Vygotsky's sociocultural theory in the context of globalisation

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Abstract

The article reviews the social-educational theorisation of the early Soviet psychologist L. S. Vygotsky (1896-1934) in the light of the impact of communicative globalisation in educational practice. Vygotsky proposed four 'genetic domains' for investigating higher cognitive processes: the phylogenetic (humans undergoing natural evolution), the cultural-historical (social activity of humans), the ontogenetic (individual lifespan) and the microgenetic (immediate events). Vygotskian sociocultural theory is widely used in educational research, especially Vygotsky's notion of mediated development via tools and signs. Since Vygotsky communicative globalisation has transformed educational potentials. Nevertheless, provided adjustments are made to Vygotsky's genetic method to incorporate time-space compression, the mutual presence of the genetic domains, and the glonacal heuristic (Marginson & Rhoades, 2002), Vygotskian theory continues to be useful in socially-situated investigations of educational development and transformation, and opens another way into the global, for example investigation of the role of global mediation in learning.

Keywords

Vygotsky, Sociocultural theory, Genetic method, Mediation, Globalisation, Global theory.

Introduction

This paper revisits L. S. Vygotsky's (1896-1934) sociocultural theory of the mind and learning, which situated individual mentality in a larger cultural-historical setting. While Vygotsky's ideas continue to be influential in education research—sociocultural theory is an important strand of learning theory—the cultural-historical circumstances have changed. Much human development now takes place in settings in which spatiality has been pluralized and global activity and imaginaries are omnipresent, alongside more locally-bound activities. The paper reflects on the potential contribution of Vygotsky's ideas in research into educational phenomena in a more globally connective world. It suggests modifications in Vygotsky's theorisation to incorporate contemporary global spatiality, facilitating a Vygotskian approach to the study of global mediations and global imaginings.

L. S. Vygotsky and the context of his work

The years 1910-1930, including the October 1917 revolution and the early Soviet years, were an unusually creative period in Russia, in many domains. Some intellectuals and artists felt themselves especially free to imagine new possibilities; and after 1917 there was a post-revolutionary confidence that Russians could make a new society, new humans and new knowledge. The achievements of that time and their genesis in social upheaval are now under-recognized; for by 1930 the Soviet regime had solidified into a police state where public conformity was essential to survival and the open conditions that had encouraged innovation had been shut down. Yet pre-revolutionary and early Soviet works and ideas, though extinguished in Russia, continued to percolate globally and influenced developments in many fields.

Path-breakers included the many branches of the Russian avante-garde in art, such as the 1917 Prolekult movement that set out to create a revolutionary socialist aesthetic while sustaining autonomy from the regime, and Constructivism, a post-1917 extension of Futurism which insisted that creative work must have social purpose. There was the poetry of Vladimir Mayakovsky, and the Moscow film school founded in 1919, the Gerasimov Institute of Cinematography. Its lecturers included the director Sergei Eisenstein, whose *Battleship Potemkin* (1925) and *October* (1927) were profoundly influential. In economics there was Yevgeni Preobrazhensky, whose doctrine of primitive social accumulation in industry was partly implemented by Stalin in the 1930s, though Preobrazhensky was executed in 1937. In psychology there was L.S. Vygotsky. The Soviet regime saw science as key to catch-up with the West and for a time scientists enjoyed more license than artists or poets.

Lev Semyonovich Vygotsky was admitted to Moscow State University when the ban on Jews was lifted and graduated in law in 1917. His first interests were language and literature, although he picked up knowledge in philosophy and many scientific fields. His career as a psychologist lasted only from 1924 till his death from tuberculosis at 37 in 1934. In that time he carried out an extensive research program on higher mental functioning, studied medicine, produced many papers, and gathered a group of young psychologists, including A. N. Leont'ev (or Leontiev), who later developed sociocultural activity theory on the basis of his reading of Vygotsky (Engeström, 1999, pp. 19-20). In his last years Vygotsky was

accused of individualism and blamed for mass intelligence testing, which he opposed. Two years after his death the Pedology Degree banned research on child development and suppressed Vygotsky's works and all Psychology journals (Smagorinsky, 2009, p. 88).

Since 1960 Vygotsky and sociocultural theory have received growing attention outside Russia. Following Leont'ev's 'second stage' interpretation of Vygotsky, Yrjo Engeström (1999) has led development of a 'third stage' in studies of 'expansive learning'. The influence of sociocultural theory continues to grow, especially in educational research. Arguably, by uniting the social and individual realms in psychology, Vygotsky's work provides an alternative to the high individualism that has dominated psychology in English speaking countries and Western Europe, filling a gap in the social sciences. It is significant that Vygotsky remains relevant while near contemporaries such as Ivan Pavlov and William James have largely slipped from sight.

Vygotskian theory had roots in German philosophy from Kant to Hegel, and Marx and Engels. From Marx he drew his methodological approach, grounded in the 'philosophy of internal relations' (Ortell, 2015) that Marx had adapted from Hegel and was the foundation of Marx's dialectical method. Using this approach the world was understood in terms of internally related contradictions, unfolding over time; and the process of scientific investigation proceeded by successive abstractions in which social relations were broken up into the parts best suited to study them. Vygotsky's research was focused on practical applications to education and medicine. The research program was ambitious, ranging from the neurological mechanisms underlying mental functions to the evolution of social language in historical settings, where he drew on sociological and anthropological accounts. Vygotsky did not achieve all that he wanted, but decisively refuted the psychological ideas that higher mental functions could be understood in terms of laws of simple stimulus-response, and human development was solely a function of individual maturation. By situating human mentality in four interrelated genetic domains, each at a different level of abstraction, Vygotsky was ' the first modern psychologist to suggest the mechanisms by which culture becomes part of each person's nature'. In his notion that the mind 'should be understood in terms of a Marxist theory of the history of human society, he laid the foundation for a unified behavioural science' (Cole & Scribner, 1978, p. 6).

