

# POTENTIAL IMPACT OF FEUERSTEIN INSTRUMENTAL ENRICHMENT ON SELF-CONCEPT OF LEARNERS WITH BEHAVIOURAL PROBLEMS

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**Abstract:** *The article was prepared within preparatory phase of research on impact of Feuerstein Instrumental Enrichment (FIE) on self-concept of learners with behavioural problems. Its goal is to reveal the current state in research field concerning this topic in the Czech Republic. The programme FIE has been used in the Czech Republic since 1999, mostly for learners with special educational needs. The theoretical and research sources mostly describe the impact of FIE on the development and change of cognitive structures, the development of the art of learning and thinking (metacognition). Moreover, as one of the secondary objectives is also mentioned the restoration of a positive self-concept of the learners, precisely in compliance with the criteria of the mediated learning experience, e.g. by increasing the sense of competence of the learners and by learning to regulate their own behaviour. Thus, it influences the formation of healthy self-concept, self-confidence and self-acceptance of individuals participating in FIE. Generally stated, people who have a negative self-concept and/or low self-confidence are more likely to exhibit problem behaviour, whether in the family, school or wider social environment.*

*In the Czech provenance, we found three studies that primarily address the impact of FIE on learners with behavioural problems - first on learners with serious behavioural problems living in residential educational institutions, second on learners with ADHD and third on children with problem behaviour. We managed to find four studies that partially aim to determine the level of self-concept/confidence/self-esteem/self-acceptance of FIE attendees. Five studies then report on the effect of FIO on self-concept/self-confidence/self-esteem/self-acceptance and six other studies present the impact of FIO on behaviour change of attendees (mentioned mostly as a side effect because the studies primarily did not address these aims).*

**Keywords:** *behavioural problems, Feuerstein Instrumental Enrichment, study search.*

## Introduction

The goal of the search study was to reveal the current state in research field concerning the impact of FIE method on self-concept of its attendees in the Czech Republic to prepare the basis for planned further research. In schools, quite a lot of energy is devoted to dealing with problem behaviour of learners. School counselling workers, and also counselling workers from external counselling facilities search for appropriate solutions on a daily basis. Learners with problems in behaviour may have a distorted self-concept (self-esteem), which can make the situation even worse. We suspect that Feuerstein Instrumental Enrichment (FIE)

method may be a potential tool that can be used in such cases. FIE method has been used mostly for the development of cognitive functions of children, pupils and students with special educational needs (underachievers), but also for children and adults without any significant difficulties to develop their metacognition. But FIE method has also been reported to have a positive impact on the self-esteem and sense of competence of its attendees, potentially leading to the restoration of their positive self-concept that may be distorted (partially negative or negative). We intended to reveal if some studies already confirmed this impact and also to gain some inspiration for our further research.

## **Literature Review**

Defining problem behaviour is not very straightforward, as this issue is the focus of several scientific disciplines (psychology, psychiatry, neurology, social sciences, special education, social education, education, etc.). Due to this fact, there is even no agreement on a uniform terminology, so we can encounter terms such as behavioural disorders (specific and non-specific), problem behaviour, risky behaviour, behavioural problems, problematic behaviour, non-standard behaviour, disorders of conduct and emotions and others. M. Hutyrková, J. Spěváček and M. Charvát explain that in the Czech Republic the term behavioural problems is “very broad and covers a variety of phenomena, some representing developmental norms, some temporary social maladaptation and some behaviour-breaking social norms” (Hutyrková, Spěváček & Charvát, 2014, 1027). So most of the time, individuals are classified as having behaviour problems based on outward manifestations of behaviour that violate a certain norm. This raises the question of what the norm actually is. It is also necessary to consider the aetiology of such outward manifestations of behaviour (internal - neurodevelopmental or external in the child's environment, and their possible and frequent combinations). P. Jedličková and A. Klimentová doubt the deterministic “cause and effect” point of view and conclude that the origin of individuals’ difficulties is in “the interaction of several pathogenic genetic / dispositional, family, and social factors.” (Jedličková & Klimentová, 2024, 34) The age of the individual, specifically the appropriateness of the outward manifestations of behaviour for the age of the individual, also plays a relatively important role. For example, difficulties in respecting authorities may be a natural and important part of the development of individuals’ identity (the defiance in toddlerhood, puberty or adolescence). Last but not least, the frequency of such outward manifestations of behaviour and their duration must also be taken into account. M. Růžička states that based on the medical criteria that are currently still in force, such manifestations should occur for at least 6 months (Růžička, 2013). The question is whether these individuals consciously experience their behaviour and understand it as *not the norm*. We should consider what impact this has on

