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Dynamic assessment precursors: Soviet ideology and Vygotsky

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Running head: Dynamic assessment precursors

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Abstract

Dynamic assessment's history stretches back to antiquity but its formal beginnings are more recent. The dynamic assessment movement, inspired largely by the works of Binet, Vygotsky and Feuerstein, has coalesced into a mightier movement precipitating a testing renaissance in some circles. Forerunners of dynamic assessment often credit the works of Vygotsky but similarly do not credit the socio-political times during which he worked. This article seeks to extract what is considered pertinent to Vygotsky's theoretical work: the times in which he lived and how he successfully managed to negotiate for himself a path around the constraints of the day. In order to more fully appreciate the trajectory that dynamic assessment has subsequently followed during the last seventy years it is deemed a worthwhile effort to return to the historical record of Soviet Psychology and investigate how dynamic assessment managed to become grounded in psychological science due largely to socio-historical influences. In order to fully comprehend the dynamic assessment movement a similar comprehension of the movement's history is sought. How and why Vygotsky theorized the way he did has as much to do with his own initial thoughts as it did with the reigning political ideology then current in the Soviet Union.

Lev Semenovich Vygotsky (1896-1934) and his work is very well known within the field yet one finds in the mainstream literature that his thoughts are merely descriptive of his opinions regarding the zone of proximal development with little elaboration into the reasons behind this thinking. Understanding Vygotsky's importance for dynamic assessment is better understood when his thoughts are contextualised within Soviet psychology's history (Sutton, 1988). He was the first researcher within this tradition to develop and offer a more systematised approach towards a newly restructured 'defectology' in Russia which already had a long history in the Soviet Union. Vygotsky was separated both in place and time from the continental European and American trends within psychology yet his ideas have proved fertile in these geographic disparate locations (Resing, 1997). Soviet psychology often followed its own trajectory on a number of fronts within psychology and education and more often than not had to dance to the tune of the ruling political party.

Academic and research work was often politically infused with ideology and reflects a substantial difference between the West in terms of intellectual tradition and approach to the study of psychology. The collectivist background from which Soviet psychological science sprung has much philosophically and ideologically in common with a similar notion of collectivism in some non-Western countries. Vygotsky's ruminations over a 'psychological crisis' are similar to the current crises within dynamic assessment. Vygotsky was not a psychologist by training. He studied law and philology (Cole & Scribner, 1978; Kerr, 1997) and professionally practised psychology for only ten years (Grigorenko & Kornilova, 1997) and so perhaps his views were less influenced by specific psychological contexts. He was primarily a thinker for whom the area of psychology suited his vision for application (Kozulin, 1990).

A brief overview of dynamic assessment history

Dynamic assessment has a history with disparate origins depending on the manner in which one chooses to view it. It is said to have a long past but short history (Haywood & Tzuriel, 2002; Lidz & Elliott, 2000; Wiedl, 2002). Some may laud Lev Vygotsky as the founding father due to his unique concept of the zone of proximal development within a socio-cultural theory (Elliott, 2003; Hamers, Hessels & Pennings, 1996; Hegarty, 1988). This concept states that cognitive performance, when aid is provided, will result in the best measure of ability thus birthing the learning test (Guthke, 1982; Hamers & Sijtsma, 1993; Meijer, 1993; Shamir & Tzuriel, 2002). Reality as such is never met with face-to-face but engaged with via tools of mediation (Netchine-Grynberg, 1995). Depending on the level of support received by a child on a task, varying outcomes can be expected. Performance at the functional level is expected with minimal or no support as opposed to optimal performance when supported in a task (Suizzo, 2000). There is a clear distinction between 'performance' and 'competence' which is also developmentally based and influenced by distal and proximal environmental influences (Belmont & Birch, 1963; Birch & Gussow, 1970; Gelman, 2000). Vygotsky's approach was later built upon by other Soviet educationalists and formulated more extensively regarding its educational implications (Haenen, 2000).

Others prefer to view Alfred Binet as the progenitor due to his notion of investigating ability during the process of a test and his idea of a continuously developing latent trait. Binet looked at correct responses as indicative of ability whereas Piaget preferred to look at errors; a novel notion at the time but routinely accepted within current dynamic assessment today (Anastasi, 1998; Chalmers & McGonigle, 2000; Lidz & Thomas, 1987; Sternberg, 1997; Styles, 1999; Ukrainetz, Harpell, Walsh & Coyle, 2000). Binet was not really concerned with remediation. He also offered

interesting ideas on remediation but due to its generality the idea receded into the background (Brown, Campione, Webber & McGilly, 1993; Carlson, 2002).

Innovators

At times both Vygotsky and Feuerstein are credited as equal co-contributors to the field (Haywood & Tzuriel, 1992). Feuerstein may be cited as the founding figure due to the development of his test battery within this domain (Skuy, 1989) and his published and widely recognised work on the subject matter (Lidz, 1992b). Feuerstein emphasised what individuals did incorrectly in the hope of coming to understand their functioning better and did so within a mediated learning experiential environment (Büchel & Scharnhorst, 1993; Shamir & Tzuriel, 2002). It is due largely to Feuerstein and his followers that the renaissance of dynamic assessment has flourished as it has, as is evident with its gradual development in the West (Sternberg & Grigorenko, 2002). His emphasis on a bio-ecological model of human functioning emphasises distal and proximal factors and thus takes cognisance of indirectly impinging variables such as genetic heritage, early childhood experiences as well as cultural and socio-economic factors playing in on the developing child. It is in keeping with modern developmental theories of intelligence such as Ceci's bio-ecological theory (Ceci & Bruck, 1994; Ceci, Rosenblum, De Bruyn & Lee, 1997; Lohman, 2005; Miller, 1997).

Some of the early literature dating from the 1920's and onward regarding educability and pedagogy in general is prescient in its treatment of measuring the learning process (Brown, Campione, Webber & McGilly, 1993). Although not making up the majority of the work a fair section of the material is modern in outlook. As early as 1927 De Weerdt, for instance, begins her article with a statement echoing sentiments eerily similar to the ones heard today "the whole

scheme of formal education is based upon the fundamental concept of *improvability*" (own emphasis) (p. 547). She does go on to state that "the educator has always been interested in this capacity of the individual and has measured it in a more or less direct way through class achievement … we have relatively little material on the *learning* or *improvability* of children under classroom conditions" (own emphasis) (p. 547).

