Approaches and Models in Special Education and Rehabilitation

Belgrade 2020.

Approaches and Models in Special Education and Rehabilitation

THEMATIC COLLECTION OF INTERNATIONAL IMPORTANCE

Belgrade, 2020

Approaches and Models in Special Education and Rehabilitation
Thematic Collection of International Importance

Publisher
University of Belgrade – Faculty of Special Education and Rehabilitation
Publishing Center of the Faculty

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Proceedings will be published in electronic format CD.

Circulation 150

ISBN 978-86-6203-139-6

By decision no. 3/9 from March, 8th 2008. The Teaching and Research Council of the University of Belgrade – Faculty of Special Education and Rehabilitation initiated Edition: Monographs and papers.

By decision no. 3/63 from June, 30th 2020. The Teaching and Research Council of the University of Belgrade – Faculty of Special Education and Rehabilitation has given approval for the printing of Thematic Collection "Approaches and Models in Special Education and Rehabilitation".

THEORY OF LEV VYGOTSKY AS A FRAMEWORK FOR INCLUSIVE EDUCATION RESEARCH

Irena Stojković & Marija Jelić

University of Belgrade, Faculty of Special Education and Rehabilitation, Belgrade, Serbia

SUMMARY

Inclusive education practices are gaining in prominence in educational polices of many countries during the last decades since the Salamanca Statement in 1994. Parallel with that trend, a research field on factors contributing to inclusive education and its outcomes is expanding. However, this research field often lacks theoretical grounding. Theory of Lev Vygotsky is among theories of human development that has been mostly employed in this field of study. In the present chapter we review theoretical and empirical works that used theory of Vygotsky in the study of inclusive education. Next, we present findings of studies on the outcomes of inclusive education for students with special needs and for typically developing students in terms of academic achievement and development. Further, we relate the findings of these studies to the theory of Vygotsky. The review shows that theory of Vygotsky has been fruitful for investigating inclusive practice processes within a classroom. Further, it shows that lack of theoretical foundation of research on inclusive education which is characteristic for majority of studies in the field impairs meaningful interpretations of often inconsistent results. Further implementations of Vygotsky's theory would contribute to the development of this research field, and this, in turn, would contribute to further improvements in inclusive practice.

Key words: inclusive practice, theory of Lev Vygotsky, sociohistorical theory, children with special educational needs, typically developing children

INTRODUCTION

During the last decades, a trend towards inclusive education has been present in many countries worldwide. Inclusive education is seen as an element of inclusive society and is defined as "a process of addressing and responding to the diversity of needs of all learners through increasing participation in learning, cultures and communities, and reducing exclusion within and from education. It involves changes and modifications in content, approaches, structures and strategies, with a common vision which covers all children of the appropriate age range and a conviction that it is the responsibility of the regular system to educate all children" (UNESCO, 2005, p. 13). Inclusive education principles are conceptualized as being congruent with human rights which have been promoted in several United Nations declarations beginning with the Universal Declaration of Human Rights in 1948 (UN General Assembly, 1948). Among these declarations, the Salamanca Statement & Framework for Action on Special Needs Education (UNESCO, 1994) was the first with the explicit focus on promotion of inclusive education. It was adopted by representatives of ninety two countries in 1994, and has influenced education policy of many countries during the last decades, as stated

in 2019: "Since 1994, the Salamanca Conference has been the most important reference for public policies and social debates on special educational needs in most countries of the world. Today, it continues to guide the agenda of national and international inclusive policies" (Álvaro Marchesi, cited in Ainscow, Slee & Best, 2019, p. 674).

In the Salamanca Statement, principles of inclusive education have been derived from the framework of human rights. Further, the statement suggests the importance of empirical research, especially action research, and providing examples of good practice, for the promotion of practice of inclusive education. Indeed, since the introduction of inclusive educational trends in education policies of many countries a research field has began to expand focusing on effects of inclusive education on curriculum achievement, and cognitive and socio-emotional development of children and students. Paul and Ward (1996) distinguish two broad paradigms that guide theoretical and empirical research on inclusive education: the ethics paradigm and the comparison paradigm. The proponents of the ethics paradigm regard inclusive education as an ethical issue. They postulate that, in accordance with human rights view, it is ethically right to include children with special needs in mainstream schools. In their theoretical and empirical endeavors they aim to define factors which contribute to successful inclusive education, i.e. to positive outcomes of all students, both with disabilities and typically developing, within the mainstream education. According to our view, Salamanca Statement is derived from the ethics paradigm. On the other hand, the comparison paradigm orients research (mostly quantitative in nature) towards determining whether inclusive education settings or self-contained education settings are related to more positive outcomes in students.

