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A Personalized Learning Approach to Educating Students Identified with Special Education Needs

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**A Personalized Learning Approach to Educating Students Identified
with Special Education Needs**

by

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Chapter 1: Introduction

When utilizing personalized learning instruction in the classroom, students are allowed to become active participants in building their educational experience. Personalized learning encourages both instruction and assignments to be tailored to each student and their individual needs allowing students to work at their own pace, reaching mastery of skills through the use of individualized lessons, projects, and assessments (Worthen, 2016). Instructional pathways are planned through student-teacher conferencing to create engaging learning experiences based on the learner's interests and ability level. Personalized learning reshapes teaching and learning practices to provide opportunities for students to meet learning targets and standards set through goal setting and reflection. This also allows students to develop the executive functioning skills necessary to become independent learners (Rickabaugh, 2016).

The personalized learning model has been common practice for providing special education services for students with disabilities. Through the use of Individualized Education Plans (IEPs), special education services allow for specially designed instruction that addresses the individual needs of a student eligible to receive special education services (Nganji & Brayshaw, 2017). Special education students can achieve at high levels if they receive the support that builds on their strengths, alleviates their challenges, and provides an engaging learning environment (National Center for Education Statistics, 2019). The purpose of this starred paper was to review literature that examines the effectiveness of personalized learning methods and its impact on student achievement for those who receive special education services in both the general education and special education settings.

Research Question

One research question guided this review of literature:

1. Is the implementation of personalized learning an effective approach to instruction for students with disabilities when implemented in both special education and general education settings?

Focus of Paper

I have identified eight studies for inclusion in the review of literature in Chapter 2. My research includes studies ranging in dates from 2007–2019. Given the limited number of published studies on personalized learning used explicitly in special education, I expanded my search to include personalized learning in the general education setting.

The Academic Search Premier, ERIC (EBSCO), PsychINFO, and Google Scholar databases were used as a starting point for my literature review of peer-reviewed studies related to personalized learning. Various keywords and combinations of keywords were used to locate relevant and appropriate studies: *personalized learning, learner-controlled instruction, student-centered learning, student-centered pedagogy, special education, disabilities, curriculum modification, and inclusion.*

Importance of the Topic

As a special education teacher working in a small, rural school district, my job is to provide special education services to middle school students who have qualified for services under varying disability categories. Because of this, the needs and abilities of the students I work with vary greatly. Implementing personalized learning in both general education and special education settings could provide more opportunities for special education students to spend more

time effectively advancing their educational goals utilizing push-in services. Many students who receive special education services spend a large portion of their day in the mainstream setting. In 2017, 63.4% of students with disabilities spent 80% or more of their education in the general education setting (National Center for Education Statistics, 2019). As schools continue to focus on inclusion for special education students, educators need to find ways to effectively meet the needs of all students.

Personalized learning places students at the center of their education, allowing them to play a significant part in their learning process. Over time and with individual instruction, learners are empowered to set their goals, monitor their learning process, ask for and accept targeted support, learn where to access information, and understand who to ask for help (Abawi, 2015). Personalized learning allows educators to successfully provide both individualization and differentiation to students of all ability levels. Students in today's classrooms are more diverse in their cultural backgrounds, learning styles and interests, social and economic classes, and abilities and disabilities. Implementing personalized learning frameworks in the classroom allows educators to meet each student's diverse learning needs by utilizing flexible learning spaces, creating engaging learning opportunities, and allowing students to work at their individual ability level (Ferguson et al., 2001). Implementing personalized learning for special education students across settings can present its challenges, but with collaboration among staff, it is a way to address the needs and incorporate the strengths of each student individually to guide them toward success as accommodations are naturally incorporated into a student's learning plan with personalized learning (Rickabaugh, 2016). Personalized learning allows all

students, especially those identified with special education needs, to focus more on the learning process and ensure achievement while working through learning barriers.

Definition of Terms

The following section defines terms used frequently in this paper. The definition of terms is explained as they relate to the educational context and are organized in alphabetical order.

Inclusion: Inclusion is defined as "increasing numbers of students with special learning needs attending mainstream classrooms and 'success' as raising academic standards as per national testing, rather than preparing students holistically–socially, emotionally, creatively, or physically–for all children and young people regardless of their individual characteristics and circumstances" (Abawi, 2015).

