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Early Identification of Autism Spectrum Disorder Markers In Infants Using the Infant Motor and Engagement Scale

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NSU
Florida
Tampa Bay
Regional Campus
NOVA SOUTHEASTERN
UNIVERSITY

Introduction

- My capstone project explored the psychometric properties of the Infant Motor and Engagement Scale (IMES) created by Dr. Demchick and Dr. Flanagan.
 - I helped conduct a prospective study using the IMES that is part of a longer longitudinal study. The objective is to see if this tool can be used to identify infants with ASD sooner, resulting in earlier intervention that will improve long-term outcomes.
 - The IMES was created to identify specific behaviors that may yield early indicators of autism spectrum disorder (ASD) as early as 6 to 9 months of age.
 - During my capstone experience, I administered the IMES with infants over Zoom, scored the IMES, and made potential changes to the scale to make the administration more standardized.
- In addition, I gained experience in academia, assisting Dr. Flanagan and Dr. Keifer with grading and modifying Development of Occupation Across the Lifespan (OTD- 8141), OT Pediatrics (OTD 8272), and Sensory Processing Basis (OTD- 8314).

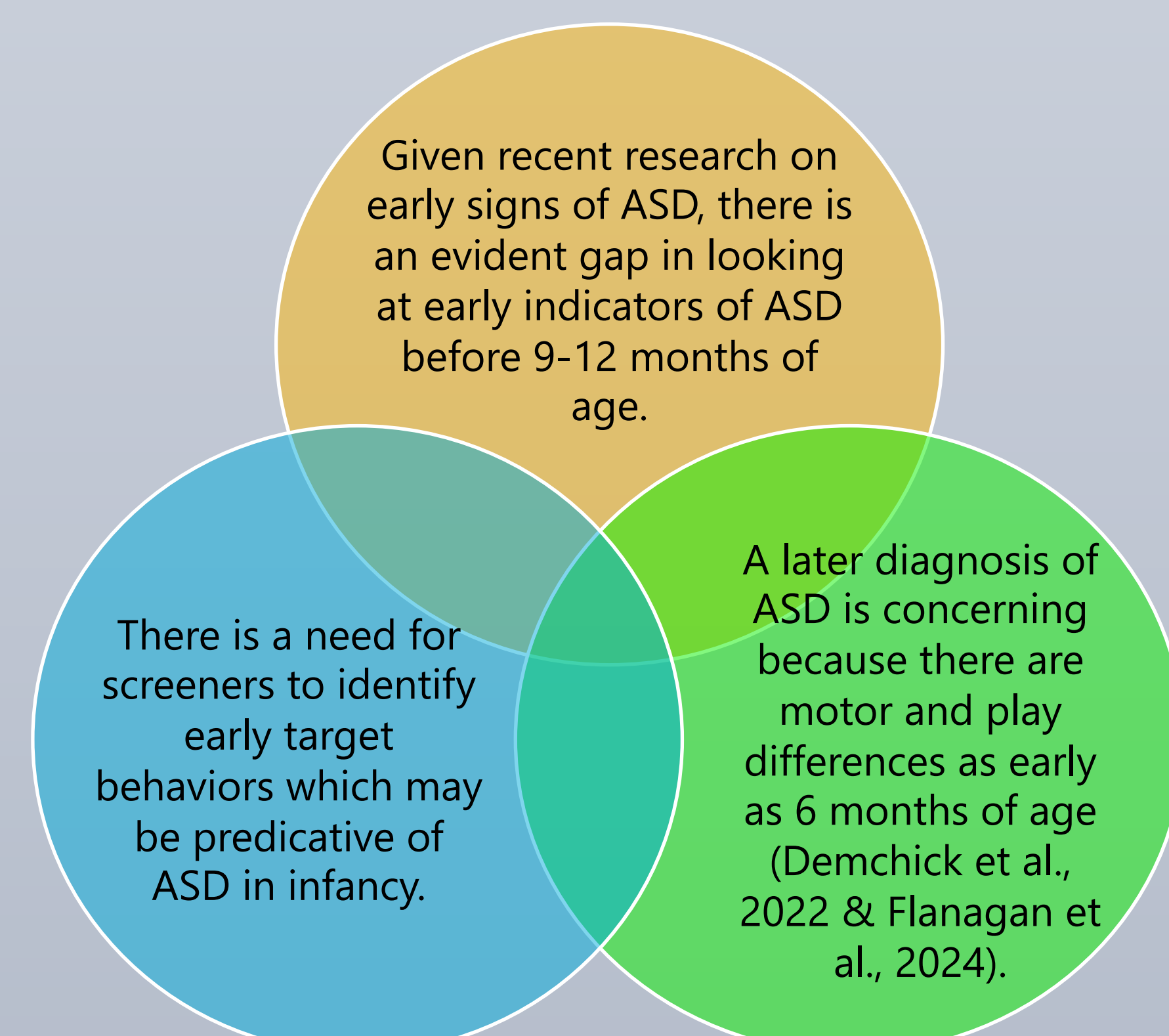
Capstone Site Description

- This capstone experience took place at Nova Southeastern University (NSU) Tampa Bay Regional Campus working with Dr. Joanne Flanagan, a professor within the Department of Occupational Therapy.
- The focus areas of my project were Research and Education.



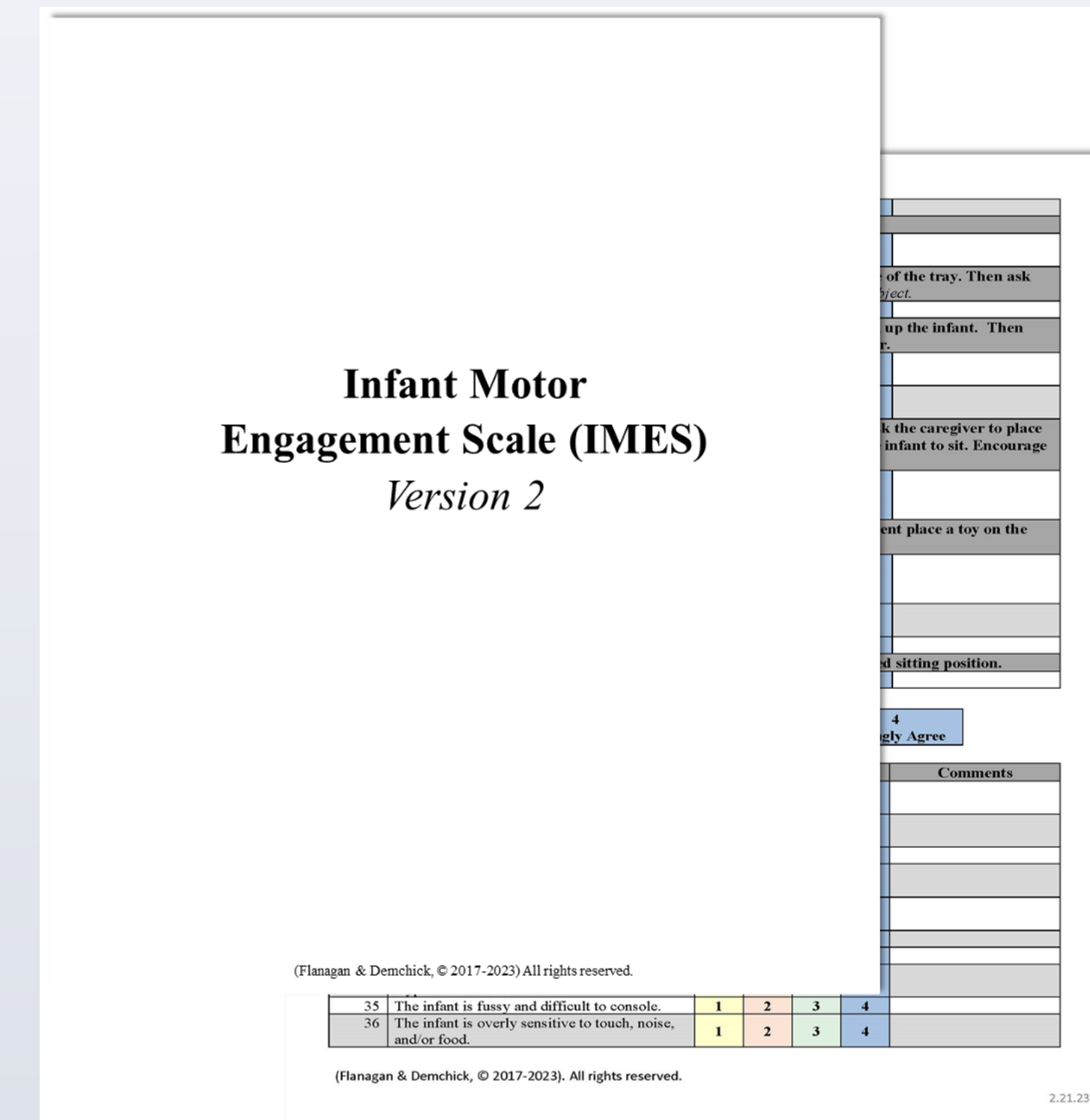
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Summary of Needs Assessment