Culture as impinging variable

The critical aspect of culture is reflected in dynamic assessment's concern with distinguishing between cultural difference and cultural deprivation and can be closely interwoven with both Feuerstein's and Vygotsky's conceptualisation of mediated learning experience and higher order thinking processes (Kozulin & Presseisen, 1995; Tzuriel, 2002). Research has also shown the efficacy of utilising dynamic assessment within environments catering for mental retardation as opposed to the more classically aligned mainstream assessments (Hessles-Schlatter, 2002a, 2002b). Metaphorical conceptions of intelligence are the preferred analogies within dynamic assessment where the sociological and anthropological contexts are of deep and consistent concern (Campbell & Carlson, 1995). Change directedness occurs in a second-order manner where change is effected from within the individual and is not imposed from without (pouring information into a system versus the deeper understanding of material from within the system). During the mediated learning experience the environmental challenges are filtered and attenuated for the child. The governing model of human development is all-encompassing and indeed very modern for the time in which it was being proffered as viable alternative to mainstream testing (Kozulin, 2002a). Vygotsky's socio-cultural approach and Feuerstein's mediated learning approach both reject the dichotomous appraisal of cognition as naturally occurring phenomenon and learning or instruction as a cultural tool. Vygotsky viewed learning, culture and development

as inseparable as any instructional interaction reflects a social interaction (Mastergeorge, 2001; Perret-Clermont & Bell, 1987). Human beings, unlike other species, interact with intentional agents and engage in cultural learning from as early as nine months and acquire linguistic and other symbols necessary for communication within their cultural grouping (Tomasello, 2001).

Culture and development integrate seamlessly within the learning and processing situation (Kozulin, 2002b) however Miller (1997) warns that although cultural aspects of psychometric intelligence often results in the revisiting of specific theories of intelligence, it is not always the case that the nature of intelligence itself is revisited. Cognition is framed within culture as "cultural ontogeny affects biology in a very direct way" (Feuerstein, Feuerstein, Falik & Rand, 2002, p. 73). Cogent arguments are however made for other sides to the debate of where and how intelligence arises. Culture, states Hunt (1997), cannot account for measurable variables and so there is no way of tracing their effects within a causal model. There are many other individual researchers as well as research groupings which can attest to having developed their own unique manner of dynamic assessment (Guthke, 1993; Hamers & Resing, 1993; Laughton, 1990; Lidz, 1981, 2003; Resing, 1993) but most of these schools find their points of origin in one or more groups whilst some groups prefer to blend in contributions from various originators to fit their needs (Shamir & Tzuriel, 2002).

The literature is often divided on the issue of the antiquity of dynamic assessment with statements revealing that it is relatively new to statements revealing its venerable and aged heritage (Hamers, Hessels & Tissink, 1995). What is most likely being hinted at is that philosophically, the method is old and can be traced back to the early nineteenth century (despite the early Greek's writings on potential). The method is likewise young in terms of its being

generally known about and widely practised or conversely not well-known even today (Freeman & Miller, 2001; Haywood & Tzuriel, 1992). Recent research evidences that dynamic assessment still has not left much of a noticeable footprint outside small societies advocating its message (Murphy & Maree, 2006). One retort to this is that this is very much the story of science in general where numerous ideas have had to wait years, decades and in some instances centuries before these ideas latched on in the mainstream imagination.

Many schools of thought, have, since the days of Binet, Vygotsky and Feuerstein developed within a framework which can be considered 'neo'; as in neo-Piagetian and neo-Vygotskian and so on. However, a number of isolated researchers had, in the early decades of the twentieth century, already experimented with the concept of a malleable intelligence (Lidz, 1992a) including, among others, Selz (1935) (in Klauer, 2002); Ortar (1959), Haeussermann (1958) who is considered the mother of dynamic assessment (Lidz & Elliott, 2000) and Schucman (1960) (in Lidz, 1992a, 2001). South Africa had reported the results of a dynamic-like type of assessment as early as 1961 (Lloyd & Pidgeon, 1961). A pupil of Wundt, Meumann (1922), the psychometrician Kern (1930) and DeWeerdt (1927) are other names in the early decades of the twentieth century to whom the idea of a learning test concept can be traced (Guthke, 1992; Guthke, Beckmann & Dobat, 1997).

European pioneers within this tradition trace origins to the works of, among others, Quetelet (1835) the Belgian researcher and his contemporary Esquirol (1838), a French psychiatrist, who argued for a differentiation to be made between performance and prognoses (unfavourable conditions can lead to unfavourable outcomes). Other progenitors include Binet and Simon, (1908), Stern (1928), who was a German psychologist and studied the relation between

environmental influences and intellectual abilities; Vygotsky (along with his students Luria and Leontiev who modified his theory of ZPD; Hamers, Hessels & Pennings, 1996); Kern (1930), who was concerned with improving intellectual performance via training and using trainability as diagnostic indicator of aptitude; Selz (1935), who concentrated on modifiability of intelligence; Piaget, Rey (Feuerstein's mentor), who researched mental plasticity and Volle (1957), who pioneered the testing-the-limits approach outside the domain of Rorschach testing where it had previously been utilised and concluded that the manner in which testing was conducted influenced the outcome, especially in low performing individuals. Boesch (1952, 1964), was influenced by Piaget and concentrated on patterns and variations of results in place of viewing only correct responses on a test. Hurtig (1962) (in Wiedl, Guthke & Wingenfeld, 1995), the French psychologist made strides in differentiating children who had suffered environmental backlogs and those who were truly retarded. Schmidt, (1969, 1971) drew heavily on the work of Boesch and utilised his theory but further refined the testing-the-limits approach by integration of empirical and theoretical data (in Wiedl et al., 1995).

Geographical contributions to dynamic assessment

European contributions towards the historical development of dynamic assessment appears to have a richer history as opposed to its Western development. This may partially explain why dynamic assessment has been more eagerly followed and accepted within countries outside the United States and the United Kingdom. Possibly this has resulted in more resistance to this method from mainstream assessors currently more at ease with typical intelligence tests. This conclusion is substantiated only from what has been gleaned from the literature as well as from results from studies dealing with dynamic assessment awareness surveys (Deutsch & Reynolds, 2000; Haney & Evans, 1999; Lidz, 1992a; Murphy & Maree, 2008).