Individualized Education Program (IEP): The Individuals with Disabilities Education Act (IDEA) defines an Individualized Education Program as "a written statement for each child with a disability that is developed, reviewed, and revised in a meeting in accordance with §§300.320 through 300.324." According to IDEA, this includes but is not limited to "a statement of the child's present levels of academic achievement and functional performance, including how the child's disability affects the child's involvement and progress in the general education curriculum (i.e., the same curriculum as for nondisabled children); measurable annual goals, including academic and functional goals designed to meet the child's needs that result from the child's disability to enable the child to be involved in and make progress in the general education curriculum; and meet each of the child's other educational needs that result from the child's disability; and a statement of the special education and related services and supplementary aids and services, based on peer-reviewed research to the extent practicable, to be provided to the

child, or on behalf of the child, and a statement of the program modifications or supports for school personnel that will be provided to enable the child to attain annual goals and to be involved in making progress in the general education setting" (Individual with Disabilities Act, 2017).

Personalized Learning: The following definition is the student-centered definition of personalized learning. "In a personalized learning environment, learners actively participate in their learning. They have a voice in what they are learning based on how they learn best. Learners have a choice in how they demonstrate what they know and provide evidence of their learning. In a learner-centered environment, learners own and co-design their learning. The teacher is their guide on their personal journey" (DeMink et al., 2017, p. 2).

Universal Design for Learning (UDL): The Center for Applied Special Technology ([CAST], 2012) an educational research organization, defines this term as "a set of principles for curriculum development that gives all individuals equal opportunities to learn. UDL provides a blueprint for creating instructional goals, methods, materials, and assessments that work for everyone–not a single, one-size-fits-all solution but rather flexible approaches that can be customized and adjusted for individual needs."

Summary of Chapter 2 Research
** to be Reviewed**

I located eight articles that evaluated the effectiveness of implementing personalized learning across settings for students with disabilities. Tables 1-3 summarize these studies' findings presented in chronological order from oldest to most recent.

Chapter 2: Review of Literature

The purpose of this literature review was to examine the effectiveness of personalized learning when educating students with disabilities. This chapter is organized into three major sections: studies that focus on creating an inclusive through team-teaching, studies that analyze the use of student advocacy through goal setting and choice, and studies that examine the use of project-based learning as a form of personalized learning for students with disabilities. Studies within each category are presented in chronological order, beginning with the oldest study.

Inclusive Learning Environments through Team-Teaching

Creating an inclusive learning environment and incorporating a team-teaching approach is essential for optimizing individualized student growth. Students with disabilities benefit from teachers and specialists providing services through team-teaching in the least restrictive environment. When students can participate in the general education setting with appropriate support, students achieve greater success. According to the studies researched, student success is more significant when schools have restructured their teaching model to incorporate fully inclusive learning environments. I reviewed three studies focusing on the inclusive learning environment and team-teaching methods, which is one aspect of personalized learning.

Abawi (2015) conducted a phenomenological case study to answer one question: What are the components of a whole-school approach to creating an inclusive school culture where students are empowered to become independent learners?

Participants of this study included the principal, 12 teachers, 12 parents, 10 students, two teacher aides, and four external service providers from within one school district, Forrester Hill, located in Queensland, Australia. This district was chosen as a case study because of its

reputation for steadily improving data from the National Assessment Program for Literacy and Numbers. Students' academic growth was increasing at faster than the measurable outcomes of schools with similar demographics in the area. Student enrollment was at 630 at the time of the case study. Eighty-six of these students were identified as students with disabilities.

From the narrative provided by each participant through the interview, researchers analyzed participant responses to a list of predetermined factors related to the research question, which included a focus on personalized learning, organizational theory, and sociocultural theory. Five main components were identified as crucial when creating an inclusive learning environment for students. According to the study, these components include the following: a strategic foundation, a cohesive community, a generative resource design, schoolwide pedagogical development and deepening, and success and achievement. Each of these components individually and collectively impact the implementation and success of personalized learning within the educational setting.

At Forrester Hill Schools, creating an inclusive learning environment through personalized learning ensures success for every student. This was not only seen as valid for academics but had positive social results as well. "When teachers in inclusive classroom environments personalize learning, they recognize individual preferences both in receiving information and displaying an understanding or use of it is applied tasks'" (Abawi, 2015, p. 52). Over time, learners become empowered to: set their own goals, monitor their learning process, ask for and accept targeted support, know where to access information and who to ask for help. Students take responsibility for their own learning and help others to learn.

Forrester Hills school's educational philosophy is based on incorporating inclusion and personalized learning throughout the daily academic and behavioral expectations in the school setting. Developing student self-efficacy is a priority within the classroom, ensuring that scaffolding and differentiation occur to meet all students' varied learning styles and abilities. Modifications to the school day may occur for students identified with high levels of needs and special education supports. It may involve a gradual transition into the school environment for students with needs with only partial attendance. It could mean gathering in a small group environment with gradual transitioning into a large class. There could be potential mainstream placement from the beginning with additional resources provided to the classroom teacher (Abawi, 2015). The teacher's role is to meet each individual student's needs through knowledge gained during targeted professional development opportunities to ensure they feel a sense of belonging, importance, and academic success.

