ENHANCING SOCIAL AND ACADEMIC SUCCESS FOR HIGH-FUNCTIONING AUTISM SPECTRUM DISORDER STUDENTS IN TERTIARY EDUCATION

I. KOCÚROVÁ-GIURGIU[1]   M. LÖFFELMANNOVÁ[2]

Abstract: *This review examines integrating social thinking principles and Theory of Mind development to support high-functioning autism spectrum disorder (ASD) students in tertiary education. We present an evidence-based framework for enhancing social and academic outcomes, drawing from developmental research, cognitive psychology, and higher education practices. The paper highlights social cognition's crucial role in academic success, providing implementation strategies for university settings while addressing unique challenges and opportunities for adult ASD learners.*

Keywords: *Autism Spectrum Disorder, Higher Education, Theory of Mind, Social Thinking, Academic Support, Social Cognition*

1. Introduction

The world of higher education is changing. We are seeing more and more high-functioning students with ASD enrolling in universities and colleges (VanBergeijk et al., 2008). These students often shine academically, especially in subjects they are passionate about. But they often struggle with social understanding and interaction, which can really affect how well they do in their studies and how they experience university life overall (Anderson et al., 2017; Gelbar et al., 2014).

For students with ASD, starting university can be particularly tough. It is a time when they are expected to be more socially competent and independent (Hendrickson et al., 2013). Unlike high school, which is more structured, university life demands sophisticated social skills, better planning and organization, and more self-directed learning.

This paper analyzes research published between 2008 and 2024, in various academic and scientific databases. We also illustrate our case study from a European business school. This comprehensive approach led us to identify three main ways that social cognitive abilities influence academic success: social-motivational, metacognitive, and linguistic.

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[1] *Škoda Auto* University of Mlada Boleslav, giurgiu@is.savs.cz, Ioana Kocurova-Giurgiu
[2] *Škoda Auto* University of Mlada Boleslav, loffelmannova@is.savs.cz, Miluše Löffelmannová

Our observations suggest that bringing together Theory of Mind and Social Thinking principles can really help ASD students develop both academically and socially. The case study we looked at supports this, showing clear improvements in how students participated in class and integrated socially when they received comprehensive support.

The evidence strongly supports using integrated frameworks that address both social and academic needs. But it also highlights the need for universities to take a systematic approach that balances individual differences with academic standards. As this field grows, we think future research should focus on long-term outcomes and explore how technology might help support these students.

2. Theoretical Framework
2.1. Theory of mind in young adults with ASD

Theory of Mind (ToM), which Baron-Cohen and colleagues first introduced in 1985, serves as a fundamental framework for understanding social cognitive challenges in ASD. Although early research focused on children, studies have shown that ToM development extends well into adolescence and young adulthood (Happé, 1995; Livingston et al., 2019).

2.1.1. Advanced ToM challenges in tertiary education

University students with ASD face particular difficulties with advanced ToM tasks essential for academic achievement. Research by Livingston and colleagues (2019) revealed that individuals with autism frequently develop compensatory strategies for social situations. Although these strategies might conceal underlying difficulties, they demand substantial mental effort. These challenges emerge across numerous aspects of university life, including the ability to understand multiple perspectives in academic discussions, recognize unspoken academic expectations, interpret nuanced social signals in professional relationships, and handle group dynamics during collaborative work.

The challenges of integrating social and academic aspects prove equally substantial. Students must learn to function effectively in informal learning environments while establishing professional connections with faculty members. Moreover, they need to participate meaningfully in academic discussions and maintain productive peer relationships within academic settings. Recent neuroimaging research conducted by Lombardo and colleagues (2016) has identified ongoing plasticity in social cognitive neural networks throughout young adulthood, suggesting considerable potential for effective interventions during university years.