Early 1920-1930's research emphasised the ability to learn and was considered at times more informative than the static measures hitherto used (Lidz, 1987). It was during the 1930-1950's that the neuropsychologist Andre Rey formulated tests which were utilised later on by his student Feuerstein in the 1950's. These two decades were a period of relative quiet on the dynamic assessment front, mostly due to a variety of social, political and scientific reasons (Kozulin & Garb, 2002; Pascual-Leone, Johnson, Baskind, Dworsky & Severtson, 2000). The 1940's evidenced the insight garnered to detail the relation between intellectual achievement and intellectual potential noting the lack of covariation between the two measures (Lidz, 1987). Practice effects had been studied in the 1920's but coaching studies came into their own in the 1950's. Original attempts at documenting the effects of coaching on performance were mainly conducted in the United Kingdom, although the emphasis was not on the improvement of capacity as such (Lidz, 1987).

Process orientated means of assessing intelligence as well as emphasis on testing the limits to which individuals could aspire were also characteristic of the 1950's. This process nature of intelligence assessment is sometimes considered quite modern in approach. There is a turn towards assessing what individuals can and cannot do within their own limits (Baltes, 1998). Sporadic attempts at assessing educability took centre stage during the 1960's and interestingly, it was A.R. Jensen who very early on stated his views concerning the biased nature of mainstream intellectual assessment batteries deferring to more dynamic alternatives for various minority groups (Lidz, 1987). It should be noted that ecocultural factors also need to be factored into the readiness to limit bias even within similar cultural settings (Church & Katigbak, 1987). Learning potential measures in the United States were also becoming increasingly evident during this

decade due predominantly to increasing dissatisfaction with psychometric testing (Budoff, 1987; Kozulin, 2005).

The 1970's witnessed an explosion of sorts in comparison to the previous decades and saw the deployment of dynamic assessment methods of mental abilities (Carlson, 1995). This decade was witness to the filtering of cognitive science principles into the arena of intelligence hence the hybridised field one sees today (Das, Naglieri & Kirby, 1994). During this phase, various research groups came to the fore with various points of emphases under the umbrella term 'dynamic assessment'. This is partly the reason why this manner of assessment is so varied in its definitions and practical implementations. Included among others are the works of Feuerstein as well as Budoff, Campione, Brown and Haywood; the latter being instrumental in bringing to the United States the work of Feuerstein (Lidz, 1987). Carlson and Wiedl had started their work on testing-the-limits approach in the 1970's and on into the 1980's and provided evidence for the validity of dynamic assessment as alternative approach, working specifically within the information processing paradigm (Lidz, 1987).

The 1990's and early decades of the twenty first century can be characterised by a more sedate and sceptical attitude towards this approach but ironically was simultaneously only starting to take off in South Africa for instance (Murphy, 2002; Murphy, 2007; Murphy & Maree, 2006). It was also expanding its field of research application to populations other than the traditional sphere of application. This expanded sphere includes among others mature students, the elderly, gifted who are often culturally diverse and usually undetected, at-risk foreign language learners, psychiatric populations, prison inmates, early brain damaged individuals, blind, deaf and speech impaired populations. This method is applicable to both domain general and specific contexts

such as language, arithmetic, writing competence, science and biology (Alfassi, 2002; Chan, Ashman & Van Kraayenoord, 2000; Guthke, 1992; Kaniel & Tzuriel, 1992; Keane, Tannenbaum & Krapf, 1992; Lidz, 2004; Schur, Skuy, Zietsman & Fridjhon, 2002; Stanley, Siegel, Cooper & Marshall, 1995; Schneider & Ganschow, 2000; Tzuriel, 2000a, 2001; Wiedl & Schöttke, 1995).

These are populations which have until recently been side-lined from mainstream assessment and interventions and for whom targeted mediatory intervention programmes are deemed more suitable due their unique life contexts. Dynamic assessment is also moving into areas concerned with neurological disorders where both individual and group administration of assessment is being researched (Haywood & Miller, 2003). There is some conceptual overlap, namely, the approach towards understanding what is maximally possible after sustained injury as opposed to what is considered to be typical functioning and the effect of actual intervention within the injured patient as opposed to merely assessing it (Haywood & Miller, 2003).

Soviet psychology

By way of a very brief summary to Soviet psychology, table 1 below encapsulates the nature of the discipline's path through the period spanning two hundred and fifty years. The trajectory followed throughout the twentieth century will become clearer during the discussion below which focuses on historical impingements on Soviet psychology.

Insert Table 1 here

Historical narrative

Learning disability research or 'defectology' features heavily in the history of Soviet psychology (Bauer, 1959; Coles, 1982; Goldberg, 1982) and represents a substantial segment of this psychology. Special education commenced as early as 1806 where the state supported schools for deaf and blind children and for a period Russia was on par with like-minded Europe (Malofeev, 1998). Biological Soviet psychology for instance kept abreast of the latest written European work in order that they not start to lag behind their European counterparts. This was at odds, at least ideologically, with the reigning Tsarist regime for whom a philosophical approach to life did not include reductionist models based on Western science. For instance Wundt's work was criticised by both leftist and rightist groups. Yet, in what can only be considered a fantastic turn around, Russian progress in materialist monism originated and continued unabated during the latter half of the nineteenth century with many decrying Wundt's status as originator of the laboratory tradition which was concurrently being instituted in Russia (McLeish,1975; Todes, 1984). Russian psychology was in no small measure unaffected by research in Europe both before and after the revolution and special education in Russia developed rapidly during the 1920's after the loss of resources during the revolution (Grigorenko, 1998; Kozulin, 1986). The war resulted in many displaced people having lost out to education and is a scenario similar to that experienced by many refugees the world over.

Defectology

The Institute of Defectology opened its doors to the study and treatment of children with developmental delays in 1929. The theoretical work of Vygotsky who was appointed as scientific leader emphasised the interplay of socio-cultural variables within development during which social semiotic mediation bridged the gulf between words and the world (Malofeev, 1998; Shotter, 1993; Van der Veer & Valsiner, 1991; Wozniak, 1996). The linguistic version of tool as

mediator was of particular importance to Vygotsky (Leiman, 1992; Vygotsky, 1981b). Human consciousness was, for Vygotsky, situated within the social, cultural and historical environment He viewed knowledge as social in origin even if that knowledge remains trapped within one person. It is because of 'the social' that much knowledge is created (Brown & French, 1979; Miller, 1989 Wertsch, 1998). Sign within semiotics can take on slightly different meanings. Some view it as a tool which represents that which in reality is otherwise unrepresentable, for instance as map of an area and that which is more readily representable such as an aerial photo of the same area (Leiman, 1992; Leontiev, 1981).