their inner experiencing and quality of life. We should never see problem behaviour as given; we should talk about the individuals who have the problem, not the problem individuals. We need to separate the negative manifestations of the individuals' behaviour from the individuals themselves. This brings us to the question of individuals' value orientation, self-assessment, self-esteem and overall self-concept. When working with such an individual (in attempts to help him/her), we should be based on his/her self-reflection (Pokorná, 2004). All of above mentioned leads us to seek for a tool that has an impact on the self-esteem (self-concept) of its users and FIE method was reported to have such an effect on its attendees.

FIE represents method of cognitive education that as opposite to content education focuses on development of cognitive abilities of persons and it is founded on several theoretical pillars such as (deficient) cognitive functions, cognitive map, the theory of structural cognitive modifiability and mediated learning experience. Feuerstein understood *cognitive functions* (thinking skills) to be prerequisites to operational, internalized representational thinking. He grouped them and their deficient versions according to three phases of thinking to level of input (taking in stimuli), level of elaboration (thinking through the problem), and level of output (communicating a response). The deficit cognitive functions at the input level cause difficulties in collecting data prior to solving the task, at the elaboration level deficit functions hinder effective use of data, and at the output level they limit adequate communication of task results. (Harth, 1982) The concept of *the cognitive map* explains how the structure of human cognitive functions is organised. The cognitive map enables the description of human cognitive processes (thinking and acting) on the basis of seven parameters (content, modality, operation, phase, level of complexity, level of abstraction and level of difficulty) and, it facilitates the preparation of content, structure, materials, etc. for the instrumental enrichment method. (Pokorná, 2004; Málková, 2008; Lucká & Chadimová, 2019)

*The theory of structural cognitive modifiability* can be explained briefly in simple terms as a belief in the enduring potential of humans to develop and to change throughout life, and its neurobiological basis is the neuroplasticity (the process of brain development, which is modelled by both internal and external aspects, i.e. the environment). Cognitive functions of a person do not develop only by person's own experience or contact with stimuli (the surrounding world, environment), but also in connection with the so-called *mediated learning experience*, in which the mediator - the adult (parent, grandparent, teacher, ...) plays an important role. The mediator stands between the child and the stimuli and transmits/mediates them to the child on the basis of his/her own experience with them in order to ensure that the child perceives, understands and integrates them in a meaningful way. The learning situations can be considered mediated learning experiences only if they meet certain criteria. Three criteria are essential:

1) intentionality and reciprocity (focused learning – situation is based on the learner's needs and it is seeking the learner's involvement), 2) transcendence (bridging learning – using knowledge in different contexts) and 3) meaning of the learning (purposeful learning – being aware of the significance and value of the knowledge). Other nine criteria are used differently in different learning situations. For the purpose of our research design following criteria are central: mediating a sense of competence, controlling behaviour and promoting sharing and communication, all of which have the potential to influence learners' self-concept. (Feuerstein, Feuerstein, Falik & Rand, 2014; Leeber, 2002; Pokorná, 2004; Málková, 2008)

The FIE method consists of approximately 500 pages of paper and pencil worksheets, on which attendees work under the guidance of a mediator/teacher/lecturer. The worksheets are organised into 25 instruments (workbooks) at two levels – standard – for the target group from about 8 years of age, and basic – for children from pre-school age, or people with intellectual disabilities. Each of the instruments develops certain cognitive functions, but it also has an impact on other circumstances related to learning. For example, cognition is not separated from emotions in the FIE method. Cognition (thinking) evokes emotions, so whenever we perform cognitive operations, emotional elements are the energetic force manifested in our behaviour. Some instruments are even primarily aimed at supporting cognition in connection with the development of emotions (*Recognition of Emotions, From Empathy to Activity, Compare and Reveal Absurdities and Think to Learn to Prevent Violence*) (Hutyrová, 2014; Hutyrová et al., 2014).

