

APPROACHING THE FEUERSTEIN METHOD THROUGH SELF-DETERMINATION THEORY IN THE CONTEXT OF SOCIAL INCLUSION OF ADOLESCENTS WITH AUTISTIC DISORDER

Ana CIOBOTARIU (BELINGHER), Ph.D., Cnd.,
"Aurel Vlaicu" University of Arad
ana_belingher@yahoo.com

Mihaela GAVRILA-ARDELEAN, University Professor Ph.D.,
Interdisciplinary Doctoral School, Social Work,
European Institute „Serge Moscovici”
"Aurel Vlaicu" University of Arad
miha.gavrila@yahoo.com

Abstract: *In the context of education aimed at inclusion and personalization of the educational process according to individual needs, implementing interventions that address the challenges faced by adolescents with autism spectrum disorders (A.S.D.) becomes essential. The Feuerstein Method, based on cognitive modifiability, mediated learning, and instrumental enrichment, together with Deci and Ryan's Self-Determination Theory, outlines an integrative approach that supports the autonomy, competence, and relational needs of adolescents with A.S.D., while also contributing to cognitive function development, social integration, and improvement in their quality of life (Deci, & Ryan, 2017; Tудоce, Salime, Deloyer, & al., 2023). Studies have shown that adolescents participating in instrumental enrichment programs demonstrate significant improvement in their ability to identify and manage emotions, as well as in self-regulation, self-esteem, autonomy, and social relationship skills (Bailey & Pransky, 2010; Dughi, 2022; Runcan, Runcan, Goian, Nadolu, & Gavrilă-Ardelean, 2020; Todor, 2014).*

Key words: *Feuerstein method; Self-Determination Theory; instrumental enrichment program; mediated learning; adolescents with autistic disorder.*

Introduction

Adolescents with autism spectrum disorders frequently experience a deficit in communication and social interaction, which can often lead to social isolation, peer rejection, and also impacts on school and career

success (Andanson, Pourre et al., 2011). These social and emotional difficulties significantly limit their active participation in the community and considerably affect their quality of life (Gavrilă-Ardelean, 2019).

Even though autism is not currently considered a curable disorder, there are numerous studies (Lovaas, 1987; Mesibov, Shea & Schopler, 2004; Laugeson, Frankel 2010) which demonstrates that it is possible to significantly increase social, communication and adaptation skills to an independent lifestyle.

However, the alarming global increase in the incidence of autism spectrum disorders makes this aspect currently one of the most important medical problems. Thus, according to the report published by the US Center for Disease Prevention and Control, one child in 36 is diagnosed with ASD. These data indicate an increase in prevalence compared to the previous report in 2021, when the proportion was 1 in 44 children (Maenner, Warren, Williams et al., 2023).

Globally, according to the reports submitted by each country, the World Health Organization estimates that the incidence of autism is 1 in 100 people (WHO, 2023).

As for Romania, "the real number of people diagnosed with ASD is not known, however, according to the statistical data requested by the largest organization dedicated to the cause in Romania, HELP Autism, from the National Institute of Statistics (INS) and from the General Directorates of Social Assistance and Child Protection in the 42 counties and municipalities, in the period 2014-2022, there was a 50% increase in the number of new annual diagnoses in the last years, as follows: in 2022, 1436 children were diagnosed with ASD (autism spectrum disorder), while until 2019 the diagnosis rate was about 1000 cases per year." (Ciobotariu, 2024, p.2 ; HELP Autism, 2023).

Under these circumstances, modern education aims to adapt to the unique needs of each student, and exploring an established and customizable intervention strategy, like the Feuerstein method, can have a significant contribution to cognitive development, social inclusion and improving the quality of life of this vulnerable category.

The Feuerstein method, founded by Reuven Feuerstein, proposes the concept of structural cognitive modifiability, arguing that any individual, regardless of initial limitations, through educational mediation, can experience cognitive development (Feuerstein, et al. 1980). Complementarily, self-determination theory, developed by Deci and Ryan, states that the fulfillment of basic needs for autonomy, competence, and relatedness leads to optimal development and sustained intrinsic motivation, being essential for psychological well-being (Deci & Ryan 2017). By integrating these two theoretical frameworks, we can build a holistic educational approach, in which adolescents with ASD

are supported both in cognitive development and in the fulfillment of basic psychological needs.