Vygotsky (1978) differentiates between tool and sign or symbolic mediation with the former relating to external changes in objects and the latter relating to internal psychological changes effected by mediation (Elkonin, 2001). Play was also of particular importance to Vygotsky who stressed the symbolic aspect of it as mediatory tool in which culture is actualised and embodied within language and gestures and during which children could create their own zone of proximal development (Kozulin, 1986; Nicolopoulou, 1993; Tzuriel, 2000b). The nature of the tie between language and cognition is a contested one with nativists positing a language centre in the brain progressively deployed throughout development and language as a product of a co-constructed process of learning. The relation between language and learning then becomes one of learning language, learning about language and learning through language (Grieshaber & Ashby, 1997).

The results of play provide future impetus for the reorganisation of psychological functions in later life (Nicolopoulou, 1993). Vygotsky's method was christened 'experimental-developmental' and was a process-based dynamic analysis of child development (Vygotsky, 1978). He fully appreciated the melding of two manners of locating psychology within the broader field of

knowledge discovery and acquisition, thus later prompting his concern with the crisis in psychology. The syndrome of disability is defined as a social problem encompassing the individual but not leaving it there (Grigorenko, 1998). Russian defectology is mainly characterised by the following: (i) social remediation and rehabilitation in contrast with the 'listing' function within mainstream assessment where individuals are screened and systematised; (ii) the replacement of the loss of certain functions by higher mental functions (however, those individuals evidencing less severe impairment are often not accommodated in this approach); (iii) the subsequent individualisation of specific learner problems but an equal disregard for those mentioned above and lastly, (iv) regardless of the specific disability, mediation within the ZPD is fundamental to rehabilitation and mental development where disability is conditioned more by the social sphere than genetic heritability (Grigorenko, 1998).

Socially-mediated learning

The 1920's was a decade in Soviet history characterised by intense interest and strides within the domain of child development. It was an area considered important due to the future socialist stability of the country and is noted by the contributions of Vygotsky, Kornilov, Krakov, and Smirnov among others (Kostyuk, 1972). Child education moved from a concern with "learning through doing" to a concern with "creating a person fulfilling the explicitly denied demands of the social and political order" (Bauer, 1959, p. 43). The notion of person-in-society akin to Vygotsky's 'mind in society' or 'mind in context' or 'context and cognition' and 'union of the person in situation' is very evident here and the stress that this notion plays within dynamic assessment is highlighted (Beals, 2000; Lidz, 1992a; Snow, 1998a). Two main types of mediation are evident within Vygotsky's definition: metacognitive and cognitive mediation (Karpov & Haywood, 1998). The former deals with the self regulation, planning, checking and evaluation of

behaviour and is encompassed within executive processing of the self. This is a feature heavily regarded within the Feuersteinian model of instrumental enrichment.

The internalisation of socially mediated experiences was brought and cemented into Soviet psychology by Vygotsky and is considered one of the most consistent attributes of dynamic assessment models (Karpov & Gindis, 2000). Vygotsky melded the notion of a plastic brain which could be shaped by the social environment so it would be incorrect to over-simplify his idea of a social aspect only in his theorising (Van der Veer & Valsiner, 1991). Polarising concepts which are not in fact opposed is a key feature within the reconstruction of science and history and is something to be guarded against. Secondly, cognitive mediation aids in specific skill acquisition that is needed to perform school tasks for instance. Galperin paid particular attention to cognitive processes within learning and was later to develop a research agenda concerning the teaching and learning process. He initiated his research in the 1950's which is the same time that original research was being conducted by Feuerstein (Haenen, 2000). Haywood (2003) goes one step further in his conceptualisation of neo-Piagetian mediation and includes self-mediation as a further goal to the independent development of the individual. This occurs when the mediator effectively fades away to be replaced by the adequate and sole functioning of the individual (Miller, 2003).

Grigorenko (2004) stipulates four sub-divisions within Russian psychological research, namely, (i) 1917-1936: the period preceding the 1936 State decree of Pedology; (ii) 1936-1950: the period framed by the cessation of Pavlov's work. It was during this period that many psychologists were accused of cosmopolitanism (working too closely within Western research traditions) and moving away from Marxism; (iii) 1950-1980's: during which the reign of terror having subsided

allowed for cross-collaborations within Western psychologists yet still maintained a semblance of Marxism and (iv) the current period which emphasises tolerance and is in no way impeded by any ideological barriers. These contextual influences resulted in intelligence research traditions substantially different from mainstream Western models. It is evident from what has transpired above how powerful learning and learning disability research was in the Russian psychology programme. It is also important to note how it came to be that later Western thoughts on early Soviet psychology were influential in the development of various strands of dynamic assessment within both the socio-cultural and psycho-educational realm (Lidz & Gindis, 2003).

Metacognition

Metacognitive mediation involves parental guidance of spontaneous (natural, everyday, empirical or unsystematic) concepts whereas 'scientific' conceptual or theoretical knowledge is gathered at school via peer and teacher mediation, scaffolding or assisted performance where verbal definitions start to take charge of thought (Brockmeier, 1996; Karpov & Bransford, 1995; Lidz & Gindis, 2003; Portes & Vadeboncoeur, 2003; Van Geert, 2000). Such scientific concepts need to be taught directly as many instances of what people now take for granted, such as understanding gravity for instance is not immediately apparent. The authors do add that learning scientific concepts should be a constructed experience (Karpov & Haywood, 1998). During the 1920-1940's unrealistic demands were often made by the state to push delayed children into mainstream education, often resulting in innovative methods of attacking the problem. A major development to come from this state of affairs was the need for remedial education. There was an accompanying need to differentiate those children who merely required teaching in another mode versus those who truly required specialised interventions. Unlike Western psychology which is a testimony to fragmentation, Soviet psychology progressed along smoother lines in terms of

trajectories and traditions although there is also no such notion as ‘Soviet psychology’ just as there is no such thing as ‘American psychology’ (Hydén, 1988; Valsiner, 1996).

The prevailing spirit – control of information

The era during which Vygotsky lived witnessed relatively few traditions within Russia which was of course to change later on (Van der Veer, 2000). This trend was aided by the effective ban for 25 years on the practise of psychology as a discipline as well as a ban on sociological surveys (Malofeev, 1998). School psychologists were effectually eliminated in 1936 and were only reinstated more than 40 years later due to the prevailing spirit of equality of all and the subsequent placement of all national groups under one Soviet Union (Grigorenko, 1998; Haywood & Tzuriel, 1992). Concerning the banning of tests in 1936, Joravsky (1989) highlights the differing interpretations of intelligence as viewed in Soviet society and American society during the first half of the twentieth century. Americans, he states, were concerned with the nature-nurture debate due to their ‘dream of purely achieved status’ and were anxious to improve upon techniques of further justifying inequality. The Soviets aligned themselves with the idea of upward mobility in terms of intellectual recognition. People in the lower strata of societal functioning were not placed there intentionally and “great talents were imprisoned within the uncivilised” (p. 346). Nevertheless, three main Soviet traditions can be identified and are discussed below.