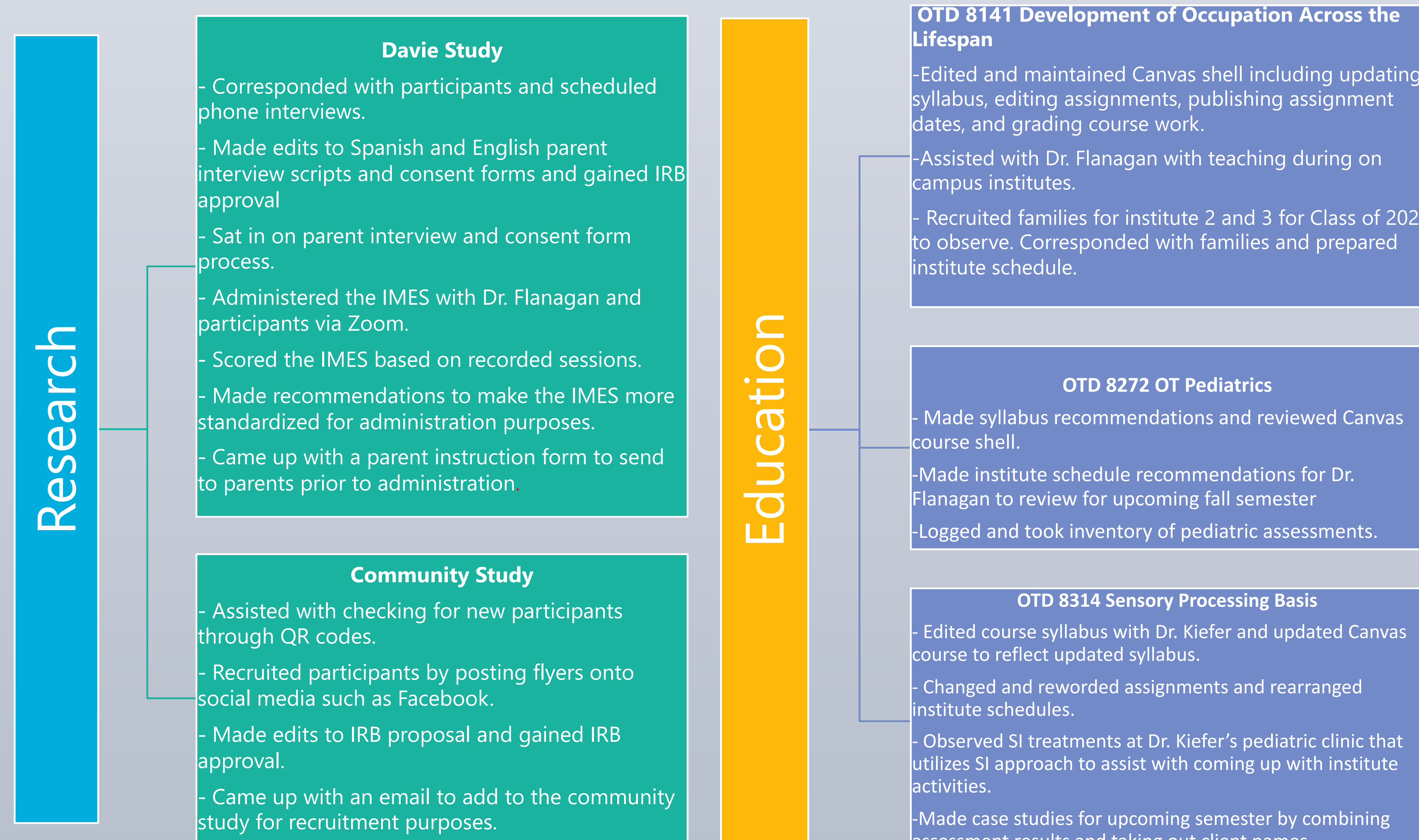
Literature Review Summary

- Currently, the prevalence of autism spectrum disorder (ASD) in the United States is reported to be 1 in 36 children (Maenner, 2023).
- According to the Center for Disease Control and Prevention (CDC, 2022), ASD may not be detected until the age of 24 months, and sometimes ASD goes undetected until children are adolescents or adults.
- Current recommendations are that primary care providers screen all children for ASD symptoms at wellness checkup visits during 9-, 18-, 24- and 30-month-old visits (Autism Spectrum Disorder, 2022).
- Motor delays may be the first indicators that the nervous system is developing differently (Flanagan et al., 2012).
- Flanagan, and her colleagues (2012) examined the association between head lag at the age of 6 months during pull-to-sit and autism risk. Head lag was significantly associated with autism spectrum disorder at 36 months in high-risk infants.
- Demchick and her colleagues (2019) looked at the differences of play behaviors between infants with and without a later diagnosis of autism. They found an association between the variables they examined at 6 months of age and autism.
- Iverson et al. (2018) found early appearing differences in gross and fine motor abilities in infants at high-risk for ASD. This study concluded that fine motor impairments, such as grasping in infants at six months of age, have been linked to the diagnosis of ASD at a later age.
- Hyman et al. (2020) suggests that primary care providers have a responsibility to identify all children who would benefit from early intervention
- The earlier practitioners can provide therapeutic interventions the earlier they can change an infant's developmental path (CDCD, 2023).



(Demchick et al., 2023)

Capstone Project Description & Outcomes



Capstone Goals Achieved