The Feuerstein method: theoretical foundations and applicability

The Feuerstein method represents an educational framework centered on the concept of structural cognitive modifiability, respectively on the ability of individuals to modify their cognitive functioning structure in order to adapt to the different contexts that appear throughout life (Todor, 2014). In Feuerstein's view, modifiability does not involve a simple reflex act to external stimuli, but rather a response to internal changes, which, like growth, is the result of a series of voluntary and intentional acts that can – and in some cases must – be guided by an outside person (Feuerstein et al. 1980).

Feuerstein argued that the potential for cognitive development is accessible to all human beings if they benefit from a structured learning process, controlled and supported by a mediator (Feuerstein et al., 2015). The theory of structural cognitive modifiability has charted a new direction in the field of educational psychology, emphasizing the transformation of cognitive abilities and overcoming the traditional limitations of intelligence assessment and predictions regarding individual development.

The mediated learning experience is another central principle of the method, defined as a process by which the mediator, be it a teacher, therapist or parent, intervenes actively and intentionally with the aim of optimally developing the cognitive and emotional skills of the individual and achieving a high level of autonomy (Todor, 2014).

In a mediated learning experience, the mediator intervenes between the child and his environment, having the role of intentionally filtering and organizing stimuli, regulating their intensity, frequency and order. Thus, the mediator creates spatial, temporal and causal links, connecting current stimuli with previous ones and anticipating future ones. Stimuli previously perceived haphazardly will be integrated differently once the mediator organizes them and highlights their meaning. After the child has experienced mediated learning interactions and learned the ability to notice, differentiate and focus, he will continue to interact with the objects around him in an active and intentional way, instead of a passive one (Todor, 2014).

Feuerstein believed that not only the direct contact with the information is essential, but also the way in which it is presented and structured by the mediator to create a meaningful learning experience (Feuerstein, et al., 2015). In mediated learning, the facilitator provides personalized guidance, stimulates reflection and encourages the learner to push their limits, promoting deep and lasting learning (Tzuriel, 2021). This approach is not limited to teaching information, but aims to train the

cognitive structures that allow the individual to interpret and apply knowledge in different contexts (Todor, 2014).

Another essential aspect of the method is the instrumental enrichment program, which includes a series of tools designed to develop and strengthen essential cognitive skills, such as clear perception, systematic exploration, development of verbal reception tools, understanding of spatial and temporal concepts, conservation of measurements, quantity and form, logical thinking, planning and the ability to solve problems (Todor, 2014). Each worksheet in this program is structured to provide not only content but also transferable cognitive strategies to other areas of life.

The Feuerstein method can be integrated into a wide range of educational and clinical contexts, being used both for typical children and adults, but also for children with learning difficulties, respectively for people with cognitive impairments. Moreover, this method has demonstrated great effectiveness in improving cognitive functions and social skills and in the situation of people with autism spectrum disorders and other developmental deficiencies (Lebeer&Roth, 2000; Todor, 2014).

To analyze the efficiency of the Feuerstein method, I performed a systematic literature review, selecting 7 relevant articles that I will summarize in the table below:

Article	Author	Year of appearance	publication	Abstract	Methodology	Results and conclusions
Mediated Learning Experience and Psychological Tools: Vygotsky's and Feuerstein's perspectives	Alex Kozulin & Barbara Z. Presseisen	1995	Educational Psychologist	The article compares Vygotsky's and Feuerstein's approaches to the mediated learning experience, highlighting the importance of psychological tools and mediation for cognitive development.	Theoretical analysis using the perspectives of Vygotsky and Feuerstein to discuss the impact of mediated learning experience on cognitive development	The article suggests that mediated learning experiences contribute significantly to the development of cognitive skills and the creation of

					ment, with examples of application in various educational settings.	flexible thinking strategies. Integrating mediation techniques into traditional schools is recommended to support the development of cognitive functions among students from diverse backgrounds.
Cognitive Modifiability in Retarded Adolescents: Effects of Instrumental Enrichment	Reuven Feuerstein et al.	2004	Developmental Neurorehabilitation	The study examines the impact of the instrumental enrichment program on adolescents with cognitive impairment and social disadvantage, assessing cognitive functions, school achievement and classroom interactions.	Longitudinal study of 218 adolescents conducted over 2 years, comparing two groups – an experimental group that followed the instrumental enrichment program	Adolescents who attended the instrumental enrichment program demonstrated significant improvements in cognitive functions, such as analytical thinking