Pavlovian psychology

Pavlovian psychology, akin to Skinnerian behaviourism ushered in the beginning of the subject domain of higher nervous activity which was presented in 1903 at the International Medical Congress in Madrid (Brožek, 1972b; Ushakova, 1997). This research tradition is of particular

importance regarding the cross-pollination of ideas from the Soviet Union to the West. Pavlov's influence is evident in the works of both Russian and Western researchers such as Bekhterev, Anokhin, Asratyan, Thorndike, Yerkes, and Watson (Kozulin, 1986). Although the influence of Pavlov is well known, it must be noted that the development of behaviourism and 'objective psychology' did occur more or less simultaneously. Pavlov's work was pre-revolutionary and was influenced by (some would claim was based upon) the work of others including Sechenov who is considered the father of Russian physiology (Bauer, 1959; Gilgen & Gilgen, 1996; Sahakian, 1975). Soviet psychological science's past is an historical inventory of physiology as well as mental studies and the two have often become so melded that mental studies seem to have been subsumed within the physiological counterpart (Zinchenko & Gordon, 1981). In keeping with general philosophy of science issues then nascent within Western psychology, reductionist understandings of human functioning must have been a welcome addition to the repertoire within research. However this research tradition has, within the Soviet Union, been considered the domain of physiology as opposed to psychology (Brožek, 1966, 1972a; O'Connor,1961).

It is difficult at times to draw a distinction between various research domains under the blanket term of physiology or psychology (Bauer, 1959). Pavlov acknowledged the inner life of subjective consciousness but understood that objective research within this domain would prove problematic (Ushakova, 1997). Eminent Soviet psychologists both endorsed and applied Pavlov's research tradition. American behaviourism generated much output during the 1930-1950's and was heavily influenced by Russian reflexology more so by Bekhterev and Sechenov than Pavlov (Brennan, 1982; McLeish, 1975; Valsiner, 1988). Pavlov's work and influence is often overemphasised. Vygotsky deliberates upon the consideration of thought as pure reflex and discusses the role of mediation as an observable means to reach unobservable thoughts

(Vygotsky, 1994b). Biologically conditioned responses as well as historically derived or cultural responses are part of the developing child's repertoire of skill and skill acquisition but the main focus within his pedological work was not with the laws of heredity as much as the role that such heredity plays within development (Vygotsky, 1994e, 1994f). This rich area of research seems to have dominated branches of related research into perception, memory and brain plasticity.

Rubinsteinian based research

Abstract mental operations analysis research best exemplified by Rubinstein which is akin to structuralism and Gestalt psychology sought to turn psychological experimentation in the Vygotskian sense into a more educational one in keeping with Marxist philosophies of active change. Rubinstein (1889-1960) sought the unity between the mental and the physical and advocated that mental development be fully integrated into the physical development of the organism. Human beings change as society changes and he proposed that theory and practice should function as a unit. Through change one is able to come to greater understanding of objects in the world and the way to obtain knowledge about objects in the world is to set about attempting to change them (Guthke & Wingenfeld, 1992; Lidz, 1991). Ironically, Rubinstein's work was considered too bourgeois in the 1940's which resulted in his revising his work and turning towards the Pavlovian tradition of ideas (Hydén, 1988). There is continuous flux between genetic and environmental heritage, a process to which the developing child has to grow accustomed. There is also the social which services the internal via mediatory agents such as adults which guide the growth of children. A departure from Western thought on the matter of age-dependent maturation occurred with the likes of Rubinstein's questioning of the nature of this growth which is dependent not only on age but on the information accumulated by children as well as the nature of their varied activities (Kostyuk, 1972). Vygotsky differed with Piaget on

the matter of pure age-related growth stating that development and instruction were commensurate and integrated in such a way that instruction and development co-occur. Hence his theoretical offering by way of the ZPD to this question added to the notion that development does not necessarily lead to learning in a straightforward information processing fashion (Allal & Ducrey, 2000; Feldman & Fowler, 1997; Gindis, 1995b; Karpov & Bransford, 1995; McLeish, 1975; Van der Veer & Valsiner, 1991). For instance, no matter how mathematically gifted a child is, no manner of improvement or regard for mathematical concepts will be forthcoming unless there is adequate mediation on the part of some social force (Vygotsky, 1994f).

It is necessary to differentiate between organismic developmental stability across cultures due to common genetic ancestry and variant changes brought about by learning in different cultures or set-ups and schooling environments. Learning and development co-occur and this means that variant changes in development are due to learning environments, an aspect underappreciated by Piaget but closely seen to by Vygotsky as well as by dynamic assessment's concern with the learning-to-learn approach (Niaz & Caraucan, 1998). In this regard, due deliberation is given to both developmental and learning issues within modern theories of cognition (Niaz, 1998). The training of skills via instruction has become prominent in the literature since the early 1980's (Borkowski & Konarski, 1981). Vygotsky (1978) referred to this method of development observation as instrumental and noted how erroneous it was to insist on the separation of the two. To study the child regardless of the environment, which is reminiscent of Binet, is characteristic of a natural endowment approach. Likewise, to cite the sources of achievement as environment only regardless of the natural processes at work is to miss the vital link of the interaction between natural ability and environmental concern (Vygotsky, 1981a).

"Child development is least of all like a smooth process sheltered from external influences" (Vygotsky, 1981b, p. 151) and the case is vividly illustrated in his testimony of the deaf child's development which may be delayed only due to the lack of an appropriate environment. This delay is far from being one of genetic causality and should be dealt with as a social problem (Vygotsky, 1981c). He did not deny the problem's biological nature (Vygotsky, 1994a). He was keenly appreciative of Darwinian theory as was the whole enterprise of the study of child development as geared towards a materialist-evolutionary concern for the field (Rahmani, 1966). He sought two lines of human development as explanatory modes of human social existence. The first detailed biological evolutionary adaptation and environmental press bringing about inclusive fitness and secondly, the social or historical development upon which he seemed to place more emphasis and its regulation of the further development of 'socialist man' (Vygotsky, 1978, 1994d). The importance allotted to instruction and development as co-occurring aspects within his theory is echoed in current dynamic assessment efforts as well as Feuersteinian theory which is principally instruction coupled with assessment (Messerer, Hunt, Meyers & Lerner, 1984).

