

Mediated Learning Experience and Cultural Diversity

Alex Kozulin
ICELP, Jerusalem, Israel

The problem of immigrant and ethnic minority students' cognitive and problem-solving skills has both theoretical and practical significance. As a theoretical problem it poses a question of cross-cultural differences in cognition and their influences on education. As a practical problem it emerges each time the teacher enters a culturally heterogeneous classroom with the aim of providing students with skills necessary for successful formal education.

Cross-cultural differences in cognition

There are several alternative approaches to the problem of cross-cultural differences in cognition. Some of them are based on the belief in the basic uniformity of human cognition with differences explained as quantitative in nature, other emphasize the formative influence of culture leading to the heterogeneity of cognitive performances and styles.

First, let us consider what can be called a psychometric model of ethnic differences in cognition. The model originates in the nineteenth century idea of the evolutionary development of cognition in different ethnic groups. Within this model human cognition is perceived as basically uniform, although its development and progress occurred unevenly in different ethnic groups. Culture as such does not play an important role within this model being perceived as an aggregate of individual cognitive efforts.

The most recent revival of this model cast in psychometric terms was undertaken by Herrnstein and Murrey (1994) in their popular *The Bell Curve*. Herrnstein and Murrey took for granted the basic uniformity of human cognition and the feasibility of assessing it with the help of standard psychometric IQ tests. They then proceeded to demonstrate differences in the IQ scores of different ethnic groups. Their conclusion was that the same cognitive skills are unevenly distributed, with some ethnic groups being more proficient (Far East Asia) while other less (Black Afro-Americans). Concerning the role of learning in the development of cognitive skills Herrnstein and Murrey are rather pessimistic believing in the strong genetic component of intellectual abilities. For the purpose of the present discussion, it is important to emphasize that the major weakness of the psychometric approach lies in its reluctance to discuss the nature of cognitive processes (Feuerstein and Kozulin, 1995). The complexity of human intelligence is extreme, thus calling for the expansion of our research approaches rather than their reduction. Unfortunately, Herrnstein and Murrey chose an extremely reductionist position equating the assessment of intelligence with the IQ measurement. Throughout the book the authors rely on the data from the longitudinal study which used four subtests of the Armed Forces Qualification Test as a measure of IQ (Herrnstein and Murrey, 1994, Appendix 3). The four chosen subtests include: Word Knowledge, Paragraph Comprehension, Arithmetic Reasoning and Mathematical Knowledge. There is little doubt that one can measure the number of words recognized or mathematical operations performed. The question is whether such a measurement can be

presented as an assessment of intelligence. How is it possible to claim that IQ measured in this way is unaffected by education? The authors' far-reaching conclusions are based on the following chain of reductions: First intelligence is equated with the results of test performance, then the whole range of possible tests is reduced to a few knowledge-based tasks performed within a limited time frame, after which the assessment data is interpreted far beyond its actual empirical base.

An opposite, culture-centered approach to cognitive skills was proposed by Vygotsky and Luria (1930/1993) and developed by their followers (Tulviste, 1991). This approach places the major emphasis on culture as a source of differences in cognition. According to Vygotsky and his followers cognitive processes are formed in the course of socio-cultural activities. As a result, the individual comes into possession of a variety of cognitive processes engendered by different activities and requested by different types of activity. The radical change in cognition is associated in the model with the transition from one set of symbolic psychological tools to another. Psychological tools include signs, symbolic and literacy systems, graphic-symbolic devices, formulae and so on. Inter-cultural cognitive differences are attributed to different systems of psychological tools and methods of their acquisition practiced in different cultures. According to Vygotskians formal learning places specific cognitive demands on the students requiring facility with decontextualized symbolic systems of representation, hypothetical modeling and reflection. Minority students whose native culture does not have a required set of psychological tools should be introduced to them in order to acquire the necessary cognitive skills.

Critical examination of the Vygotskian approach has led Cole (1990; Cole et al, 1971) to the "contextual" theory of cognitive functions. In a number of studies they examined the relationship between formal schooling and cognitive processes and came to the conclusion that different cultural and educational groups use the same basic cognitive processes. The manifestation of these processes, however, differs significantly depending on the contexts in which they are evoked. For example, it seems that individuals belonging to different cultural groups all possess the ability to classify objects and phenomena. Their success in specific classification tasks will however differ depending on contexts of classification. Unschooled subjects will fail at classification tasks characteristic for school learning contexts and succeed with classification relevant to their everyday practical experience. Therefore, for the minority students the problem lays not so much in the acquisition of cognitive skills, but rather in becoming accustomed to specific tasks and activities required by formal schooling. Cole (1990) draws a significant conclusion saying that the relevance of school-based skills will grow with the outside-the-school contexts becoming more similar to those of the school itself.