The purpose of the study completed by Altemuller and Lindquist (2017) was to provide information on inclusive practices while implementing the flipped classroom, co-teaching, and inclusion methods. This comparison examined the effectiveness of each learning model, student achievement, and student motivation. The research was completed using pre-test/post-test quasi-experimental designs with 82 high school students in a trigonometry class. According to the study, there was a significant difference in the learning achievement, motivation, satisfaction from the students in the flipped classroom model. It was also concluded that the flipped classroom and co-teaching methods greatly benefited lower-achieving students.

Through the utilization of a flipped classroom model, where traditional teaching methods are inverted and lecture instruction is conducted outside of the classroom, teachers can devote

more class time to problem-solving, individualized conferencing, and facilitation. There is a greater opportunity for more hands-on and student-driven instruction during class time. According to the study, benefits of a flipped classroom model include increased student motivation, differentiating instruction, self-pacing of lessons and mastery of learning objectives, increased collaboration among students and all staff, and instant feedback for formative assessments (Altemuller & Lindquist, 2017).

One component discussed in the study was differentiated instruction. This aligns with personalized learning in that differentiation allows for all students' needs to be met, including those with learning disabilities. By flipping the classroom, students who struggle can get the most help (Altemuller & Lindquist, 2017). Teachers can spend additional time working one-on-one or in small group settings with students. Student-teacher interaction increases significantly, and students can receive appropriate modifications that allow for a more personalized learning plan. Teachers can work together to create tiered instruction to accommodate multiple levels of student achievement. The "tiered activities allow students the opportunity to work with the same content, essential ideas, and skills, but with varying degrees of ability and complexity" (Altemueller & Lindquist, 2017, p. 2). In addition to tiered instruction in a flipped classroom, students can self-pace to ensure skill mastery.

With a flipped classroom and additional support from team-teaching, students are given the direct instruction needed through asynchronous learning opportunities while providing essential interaction and conferencing with the teachers to work through standards to reach an understanding. Increased student collaboration and cooperative learning take place regularly. For students with disabilities, there is a significant benefit to utilizing the flipped classroom model of

personalized learning. For example, if a student with autism needs to work on social skills specifically, a flipped classroom allows the teacher to focus on social skills by setting up activities that are team-oriented and collaborative (Altemuller & Lindquist, 2017). Students can help each other in the learning process and not rely exclusively on the teacher.

Rhim and Lancet (2018) conducted a case study through Thrive Public Charter Schools in San Diego, California, highlighting personalized learning models to educate students with disabilities while meeting each students' needs based on their IEP. Charter schools can face challenges in providing appropriate services to students identified as needing special education services due to cost and resource availability. Throughout this study, Rhim and Lancet monitored and evaluated student progress while researching various classroom practices outlined in personalized learning models.

Thrive Public Charter School was selected through nomination for this study by the Center of Reinventing Public Education (CRPE) and the National Center for Special Education Charter Schools (NCSECS) due to its models and practices serving students with disabilities. The selection was based on publicly available data, student demographics, and better than average academic growth outcomes. Thrive Schools were visited in 2017, where school administrators, teachers, students, family members, and staff were interviewed to begin data collection. Information was gathered from all three of the school's campuses, where 640 students enrolled in kindergarten through 12th grade. Of this population, 16% of its student population were identified as students needing special education services. Thrive Charter Schools based their educational framework on the mission statement "to build a school that adapts to each individual student that ignites a passion for learning and self-confidence" (Rhim & Lancet, 2018,

p. 2) and built a curriculum with active and personalized experiences at the core of the learning process. This curriculum benefited students with disabilities and other unique learning needs specifically. Because of their educational framework and their use of personalized learning, students who attended Thrive for multiple years saw more significant growth on state standardized tests than students who had not. According to the study, students at nearly each grade level met or exceeded reading and math growth targets during the study. Special education students are among those students achieving expected growth targets.

At Thrive, students who receive special education services are identified at the start of each academic school year through IEPs currently in effect or through a referral process. To meet the philosophy behind personalized learning, Thrive Schools deliver support and services for students with disabilities by utilizing special education specialists' team-teaching practices working in the general education setting alongside the general education teacher. Pull-out services such as occupational therapy, speech therapy, and counseling services are still used for those students requiring more intensive interventions but at a much lower rate than in a traditional public school setting. Specialists in this setting work with students with disabilities and provide services to any student in need of their specialized intervention services. According to the study, "this creates an environment in which all teachers and specialists take responsibility for all students. By removing the silos that occur when only special education teachers work with special education students, the classroom flourishes as a fully inclusive community" (Rhim & Lancet, 2018, p. 4). Teachers working at Thrive schools are provided 300 hundred hours annually for collaborative planning, data review and professional development to ensure all students' needs are being met and student growth is maximized.