Vygotskian cognitive developmental psychology

Vygotskian cognitive developmental psychology is similar to the later Piagetian and Feuersteinian developmental and contextual approaches. It is noteworthy to consider Van der Veer and Valsiner's (1996) reminders about Vygotsky's work which they consider to be blind spots. Although the Soviet Union did experience isolation both academically and socially particularly during the reign of Stalin, Vygotsky's thoughts can nevertheless be considered interdependent with European and American academic thoughts and this can be seen in some of his work (Porges, 1998; Vygotsky, 1978). Vygotsky, although emphasising the socio-cultural context, did in fact place a great deal of emphasis on the individual developing person. His

emphasis lay more heavily on the cultural aspect of social mediation such as cultural experience, cultural behaviour and cultural methods of reasoning more so than on individual peer and teacher mediation (Vygotsky, 1994c). “Culture, generally speaking, does not produce anything new apart from that which is given by nature. But it transforms nature to suit the ends of man” (p. 59). Also, peer, parent and teacher mediation has often been cited in positive terms where functioning within the zone of proximal development is considered advantageous.

Soviet ideology

Marxist philosophy on the theory of society is an underlying and prevalent feature of these approaches but widely disparate in their efforts as separate traditions (Coles, 1982; Shotter, 1989). The case of ideology has at times been critiqued for being overstated and oversimplified in some literature (Bauer, 1959; Doehring, 1982; Valsiner, 1988). Such oversimplified renderings of Marxist thought can, at times, be misconstrued as a mechanistic treatise for socialist life which it in fact is very much not (Joravsky, 1989). Yet reading the literature generally leaves one with the impression that many aspects of Soviet academic thought including Vygotsky’s ideas on consciousness and cognition were traced along lines of a division of labour (Emihovich & Lima, 1995; Moll & Slonimsky, 1989). As O’Connor (1966) points out, much of Soviet psychology has been oriented by dialectical materialism, a period lasting from 1936-1950 (Sahakian, 1975). One rarely reviews Russian/Soviet psychological literature without noting Marx’s contributions in some form or another (Avtonomova, 1995). Figure 1 illustrates the linkages between various thoughts maintained by philosophers and psychologists within Soviet psychology.

Insert Figure 1 here

That the preceding background somewhat intrudes on pure and objective research is often viewed with scepticism by Western intellectual counterparts (Gray, 1966). However, such political dominance and resulting influences cannot be understated such as after the 1917 revolution where anything which smacked of bourgeoisie tendencies was literally obliterated before it could raise its head. There is of course the understanding that among many Soviet psychologists, theories and implementation of ideas were voluntarily moulded by Marxist ideology with many advocating its necessity, so it would be incorrect to state that such ideology was pervasively forced upon academics (Cole & Cole, 1979).

Marxism

Joravsky's (1989) definition of ideology as it pertains to Soviet psychology is decisive in its depiction of the state of affairs "[an] unacknowledged dogma that serves a social function of unverified belief assumed to be proven truth because they serve the interests of the group that shares them" (p. ix). During the latter half of the nineteenth century, some psychological articles were infused with a mixture of science, ideology and politics (Grigorenko, 2004; Grigorenko & Kornilova, 1997; Todes, 1984). The intertwined nature of science and society was never more marked than after the 1917 revolution in which psychological studies focused on the individual in socialist society (Valsiner, 1996). It has even been extolled that Soviet psychology originated within the realm of political action and not in the laboratory but the role played by reigning ideology cannot be discounted when considering Soviet psychology (McLeish, 1975; Oleinik, 1996). The rallying call of 'all like one, one like all' is evidence of the nature of the times in which retarded children's education was ignored and the task of creating a homogenous society without class distinction was very much part of the socialist nation ideal (Kozulin, 1987; Malofeev, 1998).

One cannot unequivocally state that Western psychological traditions are typically individualistic even though there is an identifiable trend witnessed in these various traditions. It is of interest to note that Vygotsky adhered to Marxist philosophies as he was a leading Marxist theoretician and sought to reform psychology by integrating Marxist thought within his approach to child assessment (Luria, 1979). Yet his novel approach was effectively banned in the Soviet Union (Cole & Scribner, 1978; Kozulin & Presseisen, 1995; Yaroshevsky, 1996). "To look at Vygotsky's book Pedagogical Psychology, one had to have a special pass from the KGB that would admit one to the restricted reading room in the Lenin library where the book could be read" (Davydov, 1993 in Kerr, 1997, p.4). This is reminiscent of the period and circumstances during which Soviet psychology was being developed. During the 1930's both Luria's and Vygotsky's work was a blended version of Soviet and Western psychological ideas, seeking to utilise what both traditions could viably offer (Joravsky, 1989). Luria's pioneering ethnographic work in Soviet Central Asia preceded work conducted within anthropological studies in the United States (Hunt, 1994).

McLeish (1975) offers two reasons as to his unpopularity by stating the lack of sufficient Marxist quotes in his texts and his affiliations with pedology which was the general all-round study of child development and hence testing (Sutton, 1988). There is no such thing as a Marxist psychology even though it is in some instances referred to as such, for Marx never developed such a system but did remark on questions of psychology (Madsen, 1988; Rubinštejn, 1987). There was a fervent attempt at the creation of Marxist dialectical materialist psychology and science in general (Hydén, 1988; Tobach, 1996). Ageyev (2003) highlights various difficulties which Western students face when reading Vygotsky. Marxism and its related philosophy is not the mainstay of Western education and the connection with Vygotsky is often strange to some.

Why were Soviets so immersed in this philosophy? Ironically, states Ageyev (2003), Vygotsky is often decontextualised which goes against the grain of his cultural-historical theory! Much of Soviet history is indeed perplexing especially when seen in the light of favourable and unfavourable art, music, dance and theatre and cultural life in general where state approval was often the precursor to success. Trends and governing regulations were often fickle with many Soviet artists and scientists becoming blacklisted almost overnight for some supposed transgression which supposedly reflected the State in a bad light. Musicians and dancers whose works were considered atonal, naturalistic or cacophonous were discouraged (McLeish, 1975). Goldberg (1982) casually refers to this state of affairs as not atypical and to be accepted as part of Soviet history. Brožek and Slobin (1972) claim that Vygotsky was the first Russian psychologist to depict, in entirely psychological terms, a Marxist account of the socio-historical nature of human consciousness and adhered to a dialectical materialist account of psychology which is briefly described below. The subscription to materialist monism, that is, mind is brain; determinism, or the interests in biogenetic studies of development which was a characteristic of 1920-1930's Soviet psychological science; reflection, where consciousness is a reflection of external reality; the unity of consciousness and activity where consciousness is formed by the activity in which one engages; historicism in which the development of consciousness emanates from human history; the unity of theory and practice in which theory is only as good as its application in practical contexts usually in educational, child, work psychology and lastly psychopathology (Teplov, 1961).