## Methodology

In the intended research we plan to investigate the impact of Feuerstein Instrumental Enrichment (FIE) Method on self-concept of learners with problems in behaviour. In its preliminary phase, we aim to determine the current state of research in the Czech Republic to gain inspiration by existing research for preparation of the basis of our study. We performed study search that was guided by four main goals. The first of all, to find out if there is any study in the Czech Republic that focuses on the impact of FIE on children/students with problems in behaviour (behavioural problems). The second goal was to identify studies in the Czech Republic that aimed to recognize the impact of FIE on the self-concept/confidence/confidence/acceptance of its attendees (in general and attendees with problems in behaviour). The third goal was to determine whether any studies examining primarily the effect of the FIE method on cognitive functions reported as a side effect the impact of FIE on the self-concept/confidence/esteem/acceptance of its attendees. The final goal was to realize if any

studies in the Czech Republic reported behavioural changes in its participants (with/without behavioural problems) as a side effect of FIE method.

The search was conducted using six keywords/phrases in Czech language (Feuerstein, Feuerstein's method, Feuerstein Instrumental Enrichment, mediated learning and cognitive structural modifiability) on the *knihovny.cz* portal, which includes the collections of books and journals of all libraries in the Czech Republic. Furthermore, the *theses.cz* qualification thesis register and the *Google Scholar system* were searched. Last but not least, we used also multi-search engine the EBSCO Discovery Service (EDS). We searched for studies from 2000 to 2023. The choice of the initial year was based on the official start of FIE method use in the Czech Republic.

We excluded some of the studies based on following criteria: no description of a practical study (only theoretical assumptions included); research was not conducted in the Czech Republic (but e.g. in Slovakia); the effect/impact of the FIE method was not evaluated; the resource referred to study described in another already included resource (multiple presentation of one study results); qualifying theses that were not defended or those of poor opponents' evaluation due to methodology faults.

In the Czech provenance, we found three studies that primarily address the impact of FIE method on learners with problems in behaviour – first on learners with serious behavioural problems living in residential educational institutions, second on learners with ADHD and third on children with problems in behaviour. We managed to find four studies that partially aim to determine the level of self-concept/confidence/self-esteem/self-acceptance of FIE method attendees. Five studies then report on the effect of FIE method on self-concept/self-confidence/self-esteem/self-acceptance and six other studies present the impact of FIE method on behaviour change of attendees, both last groups of studies mention it as ulterior finding of the research.

## Results

Out of the first group of studies, aimed primarily on effect/impact of FIE method on learners with problems in behaviour, the first resource informs about study conducted by Hutyrová et al. (2014). This article actually does not provide any effects/impacts of FIE method as it only describes research in a phase of data collection. We did not manage to find another source that would present the results of this study. We report about this study mainly because of three reasons. First, because one of its aims was “to map the potential for employing this program<sup>1</sup> in the institutional education facilities in the Czech Republic, where its implementation could lead to desirable changes in their clients' behaviour”

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<sup>1</sup> Meaning FIE method.

(Hutyrová et al., 2014, 1027). Second, it is inspiring in terms of the used method of data collection because one of the used tools was Questionnaire on children's self-perception of school success - SPAS (the questionnaire that provides information on the children's approach to his/her own school performance) that might be used in our study alongside other tools when determining the self-concept of FIE method attendees. And the third reason is the character of research approach of this study. It was planned to collect the data from over 400 individuals meaning that the results could be more representative than those of most other studies we found (mostly qualitative or mixed research design *with low numbers* of participants).

