

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: <http://www.elsevier.com/locate/kontakt>

Original research article

Is Feuerstein's Instrumental Enrichment (FIE) a good method for social inclusion of poor Slovak children in school? A study focused on social and educational levels

Michal Kozubík^{a,*}, Svetlana Síthová^b, Alena Kajanová^c, Ivan Rác^a

^a Constantine the Philosopher University in Nitra, Faculty of Social Sciences and Health Care, Department of Social Work and Social Sciences, Nitra, Slovak Republic

^b Masaryk University in Brno, Faculty of Education, Department of Special Education, Brno, Czech Republic

^c University of South Bohemia in České Budějovice, Faculty of Health and Social Sciences, Institute of Social and Special-Pedagogical Sciences, České Budějovice, Czech Republic

ARTICLE INFO

Article history:

Received 2 June 2017

Received in revised form

24 August 2017

Accepted 27 October 2017

Available online xxx

Keywords:

Feuerstein's Instrumental

Enrichment

Socially disadvantaged environment

Inclusion

Slovakia

ABSTRACT

The Feuerstein's Instrumental Enrichment (FIE) method, as an instrument of social inclusion of children from a socially disadvantaged environment in classroom, is yet to be analyzed in the Slovak Republic and the Czech Republic. The study objective was to separate qualitative predispositions for effectiveness of inclusion from the FIE method in two areas – social and educational. The methods of the study (conducted in 2015–2016) included a combination of questionnaire investigation and observation during direct work with eight children (seven girls and one boy) who came from a socially disadvantaged environment in the district of Partizánske (Slovakia). The greatest progress in the children at the educational level was found in the increase of their activity and participation in classes. The most significant contribution in the personality-socialization sphere was an increase of children's personal interest, resulting from their intra-factorial motivation for group school activities. The influence of the method on marks and assessment of the pupils was not proved. The conclusions of the study emphasize the need for an interdisciplinary province of special pedagogues (educational, personality areas) and social-healthcare workers (socialization sphere), which are totally absent in the legislation and practice in the Slovak Republic.

© 2017 Faculty of Health and Social Sciences of University of South Bohemia in České Budějovice. Published by Elsevier Sp. z o.o. All rights reserved.

* Author for correspondence: Constantine the Philosopher University in Nitra, Faculty of Social Sciences and Health Care, Department of Social Work and Social Sciences, Kraskova 1, 949 74 Nitra, Slovak Republic.

E-mail address: mkozubik@ukf.sk (M. Kozubík).

<https://doi.org/10.1016/j.kontakt.2017.10.006>

1212-4117/© 2017 Faculty of Health and Social Sciences of University of South Bohemia in České Budějovice. Published by Elsevier Sp. z o.o. All rights reserved.

Introduction

At the time of its establishment, Feuerstein's Instrumental Enrichment was a programme developed for child survivors of concentration camps in the Second World War. These children had considerable problems with adapting to ordinary life as well as to the school environment. Children from marginalized Roma communities also experience stressful living conditions. Seeking the most suitable alternative for social inclusion in education remains an extremely topical and pressing topic today [1,2]. In the 1970s, Reuven Feuerstein's theories of structural cognitive modifiability and mediated learning experience were first used in individuals with decreased brain functionality. Later, Feuerstein developed a method and called it the "Instrumental Enrichment Programme." He used it as an inclusion instrument for children in social and educational spheres. Through the programme, he was able to show improvement of functioning in the cognitive, metacognitive and executive areas in the school and social environments of children coming from poor social classes [3]. More detailed research interest mapping the influence of the FIE method on school and social progress in children coming from poor families dates back to the 1980s [4]. The reasons behind the increased interest were several of Feuerstein's works that stated an improvement of cognitive functioning in adolescents with problem behaviours [5]. In the early 1990s, the positive effects of FIE were proved in the cognitive aspect in poor children in Puerto Rico [6]. Later studies [7] proved it is possible to improve cognitive functions in children with developmental disorders; however, the possibility of diagnosis of such disorders has not been demonstrated. The method can be used both in preschool-aged children [8,9] and university students with specific learning disabilities [10]. Some of the few studies conducted in Central Europe proved that, under the influence of FIE, poor Roma and Czech children could solve problems better and their school results improved too [11,12].