Socially-situated mentality

Vygotsky emphasized 'the dominant role of social experience in human development' (1978, p. 22). For him frameworks of thought were social in origin and 'internalized through cultural practice' (Smagorinsky, 2009, p. 85). The child's early speech was designed to make contact with others and join the social conversation. In the experience of speech community the child's mind was patterned and the child learned to work with her/his own mind. 'The true development of thinking is not from the individual to the social, but from the social to the individual' (Vygotsky, 1986, p. 36). '*An interpersonal process is transformed into an intrapersonal one.* Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level (1978, p. 57, original emphasis).

> "Any higher mental function was external because it was special at some point before becoming an internal, truly mental function. It was first a social relation between two people. The means of influencing oneself were originally means of influencing others or others' means of influencing an individual' " (Vygotsky, 1981b, p. 162).

'"Consciousness is co-knowledge", as Vygotsky loved to say' (Leontiev, 1981, pp. 56-57). Yet Vygotsky also foregrounded the potentials of individual autonomy. For him the subject of psychology was the relational individual. His Zone of Proximal Development (ZPD) referred to the distance between what a child could achieve alone, for example in solving problems, and what the child could do with the assistance of adults or more capable peers. Vygotsky's ZPD—unlike some later adopters of ZPD—was nested in a sociocultural context in which humans were the subjects of sociohistorical and natural (biological) evolution, mediated by artifacts.

Mediation via artifacts

Vygotsky's notion of the role of mediating artifacts in thought and its development, which was central to his psychological research, has been especially formative in post-Vygotskian studies. In Bakhurst's (2009, p. 199) description of mediation: 'human behaviour is not simply called forth by stimuli', nor governed entirely from within. It is mediated by externalized artifacts 'created to prompt or modulate action' (see also Engeström, 1999, p. 29). These artifacts are both physical and psychological. Figure 1 is Vygotsky's diagrammatic description of mediation. S is the primary stimulus. Mediation, the 'X' factor, is the auxiliary or secondary stimulus deployed by the subject to secure response R.

Figure 1 about here

Source: adapted from Vygotsky, 1978, p. 40

Vygotsky's first example was that of a person who ties a knot in a handkerchief to remember something. The handkerchief was a mediating tool. (Another example is the 'to-do' list a person compiles, in order to master time and self-will). Vygotsky distinguished 'tools' used to work on nature from 'signs' people used to order and transform themselves. Signs included 'language, various systems for counting; mnemonic techniques, algebraic symbol systems; works of art; writing; diagrams, maps, and mechanical drawings; all sorts of conventional signs; etc.' (Vygotsky, 1981a, p. 137). The distinction lay in 'the different ways that they orient human behaviour'. The tool was 'externally oriented; it must lead to changes in objects' and assist the mastery of nature. It was largely unidirectional, and its effects on the mind were secondary. But the sign was 'internally oriented', 'a means of internal activity aimed at mastering oneself' (Vygotsky, 1978, p. 55). It was bi-directional, on the one hand shaping social activities, relations and the behaviour of others; and on the other hand, regulating the mental capacities and activities of the self.[1] The structure of mediation was the same, the outcome was distinct.

> "The person, using the power of things or stimuli, controls his own behavior through

> them, grouping them, putting them together, sorting them… the great uniqueness of the will consists of man having no power over his own behavior other than the power that things have over his behavior. But man subjects to himself the power of things over behavior, makes them serve his own purposes and controls that power as he wants. He changes the environment with the external activity and in this way affects his own behavior, subjecting it to his own authority." (Vygotsky, 1997, p. 212)

And more specifically in relation to signs:

> "In the higher forms of human behaviour, the individual actively modifies the stimulus situation as part of the process of responding to it … Because this auxiliary stimulus possesses the specific function of reverse action, it transfers the psychological operation to higher and qualitatively new forms and permits humans, by the aid of extrinsic stimuli, to control their behaviour from the outside. The use of signs leads humans to a specific structure of behaviour that breaks away from biological development and creates new forms of a culturally based psychological process." (Vygotsky, 1978, p. 14 & p. 40)

Vygotsky saw psychological artifacts as social and artificial formations rather than individual and organic. They changed according to the cultural development of society. Vygotsky repeatedly emphasised the role of mediation in the development of reflexive self-determining human agency, or 'active adaptation' (Vygotsky, 1981b, pp. 151-2). Humans internalized their own evolution while securing change in their environment, remaking both their conditions of existence and themselves (Roth, 2004, pp. 1-2; Smagorinsky, 2009, p. 84 & p. 87). Mediating artifacts are tools of empowerment that taken together can be used to identify a particular culture (p. 89).

