



Vygotsky's and Feuerstein's Theories for the 21st century

Le teorie di Vygotskij e Feuerstein per il XXI secolo

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ABSTRACT

There is a certain mystery in the current popularity of Vygotsky's and Feuerstein's ideas. On the surface, this growing interest is paradoxical – the ideas that emerged in Russia in the 1920s and in Israel of the 1960s are supposed to be light years behind the concerns of Western psychologists and educators of the 21st century. What then makes Vygotsky's and Feuerstein's ideas so contemporary? The article suggests that the current popularity of these ideas is related to the almost perfect match between “answers” given by Vygotsky and Feuerstein to the “questions” that, often without any direct impact of their theories, had emerged in Western psychology and education at the end of the 20th century. The discussion is focused around three key issues: Cultural difference, dynamic assessment, and the relationships between cognition and education.

C'è un certo mistero intorno all'attuale popolarità delle idee di Vygotskij e Feuerstein. Di primo acchito quest'interesse crescente sembrerebbe paradossale, dato che le idee emerse negli anni '20 in Russia e negli anni '60 in Israele dovrebbero essere anni indietro rispetto alle preoccupazioni degli psicologi e degli educatori occidentali del XXI secolo. Cos'è allora che rende le idee di Vygotskij e Feuerstein così contemporanee? Questo articolo suggerisce che la popolarità di queste idee sia da mettere in relazione al perfetto abbinamento esistente tra le “risposte” date da Vygotskij e Feuerstein alle “domande” che, spesso senza alcun impatto diretto delle loro teorie, sono emerse nella psicologia e nelle scienze dell'educazione occidentale alla fine del XX secolo. La discussione si focalizza orienta a tre aree: le differenze culturali, la valutazione dinamica, e la relazione tra cognizione ed educazione.

KEYWORDS

Vygotsky, Feuerstein; cultural difference; dynamic assessment; education.
Vygotskij, Feuerstein; differenze culturali; valutazione dinamica; scienze dell'educazione.

1. Cultural difference

Until rather recently the psychological aspects of cultural difference were of little interest for psychology or education. The cultural difference was perceived as belonging to the field of cultural anthropology and associated with exotic cultures. Ethnic differences observed in the intelligence test results were often interpreted as resulting from the hereditary genetic difference between ethnic groups. The number of cultural minority students in European classrooms was rather small and their problems were not perceived as sufficiently important for psychology and education. In the US the overrepresentation of Afro-American children in special education was noted already in the 1960s and a number of attempts was made to construct more equitable intelligence testing instruments. These attempts, however, did not offer a new theoretical perspective and were mainly limited to the “adjustment” of the existing tests. The only notable exception was the learning potential work of Budoff & Friedman (1964); the work that was inspired by the ideas of Vygotsky and Feuerstein.

The above picture changed rather dramatically during the last decades of the 20th century. The presence of cultural minority children in the classrooms throughout Western Europe and North America became a norm rather than an exception. The question of how to teach in linguistically and culturally heterogeneous classrooms became of urgent practical importance. Serious doubts were raised regarding the methodology that ignored cultural factors while explaining the difference in intelligence and achievement test results of different groups. If this difference is not just genetic but also cultural, then how to account for it?

Vygotsky provided the answer to this question in his cultural-historical theory (Vygotsky & Luria, 1930/1993). This theory suggests that all human higher psychological functions, such as attention, memory, decision making, and problem-solving are shaped by the sociocultural experience of people belonging to a given cultural group or sub-group. On a more operational level, the process of the development of these functions can be interpreted as the acquisition and internalization of symbolic tools available in a given culture. Symbolic tools range from oral speech and simple pictorial signs to complex texts, scientific formulae, maps, plans, and various graphic organizers. At the end of the 20th century different computer-based instruments had been added to this “tool-box”. People who grew up in cultures that have different symbolic toolboxes (e.g. preliterate oral culture vs. literate culture with formal education) will have different higher mental functions. Just imagine the process of memorization in a preliterate culture where all information should be directly stored and retained in the individual’s memory in contrast to literacy-based culture in which information is kept “offline” in a form of different written texts which can be accessed without being memorized by a particular individual. Cultural difference, therefore, can be interpreted as the difference in the symbolic “toolboxes” available to different people. In terms of educational practices, the cultural difference of students should be recognized not as an inborn difference of people belonging to different ethnic groups, but as a product of acquiring and using different cultural tools. The task of educators is to recognize those tools that have already been acquired and internalized and to decide how to provide students with additional tools that are currently absent.