One can clearly follow a thread in Vygotsky's thoughts regarding the utility of dialectical materialism. The focus is on external impinging social reality in the formation of consciousness, the notable influence of historical processes in the development of mind or brain and his

application within pedagogical or pedological contexts. Interestingly, the above accords with similar notions as advocated within a positivist framework which has indeed been remarked on (Bickley, 1977). Such positivist interpretations were encouraged during Stalin's reign but rigid and unwavering adherence to strict positivism where objective facts were assimilated without being processed actively by the individual was anathema to Vygotsky (Van der Veer, 1996). One needs to tread carefully over the terrain of reigning popular conceptions of Soviet psychology and the movements within and around it by individual researchers. Bauer (1959) distinguishes two types of Marxism. There is a 'vulgar Marxism' which affirms a popular rendering of the common understanding of Marxism which concerns itself with materialism, mechanist and deterministic understandings of behaviour. The second understanding of Marxism is a more reflective one in the understanding of consciousness and the processes involved in active perception all the while acknowledging a separate yet extant reality. The conflict between the two conceptions played out in areas other than Soviet academia.

The see-saw notion one gets from reading the history of Soviet psychology is likewise attested to in the works of various Soviet psychology scholars. Certain theorists and researchers' work was considered acceptable at one point in time only to be deemed unacceptable later on. This is indicative perhaps of the complicated role played by ideology and how academics had to manoeuvre within the system. One of the key features in common among the group of researchers led by Vygotsky, was the emphasis on practical applicability and the development of a psychology in practice. This is exemplified in the works of, among others, Vygotsky's own research with handicapped children, Luria's studies of twins, Leontiev's study of school children's concept formation development, Zaporozhets' work into child mental development,

Galperin's studies of the manner in which tools were mastered by children and Zinchenko's work in memory (Zinchenko, 1982).

Influences

Another giant in developmental psychology with whom Vygotsky is often compared and contrasted within the psychological development and educational literature is Piaget (DeVries, 2000; Duveen, 2000; Feldman & Fowler, 1997; Lloyd, 1995; Matusov & Hayes, 2000; Moll, 1989; Niaz, 2001; Santiago-Delefosse & Delefosse, 2002; Smith, Dockrell & Tomlinson, 2000; Tryphon & Vonèche, 1996). It can be postulated that Piaget approached the study of cognition from a structural position whereas Vygotsky did so from a functionalist point of view (Campbell, 1993; Moll, 1989). Piaget's work consists of many theories in contrast to Vygotsky's somewhat undeveloped scheme and much less experimentally validated theory (Smith, 1996). They are juxtaposed in terms of the respective theories' emphases on the individual within the social context and the social context as impinging on the individual as well as their respective views on accommodation and assimilation and ZPD (Van Geert, 2000). Vygotsky criticised certain aspects of Piagetian thinking yet read and commented on Piaget's work (Santiago-Delefosse & Delefosse, 2002; Tryphon & Vonèche, 1996). For instance, mediation does not feature as prominently in Piaget's works as they do in Vygotsky's even though it is appreciated that mediation of cognitive functioning does occur via a process within the developing child; the structural overlap between different stages require that certain functions become available (Case & Edelstein, 1993; Haywood, 2003).

As MartÍ (1996) states "the individual, endogenous, operatory, universal constructivism, which accounts for the progress of the Piagetian subject, is opposed to the social, exogenous, semiotic,

and contextual development inherent in the Vygotskian subject" (p. 57). The two did converge on the aspect of interaction in which mind collaborates with environment and their overall aspiration of humankind towards rationality, although they placed emphasis on differing aspects (Wozniak, 1996). Piaget's end-point was a universal human rationality whereas Vygotsky proffered rationality in terms of its functional utility within the state and economy (Wertsch, 1996). The degree of overlap between the two is testament to the utility of a combined summation of their approach and the application of both frameworks in work with developing children (Bidell, 1988; Smith, 1996). Although Piaget was never to personally meet with Vygotsky, he did express admiration for his work and lamented about not having read his work earlier (Guthke & Wingenfeld, 1992). Piagetian tasks were employed in Russia during childhood assessments and the Soviet interest in Piaget can be explained by the need for the 'new Russia' to conceive of a similarly 'new man'. Secondly, Piaget's approach was one of the few options viable to the new Soviet psychology in terms of not being expressed nor couched within a bourgeois philosophy (Tryphon & Vonèche, 1996). Evolution has been offered as an amalgamating framework within which to unify and view psychology. The rationale is that all behaviour is a result of evolutionary adaptation and change. Piaget, did after all, enter the field from having studied biology to better understand the evolutionary practices at work within psychological descriptions of behaviour and developmental psychology has obvious roots in evolutionary theory (Bjorklund, 1997; Li, 1996; Weinert, 1987).

Viewing mathematical skill within both approaches evidences the differences between the two. Piaget emphasised the logical progression of understanding as the individual matures such as innate preparedness in contrast to Vygotsky's emphasis on mathematics as a cultural tool which is mediated to children (Bryant, 2000; Resnick & Nelson-Le Gall, 2000). The dual roles and

processes involved in development in the individual functioning within a broader context often results in the comparison of these two researchers' works. Yet a call for the synthesis of what can only be referred to as two great traditions (as many scholars have since made enormous strides within neo-Vygotskian and neo-Piagetian theory) makes more sense than a complete divorce. This hybridsation is encouraged generally but more so from an educational viewpoint where the learning process and development co-occur, for instance thinking develops from teaching and teaching develops from thinking (Shayer, 2000; Sylva, 2000).