					and a control group that received a general education program. Testing was done before and after the intervention through cognitive tests, school assessments and classroom observations.	and planning ability, compared to the control group. The residential group performed better on academic assessments, and the day care group showed an increase in social interactions. The study highlights the value of the instrumental enrichment program for disadvantaged groups.
Cognitive modification of children with developmental disabilities	Alex Kozulin et al.	2010	Research in Developmental Disabilities	The study examines the effectiveness of the Basic Instrumental Enrichment Program (IE-B) for improving cognitive functions in children with developmental	Multicentre research involving 250 children in experimental and control groups in 5 countries	Children in the experimental group showed a significant increase in scores on cognitive

				disabilities, including ASD and ADHD, in 5 countries.	. WISC-R subtests and the Raven Matrices were used to measure cognitive performance before and after 12 months of IE-B implementation in schools.	e tests, especially in abstract reasoning and problem-solving skills, compared to the control group. The results support the validity of IE-B in improving cognitive functions in children with ASD and ADHD, thus recommending its integration as a special education method.
Investigating the Classroom Discourse of Mediation in a Feuerstein Instrumental	Francis Bailey & Ken Pransky	2010	Classroom Discourse	The study investigates media discourse and classroom interactions in a Feuerstein Instrumental Enrichment program, examining three universal	Ethnographic observation and discourse analysis of FIE lessons in an ESL classroom	The FIE program contributed to the development of cognitive skills and academic

Enrichment Program me				dimensions of mediated learning: intentionality/reciprocity, transcendence, and meaning.	m with three culturally disadvantaged students. The audio-video transcripts were analyzed to highlight the features of mediated learning.	language, with students demonstrating improvements in critical thinking, self-control and social interactions. The study emphasizes the value of FIE in multicultural and disadvantaged educational environments, providing a solid basis for adapting mediated learning to each student's context.
Interpreting Social Contexts and Emotions and ASD	Rosalyn Adamowycz et al.	2013	Proceedings - Social and Behavioral Sciences	The study explores the difficulties in interpreting social and emotional contexts in children with ASD, discussing the educational intervention based on the "Emotion Identification"	Case study of an 8-year-old girl with ASD, using FIE components and ABA techniques to develop emotion	The girl demonstrated significant progress in identifying and understanding emotions, improving her

				of the Feuerstein program and ABA strategies for developing this skill in inclusive settings.	al recognition skills. Evaluation carried out during 6 months.	ability to interact with others in an inclusive setting. The study confirms the utility of combining FIE and ABA for the development of social skills in children with ASD, indicating the potential of the approach in inclusive school settings.
The Feuerstein Program : Design of Experimental Research	Otilia Todor	2014	Transilvania University Publishing House	The research presents an experimental design applied to the Feuerstein Program in Romania, analyzing its effects on the cognitive functions of children with special educational needs and non-special educational	Experimental design with 150 students (with special educational needs and non-special educational needs groups) in 15 schools,	Children with special educational needs who participated in the Feuerstein program showed significant gains in cognitiv

				needs, including attention, executive functions and socio-emotional development.	assessing cognitive skills before and after program implementation using tests such as NEPSY and Raven Matrices, over 2.5 years.	e skills, especially in attention and emotional control, compared to the non-special educational needs group. Self-control and social integration improved considerably, highlighting the impact of the program on cognitive and socio-emotional skills in children with special needs in the context of remedial education in Romania.
Students' self-efficacy	Tiberiu Dughi, Roxan	2022	Aurel Vlaicu University	The study explores the role of Reuven	Experimental study	The FIE program led to a

and Feurstein Instrumental Enrichment	a Ianc Feregan		Publishing House	Feuerstein's (FIE) instrumental enrichment program in increasing perceived efficacy and locus of control in preadolescents .	with 40 preadole scents divided into control and experim ental groups. The intervent ion included 12 worksho ps in which two tools of the Feuerstei n method were used: Organiza tion of Points and Instructi ons. Assessm ents were made before and after the intervent ion through specific tests for perceive d efficacy and locus of control.	significa nt increase in students' perceive d efficacy and a shift in locus of control from external to internal. These changes increase d students' confiden ce and responsi bility towards their own learning process, facilitati ng a deeper and more autonom ous involve ment in educatio nal activitie s.
--	-------------------	--	---------------------	---	---	--

Thus, studies have shown that the instrumental enrichment program, in addition to the remarkable improvement of cognitive functions, also has a significant contribution in the identification and understanding of emotions, in the development of self-regulation capacities, in increasing self-esteem, autonomy, but also in enhancing skills of social relations, thus facilitating inclusion and adaptation in society (Bailey & Pransky, 2010; Todor, 2014; Dughi, 2022).

