 1 had the following answer choices: PK-5, 6-8, 9-12.

Question 2 had the following answer choices: yes or no.

Question 3 had the following answer choices: visual, auditory, tactile, kinesthetic, two or more of the above, none of the above.

Questions 4 and 5 were open-response questions, and respondents typed their answers.

Results

Pre-survey

A total of 14 respondents completed the pre-survey. When examining the results of the pre-survey from the participants who were enrolled in the graduate course, the results of question one showed that 92.9% of respondents taught pre-kindergarten to Grade 5; 7.1% taught sixth through eighth grade. No one taught grades nine through 12.

The results of question two, "What is your primary teaching method? How do you present lessons?" are shown below:

Auditory	7%
Visual	0%

Tactile 0%

Kinesthetic 0%

Auditory 0%

All of the above 36%

Three of the above 36%

Two of the above 21%

The results of question three, "What area would you like to incorporate more into your classroom?" are shown below:

Auditory 0%

Visual 0%

Tactile 0%

Kinesthetic 35.7%

Two or more of the above 64.3%

The results of question four, "What do you believe is the biggest barrier to incorporating one or more of the above areas into the classroom?", are shown below:

Time 64%

Space 21%

Lack of technology 14%

Other (i.e., lack of materials, Massachusetts Comprehensive Assessment System) 1%

Post-survey

Following the end of the course, eight participants completed the post-survey. In response to question 1, 100% of respondents reported teaching pre-kindergarten to Grade 5. In response to question 2, "Have you or do you plan to incorporate any strategies from the course into your teaching practice?", 87.5% of respondents reported that they have or plan to

incorporate strategies from the course into their teaching practice; 12.5% of respondents reported not incorporating strategies from the course into their practice.

In response to question 3, "Which area have you or do you plan to incorporate more into your teaching practice?", 75% of participants reported two or more of the areas (kinesthetic, tactile, visual, auditory), 12.5% reported kinesthetic, and 12.5% reported none of the areas.

The results of question 4, "What student outcomes (i.e., improved student attention) have you observed since this change in teaching practice?", showed that 71% of participants reported increased attention and 29% reported increased engagement.

In response to question 5, "Two months after the course, do you have any additional reflections since the last time we met?", one respondent reported that they were creating lists on how to best incorporate a multi-sensory approach into practice. Another participant reported that the course was beneficial and assisted in the implementation of strategies in the classroom.

Discussion and Conclusion

This study has implications in the fields of education and occupational therapy. It supports the notion that a multi-sensory pedagogy is beneficial for all students. The results show that both teachers and students benefit from a multi-sensory approach. Within the graduate course, teachers benefited from taking on the role of student. Teachers were subsequently able to utilize the new information they gained in the course to help their classrooms of students. A multi-sensory learning model was found to support improved student attention, focus, and engagement.

Course participants who completed the surveys identified time as the most substantial barrier to implementation of a multi-sensory approach. In addition, space, lack of technology

and materials, as well as the standardized assessment in the state, the Massachusetts Comprehensive Assessment System, were also cited as barriers by course participants.

The study could act as a model that others may wish to replicate. Further research in the area, with a larger sample size, is needed. Future research may survey course participants over an extended period to see the effects of a multi-sensory approach through the lens of a longitudinal study.

Limitations

Factors that may have impacted the study's results included the course's summer timing, the restructured meeting schedule, the post-survey distribution in September when teachers were collecting baseline data, and the study's small sample size.

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