The genetic method

Vygotsky shared with Hegel, Marx and Engels the notion that all phenomena are in motion and subject to continuous change (Vygotsky, 1978, p. 61), and should be investigated in terms of their origins and development. As he saw it 'the mechanism of individual developmental change is rooted in society and culture'. Changes in society enable changes in human consciousness and behaviour (Cole & Scribner, 1978, p. 7). Because we inherit cultural artifacts from our ancestors, who inherited those artifacts from their ancestors, 'behaviour can only be understood as the history of behaviour' (Vygotsky, 1981a, p. 141; Lantolf, 2000).

> "Cultural mediation implies a species-specific mode of developmental change in which the accomplishments of prior generations are cumulated in the present as the specifically human part of the environment; culture is, in this sense, history in the present." (Cole & Engeström, 1993, p. 9)

Following Blonsky, Vygotsky stated that 'everyday human behaviour can be understood only by disclosing the presence of four general fundamental genetic stages

through which behavioural development passes' (1981b, p. 156). He uses the term 'genetic method' to describe this theorisation (Lantolf & Appel, 1994; Lantolf, 2000; Cross, 2006). 'Geneticism' is the notion that the individual's form and behaviour can be explained in terms of the history of both the individual and the species). Vygotsky's four simultaneous genetic domains were the phylogenetic, sociocultural, ontogenetic and microgenetic. Cole and Engeström (1993) represent the relationship between the domains as in Figure 2:

Figure 2 about here

Source: adapted from Coles and Engeström, 1993, p. 20

It was a multi-layered framing of the context of psychology. Cross (2006) explains:

> "The phylogenetic domain concerns the nature of human development as a 'natural' species over the course of evolution; that is, the biological basis for human development. In contrast, the cultural-historic [sociocultural] domain is concerned with the development of the 'external' world within which human activity unfolds; that is, the social, cultural, and historic basis for development…. The third domain, ontogenesis, therefore, shifts the focus… to an understanding of the development of 'the human' across an individual lifespan [as they mature]…The microgenetic domain… focuses on specific, momentary fragments of development." (Cross, 2006, pp. 88-90)

Vygotsky imagined relations between the phylogenetic domain of nature, and human society in the cultural-historic domain, in Hegelian and ecological terms. 'The dialectical approach, while admitting the influence of nature on man, asserts that man, in turn, affects nature and creates through his changes in nature new natural conditions for his existence' (Vygotsky, 1978, p. 60). Likewise, Vygotsky modelled the formation of the child as a continuing interaction between biological and sociocultural developments. The relation between the two was not uni-directional but dialectical. 'The process of the historical development of human behaviour and the process of evolution do not coincide; one is not a continuation of the other' (Vygotsky, 1960, in Cole & Engeström, 1993, p. 4). The 'different lines' were 'interlaced' at each stage (Vygotsky, 1978, p. 123). Vygotsky eschewed naturalistic explanations, unlike Piaget who specified universal biologically mandated stages of child development. Humans created culture, their own artificial environment, which modified evolutionary determinism.

When the ontogenetic domain—the domain of the individual life—was brought into the picture, Vygotsky's individual interacted with the social (cultural-historical) domain, in the dialectic of subject and society. 'The idea of humans as social' is now familiar to many research programs, more than in Vygotsky's time (Bakhurst, 2009, p. 198), when mediation opened a new world. 'Mediation by tools and signs is not merely a psychological idea. It is an idea that breaks down the Cartesian walls that isolate the individual mind from the culture and the society' (Engeström, 1999, p. 29). The genetic method allowed Vygotsky to pursue bounded studies in particular microgenetic moments or sites. At the same time genetic theory was also holistic and integrative, taking in the sciences, social sciences and language. There was room for system, locality, diversity and contingency, enabling new phenomena to be observed.

Vygotsky's ontology

It can be argued that the concept of self-transformation via mediating artifacts, nested in social and cultural contexts that nurture individual development—contexts that are continuously accessible to change through human action—closes the dualism between structure and agency that dogs the social sciences (Sayer, 2000). This 'opens the way for the development of a non-deterministic account in which mediation serve as the means whereby the individual acts upon and is acted upon by social, cultural and historical factors' (Daniels, 2001, p. 14). The power to create self and circumstance is not infinite. Humans adjust desire and action to fit their conditions of existence. As Vygotsky notes in relation to child development: 'Needs do not exist independently of adaptation' (1978, p. 77). Nevertheless, one of the hallmarks of Vygotsky's thought is the space for self-creation and social creation. His quasi-Lamarckian notion of humans who evolve by working on themselves, within the conditions of their history, recalls not only Marx's famous opening to *The 18th Brumaire of Louis Bonaparte* (1852/1969, p. 398), but also the comment by Nikolas Rose in *Powers of Freedom* (1999). 'We do not know what we are capable of', states Rose. But we do know that 'our history has produced a creature with the capacity to act upon its limits' (p. 96).