Summary

This section presented the findings of studies and literature reviews that examined the relationship between collaboration and team-teaching while implementing personalized learning for special education students in the general education setting.

Table 1

Summary of Inclusion and Team-Teaching

AUTHORS (DATE)	METHOD	PARTICIPANTS	PROCEDURE	FINDINGS
Abawi (2015)	Qualitative	630 elementary students, 86 identified as students with disabilities; Australia.	2-year case study: School-wide inclusion and personalized learning implemented across all settings and content areas. Eliminated pull-out services and adopted co-teaching models: implemented personalized learning model to address individual needs.	Collaboration and team-teaching created stronger relationships and a cohesive community in the school setting, enhancing student and teacher strengths. Accelerated growth in student outcomes aligned with the increase in enrollment of students with disabilities; needs of all learners being met. National assessment scores showed increased academic growth at a higher rate than measure outcomes of like schools.

Table 1 (continued)

AUTHORS (DATE)	METHOD	PARTICIPANTS	PROCEDURE	FINDINGS
Altemuller & Lindquist (2017)	Qualitative	82 high school students in a trigonometry class	The research was completed using pre-test/post-test quasi-experimental designs	Increased student engagement Beneficial results for students with learning disabilities in inclusive settings Differentiation of instruction based on students' individual needs Students gain independence and assist peers in creating positive relationships as well as academic growth
Rhim & Lancet (2018)	Qualitative	Case Study: 640 Students from three campus settings from Thrive Schools in San Diego, CA Enrollment students with disabilities (16%), minority students (67%), students were qualifying for free and reduced meals (53%).	Addressed effectiveness of personalizing learning with K-12 implementation. Outlined special education services, structure daily routine for both students and staff. Application of evidence-based, student-centered lessons	Increase in test scores school-wide at each grade level. Student needs were being met individually by all service providers. Positive learning environments with inclusion services

**Self-Advocacy through Goal Setting
    and Choice**

Self-advocacy is a central construct to personalized learning. Students learn to take an

active role in their learning through self-advocacy skills and being provided opportunities for

choice in the classroom. By educating students on how to become deeper thinkers and take an

active role in their learning, student engagement and interest increase. I reviewed two studies

focusing on self-advocacy and goal setting.

DeMink-Carthew et al. (2017) conducted a qualitative study to investigate the goal

setting process of middle school teachers who were educating their students using a personalized

learning model in their classrooms. Goal setting is a critical part of personalized learning and an

integral part of self-advocacy for students. The study focused on the following research

questions: In what ways are middle school level teachers approaching goal setting in their

personalized learning environments and to what extent does each approach intersect with key

elements of personalized learning?

Participants of this study included 11 teachers from eight different school districts. All

participants taught in public middle school classrooms, grades 4-8, in Vermont. Data were

collected using a semi-structured interview varying in length from 30-60 minutes. Participants

were asked to rank aspects of the goal setting process. The five areas of the goal setting process

identified are as follows: independent design, interest-driven co-design, interest and skill-driven

co-design, skill-driven co-design, and selection. The five areas of goal setting were then

compared to three elements of personalized learning: connects learning with interests, talents,

passions, and aspirations; actively participates in the design of their learning; and owns and is

responsible for their learning that includes their voice and choice on how and what they learn.

(DeMink-Carthew, et al., 2017).

Results from this study indicated that although goal setting for students leads to greater

success, not all methods of goal setting aligned with the elements of personalized learning. When

students were able to set goals based on their interests and ability, teachers saw greater success

and understanding of concepts (DeMink-Carthew, et al., 2017). Students who are co-designers of their learning plans are able to set goals driven by their interests. Students who are co-designers in the goal setting process are able to be guided in making authentic connections to real-world problems and engage in problem-solving skills. Student goal setting should be implemented when using a personalized learning model in the classroom. Educators should empower students to co-design individual learning goals to empower students to aid in designing their own learning.

DeMink-Carthew and Netcoh (2019) conducted a study to answer two questions. First, how do middle school students feel about making choices in how they learn? Second, in what ways do student experiences with choice-based learning vary, and what can we learn from these variations?