Within the mediated learning experience paradigm (Feuerstein et al, 1980; 1991) an important distinction is made between cognitive differences caused by cultural distance and those caused by the individual's deprivation of his or her own culture. This paradigm is based on the notion of mediated learning experience (MLE) as different from direct unmediated learning. It is postulated that each culture has its own MLE based systems of transmission of culture from

generation to generation. Individuals who receive adequate MLE in their native culture are expected to develop sufficient learning potential for a relatively unproblematic transition to the new culture. Those, however, who were deprived of MLE in their own culture manifest a reduced learning potential which makes their transition to the new culture and educational systems problematic. An integrated model based on the interaction between the psychological tools and MLE paradigms which will be discussed later suggests that the minority students' learning problems may stem both from their lack of mastery of higher order psychological tools and lack of proper MLE in their native or new culture. Of particular concern here is a situation whereby a system of symbolic psychological tools relevant in the new culture is introduced through rote learning without mediation. As a minority student in a partial, episodic way and remain detached from the whole of his or her cognitive structure.

Cultural Difference and Cultural Deprivation

Feuerstein (1991) defines the lack of mediation on the socio-cultural level as associated with the rejection or the breakdown of the system of cultural transmission. The influence of this condition on the child is twofold. The child becomes deprived of those devices of mediated learning, which were incorporated into the traditional cultural schemas, and rituals of his/her parents. At the same time, parents themselves often abandon or are forced to revoke their prerogative as mediators because their old culture is perceived as irrelevant, while simultaneously the new culture is not yet mastered. As a result, the child is left to confront the world on the "here-and-now" basis without the help of transcending devices of the cultural-historical tradition.

Feuerstein (1991) observed that the process of adaptation of an immigrant group to a new culture depends more on the group's ability to preserve cultural transmission under the new conditions, rather than on the "distance" between the original and the new culture. The content of the original culture and the methods of transmission could be very different from those accepted in the dominant culture. What is important is that the individual has an experience of cultural learning and a strong feeling of cultural identity. For example, Yemenite Jews represent a group, which was quite distant and different from the dominant Israeli culture into which they were introduced in a dramatic and instantaneous manner. Yet, changes that this group undertook in adapting to the dominant Israeli culture and their overall social achievements are more impressive than those of some other immigrant groups whose original educational systems were closer to European standards and who had greater exposure to modern technology. Although more "advanced" in terms of distal socio-economic conditions, these groups suffered from the consequences of cultural deprivation. Their reduced modifiability, therefore, was the result of insufficient MLE on the proximal level, rather than of cultural difference.

Feuerstein made no special reference to the deficient cognitive functions characteristic of cultural deprivation as opposed to cultural difference. The criterion of differentiation between these two conditions lies primarily in the potential for modifiability, which he maintains, is low in culturally deprived persons. A culturally different individual may manifest certain "deficient" cognitive functions, but is expected to overcome them relatively quickly. One may notice that, although

higher order symbolic tools are not mentioned in Feuerstein's theoretical discussion, his applied system of Instrumental Enrichment (Feuerstein et al. 1980) includes just such entities as major tools for the remediation of deficient cognitive functions. One may thus conclude that, at least implicitly, the acquisition of higher order symbolic tools is perceived by Feuerstein as a necessary condition for the enhancement of learning abilities.

From Vygotsky's point of view cultural difference is associated with the presence of an alternative system of psychological tools leading to the specific development of cultural psychological functions, e.g., memory mediated by an oral tradition instead of written records (Vygotsky and Luria, 1930/1993).

The above discussion allows us to formulate the integrative model that includes both the MLE and the higher order psychological tools, such as writing, numerical and other abstract notational systems. We propose the following four-fold matrix of interaction between MLE and psychological tools:

- A. Positive MLE/Tools available;
- B. Positive MLE/Tools unavailable;
- C. Deficient MLE/Tools available;
- D. Deficient MLE/Tools unavailable;

Condition A is characteristic of normal cognitive development of the child who acquired and successfully internalized such higher order psychological tools as written language, numerical system, etc. It is important to emphasize here that psychological tools should not only be available to the child, but should be properly mediated to him/her. This includes ability to read for meaning, to understand mathematical problem solving rather than mechanically performed arithmetic operations and so on.