Inevitably, Vygotsky was attacked for both social determinism and ultra voluntarism. Because he kept both ends of the dialectic alive he was a target for any ideologist who chose to work with only one. Vygotsky was not an ideologist but a realist, more interested in the world as it was than idealized versions of it. 'Vygotsky always insisted that neither consciousness nor meaning underlies life; rather, life underlies consciousness' (Leontiev, 1981, pp. 56-7). That is not to say Vygotsky eschewed all preconceptions about the future course of history. His notions of both human and social development were at one and the same time reproductive, non-linear and transformational. 'Development, as so often happens, proceeds here … in a spiral, passing through the same point at each revolution, while advancing to a higher level' (Vygotsky, 1978, p. 56). As he saw it, incremental progression coexisted with non-linear moments, transformative leaps:

> "Our concept of development implies a rejection of the frequently held view that cognitive development results from the gradual accumulation of separate changes. We believe that child development is a complex dialectical process characterized by periodicity, unevenness in the development of different functions, metamorphosis or qualitative transformation of one form into another, intertwining of external and internal factors, and adaptive processes which overcome impediments that the child encounters. Steeped in the notion of evolutionary change, most workers in child psychology ignore those turning points, those spasmodic and revolutionary changes that are so frequent in the history of child development. To the naive mind, revolution and evolution seem incompatible and historic development continues only so long as it follows a straight line. Where upheavals occur, where the historical fabric is ruptured, the naive mind sees only catastrophe, gaps, and discontinuity. History seems to stop dead, until it once again takes the direct, linear path of development." (Vygotsky, 1978, p. 73)

'Revolution and evolution … (are) two mutually connected forms of development that presuppose one another' (Vygotsky, 1981b, p. 150). This recalls also Stephen J. Gould's (2002) notion of 'punctuated evolution', natural transformations that occur in fits and starts. Long periods of stasis or slow change are succeeded by species innovations or catastrophic environmental events that trigger a burst of development all round, as in the Cambrian explosion discussed by Gould, or after major extinctions. Eventually the evolutionary niches are filled and things settle, changing at a much slower pace (chapter 9). Vygotsky's mix of the linear and the non-linear also recalls Michel Foucault's (1972) emphasis on historical disjuncture, fragmentation and non linear patterns within a semi-bounded whole, Arjun Appadurai's (1996) idea of semi-open structures in cultural globalisation, and Andrew Sayer's (2000) critical realist argument against regularity in causal social relations.

Nevertheless Vygotsky did not leave everything perpetually open. He was an empirical social scientist. All empirical observation and data-based analysis necessarily involve closure. The power of empirical methods lies precisely in their heroic simplification, whereby they confine the lens to selected ideas and phenomena, concentrating significance on a temporary basis. The question is how to secure the observational and explanatory benefits of empirical inquiry while reducing the intellectual costs of closure. One way is to be modest about the generic claims arising from particular studies. Just as he conceived history as a combination of linear and non-linear change, so Vygotsky refused to impose the structure of one bounded inquiry on all possible inquiry. His chosen empirical methods were historically nested and purpose built within a partly open theoretical horizon. As John-Steiner and Souberman summarize his position in their 'Afterword' to Vygotsky's *Mind in Society*:

> "Vygotsky argues that because the historical conditions which determine to a large extent the opportunities for human experience are constantly changing, there can be no universal schema that adequately represents the dynamic relation between internal and external aspects of development." (Vygotsky, 1978, Afterword, by John-Steiner & Souberman, p. 125)

This again recalls Marx's method; the manner in which his key concepts evolve over time in both the course of analysis and the flow of history. Though the notion of mediation was at the heart of his work, Vygotsky evaded the kind of universal theory that closes off the potential for new observations, ideas and theories to emerge. His approach to the genetic method enabled him to be at one and the same time (1) empirically bound, and coherent in selective inquiries, (2) comprehensively explanatory, and (3) partly open theoretically. Activity theory after Vygotsky has been criticised for an inclination to focus on (1), using closed models of activity systems (see Bakhurst, 2009, pp. 206-207). There was to be less inquiry into origins and development. But our focus here is not the evolution of cultural-historical psychological theory and research between Vygotsky and today, though that is an interesting topic. Our focus is on Vygotsky *and* today—specifically, the conjunction of Vygotskian theory and the more global spatiality that has emerged in the Internet era.

Global spatiality

For Vygotsky, time was a more important variable than space. Like his contemporaries he worked in a setting that despite the cross-border flow of ideas was in large part nationally-bound. Foreign intellectual influences had weight but were non proximate, being transferred into the microgenetic domain from outside rather than being an intrinsic part of it. This Vygotskian spatiality has now been transformed by communicative globalization, which has expanded and intensified the social conditions of mentality, including mediation.

The 1960s cosmonauts and astronauts beamed back the unforgettable image of the blue-green Earth floating in space. The common vision of a singular interdependent planet soon became manifest in the ecological movement (Marginson, 2010b). Then from 1990 onwards communication and information technologies began to create a synchronous worldwide mental landscape. This has spread with astonishing speed. Whereas only 2 per cent of the world's population was engaged in Internet-mediated communication in 1997, by 30 June 2015 the figure was 45 per cent, though it varied from 87.9 per cent in North America to 27.0 per cent in Africa. Internet users increased from 361.0 million people in the year 2000 to 3270.5 million in 2015 (Internet World Stats, 2015). In 2012 the World Bank estimated that judging by the number of subscriptions, mobile phone use had reached *three quarters* of the world's population, including some classified as very poor. Networks were doubling in bandwidth every 18 months and spreading through rural areas (World Bank, 2012).