In Slovakia, poor children in segregated settlements (aged from 0 to 14 years) make up more than 40% of the total population living in marginalized settings [13]. For the terminological definition and research process, we profile an age structure of children up to the age of 7–8 years, i.e. the age in which children from a socially disadvantaged environment experience their first contact with the educational environment of school [14,15]. A social environment can be classified as small and large social groups. A small social group has a more intensive influence on children in relation to their development and inclusion. A small social group includes the closest family members, parents, siblings and other blood relatives. A large social group is a community in which children live within a country, or a cultural majority. A large social group can be characterized as a settlement, village, town or country, as well as a school environment [16–18]. Small and large social groups interfere in the economic, geographic and infrastructural conditional factors for life. Individual factors never act in isolation; on the contrary, they act in synergy [19]. People from a socially disadvantaged environment are a socially disadvantaged community. Such social exclusion is manifested in the areas of education, housing, employment, and also health status. We can speak about a multiple

stigmatized group in which disadvantages of various characteristics and intensities culminate [20]. Several studies [21–23] even speak about the phenomenon of a threefold marginalization of inhabitants of segregated settlements. Such segregation includes the geographically defined territory of eastern Slovakia, which belongs to the regions with the highest unemployment rates; marginalization of settlements that are separated from municipalities and the majority population by barriers (natural – river, or artificial – railway crossings, walls); and finally exclusion by own community members in-group. In the study, in terms of the strategy of inclusion of children from a socially disadvantaged environment we focused on social exclusion, particularly in the areas of socialization and education. An antonym for inclusion is segregation, expulsion, or to put it in other words, exclusion of people from society [24–27]. At present, studies on life strategies in inhabitants of socially disadvantaged environments [28] and the relationships between culture and social exclusion [29] are coming to the fore. Children from socially disadvantaged environments, specifically from Roma localities, are influenced not only by exogenous factors, but particularly by endogenous factors of family environment that are not in a synergistic relationship. They are influenced by family environment values, and their families have several key characteristics [30]. In Slovakia, several projects were conducted in the past with the goal of integrating children from a socially disadvantaged environment into the majority society. For the social integration of children, our intention was to use the method of Feuerstein's Instrumental Enrichment, which is usually introduced through pedagogues and social workers [12]. In the process of social integration, schools play a particularly considerable role in children's socialization.

Material and methods

In the study, we used a combination of quantitative and qualitative methods. The quantitative area was saturated by the questionnaires FIE BASIC I, IVE and EPQ-R, which are based on the structural cognitive modifiability. It is only in recent decades that they have been introduced to experts from our country by lecturers from accredited training centres. The stated instruments were distributed to class teachers, social pedagogues and teaching assistants before and after conducting the qualitative investigation – direct work with children within FIE. In our case, the basic research methods of qualitative data collection were observation, interview and content analysis.

The main sample of the qualitative section included children from a socially disadvantaged environment. Inclusion in the group of children with special needs was conducted by a centre of pedagogic and psychological counselling and prevention, or a centre of special pedagogical counselling (in accordance with the valid legislation of the Slovak Republic). To be included in the sample, a child had to have a minimum of two of the stated assessment criteria, which were defined as: the family setting in which a child grows up in does not meet the primary functions; a family is in material need; at least one parent has been unemployed for a long period of time; at least one parent has not completed compulsory

primary school; housing conditions are (from multiple viewpoints) inadequate and do not meet hygienic standards; they speak a different language from the official language of the social environment in which the child grows up in; a child and their family live in a segregated community; the children who participated in the programme were clients of a private counselling facility.