The second study from this group was presented in master thesis by Z. Tihelková. This study was aimed at learners with attention deficit hyperactivity disorder (ADHD). The study was qualitative in its nature, it was conducted on 2 pupils at the age of 7 and 8 that participated in FIE method over seven months and for the whole time they were being observed and their tasks were analysed. The author set 4 goals – how the FIE method impacts pupils' development of communication, concentration of attention, impulsivity and working autonomy. According to the results of this study pupils positively changed in all above mentioned aspects, concerning the behaviour they were more likely to regulate their behaviour while working on the task. (Tihelková, 2016)

M. Bořkovcová was in her study interested in the potential effect of her own method “Children together” (based strictly on principles of FIE method) on collecting diagnostic data on learners with behavioural problems and behavioural disorders. The author used action research method – precisely analyses of observations, audio-recordings, pupils' works and interviews. The results show that the method can be used to collect diagnostic data about pupils' problems in behaviour, self-regulation, ability to deal with conflicts, social recognition and self-reflection. The advantage of the method “children together” is according to the results of the study also in its potential to be used as intervention method for individuals with problems in behaviour (Bořkovcová, 2017).

The second group of studies – those that partially aimed to determine the level of self-concept/confidence/self-esteem/self-acceptance of FIE method attendees – is represented by the study described in doctoral dissertation of H. Burešová. The author primarily targeted at the development of reading strategies in individuals with dyslexia while using teaching material based on principles of FIE method. The quantitative part of study examined the change in the self-concept concerning school success of learners with dyslexia. The author used Questionnaire on children's self-perception of school success (SPAS) and Questionnaire Myself as a learner (MALS) in pre- and post- intervention phase. The results of this quantitative part of study did not show any significant difference in learners' self-concept concerning school success which might be

caused by the insufficient length of the intervention and timing of the post-intervention phase that took place in the period of final grading according to author's conclusions (Burešová, 2017).

The comparative pre-post experimental study of L. Ševčíková primarily explored the impact of FIE method on cognitive functions of its attendees but also partially aimed at potential changes in attendees' personality – changes in their self-esteem, or increased motivation to learn. Cognitive functions were measured by standardised tests and obtained data processed statistically, the results showed improvement in several cognitive functions. The self-esteem assessment was based on results of questionnaire for attendees of author's own construction. (Ševčíková, 2006). L. Ševčíková concluded that FIE method influences positively self-esteem but at the same time she admitted that the interpretation of the questionnaire results should not be considered convincing (Ševčíková, 2006).

The third study in this group is the one by G. Málková. This study resembles the previous study (by Ševčíková) by its design and also by focus on areas of cognitive abilities and self-esteem. In addition, it explored the effect of FIE method on IQ and school attainment. Effect sizes for experimental group were large in tests of cognitive abilities and nonverbal IQ. Positive effect of method was also demonstrated at the level of improvements of children's behaviour in the classroom, learning and problem-solving strategies. The self-esteem (self-concept) was measured by Questionnaire on children's self-perception of school success (SPAS). Contrary to study's other results that proved some partial positive effect of FIE method on cognitive abilities and nonverbal IQ the results of SPAS questionnaire were not in correlation with the expectations – they did not show any significant difference. The author discussed the appropriateness of the tool (SPAS) use and outcomes of study by Romney and Samuels who revealed the difference in change of self-esteem of younger and older learners stating that younger learners might have assessed their self-esteem negatively as the FIE method was abstract and difficult for them at the beginning. (Málková, 2007)

D. Pokorná' study is the last one in this group. The design of this study appears to be similar to two mentioned previously (by Málková, 2007 and Ševčíková, 2006) – it was pre-post experimental study aimed at children's cognitive functions as well as their school success, self-concept, and behaviour (Pokorná, 2013). The difference is in the fact that in Pokorná's study research and control groups are not compared but the individual development of each FIE method attendee is discussed. The self-concept was not measured by questionnaires but it was assessed together with behaviour by teachers in their written reports and also during the analyses of video-recordings. Contrary to previous study Pokorná stated that all learners that were reported by teachers to exhibit problems in self-concept improved in it (Pokorná, 2013).