Satellite communications and the Internet enable relatively low cost forms of cross-border association in real time capable of carrying more complex data and richer reciprocal interactions than were enabled by the telegraph in the nineteenth century and the telephone in the twentieth century. Electronic communications are also distinguished by their synchrony from earlier technologies, such as printing press, with global spatial reach. In the global communicative setting, an increasing proportion of people—primarily those with full access to the necessary infrastructure, hardware and software—to live their lives within global space simultaneously with living in local space. Amid the process of time-space compression (Harvey, 1990), national borders became more porous, global seeing and imagining secured a growing presence in local matters, and local activities became routinely referenced to other sites. In short, for a growing minority, global-cultural being has come to exist alongside national-cultural being and microgenetic being. Along with more intensive and extensive cross-border travel, the new temporality-spatiality has accelerated the growth of world markets, and global artifacts and social forms. Increasingly, those people that have virtual and physical mobility, living in plural locations, come to sustain multiple and hybrid identities. Technologies of global comparison, standards and systems are gaining a growing potency (e.g. of many Appadurai, 1996; Sen, 1999; Held, McGlew, Goldblatt & Perraton, 1999; Castells, 2000; Marginson 2010a; 2011a; 2014a).

Globalisation, the processes of world convergence and partial integration, is so ubiquitous as to be taken for granted. It has not dissolved the nation-state that Vygotsky experienced but it has changed the conditions of that state. Consider education policy, which is still primarily governed by nations. Policy discourse is often framed by global agencies. Governments are continually aware of global comparisons of performance like the Organisation for Economic Cooperation and Development's (OECD's) comparison of 15-year old learning achievement, PISA, which drives reforms in schooling systems. Global university rankings and standards impact research policy and institutional strategies (Hazelkorn, 2014; King, 2011). Cross-border policy borrowing, long part of education, has reached a new intensity. 'Policy is multi-dimensional and multi-layered and occurs at

multiple sites' (Rizvi & Lingard 2010, p. 14). Likewise the policies and strategies of individual research universities must now be effective in each of the global, national and local dimensions of action, dimensions that each involve distinctive (and overlapping, contradictory and often synchronous) meditations, mentalities and activities.

In a prescient early theorisation of cultural globalisation Appadurai (1996, p. 33) examines five dimensions of cross-border global cultural flows or 'scapes': flows of people (ethnoscapes), communications and knowledge (mediascapes), ideas (ideoscapes), technologies (technoscapes), and money (financescapes). Rizvi and Lingard (2010) add 'policyscapes'. Cultural globalisation is manifest in 'a complex, overlapping, and disjunctive order' rather than linear processes (p. 32). There are both correspondences and disjunctures between the scapes. 'The sheer speed, scale, and volume of each of these flows are now so great that the disjunctures have become central to the politics of global culture' (p. 37). 'The loosening of the holds between people, wealth, and territories fundamentally alters the basis of cultural reproduction' (p. 49). The rapidly growing minority engaged in global communications, which includes many if not most educational professionals and tertiary-level students, enjoy an expanded freedom to shape themselves via virtual forms of mobility and mediation. Computers and mobile phones constitute single nodes in an inter-subjective speech community with great reach. There are many different speech communities operating simultaneously. Migrating populations, who have lived experience in more than one location, link their sites using global media. Appadurai's global scapes are resources for self-formation, 'building blocks' of multiple 'imagined worlds' that are constituted by 'the historically situated imaginations of persons and groups spread around the globe' (p. 33).

> "More persons throughout the world see their lives through the prisms of the possible lives offered by mass media in all their forms. That is, fantasy is now a social practice, it enters, in a host of ways, into the fabrication of social lives for many people in many societies… ordinary lives today are more often powered not by the givenness of things but the possibilities that the media … suggest are available." (Appadurai, 1996, pp. 54-55)

Though this imagining is not universal 'many persons on the globe live in such imagined worlds… and thus are able to contest and sometimes even subvert the imagined worlds of the official mind and of the entrepreneurial mentality and surround them' (Appadurai, 1996, p. 33). For those with access to globally inflected media and means of communication (half the world's population); and those with access to physical mobility across borders and facility in the global language, English (a growing minority); the possibilities for self-determining action are magnified by globalisation (Marginson, 2008; Marginson, 2014b).

Does Vygotsky's method remain explanatory in a world where spatiality is multi-dimensional, mobility continually enhances the possibilities of agency, identity is more plural and global elements are much more potent? What insights can his theorisation provide? Are genetic domains and mediation adequate to the analytical task? Does his conceptual framework require renovation or augmentation to remain functional? Or does the more connective world explode his foundational assumptions? In short, does Vygotsky's socially and historically nested psychology continue to offer useful tools for investigating, interpreting and explaining human development and education?

Global spatiality and the genetic method

The question is how to incorporate these global dynamics in a cultural-historical framework. While post-Vygotskian global phenomena call up the need for theoretical fluidity and multiplicity, as we see it, Vygotsky's theorization is ontologically open to an adaptation that incorporates global forms of mediation in a central role. It is instructive to compare Vygotsky's method with the influential contribution of Appadurai (1996) early in the Internet era. Like Appadurai, Vygostsky combined structure and openness, enabling him to build a non-determinist argument that foregrounded agency in general and imaginative reflexivity in particular. Like Appadurai, Vygotsky worked with a framework (Appadurai's scapes, Vygotsky's genetic domains) that enabled him to interpolate historical judgments into his account of human psychology or subjectivity. Like Appadurai, he refrained from deploying the macro level in deductive fashion—he did not treat the ontogenetic and microgenetic domains as a function of the cultural-historical domain. Like Appadurai, he emphasized the reciprocal capacity of human agents to remake their cultural-historical conditions. There are differences in approach. Vygotsky's domains are more sharply defined than Appadurai's categories, and his theorisation draws attention to movement between the micro and macro. Appadurai's approach emphasises the heterogeneity of ways of connecting. However, crucially, each kind of explanation is partly open-ended, in relation to both the phenomena admitted to observation and the potential for developing new interpretations.