2.2. Social thinking framework

Winner's (2007) social thinking framework presents a methodical approach to developing social cognition skills, which adapts effectively to tertiary education environments. The framework rests upon several essential principles, including understanding the fundamental purposes of social interactions and developing advanced perspective-taking abilities. It also stresses the importance of becoming a "social

detective" and recognizing the differences between expected and unexpected behaviors across various social contexts.

Recent modifications of social thinking principles for adult learners have broadened to address particular needs within higher education settings. These adaptations emphasize the development of professional communication skills and academic social navigation abilities. Additionally, they incorporate aspects of workplace preparation and independent living skills, making them especially relevant for university students preparing for their professional futures.

3. Methodology

This study employed a comprehensive systematic approach to identify and analyze relevant literature, complemented by a case study component. The literature search strategy encompassed academic and scientific databases focusing on publications from 2008 to 2024. Primary search terms such as "autism spectrum disorder," "higher education", "Theory of Mind", and "social thinking" were used in conjunction with secondary terms like "social cognition" and "academic success". Inclusion criteria prioritized peer-reviewed empirical studies, theoretical papers from recognized journals, and evidence-based intervention studies in English, specifically focusing on high-functioning ASD in tertiary education. The case study component utilized a mixed-methods approach, incorporating direct observation over one academic semester, semi-structured interviews, documentation review, and analysis of student performance metrics.

4. Integration of Social Thinking and Academic Support
4.1. The Social-Academic Nexus

Research (Anderson et al., 2017, Dijkhuis et al., 2020; Van Hees et al., 2015) reveals how social cognitive abilities and academic success interweave in tertiary education through three primary routes: social-motivational, metacognitive, and linguistic pathways.

In the social-motivational route, students who enhance their social understanding engage better academically, while stronger peer relationships facilitate collaborative learning opportunities. Students who experience less social anxiety focus better on academic tasks, and those who feel more confident in social situations participate more actively in academic activities. Through the metacognitive route, students apply social thinking strategies to strengthen academic self-regulation, developing better perspective-taking abilities that improve critical thinking skills, while enhanced self-monitoring capabilities benefit both their social and academic performance. Social cognitive training strengthens their executive functioning skills, further reinforcing this connection.

The linguistic route demonstrates how students who better understand pragmatic language communicate more effectively in academic contexts, interpreting non-literal language more successfully and enhancing their comprehension. Their stronger communication skills improve both written and oral academic work, leading them to master academic discourse conventions more thoroughly.

4.2. Institutional Implementation

Sarrett's (2018) study highlighted the importance of involving the autism community in developing accommodations and support systems. This participatory approach ensures that the supports provided are both effective and acceptable to the students who will use them. Professional development for faculty and staff represents a crucial component of institutional implementation. Studies conducted by Van Hees et al. (2015) indicate that students with ASD benefit from a well-informed faculty that understands their specific challenges and needs. This suggests that faculty members who receive specialized training in understanding ASD characteristics and social thinking principles are better equipped to support students' academic success. Such training should encompass understanding of executive functioning challenges, social cognitive differences, and strategies for promoting inclusive classroom environments.

5. Theory of Mind Development in Tertiary Education
5.1. Advanced Social Cognitive demands

University environments present unique challenges that require sophisticated Theory of Mind abilities. While early ToM research focused primarily on basic perspective-taking skills in children (Baron-Cohen et al., 1985), tertiary education demands more nuanced social cognitive abilities. Students must navigate complex social hierarchies, understand subtle social cues in professional relationships, and interpret multiple perspectives in academic discourse.

Research by Livingston et al. (2019) suggests that ToM development continues throughout young adulthood, particularly in individuals with ASD. This ongoing development presents both challenges and opportunities for intervention. The university environment provides numerous natural opportunities for social cognitive development, but these must be structured and supported appropriately to maximize benefit.