The sampling was purposeful. Because of homogeneity and an ability to compare the progressive or regressive character of an influence, we included the children in an almost homogeneous age structure of 7–8 years in the sample. Eight children, including seven girls and one boy, participated in the programme. Considering the fact that the sample is defined by a high percentage of girls (88%), it is not possible to implement data on gender in the study conclusions. All of the children were pupils in their second year of primary school in the district of Partizánske (Slovakia). To maintain anonymity, we do not state the children's names. The sample of respondents for the questionnaire investigation included class pedagogues of the children from the sample. All of the pedagogues were in contact with the children for the second school year. In the initial study schedule there was a plan to also include children's parents among the respondents, but the response rate of questionnaires from their side was low; often they did not understand the questions in the questionnaire and had a tendency to give the same answers for everything. Therefore, we changed the sampling to focus on a pedagogical group that included 12 teachers.

Prior to the research section, we personally contacted the private counselling centre in the town of Partizánske. In the initial phase, we constructed and developed a system of work, as well as possibilities of our direct participation in the FIE programme. After the sampling process, we defined the frequency of sessions, discussed specific goals of the sessions, designed informed consent forms for parents, and started to conduct the study. In the initial parent meetings at schools, the parents of the children who met the defined sampling criteria were addressed and educated about the possibilities and conditions for participation of their children in the FIE programme. The parents who decided for their children to participate in the programme signed the informed consent. The part of the study that was conducted during direct observations of the children in the context of FIE was focused on the factors of change, specifically their baselines before starting work with the use of the method. Prior to direct action, we mapped the baseline through the questionnaire investigation. The FIE sessions, i.e. the qualitative part of the study on direct work with the children from a socially disadvantaged environment, took place in the premises of the private centre. The children met once every two weeks for 60 min each time. They came to the sessions accompanied by researchers and a social worker. We picked the children up from school clubs, thus preventing their absence from the sessions. After the sessions, we drove them home. During the first sessions, the conditions were set up for parents to pick up their children, but when somebody came to pick them up, they were other inhabitants from the blocks of flats where they lived. In each of the sessions, the children worked with an FIE lecturer (with a certificate for the programme 40901 from the Feuerstein Institute) who was also a special pedagogue. During the

sessions, we conducted direct observations focused on interpersonal relationships and meeting the session goals. We visited the group from 10/2015 to 03/2016 every two weeks. There were 12 sessions in total.

The pedagogues of the children participating in the FIE programme were provided with the questionnaire investigation before and after the programme was set up. Both versions of the questionnaire investigation were identical (before and after the implementation of the method). The questionnaire consisted of two parts. One focused on the educational aspect and the other on the personality-socialization aspect. The standardized questionnaires IVE and EPQ-R based on the Eysenck's conclusions were used. The main studied areas included impulsiveness, empathy, and socialization. Some items remained cited in their whole forms; we drafted and corrected others in accordance with our requirements. The pedagogues answered yes/no questions.

Results

Educational level

In the educational level section, the most significant progress occurred in classroom participation (Table 1). Before the use of the Feuerstein's programme only one child from the sample raised their hand during the studied class, but after finishing the observation six children from our sample participated actively in the process at school. In the instrument *Arrangement of Points* the children faced a concept "error" several times. They learned and sought answers to the topic of what we can do to prevent errors, and also what to do if errors occur. Also, the children and the lecturer discussed how making errors moves us forward and they related all topics to school environment.

In the scope of forgetting their aids for classes (pencil case, exercise book, etc.), progress occurred in three children.

Table 1 – Results before and after the use of FIE in the educational area.

Educational aspect	Questionnaires completed in	Yes	No
Does he/she raise his/her hand in class?	09/2015	1	7
	03/2016	6	2
Does he/she forget his/her aids?	09/2015	8	0
	03/2016	3	5
Does he/she understand verbal instructions?	09/2015	2	6
	03/2016	7	1
Is he/she late for school?	09/2015	1	7
	03/2016	0	8
Does he/she work independently?	09/2015	0	8
	03/2016	5	3
Is he/she distracted?	09/2015	7	1
	03/2016	2	6

Legend: Questionnaire completed in 09/2015 – before the FIE course; questionnaire completed in 03/2016 – before finishing the observation in the study.