Likewise Vygotsky did not employ a single theory of learning. He saw 'all teaching and learning as conditional and contingent'. These were 'collaborative activities' with 'no uniform methods' (Daniels, 2001, p. 1). Learning was responsive to social conditions and social conditions were constantly changing. This again creates space for global plurality. Vygotsky was at ease with disjunction, rupture and disequilibria; conditions that were more normal to him than otherwise, bringing him close to contemporary sensibilities. Daniels (2001) remarks that like John Dewey, Vygotsky appears to speak directly to us, partly because like Dewey he wrote at a time of intense turmoil and modernization that relativized social phenomena. Appadurai has greater emphasis on unevenness, disjuncture, novelty and breaks than does Vygotsky. Even so, Vygotsky's genetic method incorporated non-linear transformation, while focusing more attention than does Appadurai on origins and development.

Yet to explain globally-inflected learning and mediation the genetic method needs to incorporate global spatiality. Here globalisation suggests two implications. First, the genetic domains are present to each other with new directness and intensity. They remain distinct for analytical purposes, but the distinctions are not sealed boundaries, and perhaps the interfaces are rendered more strategically significant. The first generation theorists of communicative globalisation emphasised that global convergence localised distant effects. Anthony Giddens' (1991) definition of globalisation was 'action at a distance'. Manuel Castells devoted one of his three volumes on the networked world to *The Power of Identity* (1997): global integration, reaching into the microgenetic domain, compelled the sociologist Castells onto the terrain of psychology to trace the outcomes. In *Global Transformations* (1999) David Held and colleagues emphasised the local 'institutionalisation' of global factors. As

Rizvi and Lingard put it, global flows are 'vernacularised' in national and local contexts (2010, p. 17). There is also vice versa. Local practices are transmitted to other localities, or become globalised in systems. For example, the characteristics of one particular kind of university, the leading Anglo-American science university (which takes local form in the American Ivy League, the top public research universities in the United States, and perhaps Oxford and Cambridge in the UK), define the standardising indicators in global rankings. Thus nationally-ordered universities across the world are shaping themselves according to an extra-national template that national governments alternatively embrace, oppose or ignore, with divergent outcomes (Hazelkorn, 2014). The point is not simply that the global dimension looms larger, but that contradictions in local/national/global relations in higher education are more developed and immediate in effect (Marginson & Rhoades, 2002).

As noted global ecology joins the phylogenetic or natural domain to the domain of human society, the cultural-historical domain. Ecology is a dialectical relation between natural and human action. At the same time, the cultural-historical domain, the macro-social, nestles closer to the ontogenetic and microgenetic domains of the individual life and day-to-day events. This joins the ecological to the socially-situated individual. Relations between humans and the bio-sphere are a sub-set of the more general Vygotskian point that 'in higher forms of human behaviour, the individual actively modifies the stimulus situation as part of the process of responding to it' (Cole & Scribner, 1978, p. 14). As humans move closer to their conditions of existence the global sphere itself functions as one of the artifacts. Humans remake themselves by changing not only their own global position and mentality but global spatiality itself. Hence the extraordinary flourishing of new forms of global relations and institutions, in spheres such as commerce, and university education—for example global education hubs, transnational campuses, e-universities, Mass Open Online Courseware (Marginson, 2011b; 2012). Yet often, effective global action lags behind the imagining of it. In that curious knowledge-without-power that often attends global spatiality, it seems that the whole of the historical, biological and physical worlds are visible in new detail and clarity. Vision is the source of integrative knowledge, as Vygotsky pointed out (1978, pp. 32-33). The image of the world-in-space, and the reach of video, screen and network, provide an unprecedented sense of the whole. Fragments of the global, like news reports of the Greenland ice-melt and its implications for global sea levels, become part of daily microgenetics. The natural-historical-cultural constitute a larger presence in human affairs. However, it is harder for individuals to move the world than to change their localities. Globalisation creates human agents who have more extensive and varied options, yet they are dwarfed by the expansion of their visual scope and their field of action. Mediation with global artifacts is much more transforming of the person than of the globe.

The second implication of globalisation for Vygostsky is that it becomes necessary to take in Appadurai's point about disjuncture. For example, mediascapes are more global in form than are politics, or economic life, which to a greater extent remain nation-bound. On the one hand, 'electronic mass mediation and transnational mobilization have broken the monopoly of autonomous nation-states over the project of modernization' (Appadurai, 1996, p. 10); on the other hand, nation-states remain politically dominant, multilateralism is weak and there is little global governance. Economies are ordered nationally, some economic agents break free of states, and knowledge and culture flow freely across borders. These disjunctures play out on the border between the phylogenetic and cultural-historical domains (e.g. the breakdown of ecological sustainability has global causes but lacks genuinely global

political solutions); and in microgenetic globalisation (e.g. China's government battles with the globally-ordered Internet for Chinese minds). To map these disjunctures, we need new spatial tools centred on the cultural-historical domain, as will now be considered.