Seventy-two middle school students in multi-aged seventh- and eighth-grade classrooms participated in this study. Students were part of an inclusion-based social studies classroom containing a combination of general education students, special education students, and English language learners. This study took place over the course of a semester where students were completing learning on the topic of Ancient Civilization. A broad topic was selected in order to fit the varying interests of each individual student. Throughout the semester, students were provided direct instruction 3 days per week and given personalized learning work time to complete learning projects 2 days per week. Projects were developed through the use of Hands-Joined Learning (HJL). Hands-Joined Learning creates learning opportunities that are both active and purposeful through the utilization of personalized learning projects and teacher support (DeMink-Carthew & Netcoh, 2019). With the use of hands-joined learning, conferencing and co-

design, students are able to connect their learning directly to their interests, talents, passions, and aspirations within the classroom.

Students completed a Likert scale to measure stress levels and enjoyment of choices provided post-project. "Most students reported that they liked or loved making choices about how they learned during the HJL project and that they felt little to no stress associated with the choice" (DeMink-Carthew & Netcoh, 2019). Fifty-three students, or 74% of the students, rated their responses in this manner. Seven students, or 10% of the students participating in the study, indicated higher stress levels but enjoyed the opportunity of making choices during the HJL project. Only 1% of the students indicated feelings of high stress and did not enjoy the opportunity to make choices during their HJL project (DeMink-Carthew & Netcoh, 2019).

When students are provided the opportunity to create autonomy through voice and choice, students take increased responsibility for their own learning. Through personalized learning, students learn to self-advocate. According to the study, the student response was positive when provided the opportunity for choice. Students gained independence favorably increasing their ability to self-advocate. Adversely, some students did not appreciate the given opportunities for choice as feelings of stress and anxiety increased with the use of the asynchronous model of teaching.

The results of the study indicated that middle school students valued the opportunity to make choices in their learning activities. This study supports the use of personalized learning for all students while maintaining that students with disabilities may require additional conferencing and guidance throughout their personalized learning process. Overall, the pedagogical practices

of personalized learning emphasize the importance of developing "real-world" skills such as self-management and decision-making when the opportunity for choice is provided in the classroom.

Summary

This section presented the findings of studies and literature reviews that examined self-advocacy for students through the use of goal setting in the classroom and providing students with choice in their learning.

Table 2

Summary of Self-Advocacy: Goal Setting and Choice

AUTHORS (DATE)	METHOD	PARTICIPANTS	PROCEDURE	FINDINGS
DeMink-Carthew, Olofson, LeGeros, Netcoh, & Hennessey (2017)	Qualitative	Case Study: 11 middle school teachers from 8 different public schools in Vermont. Seven teachers participated in a workshop for personalized learning and goal setting. 4 teachers participated in a general personalized learning workshop.	Semi-structured interviews with teachers- Primary data source. Task sheets completed ranking importance of goal setting process- supplemental data source. Identified five approaches to goal setting to analyze: independent design, interest-driven co-design, interest, and skill-driven co-design, skill-driven co-design, and selection	Goal setting is a key instructional element of personalized learning. Considerable variation present in the importance of implementing the five approaches to goal setting. Demonstrates the need for educators to align goal setting approaches with personalized learning environments.

Table 2 (continued)

Authors (Date)	Method	Participants	Procedure	Findings
DeMink-Carthew & Netcoh (2019)	Qualitative	72 middle school students in multi-age seventh-and eighth-grade inclusion social studies classrooms. Students included a combination of English language learners, special education students, students on 504 plans, and regular education students. 1:1 technology access	Implemented a personalized learning project to take place over a semester. Two class periods per week were set aside for work on a personalized learning project. Three phases of the project where authentic choice, sharing, conferencing, and feedback took place in small group and individual lessons. The Likert scale was used to measure stress levels and enjoyment of choices provided.	Middle school students value the opportunity of choice. Student perspective drives educational success. Personalized learning requires curiosity, flexibility, and understanding. Increased executive functioning skills: self-management, decision making, and planning. High student engagement.

Project-Based Learning and Students with Disabilities

Students with special needs receive instruction in two settings: the general education classroom and the special education classroom. Using a project-based learning model in each of these settings offers benefits to students with disabilities. The following studies take a closer look at the impact of personalized project-based learning for students with varying disabilities. Students in these studies included those with mild to severe disabilities. Within this section, three studies were reviewed.

Project-based learning is a strategy that teachers can implement as an instructional method of personalized learning. Guven and Duman (2007) examined the effectiveness of project-based learning delivered to children diagnosed with mild mental disabilities. Seven

students were selected to participate, four girls and three boys, between 6 and 7 years old (mean

age = 82 months). Students attending special education classes at a public elementary school in

Istanbul. The school's population consisted of a high number of families within the socio-

economic middle class.