The applicability of this method within inclusive education has particular relevance for adolescents with ASD, responding to their specific needs to develop cognitive and socio-emotional skills in a structured way and adapted to the individual learning pace.

Self-determination theory in the context of improving the quality of life and social inclusion of adolescents with ASD

Self-determination theory developed by Deci and Ryan focuses on the concepts of human motivation and well-being, providing a model for understanding the motivational foundation of personality and social behavior, and the relationship between basic psychological needs and well-being, psychological flourishing, and a high level of quality of life (Ryan, Deci, 2017).

This theory identifies three fundamental psychological needs that are essential nutrients for individuals to experience continued growth, integrity, and well-being, namely: the need for autonomy, competence, and relatedness.

Self-determination theory starts from the premise that human beings are naturally active, having an innate tendency to assimilate, seek and master challenges, but also to integrate new experiences. Although these processes are inherent in human nature, they do not work efficiently and develop to their maximum potential only through the continuous satisfaction of the 3 basic psychological needs mentioned above (Ryan, Deci, 2022).

According to the Self-Determination Theory, all individuals have the innate need to relate to others, to feel autonomous and to demonstrate that they are competent, and the social environments that contribute to the fulfillment of these needs have an important contribution to the development of the ability to self-regulate, but also to satisfactory social relationships and a high level of quality of life.

Synergy between the Feuerstein Method and Self-Determination Theory

The Feuerstein method provides a solid framework for interventions that support the satisfaction of the three fundamental needs identified by self-determination theory (autonomy, competence, relatedness), ensuring the cognitive development and social integration of adolescents with ASD.

Thus, in the process of mediated learning, the mediator guides adolescents to explore various strategies and solutions with the aim of learning to manage problematic situations, becoming more autonomous and skilled in personal choices.

Adolescents with ASD can also be encouraged to develop essential planning, organizing and problem-solving skills. The progressive structure of the instrumental enrichment program, accompanied by the positive feedback provided by the mediators, contributes to strengthening the sense of competence and confidence in one's own abilities.

At the same time, the relationship between adolescents and mediators gives the former the opportunity to practice and improve their social skills in a safe and supportive environment.

In conclusion, an intervention based on the principles of the Feuerstein method in correlation with the three dimensions of the Self-Determination Theory results in increasing the autonomy of this vulnerable group, thus contributing to the improvement of performance, social skills and quality of life. At the same time, creating an environment that supports competence and autonomy stimulates intrinsic motivation, essential in learning the various skills needed to live in today's society.

Conclusions and implications for inclusive educational practice

The implementation of the Feuerstein method, together with the principles of Self-Determination Theory, brings multiple benefits for adolescents with ASD, facilitating not only cognitive development, but also social inclusion. Studies have shown that adolescents who participate in instrumental enrichment programs significantly improve their ability to identify and manage emotions, develop their self-regulation capacity, but also self-esteem, autonomy, and social relationship skills (Bailey & Pransky, 2010; Todor, 2014; Dughi, 2022). In conclusion, the intervention supported by the Feuerstein method in association with the principles of Self-Determination Theory outlines a complex educational model, aimed at improving cognitive functioning, increasing autonomy, the ability to relate and the feeling of competence, thus facilitating the social inclusion of adolescents with ASD.

References

- Adamowycz, R. et al. (2013). *Interpreting Social Contexts and Emotions and ASD. Procedia - Social and Behavioral Sciences*.
- Andanson, J., Pourre, F., Maffre, T., & Raynaud, J.-P. (2011). Les groupes d'entraînement aux habiletés sociales pour enfants et adolescents avec syndrome d'Asperger: Revue de la littérature.