5.2. Social thinking in Academic contexts

The application of social thinking principles in academic contexts requires careful consideration of adult learning principles. Winner and Crooke's (2009) work emphasizes the importance of context-appropriate interventions that acknowledge the sophisticated intellectual capabilities of individuals with social learning challenges while addressing their social cognitive needs. Their Social Thinking training paradigm, while not specifically developed for higher education, offers potential applications for supporting high-functioning ASD students in understanding the social aspects of knowledge construction and academic discourse.

6. Executive Functioning and Social Cognitive Integration

The relationship between executive functioning and social cognitive development represents a critical area for support in tertiary education. The demands of university education require sophisticated executive functioning skills for managing time, organizing materials, and planning complex projects.

Integration of executive functioning support with social cognitive development creates opportunities for synergistic improvement. For instance, project management skills developed through structured academic support can enhance social planning abilities. Similarly, improved social cognitive skills can support better organization and time management through enhanced understanding of social expectations and demands.

7. Assessment and Progress Monitoring

Effective support for high-functioning ASD students requires sophisticated assessment and progress monitoring systems. Traditional academic assessments must be complemented by measures of social cognitive development and functional skills. Research by Shattuck et al. (2012) emphasizes the importance of comprehensive assessment approaches that consider both academic and social domains. Assessment strategies should incorporate multiple perspectives, including self-assessment, peer feedback, and professional evaluation. This approach to assessment helps ensure that students receive appropriate support across all areas of development.

8. Supporting Students with Asperger Syndrome in Higher Education: A Case Study Analysis

The increasing prevalence of students with Asperger Syndrome (AS) in higher education institutions necessitates a comprehensive understanding of effective support strategies. This case study examines the implementation of evidence-based practices in supporting a university student with AS at a business school in the Czech Republic, demonstrating how structured interventions can facilitate academic success and social integration.

8.1. Student Background and Initial Assessment

The subject of this case study is a university student diagnosed with Asperger Syndrome. Initial observations revealed that while he demonstrated strong academic capabilities, he exhibited significant challenges in social interaction and emotional regulation. His behavioral profile indicated low emotional intelligence coupled with somewhat limited self-control mechanisms. A notable characteristic of his interpersonal interactions was his tendency to assert intellectual superiority and engage in argumentative discourse with both peers and faculty members.

8.2. Identified Challenges

Through systematic observation and documentation, several key challenges were identified. The student's difficulties in interpreting social cues frequently resulted in inappropriate social responses and comments. His emotional regulation challenges manifested in argumentative behaviors and slight resistance to alternative viewpoints. The student demonstrated some inflexibility regarding routine changes and exhibited strong preferences for either assuming leadership roles or working independently in group settings. Furthermore, his tendency to dominate classroom discussions and frequently interrupt teaching sessions created additional challenges within the learning environment.

8.3. Implementation of Support Strategies

8.3.1. Structured Learning Environment

The implementation of a structured learning environment proved fundamental to supporting the student's academic journey. This included the establishment of clear, consistent routines and explicit communication of expectations at the start of the semester. A written schedule of class activities was provided and maintained with minimal deviation, while the classroom was designated "safe space" for moments of emotional or intellectual overwhelm. Moreover, the students are all allowed to choose their means of instruction based on their needs and preferences at any time during the semester, either on site or online.

8.3.2. Communication framework

The development of an effective communication framework emphasized the use of concrete, unambiguous language in both instructional delivery and general interaction. This approach deliberately avoided figurative language and/or sarcasm, which could potentially lead to misinterpretation. Written instructions supplemented verbal directives to ensure comprehensive understanding. A positive behavior support system was implemented, focusing on reinforcing appropriate behaviors rather than punishing undesirable ones.

8.3.3. Social Skills Development

The social skills support framework incorporated carefully structured peer partnerships, pairing the student with empathetic peers who could model appropriate social interactions and tolerate off course behavior.

8.4. Academic Accommodations and Support

Academic accommodations were implemented to address the student's specific learning needs. These included extended time allocations for assessments and assignments,

alternative assessment formats, and the integration of assistive technology for note-taking and written assignments. These accommodations were designed to reduce anxiety while maintaining academic rigor.