The project-based learning unit was on the topic of a patisserie. According to the study,

four of the students had never been to a patisserie while three students had been to a patisserie a

few times. This was the first time any of the seven students had taken part in a project-based

learning unit. A test packet was created by the researchers Guvan and Duman (2007) and a

special education teacher. The materials included "six subtests (totaling 50 questions) consisting

of one page for each question and each page having a relevant picture. Each of the first four

subtests included 10 questions (40 questions in total). The first five questions consisted of two

choices while the last five questions consisted of three choices. In subtests five and six only five

sample questions with two choices were asked" (Guven & Duman, 2007, p. 78). A total of 50

points were possible when answering the questions.

Testing was completed individually in a quiet setting. Each testing session took

approximately 25 minutes to complete. Breaks were given as needed to maintain student focus.

Children were asked to answer the questions by pointing to the correct picture. All students were

given a pretest to assess their knowledge of a patisserie. The project-based learning unit took

place in three phases.

During Phase 1 of the project-based learning project, the teacher and students shared their

individual stories and experiences about dining out in a restaurant. While engaging in

conversation, the teacher could informally collect data including which patisseries students had

been to and what kind of foods they had eaten. Students and parents could collect various menus, pictures, and receipts from their homework experience over the weekend. The following week, students shared their experiences and completed an art project related to visiting a restaurant. Students could color a printed picture or independently create an art project to share with their peers (Guven & Duman, 2007).

Phase 2 included reviewing the topic using the art pictures and samples brought in by the students based on their own experiences. The teacher read a story to the students and comprehension questions were asked while reading to understand the content. Also, during this phase, the students participated in a field trip to a local patisserie. Dramatic play also took place to engage the students in their learning (Guven & Duman, 2007).

Phase 3 completed the project-based study. During this phase, students were assessed and discussed what they had learned up to this point. Students created a concept map, with the assistance of their teacher. The concept map included the following topics: what was eaten at a patisserie, what do we drink at a patisserie, who works at a patisserie, things used at a patisserie, and things given to the server before leaving. Students engaged throughout the learning phases of the study. Throughout the phases, researchers Guvan and Duman (2007) assisted in making modifications to meet the students' development needs.

The results from the pretest and posttest were compared using a paired sampling. Results indicated a significant difference between the results of the pretest and the results of the posttest. Areas assessed were: point of the patisserie, food and drink, workers, things at a patisserie, things you give the server before leaving, proper behavior at the patisserie, and patisserie total. All participants significantly ($p< .05$) increased their knowledge at each part and in total related

to patisserie after this project-based program (Guven & Duman, 2007). This study shows that educational goals are achieved when children engage in learning experiences at their level. This is valid for both students with and without disabilities. The research indicated that project-based learning is effective in teaching students with disabilities. By creating lessons that provide real-life experiences and connections for students, students can apply what they learn in a social context and create a relevant learning experience.

This study completed by Filippatou and Kaldi (2010) examined the effectiveness of project-based learning on primary school students with learning disabilities regarding their academic performance and self-efficacy skills. This study was part of a larger research study conducted to collect personalized learning and project-based learning opportunities.

The participants of this study included 24 fourth grade students, 19 boys, and five girls, ages ranging from 9 years old to 11 years in age (M = 9.6). Students were from six different mainstream mixed-ability classes. These students were identified as having a learning disability based on two variables, a standardized teacher questionnaire for identifying learning disabilities and a standardized screening identifying learning weaknesses. Three of the 24 students had a current special education diagnosis. According to the teacher questionnaire, all students selected for the study were rated as having a high possibility of a learning disability (Filippatou & Kaldi, 2010).

An 8-week project was implemented with the topic of sea animals being selected. Planned activities were implemented and consisted of 2 to 3 hours of direct instruction. Instruction included hands-on experiences, speakers, books, videos, and pictures. The topic of sea animals was selected based on student interest and previous classroom discussion. This unit

included the topics of classification of sea animals, anatomy and reproduction, and food.

Students were administered pretest and posttest assessments to collect statistical data. Data were

collected in the areas of knowledge on the project topic, academic self-efficacy, task value,

group work, traditional teaching, and experiential teaching. Data were analyzed using a paired

t-test (Filippatou & Kaldi, 2010).

 The study's results include statistically significant differences before and after the

implementation of the project for all the dependent variables. The paired t-test results showed

that students with learning disabilities scored significantly higher on the knowledge test

administered after completing the project. This indicated they significantly enhanced their

knowledge after the implementation of the project. When interviewed about the project-based

learning unit, students with disabilities reported they found project-based learning more

beneficial and effective than traditional teaching methods. The results of this study support that

students with learning disabilities can gain benefits through project-based learning in the areas of

academic performance, motivation, and when participating in group work (Filippatou & Kaldi,

2010).