Feuerstein responded to the question of cultural difference through the notion of the mediation of culture (Feuerstein & Rand, 1974). On an individual level parents and teachers are expected to provide children with experience of mediated learning. Mediated learning is not just an interaction between a child, an adult, and a task confronting the child. Mediated learning is defined by Feuerstein as a

quality of interaction. This quality is assured by the presence of the essential criteria of mediation: intentionality/reciprocity, transcendence, and mediation of meaning. On a societal level mediated learning manifests itself as the transmission of culture from generation to generation. Though different cultures have different cultural content, the process of mediated transmission is universal – there is no culture without cultural transmission. The universality of transmission does not mean that there are no transmission problems on the family or the community levels. The disruption of family life may leave children without a mediator who will transmit to them the culture of their community. Moreover, because of war, famine, dislocation, and other disruptive events, the community may have serious problems with mediating its culture to the next generation.

When children migrate from one culture to another, their linguistic and educational background renders all of them “different” from the children of the host culture. Feuerstein (1991), however, claimed that this label is superficial because it masks the distinctive features of two sub-groups of migrant children. The first sub-group includes children who received a sufficient amount and quality of mediated learning in their native culture. These children, on average, have a higher learning potential and will master the new culture quicker. The second sub-group includes children who for a variety of social and familial reasons were deprived of the cultural transmission in their original community and whose mediated learning experience is weaker. These children need more intensive intervention because their problem is not with learning a new culture, but with learning how to learn in general. Because both sub-groups at a first glance look very much alike it takes a special methodology associated with mediated learning theory and dynamic assessment technique to distinguish between them and design the educational intervention programs attunes to their specific needs.

2. Learning potential and dynamic assessment

Throughout the 20th century and up to this moment, a strong tradition of intelligence testing assumed that the tests of human intelligence provide us not only with information about the person’s current intellectual abilities but also with a fair estimate of his/her learning ability. Some authors even assumed that intelligence scores can be equated with a person’s general ability to learn. This tradition engendered a multi-million-dollar industry aimed at developing, printing, and administering psychometric tests. In the majority of industrial countries, psychometric testing became an integral element of life, determining a person’s opportunities from kindergarten to adult employment. Some researchers, however, started challenging this monolithic paradigm. One of the first questions that were asked was a question about students with special needs. Is it true that two children who have equally low intelligence test scores require the same type of special education? Is it possible, that one of them, despite his/her poor intelligence test performance has a better learning potential than the other? The next question came from studies of cultural minority students. Some of them demonstrated a very wide gap between their intelligence test performance on the one hand and their ability to quickly learn and apply the problem-solving strategies that were taught to them. Can we say that it is the intelligence test result that provides the most accurate estimate of their potential? Educators in their turn posed the following question: Whether the results of curricular exams should be used only for determining the level of students’ current performance or should they be used for creating changes in instructional strategies? In other words, should

not curricular exams become “formative” rather than just “summative”. All these questions have led to the crucial one: Can a test or exam that relies only on the past learning experience provide us with an optimal measure of the students’ learning ability?