Condition B is characteristic of a culturally different individual who received a sufficient MLE in his/her culture, but who was neither exposed to, nor provided with mediation of the higher order psychological tools. The prototypical case of this kind will be a child reared in a non-literate traditional culture that, at the same time, cultivates its own well-articulated means of cultural transmission. The child in question is supposed to have general prerequisites of learning including articulated perception, spontaneous comparative behavior, ability to formulate and test hypotheses, non-egocentric response modalities, and other cognitive functions as listed by Feuerstein et al (1980).

There is no agreement among researchers as to whether all the necessary cognitive prerequisites can be formed in non-literate, traditional cultures. Some authors (e.g., Cole, 1990) claim that these prerequisites are present in all normally developing individuals and that it is only their expression that depends on specific symbolic means available in a given culture. Thus, syllogistic reasoning, for example, is presumed already to be present in uneducated individuals; but they reveal this type of reasoning only in situations that are familiar and correspond to their cultural norm. There is, however, an opposing viewpoint that suggests that certain forms of

reasoning appear only as a result of particular educational practices and could not emerge spontaneously.

According to this point of view, what appears as syllogistic reasoning in an uneducated individual is actually a result of everyday experience, which, under specific problem solving conditions, leads to the right answer. These two alternatives were put to the test by Tulviste (1979), an Estonian student of Luria. He studied syllogistic reasoning in children who belong to a small nationality in Eastern Siberia. These children attended school, but otherwise lived the life of traditional, pre-industrial society. An important result of Tulviste's study showed that native children have greater success with syllogistic tasks involving hypothetical situations based on scientific material (unknown to the children), than with the task based on familiar, everyday life events. This result indicates that syllogistic reasoning originates in systematic school-based learning activities, rather than in everyday experience.

Condition C is characteristic of individuals who were exposed to higher order psychological tools but received no proper mediation of them. A prototypical case here is an individual whose everyday life is attuned to the norms of pre-literate traditional society, but who at the same time received formal schooling. Sometimes symbolic tools acquired at school remain unmediated, i.e. they are used as tools in a narrow sense but fail to affect the whole of the individual's cognition. We observed such a phenomenon in immigrants from a Third World country. They had more than 12 years of schooling, but still experienced great difficulties in solving problems intended for Israeli adolescents. These same immigrants demonstrated remarkably high learning potential, and improved their performance dramatically after being taught the Instrumental Enrichment program (Kozulin, 1998). One may conclude that this group received adequate MLE in a traditional way, but was deprived of the proper mediation of symbolic tools. A somewhat similar situation can be observed in children making the transition from one literate culture to another. Although these children received adequate MLE in their original culture, the transition process disrupts mediated interaction and the new set of psychological tools associated with a new culture remains poorly mediated. Severe learning problems have been observed in children from highly educated families because parents felt unable or unwilling to mediate the new culture to their children (Kozulin and Venger, 1993).

Condition D is characteristic of individuals who had no exposure to higher order psychological tools, and whose traditional MLE acquisition was disrupted. A prototypical case here will be a displaced group of individuals whose traditional cultural transmission was disrupted by war, famine, or other major social upheavals. Often, these are people who chose or are forced to abandon their traditional way of life and found themselves on the margins of industrial society. The new position makes it impossible to continue traditional mediation practices, while higher order psychological tools associated with school-based learning remain unavailable and unmediated (Feuerstein, 1991).

One should remember that the above matrix is in no way exhaustive and is not intended for simplistic classification. Each of the conditions outlined is a dynamic entity that can be

transformed if proper educational and mediation efforts are made. In addition to his/her position in the matrix, a given individual may have problems with specific cognitive functions dependent on a given sub-culture. For example, an adequate, general MLE may coexist with the lack of mediation of the need for precision, because precision is not highly valued in a given sub-culture. This specific “deficiency” may cause certain problems of adaptation to a culture that values this trait highly. The ultimate criterion is that of modifiability. An individual who exhibits high modifiability will be capable of changing his/her functioning, depending on the new hierarchy of cultural demands.