 Nganji and Brayshaw (2017) conducted a study researching personalized learning and

learning spaces for students with multiple disabilities. Personalization can be beneficial for

students with disabilities as the content is presented in a compatible way with their needs. When

a student can have a learning environment that has been personalized, learning becomes easier

for the student (Nganji & Brayshaw, 2017). Nganji and Brayshaw's research examined the

impact of personalized learning on students with visual impairments, hearing impairments, and

Dyslexia. The study also included research into individuals who were impacted by more than one

of the previous disabilities. Personalization does not have to be solely based on content but can include a student's learning environment.

Depending on the severity of the identified disability, various accommodations can be utilized. For students with visual impairments to access their learning materials, the personalization of learning materials can be made. Learning resources for individuals in this study included the use of online learning material. For learners with hearing impairments, the use of assistive technology, augmentative or alternative communication devices can be incorporated into the daily routines for academic success. Dyslexia, a disability identified as having poor spelling and decoding skills, can incorporate assistive technology software to include text-to-speech programs, video, text formats, and audio to access their learning materials (Nganji & Brayshaw, 2017).

Considerations for improving the educational experience and individual learning environment for students with disabilities can be made through consultation with the learner and their educational team. Educators should consider a student's ability and the need to adapt their learning environment for academic success. Moving forward, learning environments should be developed to meet the personalized needs of all students. Assistive technologies and software should be available to be activated when needed for all students, including those with disabilities (Nganji & Brayshaw, 2017).

This study indicates that most learning environments are not designed to meet the needs of students with multiple severe disabilities. Because of the high needs of these students, learning environments are not as adaptable. They cannot meet the needs of students with multiple severe disabilities in the general education setting (Nganji & Brayshaw, 2017). The personalized

learning needs for students with severe or multiple disabilities are best met within the resource room setting.

Summary

This section presented the findings of studies and literature reviews that examined personalized learning through the use of project-based learning for students identified with disabilities.

Table 3

Summary of Project-Based Learning

AUTHORS (DATE)	METHOD	PARTICIPANTS	PROCEDURE	FINDINGS
Guven & Duman (2007)	Quantitative	Seven children diagnosed with mild mental disabilities: - 4 girls - 3 boys between the ages of 6-7 years old (Mean Age= 82 months)	Pre-test/posttest assessments Project-based learning introduced in three phases over a 3-week period.	Results from pretest/post-test showed statistical significance (p <.05) Project-based learning projects effective method of teaching early childhood aged students with mild mental disabilities

Table 3 (continued)

AUTHORS (DATE)	METHOD	PARTICIPANTS	PROCEDURE	FINDINGS
Filippatou & Kaldi (2010)	Quantitative/ Qualitative	Twenty-four fourth-grade students, 19 boys, and five girls, ages ranging 9 years old to 11 years in age (M = 9.6). Students were from six different mainstream mixed ability classrooms	Pre-test/post-test assessments Project-based learning introduced over an 8-week period. Interviews conducted with students upon completion of the project-based learning unit.	Statistically significant results from pretest/posttest Findings support students with learning disabilities benefit from project-based learning. Engaging in hands-on learning experiences at their own level allow struggling students to make social and academic growth. Project-based learning units can be personalized to meet the individual needs of students based on ability
Nganji & Brayshaw (2017)	Qualitative	Students with visual, hearing and learning disabilities enrolled at University of Hull in 2016	Interviews with students identified with severe visual, hearing, and learning disabilities in the area of reading.	Students with multiple and severe disabilities are not being accommodated in the general education setting. Personalization for those with severe disabilities are being made in the resource room setting. Students in higher education are not being accommodated based on needs.

Chapter 2 Summary

I reviewed eight studies in this chapter that examined the use of personalized learning and its impact on students identified with disabilities. Topics included studies that focus on creating an inclusive through team-teaching, studies that analyze the use of student advocacy through

goal setting and choice, and studies that examine the use of project-based learning as a form of

personalized learning for students with disabilities. Conclusions and recommendations are

discussed in Chapter 3.

Chapter 3: Conclusions and Recommendations

This paper aimed to evaluate the effectiveness of personalized learning methods for students with disabilities when learning in the mainstream classroom setting. Chapter 1 provided background information on the topic and Chapter 2 presented a literature review. In this chapter, I discuss findings, recommendations, and implications from the research findings.

Conclusions

I reviewed eight studies that examined the effectiveness of using personalized learning methods when educating special education students in the mainstream classroom setting. Three of the studies (Abawi, 2015; Altemuller & Lindquist, 2017; Rhim & Lancet, 2018) used team teaching and a whole school implementation approach to personalized learning to create inclusive learning environments for students identified with disabilities, two studies (DeMink-Carthew et al., 2017; DeMink-Carthew & Netcoh, 2019) used self-advocacy and goal setting strategies, and three (Filippatou & Kaldi, 2010; Guven & Duman, 2007; Nganji & Brayshaw, 2017) used project-based learning as a basis for personalized instruction.