- Archives de Pédiatrie, Volume 18, Issue 5, Pages 589-596, ISSN 0929-693X, <https://doi.org/10.1016/j.arcped.2011.02.019>.
- Bailey, F., & Pransky, K. (2010). *Investigating the classroom discourse of mediation in a Feuerstein instrumental enrichment programme. Classroom Discourse, 1*(2), 121–141. <https://doi.org/10.1080/19463014.2010.514111>
- Ciobotariu, A. (2024). Terapiile pentru copiii, tinerii și adulții cu tulburări de spectru autist pot fi decontate prin CAS. *Critic Arad*.
- Deci, E., & Ryan, R. (2017). *Self-Determination Theory: Basic Psychological Needs in Motivation, Development, and Wellness*. New York: The Guilford Press.
- Dughi, T., & Ianc Feregan, R. (2022). *STUDENTS' SELF-EFFICACY AND FEURSTEIN INSTRUMENTAL ENRICHMENT*. Editura Universității Aurel Vlaicu.
- Feuerstein, R., Rand, Y., Hoffman, M. B., & Miller, R. (1980). *Instrumental Enrichment: An Intervention Program for Cognitive Modifiability*. Baltimore: University Park Press.
- Feuerstein, R., Rand, Y., Hoffman, M., Hoffman, M., & Miller, R. (2004). *Voices from the past: Cognitive modifiability in retarded adolescents: effects of Instrumental Enrichment. Pediatric Rehabilitation, 7*(1), 20–29. <https://doi.org/10.1080/13638490310001655140-1>
- Feuerstein, R., Falik, L. H., & Feuerstein, R. S. (2015). *Beyond Smarter: Mediated Learning and the Brain's Capacity for Change*. New York: Teachers College Press.
- Gavrilă-Ardelean, M. (2019), CHILDREN'S RIGHT TO BENEFIT FROM HEALTH SERVICES AND HEALTH EDUCATION, Editura Universității Aurel Vlaicu
- Kozulin, A., & Presseisen, B. Z. (1995). *Mediated learning experience and psychological tools: Vygotsky's and Feuerstein's perspectives in a study of student learning. Educational Psychologist, 30*(2), 67–75. https://doi.org/10.1207/s15326985ep3002_3
- Kozulin, A., & Garb, E. (2002). *Dynamic assessment of EFL text comprehension of at-risk students. School Psychology International, 23*(1), 112-127.
- Kozulin, A., Lebeer, J., Madella-Noja, A., Gonzalez, F., Jeffrey, I., Rosenthal, N., & Koslowsky, M. (2010). *Cognitive modifiability of children with developmental disabilities: a multicentre study using Feuerstein's Instrumental Enrichment--Basic program. Research in Developmental Disabilities, 31*(2), 551-559. <https://doi.org/10.1016/j.ridd.2009.12.001>.

- Laugeson, E. A., & Frankel, F. (2010). Social skills for teenagers with developmental and autism spectrum disorders: The PEERS Treatment Manual. Routledge/Taylor & Francis Group.
- Lebeer, J., & Roth, M. (2000). *INSIDE Project: Activating and Including Cognitively Disabled and Culturally Disadvantaged Children through Mediated Learning Experiences*. Comenius Project.
- Lidz, C. S., & Gindis, B. (2003). *Dynamic assessment and remediation: Important tools for the inclusive classroom*. *International Journal of Disability, Development and Education*, 50(3), 293-304.
- Lovaas, OI. (1987) Behavioral treatment and normal educational and intellectual functioning in young autistic children. *J Consult Clin Psychol*. Feb;55(1):3-9. doi: 10.1037//0022-006x.55.1.3. PMID: 3571656.
- Maenner, M. J., Warren, Z., Williams, A. R., et al. (2023). Prevalence and characteristics of autism spectrum disorder among children aged 8 years — Autism and Developmental Disabilities Monitoring Network, 11 sites, United States, 2020. *MMWR Surveillance Summaries*, 72(SS-2), 1–14.
- Mesibov, G. B., Shea, V., & Schopler, E. (2004). *The TEACCH Approach to Autism Spectrum Disorders*. Springer New York, NY, 212 pp, <https://doi.org/10.1007/978-0-306-48647-0>
- Runcan, R., Runcan, P., Goian, C, Nadolu, B., Gavrilă-Ardelean, M. (2020). SELF-HARM IN ADOLESCENCE. 10.32008/NORDSCI2020/B1/V3/27.
- Todor, O. (2014). *Metoda Feuerstein*. Ed. Universității Transilvania din Brașov.
- Todor, O. (2014). *Programul de îmbogățire instrumentală. Design de cercetare experimentală*. Ed. Universității Transilvania din Brașov.
- Tudoce, B., Salime, S., Deloyer, J., Maes, C., Moraitou, M., PONDAVEN, J., Munuera, D., Fuenzalida, C., Kelemen, G., & Gavrilă, M. (2023). Empowerment in mental health: from theory to practice, operational perspectives for user self-determination. *Journal plus education*.
- Tzuriel, D. (2001). *Dynamic Assessment of Young Children*. Boston: Kluwer Academic Publishers.
- Tzuriel, D. (2021). The Theory of Structural Cognitive Modifiability and Mediated Learning Experience (SCM-MLE). 10.1007/978-3-030-75692-5_2.