Preparation, fulfilling their duties, and rules were a part of the sessions in which the children worked with the *Illustrations* instrument. During bridging, the lecturer emphasized the significance and need of a system and rules that were denied by the children a priori. Slight progress in the area of fulfilling school duties can be seen in collaboration with family environment, where the rules and system respecting certain duties are denied a priori. Understanding the verbal instructions was improved in five children, but remained problematic in one child. Success amongst the children was particularly found in the tasks with auditory instructions. The reason for this was clear and comprehensible instruction. The children did not work with the written materials, and thus they could not rely on visual stimuli. During their work with all the instruments, they needed to define the oral instructions for work, without which they would not have been able to complete the working material correctly.

In the item concerning the “late arrival to school” there was not even a high frequency in the period before the beginning of FIE. During the implementation of the *Orientation in Space* instrument, also issues of relationships between classmates and orientation in time occurred. From the observations we can state that participation of the children in the sessions in the counselling facility was excellent. Independence was an article that was on the one hand stimulated in the children and on the other hand increased a need for cooperation. The ability to work independently improved in most of the children. The basic idea in the programme was to motivate the children to use their own abilities and methods. They were encouraged to compare their solutions only after finishing their work. During the instrument of *Comparison*, the children were often motivated to seek common and different features in various objects, shapes, concepts. The bridging topics also included integrity and the need to belong somewhere. Distractibility manifested in most of the children before starting the programme. After finishing the observation phase and in the re-questionnaire investigation this was eliminated in five children and remained with negative connotations in two children. This positive change may have been influenced by multiple factors. By their systematic work, the children stimulated their cognitive processes, including their attention. Another possibility is that under the influence of regular sessions the time in which the children were able to concentrate on work gradually increased. The third option, and for us a significant one, is the assumption that the content curriculum became more interesting and understandable for them.

Personality-socialization level

The items from the questionnaire investigation that focused on empathy were included in two items (Table 2): is he/she worried when others are sad (worried) and become stuck? Is he/she interested in classmates' problems? In the area of empathy, the children already had higher scores at the beginning of the study. During the *From Empathy to Action* instrument, the lecturer analyzed multiple conflict and stressful situations that the children were to take an adequate stance on and evaluate. When observing the instrument, great interest was perceived in the children; this could be the result

Table 2 – Results before and after the use of FIE in the personality-socialization area.

Personality-socialization aspect	Questionnaires completed in	Yes	No
Is he/she worried when others are worried and does he/she become stuck?	09/2015	5	3
	03/2016	7	1
Is he/she interested in classmates' problems?	09/2015	5	3
	03/2016	6	2
Is he/she impulsive?	09/2015	8	0
	03/2016	4	4
Does he/she often act immediately?	09/2015	7	1
	03/2016	4	4
If another child shouts at him/her, does he/she reply by shouting?	09/2015	6	2
	03/2016	1	7
Does he/she usually take the initiative in making contact with others?	09/2015	1	7
	03/2016	5	3

Legend: Questionnaire completed in 09/2015 – before the FIE course; questionnaire completed in 03/2016 – before finishing the observation in the study.

of spontaneity and increased emotionality brought to the sessions by the children due to their character and personality structures.

The items that focused on impulsiveness in the children were: Is he/she impulsive? Does he/she often act immediately? Again, it is possible to evaluate a high impulsiveness rate in the first questionnaire evaluation by the pedagogues. Despite the fact that it is a strong character trait, after finishing the observations it was possible to eliminate hasty and thoughtless reactions in some of the children. Through the slogan of FIE (“Just a minute. Let me think”) the children learned to work within the time given to them. The system of work with the instruments was: before the children started to work they had to analyze what was on the page, whether they had had similar types of tasks before, how they had solved them then, etc. The children had to hold back their tendency to act immediately and without thinking, something that was also projected in their work at school.

The items that focused on socialization of the children in a group were: If another child shouts at him/her, does he/she reply by shouting? Does he/she usually take the initiative in making contact with others? The positive change occurred also in the item “feedback”. We can state stagnation in the area of taking the initiative in making contact. Both items were applied in the *From Empathy to Action* instrument. The ability to not react and to subdue their impulsive reactions in social relationships was proved in the children. This manifested in conflict situations with their classmates, where they were able to lower the intensity of their voice and act more calmly.