Complexification of the social

We suggest that when using the genetic method there is potential to gain new insights by 're-booting' the cultural-historical domain and tracing the implications through the other genetic domains. Global convergence complexifies the cultural-historical domain. In this paper we seek to reboot the cultural-historical domain, which is the domain of the social, which includes political and economic relations along with other cultural forms, by incorporating a local/national/global spatiality. Arguably, the fanning out of global connectedness and the growing awareness of it as a 'social imaginary' (Rizvi & Lingard, 2010, p. 24) heighten relationality itself in certain respects. For Appadurai (1996, p. 8) the global imagination is a collective property, not just 'a faculty of the gifted individual', much as Vygotsky stated about speech community. As noted, the potential communities at a distance multiply and are more immediate than before, articulated by a changing portfolio of technologies and the new social networking forms they facilitate. In children's learning the scope of the ZPD is expanded by technologies and networking: the scale and multiplicity of potential assistance is increased. Most people like the practices of free association with low levels of commitment that are made possible by Internet-mediated synchrony (Marginson, 2010a). Rizvi and Lingard (2010, p. 23) suggest that the social itself has changed (while correctly noting that more than one global social imaginary is possible). For the large minority engaged in Internet-mediated communications, the social has been 'stretched out' and is no longer largely co-terminal with the nation (p. 50). There is no 'turning back to some imagined past when social relations were highly localised' (p. 195). Cross-border cultural learning is normalised within education and globalised youth cultures jostle family traditions and the agendas of system managers (Dolby & Rizvi, p. 2008).

One example of the transformation of the social is equity policy in education. Equity issues have long been understood in terms of equality of opportunity within a bounded national system under governmental supervision. In this imaginary, the meritocratic condition of equality of opportunity would be achieved when the probability of success in education was the same for students from all social groups, regardless of family income, wealth, ethnicity or other status. Since the first explicit policies of equality of opportunity in the 1960s this goal has nowhere been achieved, and in some countries it is very far from achievement (Stiglitz, 2013; Marginson, forthcoming). But the terms of equality of opportunity have also been supplemented and changed by global elements. Often, social power partly derives from transnational economic and social networks that spill out from under the supervision of any one nation-state. Specifically global measures of equality/inequality have emerged, such as differential access to the means of global connectedness, the digital divide. Some argue that Internet technologies, once accessed, offer a quicker route to educational resources in developing countries than the slow building of nationally-based institutions. Cross-border student mobility is used to secure lifelong career advantages over those who remain home. Are these students excluded and disadvantaged in the country of education, or are they privileged by mobility, or both? How

should the claims of international and local students be weighed in relation to each other? Does student mobility constitute global justice by opening up opportunities for people from developing countries, or exacerbate social and economic inequalities in those countries when the graduates return?

Modern education systems were established as instruments of nation building and educational institutions, including private institutions in many countries, continue to be ordered and funded by national, provincial and local authorities. The nation is a 'heavy' structure that touches many adventurous global forays. However, neither nations nor institutions can seal themselves off from all global effects. Research-intensive universities articulate entry into elite professions and allocate status on a national scale; but are also global educators, and partly disembedded from national governance. Universities source ideas, information, research knowledge, people and educational capital from abroad. The nation retains supervisory control over schools, especially public schools, and they serve immediate local communities; but at the same time, teachers and students in classrooms are directly colonised by global media, ideas and products (Dang & Marginson, 2013).

Given the continuing salience of the national dimension, in analyzing development in education, we argue that the most appropriate framing of the cultural-historical domain is in terms of the 'glonacal heuristic' (Marginson & Rhoades, 2002). Here the cultural-historical domain is articulated by the three interfacing dimensions of global, national and local. This keeps the nation on the agenda, while acknowledging that globalisation has multi-facetted effects in all three dimensions, reaching beyond the cultural-historical (social) domain into the ontogenetic and microgenetic. 'At every level—global, national, and local—elements and influences of other levels are present. A glonacal agency approach leads us to trace these elements and domains' (Marginson & Rhoades, 2002, p. 290; Marginson 2011a; 2011b). This suggests Figure 2 should be reworked to incorporate the glonacal dimensions affecting linear and non-linear development.

Figure 3 represents this combined analytical framework.

Figure 3 about here

Source: Authors, adapting and supplementing Coles and Engeström, 1993, p. 20

Global mediation

Much global analysis is concerned with how people reshape their mentalities and social relations in the global dimension of action. Vygotsky's idea of mediation between subject and object via tools and signs provides one fertile way to investigate these inner and outer transformations. When the cultural-historical domain is volatile and multi-dimensional, when mobility and imagined lives are both part of the context and fuction as artifacts for mediation, when people talk of real life and alongside it a virtual or second life, when schooling uses global media or is instantaneously delivered at a distance, there are many ways of using mediation to investigate globally-inflected phenomena in education. For example, Dang and Marginson (2013) investigate global mediation in language teaching, where the relevant artifacts increasingly include Internet-based objects.