The third group consists of five studies mentioning the effect of FIE method on self-concept/self-confidence/self-esteem/self-acceptance of FIE attendees. A. Schmaltzová's qualitative study targeted at the effect of FIE method on pre-school children with communication disorders. In this study, among others, *improved self-esteem*, reduced impulsivity and increased attention, were observed in all attendees (Schmaltzová, 2015). The main goal of J. Suchánek's study was to describe possibilities to implement FIE method into school curriculum. His participants – lecturers of FIE method – reported *influence* on learning, behaviour, attention and *self-concept*, specifically on *raise of self-esteem*, respect to others, development of empathy and prevention of drop-outs (Suchánek, 2020). The study of V. Jašková during which were observed changes in learners with different special educational needs attending FIE method and at the same time using principle of mediated learning experience throughout the whole school instruction lasted over three years. Within the in-depth description of changes in each of participants were also mentioned *the raise of self-esteem* and reduction of aggression (reported by parents), *development of self-confidence* (reported by teachers) and significant progress in the ability to assess oneself leading to *increasing healthy self-esteem* (based on long-term observations) (Jašková, 2020). V. Beranová conducted a qualitative study with 5 special education teachers that were trained in FIE method and used it while working with pupils with different special educational needs. Participants were asked about their motivation to choose FIE method, experience when being trained and practical experience with its use. The participants most often agreed on following advantages of FIE method: calming down attendees, developing of independence and planning skills. Some of the participants also mentioned *effect on self-esteem* of FIE attendees. (Beranová, 2022) Also 5 lecturers of FIE method that participated in B. Grisníková's study agreed on the positive effect of method on *self-esteem* of its attendees (Grisníková, 2015).

The last group of studies mentions some impact of FIE method on behaviour of its attendees (different ages, different characteristics) as side effect of the research. Reading the results of these studies we conclude that the behaviour of FIE method attendees has changed in pro-group/pro-social direction. The authors mostly mentioned: greater respect and tolerance to others in the group (Foltýnová Nešporová, 2022; Baštová, 2019; Křížková, et al. 2018), increased willingness to listen to others in the group (Foltýnová Nešporová, 2022; Fišarová, 2013; Klausová, 2019; Křížková et al., 2018), improvement in cooperation with others (Foltýnová Nešporová, 2022; Mikošková, 2017) and V. Baštová added development of empathy (Baštová, 2019). Moreover, the authors indicated reduction of impulsivity while working on task but interestingly also in connection with group communication – FIE method attendees controlled more effectively their need of self-promotion (Foltýnová Nešporová, 2022; Mikošková, 2017; Klausová, 2019; Křížková, Pecharová, Váňová, Žišková & Vysopal, 2018).



## Conclusions

We have found studies that focus on the impact of the FIE method on individuals with problems in behaviour. However, only one of these studies has partially focused on uncovering the possible impact on the self-concept of this target group. Unfortunately, we were unable to locate any source describing the results of this study. Before starting the next phase of our research, we will try again to track down these results so that, if nothing else, we can at least compare them with the results of our planned study.

Some studies examining the effect of the FIE method describe impact on either self-concept (self-esteem) or behaviour of its attendees (or on both of them). Yet, the results of these studies diverge. This may be due to the use of a particularly qualitative or mixed research design in these studies with a relatively limited number of participants. So that the results cannot be generalised and are valid only for the specific target group of each of these studies. To conclude, just as the participants are diverse, so are the results.

We did not find any study that purely dealt with the self-concept of FIE method attendees, and certainly not in the context of individuals with problems in behaviour. This supports our belief that the planned research is original, of high importance and may yield important insights regarding the impact of the FIE method on its attendees' self-concept, particularly those with problems in behaviour.

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