The questionnaire investigation enabled us to reveal the characteristic elements in each child, not only individually (progress or regress), but also collectively. This is summarized in the comparative evaluation. The interpretative verbal

fragments are used for better illustration of the structure and continuity between the studied character traits related to work with the instruments. In the qualitative interpretations, we avoided specific numeral relationships.

Discussion

The study focus was to find out if FIE is a suitable method for social inclusion of poor Slovak children in school. We worked with a group of the primary school children who participated in the FIE programme. Our observation focused on the pupils' relationships to school, which manifested in their behaviour, fulfilling their school duties, as well as in their social behaviour. In our opinion, the significant positives include progress in the area of children's participation in classes, elimination of forgetting their school aids, better understanding of auditory instructions, improvement of individual work without adult intervention, and, last but not least, the elimination of distractibility.

A significant component of the quantitative–qualitative study was to focus attention on personality-socialization elements of the study. The children from the sample were able to eliminate impulsive and thoughtless manifestations much more intensively, their reactions towards other classmates stopped being so noisy, and they became more sensitive to emotional experiencing of their classmates. There were no changes in the development of spontaneous contact with others, which may have been caused by an inadequate need of acceptance by other classmates.

In our opinion, the most significant contribution of the study is that it is the first research study to ever be conducted in the context of FIE with children from poor families in Slovakia and the Czech Republic. The limitations of the study are an idiographic approach and that it is not possible to generalize the obtained results (related to a small sample and narrowly defined geographic area).

Conclusion

Both legally and formally, it is possible to implement and define the functionality of social-healthcare workers in out of school activities. Their tasks should include the development of closer relationships with counselling facilities that have prevention methodologies available. Unfortunately, this rarely happens in the Czech and Slovak settings. So far, there are no data on numbers of social workers at schools in these countries. The helping professionals should work with children in their free time to improve their interpersonal functioning and understanding. In our opinion, otherness is an opportunity, not a deficit. It is advisable to assign compulsory consultations of social-healthcare workers in families that approach the school process of their children with a lack of interest. Together with other members of a multidisciplinary team (teaching assistant, social pedagogue, healthcare assistant), it is necessary to encourage and support children in common activities with peers, and provide such measures that would not allow the development of ethnically homogeneous collectives in practice.

FIE appears as a suitable method for the inclusion of children from a socially disadvantaged environment in the socialization and educational spheres. Despite its success, it is rarely used in Central Europe. Therefore, it is necessary to deal with the method in the school environment in more detail, and also to test the model in more places.

Conflict of interests

The authors declare that they are not aware of any conflicts of interest related to this paper.

Acknowledgements

In particular, we would like to thank the children from socially disadvantaged environments (and their parents), as well as the primary schools and the private centre Mirabilis in Partizánske for allowing us the possibility to conduct our research.

REFERENCES

- [1] Henderson DX, Barnes RR. Exploring dimension of social inclusion among alternative learning centres in the USA. *Int J Incl Educ* 2015;20(7–8):726–42.
- [2] Orlando A-M, Klinepeter E, Foster M. Retrospectives on factors influencing inclusive opportunities for college students with extensive support needs. *Int J Incl Educ* 2016;20(11–12):1239–51.
- [3] Lebeer J. Significance of the Feuerstein approach in neurocognitive rehabilitation. *Neurorehabilitation* 2016;39(1):19–35.
- [4] Savell JM, Twohig PT, Rachford DL. Empirical status of Feuerstein's "Instrumental Enrichment" (FIE) technique as a method of teaching thinking skills. *Rev Educ Res* 1986;56(4):381–409.
- [5] Feuerstein R, Krasilowsky D. Interventional strategies for the significant modification of cognitive functioning in the disadvantaged adolescent. *J Am Acad Child Psychiatry* 1972;11(3):572–82.
- [6] Alvarez V, Santos J, Lebron F. Effects of the instrumental enrichment program of Feuerstein on the cognitive abilities of a sample of Puerto Rico students. *Revista Latinoamericana de Psicología* 1994;62(1):51–68.
- [7] Kozulin A, Lebeer J, Madella-Noja A, Gonzalez F, Jeffrey I, Rosenthal N, et al. Cognitive modifiability of children with developmental disabilities: a multicentre study using Feuerstein's Instrumental Enrichment – basic program. *Res Dev Disabil* 2010;31(2):551–9.
- [8] Todor O. Research on the usefulness of Feuerstein method in educating the sociability of children aged between 3 and 7 (preschool children). *Proc Soc Behav Sci* 2015;180:1692–7.
- [9] Vitová J, Ježková A, Havelková V, Nechanická V, Skořepová H, Zdražilová T. Effect of perceptual functions level on the development of pre-mathematical concepts in Czech pre-school children. *Proc Soc Behav Sci* 2015;171:709–12.
- [10] Juklová K. Evaluation of cognitive and metacognitive training in university students with a specific learning disability. *Proc Soc Behav Sci* 2012;69:14–7.