Global connectedness opens a new field of investigations using mediation. First, investigation into the effects of space/time compression in shaping the imaginative possibilities and in transforming mobile, multiple and hybrid human subjects, as discussed above; by examining how people use artifacts that 'personally influence their relations with their environment and through that environment personally change their behaviour, subjugating it to their control' (Vygotsky, 1978, p. 51). Like all human society the global dimension of action is artificially created by persons, who systematise ('institutionalise') their behaviour in the chosen global terms. Human subjects position themselves within global space, while creating that space and the field of possibilities within it, freeing themselves for global action. Thus the Singapore government recreated Singapore as a global education hub, centring the city-state within the world imagination, purposes and actions of its institutions and citizens, and others; using devices such as cross-border partnerships, foreign study centres, research programs and projects, the location of foreign university branches in Singapore and so on. Second, specific investigation into globally-inflected artifacts and into the implications of global mediation for the nature of artifacts (and of mediation itself). People use various tools to facilitate mobility within networked global systems and between cultural and geographical sites—from communication technologies, to imagined worlds, to multiple selves in which one identity is examined reflexively through the prism of another. The network is a mediating tool that shapes the global relational setting, creates new potentials to affect the social and natural worlds, and resources the formation of identity in different ways. A Vygotskian inquiry into global effects is distinctive in that it focuses on the identity of global artifacts. It focuses on the manner in which artifacts feed imagining, regulate social behaviours and transform social environments; and it lodges the inquiry in a reflexive historical-cultural setting. If as Vygotsky argued, artifacts and our use of them shape human evolution, an inquiry into the distinctive artifacts associated with globalisation has much to tell us about our trajectory.

How has mediation itself been changed in these more global settings? This requires further investigation but we will essay preliminary thoughts. First, the communicative computer multiplies the available forms of mediation. The computer includes both a tool, in the form of hardware; and the software that not only enables us to communicate with others but enhances our mental powers and sensibilities.[2] Second, it appears that globalisation augments the role of one kind of mediation. That is the use of imagined worlds in the formation of mentality and in mediated strategies used to augment action. Physical and virtual mobility multiply the resources available for creating imagined worlds, as Appadurai (1996) remarks. Here globally transmitted visual forms are especially important.

Conclusion

Anfara and Mertz (2006, p. xxvi) note that the 'diversity and richness of theoretical frameworks allow us to see in new and different ways what seems to be ordinary and familiar'. Theory also allows us to see things we would not otherwise see at all, like the mental processes enfolded into mediation by tools and signs. Vygotsky's thought, applied in the context of global spatiality, provides one useful framework for drawing macro-historical changes and world relations together with changes at the level of individuals in society: in their modes of thought, imagined possibilities and agency freedoms. Perhaps no other social

science of globalisation spans an equivalent range. Arguably, it is the historical-cultural reach of Vygotsky's ideas, developed more than 80 years ago in the fledgling Soviet state, amid its brief creative flourish, that enables those ideas to be useful now. Provided that adjustments are made to Vygotskian theory to incorporate time-space compression, the mutual presence of the genetic domains, and where appropriate the glonacal heuristic, Vygotsky's concepts, especially that of mediation by tools and signs, continue to be useful in socially-situated investigations of educational development and transformation; and provide ways into the analysis of globally-situated relations.

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Notes

[1] We thank one of the anonymous reviewers for the journal for a succinct discussion of mediation.
[2] We again acknowledge the formulation used by the anonymous reviewer.

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Figure 1. **Vygotsky's summary of stimulus-response-mediation**

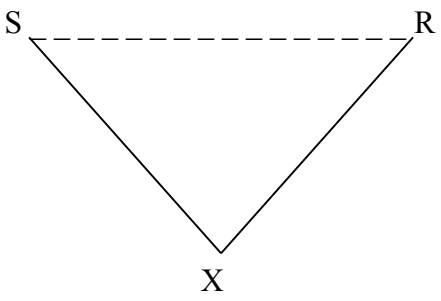

Figure 2. **Sociocultural theoretical domains of genetic analysis**

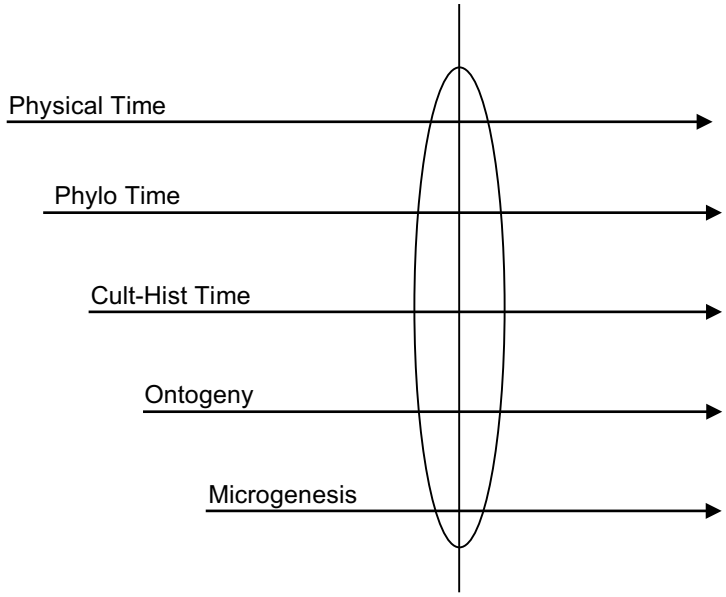

Figure 3. **Sociocultural theoretical dimensions of genetic analysis, modified to account for cross-border global flows**