Vygotsky (1934/2012) provided a tentative answer to this question with the help of the notion of the Zone of Proximal Development (ZPD). Metaphorically ZPD is a mental “space” where the development of the child’s emerging psychological functions takes place. One still cannot observe these functions in a child’s behavior because they are not mature yet, but their elements are already present in the child’s mental “pipeline”. So, a somewhat paradoxical question is: How to identify the emerging functions that are still “invisible”? Vygotsky’s answer to this question is related to his more general sociocultural approach that stated that a child’s mental development is not a simple maturational process but to a considerable extent the process of internalization of the psychological activities originally performed by the child in cooperation with an adult. In other words, the emerging psychological functions first appear as an external joint activity of children and their caregivers and only then become internalized as the child’s own mental functions. The practical implications of this position are pretty clear. Instead of just testing a child under the conditions of independent problem solving, the child should be tested at least twice, once without assistance and the second time with the assistance of an adult. The difference in the results of these two assessments will indicate the child’s ZPD.

The «technique» of the ZPD assessment sketched by Vygotsky included modeling, starting the task, providing hints, etc. For a better understanding of the later development of dynamic assessment approaches, it is important to remember that Vygotsky merely mentioned these possible techniques but never produced anything approaching a ZPD assessment manual. The translations of Vygotsky’s work about ZPD appeared in the West only at the end of the 20th century. It is at this historical junction that his “answers” about the possible alternative to static IQ assessments met the “questions” mentioned at the beginning of this section and engendered a whole range of dynamic assessment techniques (Haywood & Lidz, 2007)

Throughout the 1950s Feuerstein was involved in psychological assessment of children from North Africa who were about to immigrate or had already immigrated to Israel. Many of these children grew up under conditions of socio-cultural deprivation and educational neglect. Their adaptation to the Israeli educational system was fraught with considerable difficulties and many of them became candidates for special education classes because of their poor performance with standard IQ and school achievement tests. Already during the early stages of his work with this population, Feuerstein observed that the introduction of some informal learning episodes or the deviation from the standard assessment instructions led to a remarkable improvement in immigrant children’s performance. With time these informal learning episodes became transformed into a systematic assessment procedure aimed at evaluating the cognitive modifiability of immigrant children. Feuerstein’s learning potential assessment procedure was deliberately set in opposition to the standard psychometric approaches in three aspects: Change in the type of assessment tools, change in the assessment process, and change in the interpretation of results (Feuerstein et al, 1979). Assessment tools were designed to evaluate the child’s ability to acquire the cognitive principles and apply them to the tasks progressively more distant from the initial problem. The procedure included active interaction between the assessor and the child and the child’s learning of the principles of solving the tasks. Interpretation of results focused

on instances of success and the performance peaks rather than average scores. Unlike the IQ approach that aims at predicting the child's future performance and using it for educational placement, Feuerstein proposed that cognitive assessment should aim at searching for the modifiability of individuals and the optimal conditions for such a change.

There are several differences in the dynamic assessment strategies based on Vygotsky's notion of ZPD and Feuerstein's learning potential assessment approach. Firstly, Feuerstein's approach focuses on the assessment of the "pure" cognitive functions, such as perception, attention, memory, and content-neutral problem-solving. Dynamic assessments based on the notion of ZPD are much broader and include in addition to cognitive functions also speech, reading, second language learning, and mathematical problem-solving. Secondly, Feuerstein's approach is more radical because it positions learning potential assessment as an alternative to IQ tests, while the ZPD approach perceives dynamic assessment as an addition to static assessment. Finally, ZPD-based dynamic assessments include a variety of learning-within-the-test techniques ranging from tightly scripted to more flexible, while Feuerstein's learning potential assessments are exclusively based on mediated interactions based on mediation criteria formulated by Feuerstein (Feuerstein et al, 1979).