The research on inclusive education within the comparison paradigm is expanding but at a slow rate. Furthermore, the research within the field often lacks theoretical grounds, i.e. it is oriented toward measuring outcomes of inclusive versus separated education without referring to theory/theories on which the research aims and questions are formulated and results interpreted. On the other hand, there are theoretical works which relate some of the prominent theories in field of developmental psychology to the problem of inclusive education.

The aim of the present paper is to consider the application of theory of Lev Vygotsky to the investigation of inclusive education. With that aim, we first review theoretical papers in which theory of Lev Vygotsky is applied to inclusive education. Next, we review empirical papers on inclusive education which used theory of Vygotsky as a framework. Next, we will present empirical findings on the outcomes of inclusive education that haven't been grounded in the theory of Vygotsky, and we will relate them to that theory. The studies which are included in the review were searched for using Ebsco host in the following databases: Ebook Academic Collection (EBSCOhost), Academic Search Premier, Eric and Masterfile Premier[a]. Also, some works were included in this review, which are not contained in those databases but we learnt of them through unsystematic literature search. For theoretical works, we used no limit regarding the time of publication. Regarding empirical works, we didn't include articles published before 1995, because we assumed that, due to socio-cultural changes over time, the

a In the review, the papers in English or French language are included. There were no papers in other languages, except a few articles in Russian, which could not be included because the authors of the chapter have no command of Russian language.

relevance of older studies for contemporary inclusive practice may be questioned. Since the Salamanca Statement in 1994 marked the beginning of intensified efforts towards inclusive education in many countries, we decided that the time period after it would be relevant for contemporary inclusion practice.

Theoretical works on implications of theory of Lev C. Vygotsky for Inclusive Education

The review of the literature shows that socio-cultural-historical theory of Lev S. Vygotsky was considered as relevant for inclusive education in several theoretical works. Indeed, Vygotsky himself provided some remarks on the inclusion of pupils with disabilities into mainstream schools. According to Gindis, "Vygotsky was equally critical of what he called the "unlawful segregation" of the disabled and "mindless mainstreaming" of children with special needs" (Gindis, 1999, p. 338). We will first briefly present some of the basic principles of the Vygotsky's theory of human development, and then we will turn to works in which the his theory is related to theoretical and empirical investigations of inclusive education.

For Vygotsky, the fundamental characteristic of psychological development is its embededness within the social and cultural millieu. According to Wertsch (1985) the core of Vygotsky's theory is based on the three principles: a reliance on developmental method; the claim that an individual's higher mental processes originate from social processes; and the claim that in order to understand mental processes, we must understand tools and signs that mediate them. Vygotsky makes a distinction between biological and cultural development. While biological development is common to humans and other animals, cultural development is distinctively human. The mechanism of cultural development is internalization of cultural tools and signs which occurs in the interaction between a child and adults who transmit to the child signs and tools as cultural achievements. Thus, social interaction is the crucial process through which a child develops so called "higher psychological functions", i.e. functions which are mediated by signs, such as reasoning, voluntary attention, voluntary memory etc. The most important mediator of higher mental functions is language as a comprehensive, conventional system of signs. Doolittle Vygotsky conceptualized cognitive development as a form of enculturation, or internalization of culture.

One of the core notions in the theory of Lev Vygotsky is the zone of proximal development. The notion is relevant both for teaching/education and for assessment of cognitive development. This notion has been most empirically investigated among the concepts from Vygotsky's theory. Vygotsky explained the zone of proximal development in one of his works in the following way: "The child is able to copy a series of actions which surpass his or her own capacities, but only within limits. By means of copying, the child is able to perform much better when together with and guided by adults than when left alone, and can do so with understanding and independently. The difference between the level of solved tasks that can be performed with adult guidance and help and the level of independently solved tasks is the zone of proximal development" (Vygotsky, 1982, according to Hedegaard, 1996, pp. 171-172). Thus, for social interaction to be conducive to acquisition of knowledge and to cognitive development, it is necessary that