Integration of new immigrant students

Many of the difficulties facing culturally different students stem from the incongruence between their previous learning experience and the demands of the formal educational system. As we have seen the notion of mediated learning experience (MLE) helps to identify general learning prerequisites that characterize a successful culturally different student, while Vygotsky’s notion of psychological tools can be used for identification of those specific cognitive skills that are necessary for the integration of culturally different students into formal educational frameworks. The combination of these two notions results in the four-fold matrix of interaction between MLE and psychological tools that can be used as an analytic and classificatory instrument. In a series of empirical studies it was shown that the pattern of non-verbal cognitive performance of new immigrant students from one of the Third World countries differed not only quantitatively but also qualitatively from that of the Israeli students (Kozulin, 1999). One educational implication of this finding is that the students’ performance with simpler tasks should not be used as a predictor of their performance with more complex tasks and vice versa. It was further demonstrated that cognitive intervention included in the Learning Potential Assessment Device (LPAD) procedure not only leads to the improvement of the immigrant students’ Raven matrix scores, but what is more important, changes their response profile making it closer to the profile of majority students. Research findings indicate that the most effective mainstreaming approach is a combination of cognitive intervention in the form of Instrumental Enrichment (IE) program with intensive second language and math instruction infused with MLE principles. After sixteen weeks of such intervention about 50% of new immigrant students were mainstreamed with remaining students integrated after receiving an additional 20 weeks of intervention (Kaufman and Kozulin, 1999).

Education in the age of multiculturalism

When the notion of multiculturalism is introduced this is usually done in opposition to the so-called “melting pot”. In the “melting pot” of a new society the distinctive features of its members are supposed to disappear giving way to a more or less homogenous pattern of average American, Canadian or Israeli. Needless to say, the more powerful majority groups leave a stronger imprint on this new cultural image. By contrast, multiculturalism is often compared to a mosaic with each element preserving its original character, while all elements together are supposed to lend a new quality to the cultural whole.

It is this emphasis on preservation that makes the entire issue of multiculturalism problematic. Unfortunately, the multiculturalism stance that is becoming fashionable in Europe and North America suffers precisely from this preservationist orientation. We are expecting to respond positively to ethnic dress, ethnic music, and ethnic ways of transmitting culture to children without inquiring critically into the consequences. Although the ethnic patterns may look colorful and sound nice there are serious grounds to believe that such an approach is counterproductive.

Let us take as an example the traditional ways of cultural transmission in Ethiopian rural communities. The means of transmission is oral and based mostly on observation and imitation. The older males sit in a group drinking coffee while narrating stories about the important events and heroes of the past. The narratives include highly elaborate word play, verbal riddles and creative poetic comments offered by the participants. Children who sit patiently and silently on the periphery of the story-telling circle gradually absorb the cultural content and verbal technique. Each such “session” lasts for hours and constitutes an integral element of everyday life.

Can anyone honestly claim that it is possible to preserve this pattern of cultural transmission under conditions of modern technological society into which Ethiopian Jews are integrated? On the other hand, does this mean that the traditional culture of this group is doomed to extinction in Israel and other Western countries? I think that to ensure the perpetuation of this culture we must abandon the ideas of ethnic preservation and realize that perpetuation always presupposes change. In the specific instance of expatriate Ethiopians the required change includes a radical shift from an oral to a written medium of cultural transmission. Stories, riddles, verses and comments should be written down and made available to Amharic speakers in new contexts such as school, library, community center or cultural festival. Immigrant children should be given a chance to become literate in their native language. Culturally significant texts should be made available to a wider audience in translation. As a result the traditional culture will be perpetuated but in forms that do not attempt to imitate the conditions of the Ethiopian village.

This example brings us to the core problem, namely to the significance of a genuine multicultural situation. In my opinion a real multicultural situation takes place only when my own, let us say majority culture becomes informed by another co-existing culture in such a way that I start seeing my culture in a new light. In this sense French art at the beginning of the 20th century experienced a genuine multicultural situation. The vision of French painters and sculptors became informed by Oriental and African models; as a result Cubism and Primitivism were born and the entire development of 20th century art was set in motion.