3. The relationship between cognition and education

Traditionally cognition was understood as a prerequisite of successful learning in the formal educational contexts. Psychologists were expected to certify that the child's cognitive abilities are age-appropriate, while educators were expected to transmit to the child the content knowledge while relying on his or her age-appropriate cognitive functions. When a child's cognition was considered to be below the age norm such a child was sent to special education and ceased to be of interest to regular teachers. Such a situation effectively prevented the issue of cognition to be considered in the educational context. As long as children had a normative rate of development their education was operationalized exclusively in terms of curricular content and didactics of transmitting this content in the classroom. Over time, however, some «anomalies» started to challenge this separation of cognition and education. It was discovered, for example, that the cognitive task performance of seven-year-old children at the end of the first grade was higher than that of their peers who were only a month younger but for this reason still attended kindergarten rather than school. Formal schooling apparently made a significant impact on children's cognitive development. In addition, once the policy of educational inclusion started being implemented the question of cognitive functions of children with special needs placed in regular classrooms became of a practical concern not only to special educators. Finally, students' poor performance with any task that even slightly deviated from those already studied in the classroom has led some educators to argue that «teaching thinking» should become an integral part of the school curriculum. All these developments converged on the reformulation of the relationships between cognition and education including the following questions: What elements of formal education are crucial for the development of students' cognitive functions? Whether the current taxonomy of cognitive functions is adequate for the new goals of education? Should «teaching thinking» be a separate subject or should it be infused into existing curricular subjects? How to make teachers aware of the cognitive role played by the educational process?

Somewhat similar to the issues of cultural difference and the assessment of learning potential, the relationships between cognition and education preoccupied Vygotsky and Feuerstein several decades before they became a “hot” topic of pedagogical discussion. The Vygotskian educational model differs in principle from the typical educational approach that perceives cognitive development as a prerequisite of formal education. Vygotsky and his followers positioned the educational process as a source rather than a consequence of the development of cognitive and learning skills (Vygotsky, 1935/2011). According to Vygotsky’s model educational process should be constructed in such a way as to develop those psychological functions that will be required for the next educational step. Curricular material itself should be constructed in a way that promotes children’s cognition. As a result, the typical dichotomy between cognitive functions (the “how” of learning) and the curricular material (the “what” of learning) is eliminated.

Vygotsky proposed that such forms of educational activity as reading, writing, and mathematical operations should be considered on equal footing with other higher cognitive functions. Being internalized these activities transform children’s verbal, spatial or numerical cognition. In a sense, it would be incorrect to use the same term, for example, “verbal memory” to label a basic cognitive function of directly memorizing spoken words and a higher and much more complex cognitive function of verbal memorization shaped by reading and writing. The same applies to spatial, numerical, and other cognitive functions. In other words, reading, writing, and performing mathematical operations are neither the “content” of learning nor just prerequisite skills for getting access to the curricular content, they are activities leading to the radical restructuring of students’ cognitive functions.

The so-called curricular content itself, according to the Vygotskian model, should not be just “content” – it should appear in a conceptual form. Such a conceptual understanding of the curricular content is based on the distinction made by Vygotsky (1934/2012) and his followers between the so-called everyday and academic concepts (Davydov & Mochay, 2008). Vygotsky indicated that there is a significant difference, even conflict between spontaneous concepts that students acquire through their everyday experience and that might be adequate for daily life (e.g. “The sun rises in the morning”), and the corresponding academic concepts used for scientific and technological reasoning (“What appears as a sunrise is the result of the rotation of the Earth around its axis”). Children do not come to the classroom as a *tabula rasa* but bring with them their preexistent everyday concepts. The task of formal education is to help students acquire academic concepts and understand the difference between them and spontaneous everyday concepts. Vygotsky asserted that acquisition of academic concepts would not happen spontaneously without deliberate instructional activity. Such activity should be carried out in the students’ ZPD which is a psychological “space” where students’ experientially rich spontaneous concepts meet the teacher’s systemically organized academic concepts. The Vygotskian school curriculum is designed to form a basis for the development of subject-specific concepts leading to higher forms of reasoning – literary, mathematical, historical, etc. The gap between cognition (“how”) and content (“what”) is thus eliminated because a properly constructed and taught curriculum leads to the development of students’ higher cognitive functions associated with conceptual reasoning. Many of the issues related to the difference between everyday and academic concepts originally identified by Vygotsky re-emerged more recently in the context of educational debate about students’ “misconceptions” and “conceptual change” (for a review see Vosniadou, 2008).

Feuerstein approached the issue of the relationships between cognition and education from the point of view of cognitive prerequisites of formal education.