it occurs at the level that is higher, but not much higher, than the actual level of cognitive functioning of the child, i.e. in the zone of proximal development. If social interaction were below the level of a child's immediate potential for further development, it would not promote its cognitive development. Likewise, if it were far beyond the child's potential for development in the actual moment, it could not "pull" child's cognition toward a higher level. The zone of proximal development can be operationalized as a distance between a child's mastery of a problem in cooperation with an adult or a more skillful or knowledgeable peer, and his unaided mastery of that problem. This meaning of zone of proximal development is relevant for dynamic assessment of psychological development and prediction of developmental potentials of a child.

According to Lave and Wenger (1996), the zone of proximal development has acquired three possible meanings from scholars interpreting Vygotsky's work. The first is the already presented interpretation which the authors denote as a "scaffolding" interpretation which has been most closely related to educational practice. The second is a "cultural" interpretation of the zone of proximal development as the distance between the cultural knowledge provided by the sociohistorical context and the everyday experience of individuals. The third, "collectivist", or "societal" interpretation views zone of proximal development as the distance between the everyday actions of the individuals and the historically new forms of the societal activity that can be collectively generated as a solution to the problems inherent in everyday life (Engeström 1987, according to Lave and Wenger, 1996). These three meanings of the zone of proximal development differ in the level of socio-cultural context that is seen as a factor of potential development of individuals. In the "scaffolding" meaning, that is the level of a direct interaction between persons in educational context, in the "cultural" interpretation it is the level of the broad sociohistorical context and possibilities that it provides for the development of individuals, whereas the "societal" interpretation includes historically new solutions and achievements that are born within society and that can be potentially internalized by individuals.

In numerous writings, Vygotsky dealt with problems of development and education of children with special needs. This was also the domain of his professional engagement. At the Moscow Institute of Psychology, he was the head of the section for the education of children who were physically disabled and of children with mental disability and he established a laboratory for the study of development of children with disability (Vygodskaya, 1999).

According to Vygotsky, cultural development of children with special needs is fundamentally identical to development of typically developing children. Whereas children may suffer in their biological development due to the impairment of some perceptive or motor functions, their cultural development, like in other children, is oriented toward enculturation, i.e. towards appropriation of cultural signs which, when internalized, provide a basis for higher mental functions in individual. The difference between children with and without special needs is in types of cultural sign systems which provide a basis for their higher mental functions. That is, children and adults with some form of impairment use specific cultural sign systems which were developed to be used depending on intact abilities, for example Braille alphabet for persons with visual impairments, or sign language for persons with auditory impairments. Further,

Vygotsky points that "handicap" does not ensue from the biological impairment per se, but from social responses to those impairments. Seeing in a person with some form of impairment only that impairment, without recognizing other potentials of the person, is the crucial problem of social and educational orientation towards children with disabilities which creates a "secondary defect".

Concerning the adequate educational setting for pupils with special needs, Vygotsky advocated their schooling within the mainstream schools. For example, he writes the following about schooling of children with blindness: "We shouldn't think about how, as early as possible, to isolate and exclude blind children from the life, but about how to include them in the life as early and as directly as possible. A blind child will have to live together with those who see, and because of that it should also learn in common school"[b] (Vigotski, 1996a, p. 64).

In her presentation of Vygotsky's views on education of children with special needs, Gindis (1999) points that he stresses the importance of employment of modified educational methods that are appropriate to compensate for pupils' particular disability. In the education of children with disabilities adapted modes of interaction and systems of signs as mediators are used in order to provide an alternative way of cultural development of a child. However, in order to cope with the problem of secondary handicap, which is not direct consequence of a disability, but is mediated through social attitudes toward a child, children should be included in mainstream socio-cultural context and mainstream schools as a part of that milieu. Gindis (1999) summarises Vygotsky's ideas on education of children with special needs as requiring specially trained teachers, an adapted curriculum, special technological auxiliary means and more time to learn. In a presentation of the contributions of Russian scholars from the early twentieth century to problems of inclusive education, Vygotsky's views on the need of a safe educational environment adapted to a child's characteristics is also highlighted (Akhmetova, Chelnokova, & Morozova, 2017). Gindis (1999) poses the question on how realistically these requirements can be met within a general classroom setting.