Overall, the studies indicated positive results regarding personalized learning for special education students in the mainstream setting. According to the studies reviewed, an inclusive classroom environment is the first step in developing successful learning within the mainstream setting. Inclusive learning and cooperative strategies are helpful to both students and educators when creating this space. Inclusion promotes tailored teaching for diverse student needs, increased opportunity for positive social interactions, increased achievement of IEP goals, and promotes high expectations for all students.

To contribute to student success in the classroom when utilizing personalized learning models, students learn how to set attainable goals and make appropriate learning choices to contribute to their individualized growth as a learner. Self-advocacy is critical to student success. In both studies reviewed, an overall increase in executive functioning skills was observed. This included skills in the areas of self-management, decision-making, and planning. By providing student choice, student engagement was high, and student learning was authentic.

Project-based learning provides adaptable learning opportunities to meet the needs of students on every level. Project-based learning aids in bridging the gap between the classroom and real-world issues. Within the studies reviewed, students who received authentic, hands-on learning experiences saw achievement growth in both academic and social-behavioral skills. Students who completed their learning through a project-based learning model saw higher retention of the information taught. Project-based learning can be adapted to meet students' ability levels and meaning should be provided to boost student engagement and increase self-advocacy. One study identified the downfall that special education students were less likely than their general education peers to experience student-centered projects based on the perceived notion that foundation skills had not yet been established to complete such learning projects.

Recommendations for Future Research

Although personalized learning methods are gaining popularity within the school setting, there is a significant lack of research conducted explicitly on students identified with special education needs. Research on personalized learning effects for students with disabilities must be expanded, particularly while being educated in the general education setting.

Recommendations for future research on personalized learning include conducting longitudinal studies to further determine how various personalized learning models evolve. The use of longitudinal studies would allow researchers to determine if students transferred skills attained through personalized learning, such as goal setting and self-advocacy, which were later applied to real-world events for the learners. Longitudinal studies would allow researchers to determine retention rates for student learning that occurred through personalized learning methods.

As personalized learning continues to gain popularity in the education system, continued research should be conducted to determine if changes are needed in determining special education qualifications and criteria for students with disabilities. If any student has the opportunity to receive personalized instruction based on personal strengths and ability, does the need for an IEP continue?

Implications for Current Practice

As a special education teacher, it is my job to meet individualized student needs based on areas of weakness determined by a special education evaluation and a student's Individualized Education Plan (IEP), which can be a wait and fail system. An IEP has become more about compliance with special education laws and regulations than a plan that supports appropriate curriculum, teaching, and delivery of content. In 1997, The Individuals with Disabilities Act (IDEA) was reauthorized by congress to require increased access to general education curriculum for students with disabilities (Individuals with Disabilities Act, 2017). Even with this law in place, students who receive special education services spend significantly less time in the general education setting than their peers. Although students with disabilities might learn

differently and to a different degree of mastery than those who do not have a disability, every student should be working toward the same curriculum standards. Creating an IEP to include broad annual goals allows for specific learning objectives to be implemented according to the general education curriculum. Specific objectives can then be developed to support the student within this setting. I believe there is currently a disconnect between developing special education plans and the general education curriculum.

By implementing personalized learning into the general education setting, students with disabilities can now spend significantly more time in the general education setting with their peers. With co-teaching efforts between general and special education staff, students with disabilities can be successfully supported across settings. A decrease in the stigma of special education services also occurs by decreasing the number of pull-out services needed to support students identified with special education needs. In working in a school district that has begun to implement personalized learning strategies into their middle school classrooms, I help support students on my caseload and general education students who seek additional assistance. I can share responsibility for the education of all students, not just those with a disability. To effectively execute co-teaching efforts in an inclusive classroom, school districts must prioritize teacher preparation and personal development time to develop the framework for student success.

With personalized learning, students gain confidence in their abilities and improve their self-advocacy skills through authentic and meaningful learning opportunities. Students can make valid connections and obtain the life skills needed to succeed in academic and post-secondary

life. The ultimate goal of project-based learning is to equip all students with real-world skills to become valued and productive participants in their community.

Summary

Implementing personalized learning into the general education setting can impact how special education services are delivered for students with disabilities. Effective personalized learning requires an emphasis on the variations of ability for all learners. To be successfully implemented, both general and special education teachers need to be trained in effective practices and provided time for collaboration. Many strategies that work for personalized learning are the same strategies that have been successful in special education for many years. By incorporating student-centered instruction, flexible learning, and project-based units for all students in the general education setting, students with disabilities can have greater achievement across settings.

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