- [11] Malkova G. Co (ne)dokáže instrumentální obohacování Reuvena Feuersteina. *Geskoslovenska Psychologie* 2006;50(6):543–56.
- [12] Síthová M. Vplyv Feuersteinovho inštrumentálneho obohacovania na integráciu detí zo sociálne slabého prostredia. *Partizánske: Vysoká škola sv. Alžbety*; 2016.
- [13] Šprocha B. Reprodukcia rómskeho obyvateľstva na Slovensku a prognóza jeho populačného vývoja. Bratislava: Slovak Academy of Sciences; 2014.
- [14] Caban M, Papšo P, Kalamárová K, Vavrinčíková L. Sociálna práca s vybranými cieľovými skupinami. Banská Bystrica: PF UMB; 2007.
- [15] Ďuričeková M. Edukácia rómskych žiakov. Prešov: Metodické centrum; 2000.
- [16] Strieženeč Š. Slovník sociálneho pracovníka. Trnava: Vydavateľstvo AD; 1996.
- [17] Navrátil P. Romové v české společnosti: Jak se nám spolu žije a jaké má naše soužití vyhlídky. Praha: Portál; 2003.
- [18] Přádka M, Knotová D, Faltýsková J. Kapitoly ze sociální pedagogiky. Brno: MU; 2004.
- [19] Ondrejkovič P. Socializácia v sociológii výchovy. Bratislava: Veda; 2004.
- [20] Žilová A. Úvod do teórie sociálnej práce. Badín: Mentor; 2005.
- [21] Kajanová A, Kozubík M. Sociální distance v romské osade. In: Slavomír L, Mühlpachr P, editors. *Jinakost z pohledu sociálních věd..* Brno: Institut mezioborových studií; 2013. p. 57–73.
- [22] Kozubík M. Traditional Romany culture – myth or reality?. Krakow: Krakowska Akademia; 2015.
- [23] Kozubík M. (Ne)vinní a dilino gadžo. Nitra: Univerzita Konštantína Filozofa v Nitre; 2013.
- [24] Lebeer J. Programy pro rozvoj myšlení dětí s odchylkami vývoje: podpora začleňování znevýhodněných dětí do běžného vzdělávání. Praha: Portál; 2006.
- [25] Slowik J. Speciální pedagogika. Praha: Grada; 2007.
- [26] Begum J. Learning experience. New Delhi: APH Publishing Corporation; 2009.
- [27] Lechta V. Transdisciplinárne aspekty inkluzívnej pedagogiky. Trnava: EMITplus; 2010.
- [28] Kozubík M, Rusnáková J. Chudoba a sociálne vylúčenie rómskych marginalizovaných komunit. Chudoba a bohatstvo – paradoxy súčasnej doby. Banská Bystrica: Univerzita Mateja Bella; 2006.
- [29] Kozubík M, Michelčíková L, Kwadrans Ł. Roma culture in Slovakia – pedagogical and social reflection research report. *Studia Edukacyjne* 2015;35(2):405–27.
- [30] Kurincová V, Seidler P. (In)akosti – v edukačnom prostredí. Nitra: PF UKF; 2005.