I would now like to present an attempt at creating a genuine multicultural situation in the Israeli educational system. Mass immigration from the former USSR to Israel in the 1990’s served both as a source and as a background of this attempt. Highly educated new immigrants made an almost instant impact on Israeli science, technology and classical music. Their influence, however, rarely created multicultural situations. New immigrant scientists, engineers and musicians were accepted because of their high technical skills, but no one expected them to

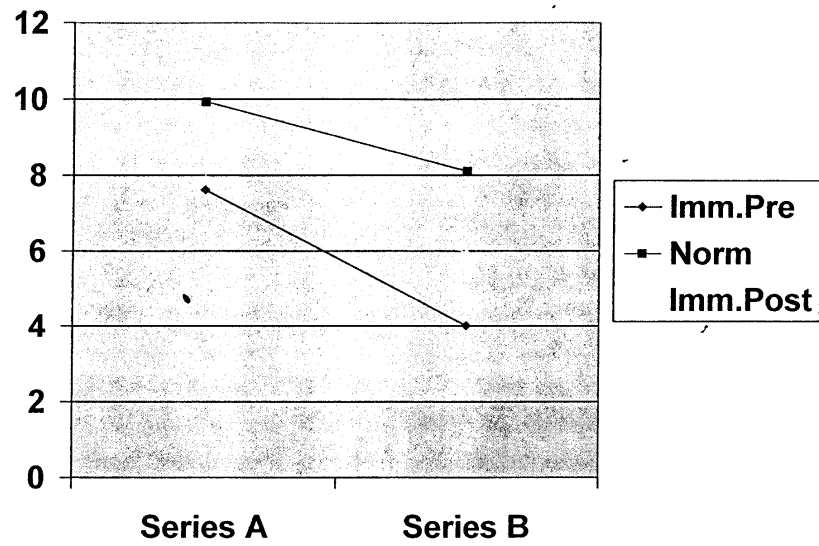
change the cultural image of their respective fields of activity. Beyond the technical areas the stance was clearly preservationist. Israeli society grew more tolerant towards Russian newspapers, video libraries and community clubs allowing new immigrants to keep their culture in a mini-format transportable from Russia. Such preservation, however, tacitly implied that the culture of immigrants is irrelevant to the mainstream Israeli culture.

This initial denial of relevance was particularly clear in the field of education. The Israeli school system absorbed hundreds of new immigrant teachers but almost exclusively as “raw material”. Pedagogical ideas that these educators brought with them were summarily ignored. The first independent steps made by immigrant educators were also along the lines of a preservationist model. Being dissatisfied with the quality of Israeli education in the field of math and science, and being concerned with the preservation of the Russian language immigrant parents promoted the establishment of supplementary evening classes for their children. These evening lessons that were being given by new immigrant teachers to new immigrant children attempted to recreate better aspects of education in the “old country”. As such these lessons were still devoid of multicultural situations but they paved the way for a number of experimental projects that were accepted in the day schools and that involved both new immigrant and veteran Israeli children.

The distinctive feature of these experimental projects was their attempt at solving Israeli educational problems through the methodology offered by immigrant educators. The two main problems dealt with were the generally poor achievement of low-SES Israeli adolescents, and the under-representation of these adolescents in the classes with advanced programs in math and science. The new paradigm proposed by new immigrant educators and their advocates in the Israeli educational system called for integration of low-SES Israeli students and new immigrant students in the “scientific challenge” classes that would follow the “Russian” instructional models, provide more hours of math and science, and set up higher standards for all students. There was an implicit “balance” in this model, with new immigrant students being on average more advanced in math and science but less advanced in Hebrew, while low –SES Israeli students were more advanced in Hebrew and less in science. The integration of these two dissimilar groups was achieved through the emphasis on learning activity (see Kozulin, 1998) as a central theme of the school life. While typical Israeli school emphasized students’ socialization and the development of individual talents, in the “scientific challenge” classes focused on creating such an atmosphere in which learning constituted not only the main activity but also the main medium of interaction between students.

In this way a true multicultural situation was created. Israeli students, teachers and school administrators started looking at their own experiences, educational goals and learning materials through the prism of methods informed by the culture of immigrant educators. The first results proved the practical value of the “scientific challenge” classes (Galili, 2001). Low-SES students’ school achievements and their performance on standard psychometric tests given after two years of the project were beyond the most optimistic predictions. The students’ self-image became much stronger and they set for themselves higher educational goals. Last but not least a real social integration occurred in the classroom, to the extent that at the end of the middle

school all students from the “scientific challenge” classes decided to continue their studies in the high school together as a group.



Colored Raven's Matrices, Series A and B (Max = 12)
 New immigrant students, N=218; Age 9-11
 Norm for ages 9-10 from (Glanz, 1989)

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