- I gained experience and competency in research by working with Dr. Flanagan on her longitudinal study and community study as well as administering the IMES with recruited participants.
- I submitted IRB amendments and refined parent interview scripts and consent forms.
- I received mentorship and developed an eye for developmental milestones through coding the IMES from recorded videos.
- I recruited participants and assisted with corresponding those participants.
- I participated in educational experiences with Dr. Flanagan, including helping with revisions to syllabi, grading assignments and coursework, and assisting with teaching during Institutes.
- I shadowed at Dr. Kiefer's SI clinic and assisted with course syllabus and institute schedule.
- I recruited infants and toddlers for institute activities for OTD 8141.



(NCT, n.d.)

Implications for OT Practice

- Increases the awareness of the role of occupational therapy in identifying early motor development and play behavior differences at ages 6 to 9 months which may be indicative of autism spectrum disorder (ASD).
- Increases the awareness for the role of OT intervention for infants who may have an increased likelihood of ASD.
- Increases the awareness of needing a screening tool to look at early indicators of ASD between 6 to 9 months.
- Identifies the need for continued research on early infant screening tools.

References & Acknowledgements

My sincerest appreciation goes to Dr. Joanne Flanagan ScD, OTD/L for mentoring me and providing such a wonderful capstone experience for me. Your guidance, support and encouragement has helped me throughout my experience at NSU. From research groups to now, thank you for your time and dedication to teaching! Also thank you and Dr. Dominique Blanche Kiefer, OTD, OTR/L, BCP for assisting with my capstone experience and giving me the opportunity to observe and spend time at Therapy West!

References Available Upon Request