Besides regarding the possibilities to meet requirements for adapted educational methods, inclusive and segregated schooling of children with special needs differ in one more crucial point, and that is the peer group context. Whereas in segregated contexts, a peer group consists of children with the same type of impairments, an inclusive school setting includes a peer group of children with various developmental characteristics. Gindis (1999) points that according to Vygotsky, and further elaborations of his ideas by other scholars, a peer group is an important context of child development. In a paper "The role of collective in the development of a handicapped child" Vygotsky points to the natural tendencies of children to relate to children who are at a higher level of competence and suggests that social interaction between children of various levels and kinds of competencies (for example children with visual impairments and children who see) may lead to cognitive development in less competent children. Further, he agrees with Piaget that exchange of opinions between children who may hold different viewpoints in a form of providing arguments and proofs for one's own opinion and challenging opinions of another child contribute to development of reasoning in children (Vigotski, 1996).

b Translation by the authors of this chapter from a Serbian translation of Vygotsky's work.

When considering implications of Vygotsky's theory for inclusive education, Ivić (2014) starts from two crucial notions of that theory: the notion of cultural tools which support human mental powers and the notion of social interaction. Based on Vygotsky's understanding of the role of cultural and psychological tools in the cognitive functioning and cognitive development, Ivić suggests that one worthwhile area of scientific investigation would be to conduct an inventory of cultural and psychological tools which are available to pupils with specific impairments in inclusive setting as well as an inventory of those which can't be used by them due to their impairment. Next, attempts should be undertaken to determine the ways in which missing cultural and psychological tools could be compensated for, and "how a social and cultural infrastructure can be enriched as the bases for mental functioning of persons with developmental difficulties and for inclusive education" (Ivić, 2014, pp. 71-72).

Following Vygotsky's ideas on social interaction, and on didactic interaction as a special form of social interaction, Ivić (2014) points to three components of didactic interaction that take place in the classroom: didactic interaction between a teacher and a pupil, didactic interaction between pupils themselves, and didactic interaction between a pupil and products of culture cultural. The last of the three components was never elaborated by Vygotsky but is inherent to his theory according to Ivić who has called it "cultural interaction".

Didactic interaction between teachers and pupils is a form of asymmetrical social interaction, which may be a formative factor of child's development if it takes place in the zone of proximal development of a child according to Vygotsky's theory. Teachers bring to this interaction cultural tools, and knowledge and skills shaped by a culture which are interiorized by the child. Regarding inclusive education, Ivić stresses the importance of assuring participation of all pupils in didactic interactions with teacher, which depends on professional competence of a teacher. That is, teachers should organize classroom work in such a way that there is enough didactic interaction between teacher and each pupil within his/her zone of proximal development, because only in that way school achievement of all pupils would not be jeopardized.

The second form of didactic interaction which takes place in an inclusive classroom according to Ivić (2014) is didactic interaction between pupils themselves. Ivić also analyses social interaction between pupils which is not embedded in learning situations, but occurs outside these situations. The latter form of interaction may be beneficial for all pupils in an inclusive setting. Children without disabilities develop acceptance of differences and solidarity, while for children with disabilities this interaction brings reduction of social isolation. However, for the effects of social interaction with peers in an inclusive setting to be positive for all pupils in the sphere of their social development, Ivić points to the importance of eliminating the possibility of discrimination and exclusion of children with disabilities.

When analyzing didactic interaction between pupils in an inclusive classroom, Ivić (2014) points that this interaction may differ depending on specific impairments and type of learning activity. In situations in which pupil's levels of competences do not differ largely, independently of whether they have disabilities or not, didactic interaction between pupils may be fruitful, based on exchange of different experiences. However, Ivić points to some problems which may arise in learning situations in which there is a

gap between competencies of children with special needs and other children. In these cases, although children with disabilities may benefit in terms of cognitive development and acquisition of knowledge through didactic interaction with more competent peers, cognitive development and school achievement of children without disabilities may be endangered. Also, Ivić points to the potential problem of a dominating attitude of children without disabilities toward peers with disabilities during their didactic interaction which may lead to marginalization and passivity in children with disability.