He was not ready to accept the stance prevalent at his time that every child with non-standard cognitive development should be sent to special education for the rest of his or her school years. In a sense, Feuerstein was one of the pioneers of the educational inclusion of children with special needs. The inclusion proposed by Feuerstein, however, was far from being just “geographic” as placement of children with special needs in a regular instead of special education classroom. Feuerstein insisted that for inclusion to be effective it should be “coupled” with a system of cognitive enrichment that prepares children with non-standard development for successful inclusion into regular education. Initially, such a program of cognitive enrichment (called “Instrumental Enrichment” - IE) was designed by Feuerstein for adolescents from immigrant families who were at risk of being placed in special education (see Feuerstein et al, 1980). The initial success of the IE with this population has led to further application of this program with other groups of students ranging from clinical populations (e.g. children with ASD) to regular students for whom IE is a cognitive enrichment rather than remediation program. Irrespective of the target population, IE has some unique features. Firstly, it focuses on the development of general cognitive skills, such as comparison, classification, planning, orientation in space and time rather than specific curriculum-related skills. Feuerstein constructed a special set of content-neutral exercises for the development of general cognitive skills. Secondly, the teaching of the program is performed by instructors specially trained in Feuerstein’s technique of mediated learning. Thirdly, the IE program is taught during lessons specially allocated for this purpose. Finally, the transfer of cognitive skills acquired during the IE lessons to curricular subjects is achieved via “bridging” exercises. An IE teacher is never just an IE specialist; in addition to giving IE lessons, such a teacher also continues to teach his or her curricular subject. Cognitive principles acquired and internalized by students during the IE lessons are further reinforced through their “bridging” to curricular tasks.

As we can see Vygotsky and Feuerstein approached the same problem of the relationships between cognition and education from two complementary sides. Vygotsky emphasized the need to redesign the school curriculum in such a way that each lesson has a cognitive goal. Feuerstein created a system of cognitive exercises that helps to remediate cognitive functions of students with special needs and enrich the thinking skills of typically developing students. Both approaches emphasized the cognitive aspect of education much earlier than mainstream education and psychology.

4. Conclusion

So, to what extent the “answers” given in Vygotsky’s and Feuerstein’s theories can guide us in the 21st century? The Feuerstein notions of cultural difference vs. cultural deprivation call for a more detailed exploration of mediation practices by the members of different socio-economic and cultural groups. At the same time, these concepts help to pose a new question about the ability of Western researchers to discern the patterns of indigenous mediated learning in non-Western cultures. The concept of cultural deprivation also sheds new light on the process of mediation and cultural transmission to children and adults with special needs including people who suffer from mental illness (Hadas-Lidor et al, 2018).

Vygotsky’s theory of symbolic tools offers a whole range of possible applications – from the conceptualization of the entire educational process as an acquisition of different “literacies” to the specific didactic methods of teaching students

the instrumental function of symbolic tools. It is not enough to teach students about such graphic organizers as tables, diagrams, and graphs; these organizers should become students' active inner cognitive instruments (tools) in gathering, organizing, and analyzing data. In a somewhat similar way, learning to read is not just a skill for decoding written sentences; when internalized reading becomes a new, literate way of thinking about life events.

In what concerns the assessment, different forms of dynamic testing already acquired a respectable place in academic research (Tzuriel, 2021). However, this cannot be said about their large-scale implementation in educational systems. These systems proved to be very conservative and still prefer static tests and exams. One may only hope that in the 21st century dynamic assessments will occupy their deserved place in both schools and clinics.

The cognitive approach in education appears to suffer from some form of "split personality". On the one hand, almost all school systems in economically developed countries mention the development of cognitive skills among their educational objectives. At the same time, a more detailed analysis of how such skills are developed in the classroom shows a rather blurred picture. There appears a considerable gap between cognitive skills rhetoric and the actual implementation of the cognitive skills programs in the classrooms. Though some progress has been made in implementing Vygotskian cognitive-educational approach in various countries (see Schmittau, 1993) it has been limited mainly to Vygotskian math curriculum for the primary school. It is clear that Vygotskian approach has much more to contribute to education in the 21st century.

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