8.5. Environmental Considerations

Environmental factors that could impact the student's learning experience were considered. This included strategic classroom seating arrangements to minimize sensory distractions, as allowing the student to sit in the front row, at the edge, closer to the window. This allowed him to disconnect by looking out the window if the context became overwhelming. He was also encouraged to use noise-cancelling equipment during independent work periods, or, alternatively, to work from the comfort of his home.

8.6. Emotional Regulation Framework

An emotional regulation framework was established largely on the go, incorporating both preventive and responsive strategies. For instance, conflictual situations are avoided by allowing the student to express freely without judgement on the quality or quantity of the content. Nevertheless, if needed, the teacher would take a calm stance and explain in detail and without contempt the reasoning behind cutting intrusions or reducing the student talk time. Alternatively, when the situation presented itself and a topic of their interest was discussed, the student was engaged in a productive manner and encouraged to share knowledge with the rest of the group. However, there is still room for improvement in managing the student's responsiveness to questions and interactions that have not been initiated by them but by their peers. In the relation with the teacher, the response is better. It is because, in the student's words, "the teacher is the boss". This suggests a certain extent of social discipline and understanding of common hierarchies and expected behaviors.

8.7. Faculty Approach and Professional Development

A consistent approach among selected faculty members was maintained, characterized by calm, patient interaction styles and positive reinforcement of appropriate behaviors. Corrective feedback was delivered privately and constructively, with emphasis on maintaining a supportive learning environment.

8.8. Outcomes and Analysis

The implementation of these support strategies yielded significant positive outcomes. Observation indicated improvements in the student's classroom participation patterns and social interactions. While certain challenges persisted, the overall trajectory showed marked progress in both academic performance and social integration.

8.9. Takeaways

The observations of this case study suggest that with appropriate support mechanisms in place, students with Asperger Syndrome can successfully navigate the challenges of higher education while developing essential social and academic skills. Future research might explore the long-term sustainability of such interventions and their applicability across diverse higher education contexts.

Key findings highlight the effectiveness of integrated social-academic support frameworks, the ongoing development of social cognitive abilities in young adulthood, the necessity of institutional commitment to comprehensive support, the value of technology, and the need for culturally sensitive strategies. Theoretically, this review advances our understanding of the relationship between social cognition and academic success, the role of Theory of Mind in adult learning, the application of Social Thinking principles in higher education, and the interaction between executive functioning and social development.

9. Limitations and Further Considerations

While promising, the integration of Theory of Mind (ToM) and Social Thinking principles for ASD students in tertiary education requires critical examination of current research and practices to ensure effective implementation and development. Our analysis reveals several significant limitations in current research methodologies. Small sample sizes, including in our current study, limit the generalizability of findings.

Several significant gaps emerge in the current body of knowledge. First, researchers have insufficiently explored the interplay between social cognition and specific academic disciplines, making it difficult to tailor support strategies to different fields of study. Second, studies rarely investigate the efficacy of support strategies across diverse cultural contexts, hampering our ability to develop culturally sensitive interventions that could benefit more students with ASD. Finally, the academic community continues to debate the optimal timing and intensity of interventions, which complicates efforts to design and implement effective support programs. Addressing these knowledge gaps would enhance academic experiences and outcomes for this student population.

10. Conclusion

High-functioning ASD students in tertiary education thrive when institutions integrate social thinking principles with academic support strategies comprehensively. This integration must recognize these students' sophisticated intellectual capabilities while addressing their social cognitive needs. Support frameworks need to balance flexibility for individual differences with sufficient structure to foster development.

The development of comprehensive support frameworks represents a crucial investment in educational equity and student success. Support strategies must evolve as our understanding of adult social cognitive development advances, incorporating new research findings and technological innovations. High-functioning ASD students' future

success in tertiary education relies on creating inclusive, supportive environments that address both academic and social developmental needs.

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