Empirical research on inclusive education and theory of Lev Vygotsky

Our search of the literature yielded two empirical studies on inclusive education which employed Vygotsky's theory as a framework. In their action-oriented study on collaborative work within inclusive classroom, César and Santos (2006) explored the following issues using ethnographic method: inclusivity in students' talk during collaborative work within mathematics classes; contribution of collaborative work with peers to appropriation of mathematical knowledge and to the development of higher mental functions; the role of the didactic contract (which defines mutual expectations of those involved in collaborative work) in the promotion of knowledge appropriation; and whether there is an impact of working collaboratively with peers over several school years on students' identities and life projects. Based on the obtained data, the authors conclude that collaborative work had beneficial effects for all students. A student with special educational needs showed the following advancements over time: his self-esteem and mathematics performance improved, as well as his comptenece to follow the strategy of solving problems of his group, and his motivation to be a legitimate participant of his classroom's learning community, i. e. motivation to accept responsibility, work hard and know how to interact with different peers have also increased. Pupils without special educational needs through collaborative work with their peer with special educational needs also developed their social and cognitive competencies. For example, one student reports that her undesrtanding of social settings and interactions, and her power to change them increaesed over time. The authors conclude that collaborative work in an inclusive setting contributed to the development of cognitive, and social competencies, and to affective changes such as more respect and acceptance towards diversity in all pupils.

In an also ethnographic study on an example of a good inclusive practice of a primary school teacher in Norway, Flem, Moen and Gudmundsdottir (2004) employed the sociocultural theoretical framework developed by Vygotsky and his followers, among others Bakhtin, Tharp and Gallimore (1988). The main themes the authors concentreted on, in understanding the learning preocesses within the inclusive classroom, are cognitive learning processes and social learning processes. They also investigated collaboration processes between teacher and other school and community professionals involved in the process of education in the school. Starting from Vygotsky's concept of the zone of proximal development, and the concept of scaffolding which refers to processes underlying acquisition of knowledge and competences within the zone of proximal development (Tharp & Gallimore, 1988), the authors analysed how interaction between teacher and pupils made a foundation for children's cognitive and

social development. Scaffolding of pupils' learning by the teacher consisted of modelling, contingency management, providing feedback, and instruction related to questions and cognitive structuring. The study provides examples of cognitive and social interaction within the classroom in which the authors recognized developmental process from other-regulation to self-regulation, which is also an important concept of Vygotsky's theory. That is, initially the teacher structures an activity, and subsequently pupils undertake more and more responsibility and internalize the processes of regulation, i.e. they develop self-regulation. The two presented studies exemplify how the theory of Vygotksy and its further elaborations within sociocultural theoretical framework may be fruitful for understanding inclusive education teaching/learning processes.

In the following, we will review empirical studies on the effects of inclusive education on school achievement and cognitive development of primary and secondary school pupils with and without disabilities and we will relate their findings to Vygotsky's theory of psychological development. We decided to focus on academic achievement and cognitive developemnt because acquisition of knowledge and cognitive development are at the core of Vygotsky's theory.

Studies on the effects of inclusive education on academic achievement and cognitive development of children with special educational needs

Studies comparing academic achievement of pupils with special needs in segragated and general aducational schools have yielded mixed results: while some of them suggest positive effects of inclusive education, others suggest no clear-cut differences between the two educational settings in terms of academic achievement of pupils.

Positive effects of inclusive education were established in two studies from Norway and one study from USA omn middle school students. In a Norwegian longitudinal study following pupils with special educational needs during upper secondary school education, it was shown that students in special classes had lower school achievement than students in ordinary classes. Moreover, an increase in the amount of special education for students with special needs in ordinary classes showed a negative effect on their achievement (Markussen, 2004). One more study of secondary upper students in Norway also suggests positive effects of inclusive education for pupils with special educational needs: pupils who were thaught in ordinary classes during first year of upper secondary education, showed better academic achievement over time than pupils who were thaugh in segragated groups. However, the results are not completely in favour of inclusive education, because the latter group of pupils had a higher drop-out rate (Myklebust, 2002). Rea, McLaughlin and Walther-Thomas (2002) compared two groups of 8th grade middle school students with learning disabilities, who did not significantly differ in educational history, socioeconomic status and intelligence quotient, attending inclusive and pull-out educational programs in two suburban schools in USA. In inclusive program pupils received special education support within general classroom, while in the pull-out program students received special education outside the general classroom during some of the classes, i.e. they missed some of the general education classes. Pupils in inclusive program had higher grades than pupils in pull-out program in all school subjects (language, arts, science, mathematics, and social

sciences), and they outperformed them or had comparable results on standardized tests of academic achievement in various subjects.

In a Dutch representative sample of primary school pupils mostly no differences were established in terms of academic achievement and non-verbal intelligence between pupils with special educational needs attending inclusive education and two types of special schools: schools for students with learning and behavioral difficulties, and schools for mildly mentally retarded children (Karsten, Peetsma, Roeleveld, & Vergeer, 2001). There was an indication that pupils in inclusive schools made more progress in mathematics over time than pupils in special education for students with learning and behavioral difficulties. Further, it was shown that it both types of education, the number of pupils who showed improvement was comparable to number of pupils who showed deterioration in functioning over time.

A review of studies by Ruijs and Peetsma (2009) showed neutral to positive effects of inclusive education on academic achievement of pupils with special needs. Similarly, but with more caution, Lindsay (2007) in another review study concludes that the reviewed evidence does not clearly support positive effects of inclusion, because a small number of studies which addressed effectiveness yielded marginally positive effects of inclusive education.

Studies on the effects of inclusive education on academic achievement and cognitive development of children without special educational needs

Several studies established that inclusion of pupils with special educational needs in general schools does not affect academic achievement of typically developing students. Demeris, Childs and Jordan (2007) report that the number of students with special needs in grade-3 classrooms is slightly positively, but significantly correlated with average class achievement scores in reading, writing and mathematics. The authors conclude that inclusive education has no negative impact on achievement of typically developing pupils. Huber, Rosenfeld and Fiorello (2001) report that inclusion of pupils with various types of disabilities did not affect academic achievement in reading and mathematics of pupils without disabilities. Ruijs, Veen and Peetsma (2010) report based on a representative sample of primary school pupils in Netherlands that pupils without special education needs in inclusive classrooms do not differ in terms of achievement in language and arithmetic from children in non-inclusive classrooms.

There are studies which report some negative effects of inclusion on academic achievement of students without special needs. For example, Dyson et al., (2004) report a very small negative relationship between inclusion and achievement at the school level with the relationship being more pronounced in secondary than in primary schools. However, the authors assume that the stated relationship is not of a causal nature. Huber, Rosenfeld and Fiorello (2001) established that among students without special educational needs those who had lower academic skills before implementation of inclusive practices benefited from these practices while the achievement of students with higher skills was deteriorated with the implementation of inclusion. Also, this study found that over two years of inclusive practice, reading scores dropped, while math scores increased on average.

A review of twenty six studies by Kalambouka, Farrell, Dyson and Kaplan (2005, according to Demeris, Childs & Jordan, 2007) showed that a slightly more than a half of studies indicated no effect of inclusion on academic achievement and psychosocial functioning of students without special educational needs, while other studies reported either positive, or negative, or mixed effect. This inconsistency of results can, among other factors, be explained by the fact that there are many types of inclusive practices which may differ in their effects.

Theory of Vygotsky and studies on the effects of inclusive education

The reviewed studies on the effects of inclusive education relatively rarely explored the processes of teaching and learning within the inclusive settings. Studies which analysed those processes consistently suggest that differentiated approach to students is beneficial for academic achievement of all pupils (e. g. Demeris, Childs & Jordan, 2007; Dyson et al., 2004). This may be related to Vygotsky's claims on the im,portance of social interaction within the zone of proximal development for cognitive development. This can also provide the explanation for the negative impact of inclusive practices on achievement of students without special educational needs with higher academic competencies (Huber, Rosenfeld and Fiorello, 2001). We assume that studying processes within the framework of theory of Vygotsky would help to resolve at least some inconsistencies in findings on effects of inclusive education.

CONCLUSION

Among theories of psychological development, theory of Lev Vygotsky was the most employed in the study of inclusive education. However, the potential of the theory can be much more utilized in this field of study. Lindsay (2007) pointed out that majority of studies in the field haven't investigated more refined measures of inclusive practices such as classroom processes, resources and curricula. Vygotsky's theory provides a rich framework for future investigation of these questions.

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