Extensions of Vygotskian ideas

Vygotsky's ZPD stands in stark contrast to the *g*-centred research in mainstream assessment and the almost natural urge among mainstream assessors is to try and quantify a concept which seems to lie beyond such an attempt (Ageyev, 2003). However this is precisely the problem within current dynamic assessment: the need to quantify and model change. Vygotsky himself did not conduct any experimental validation of the ZPD in his own short life-time leaving it open in a sense to future adaptation and experimentation (Sternberg & Grigorenko, 2002). Perhaps the need to quantify the ZPD is another symptom of mainstream assessment. Vygotsky's ZPD was only 'recently' researched for the first time in American literature in 1964 (Das & Conway, 1992). It was brought to the fore in particular by Budoff and his team who were among the first to apply Luria's modified version of Vygotsky's ZPD (Hamers, Hessels, & Pennings, 1996). The beginnings of *g*-related research had ignited following Spearman's seminal paper in 1904 so Vygotsky would most likely have known about it. ZPD is fundamentally a language-centred socio-cultural theory of development and the main proponent of such theory is Leontiev, a Soviet theoretician. He argued that the individual changes qualitatively through life, being influenced by

social and economic factors and is not set by biological heredity (Alfassi, 2002; Coles, 1982; Kostyuk, 1972). Vygotsky's ZPD is illustrated in figure 2 below.

Insert Figure 2 here

He speaks, too, of original learning as being chiefly characterised by responses to environmental stimuli much in keeping with the Pavlovian tradition (Leontiev, 1961). Leontiev criticised Western tendencies for describing psychological reality as a registry of functions without context, as the best experimentation occurs outside laboratory settings, notwithstanding the obvious severe set-backs (Shotter, 1989). This is in keeping with current disability research which promotes the understanding of disability within the real-life situation (Grigorenko, 1998). Along with Vygotsky and Luria, Leontiev contributed to what was later to become cultural-historical activity theory. This was also founded upon principles of dialectical materialism which is self-explanatory in terms of its power as an implementable tool (Hydén, 1988; Lee, 2003; Sheng, 1996). Although his theory can be viewed as an extension of Vygotsky's, there are elements within Leontiev's theory which are not present in Vygotsky's and his deliberations on the concept of activity was the more generally accepted one (Hydén, 1988; Wertsch, 1981).

Later, followers of Vygotsky replaced the idea of semiotic mediation with that of activity theory where practical actions took precedence in theory and research (Robbins, 2001). Vygotsky, although never acquiring theoretical status in his theory, used the term activity largely to denote a process of being engaged in something or simply being active (Hydén, 1988). Mental processes are the direct result of human activity. The notion of labour is particularly evident here and hence its link to Marxist philosophy. Soviet psychology took pains to mitigate the effects of capitalist

notions within its own developed ‘labour psychology’ (Guthke &Wingenfeld, 1992; Kotelova, 1972; Noskova, 1996). It is through such activity that learning occurs and is very similar to the Piagetian notion of learning by engaging with reality (Das & Conway, 1992).

Activity or labour was so fundamental a concept during the early decades in Soviet psychology that even the realm of emotions was considered most amenable to study when viewed from a labour point of view. Here, man at work becomes equated with his emotions (McLeish, 1975). Marxist concern with equality of distribution and the resulting perplexity by members of more capitalist societies is perhaps one reason why such early dynamic assessment models were anathema to Western countries (Rand & Tannebaum, 2000). Vygotsky has thus been referred to as a meta-psychologist and for very good reason (Kozulin,1986; Robbins, 2001, 2003). Cognisance must be taken of the parallel developments within the West at this time where individuals were studied so as to better understand them and not always necessarily to assist them. Vygotsky’s idea that thinking was dialogue transferred is superbly rendered within a social system where the individual becomes such through others and it can clearly be seen how such mediated learning was to become such a prime concern for Feuerstein later on (Shotter, 1993).

Individual consciousness becomes secondary in the transmission of social consciousness and his ideas are similar to those of G.H. Mead and are traceable to the works of French psychologist Pierre Janet who in turn was influenced by Emile Durkheim and the French sociologists (Cole & Scribner, 1978; Kozulin, 1990; Nicolopoulou, 1993; Van der Veer & Valsiner, 1991; Vygotsky, 1981b; Wertsch & Tulviste, 1992). Janet’s concern for the ‘other’ within development seems to have influenced Vygotsky’s thoughts in this regard but Vygotsky was the first psychologist to introduce the aspect of culture into the study of the nature of being human (Cole & Scribner,

1978; Kozulin, 1986). The Gestalt movement and its appeal to holism found a generally receptive audience in Russia at the time and with Vygotsky specifically as it accords with manner of the Gestalt approach to perception as opposed to behaviourist approaches (Van der Veer, 1996). Among other Western psychologies, Vygotsky also critically analysed the areas and works of Piaget, personalism and behaviourism (Brožek & Slobin, 1972; Kozulin & Presseisen, 1995). However programmes such as Gestalt psychology and psychoanalysis was deemed bourgeois. They were viewed as departing quite radically from 'objective psychology' characterised by Pavlovian and Bekhterevian psychology (Wozniak, 1996). As such they were considered inappropriate for study, resulting in the later unfashionable Vygotskian school which was all but abandoned for many years until it became fashionable once more around 1956 after the death of Stalin (Guthke, 1982; Kozulin,1986; Toomela, 2000; Van der Veer & Valsiner, 1994).

Reigning political ideas

This abandonment can perhaps best be understood with Vygotsky's programme being labelled anti-Marxist and bourgeois. However the further one delves into the reasoning behind this successive banning and resurgence of his work the more difficult it is to understand. Leontiev and his research group, for instance, aligned their theory more in keeping with the 1936 communist party decree stating that pedology (educational psychology) should be banned. This was most likely to do with the assumption of equal intellectual endowment in children and hence a means of moving away from a class society so despised by Bolshevists (Gilgen & Gilgen, 1996). It was maintained that it was on the labour of the masses that society prospered and not on the intellect of the intelligentsia but there were also other reasons why Stalin has chosen pedology as part of his purge policy.

The social determination of thinking had as a result educational thoughts on development assuming socially mediated learning representing complete development which of course did not manifest (Grigorenko, 2004). Nevertheless, Gindis (1995a) maintains that an objective history of pedology has yet to be written. There was thus a turn away from previous pre-soviet physiology to a more inclusive social psychology (Bauer, 1959; Koltsova, 1996; Vasilev, 1996). In effect the decree meant the following; (i) the school psychologist's activity was to be drastically reduced in scope and activity with the subsequent increase in status of the educator in matters psychological; (ii) no more testing was to be allowed; (iii) the expurgation of the study of personality and the disbandment of industrial psychology; (iv) the concept of man was now more purposive and conscious; (v) training was to receive more emphasis as opposed to the role played by the environment (the latter which Vygotsky and those before him emphasised) and (vi) lastly that the task of psychologists was to churn out socialist citizens as opposed to laying emphasis on the biological being's interaction with the environment. It is understandable that Vygotsky's programme came under severe limitations (Abulkhanova-Slavskaya & Brushlinsky, 1996; Bauer, 1959).

This played out in the subsequent banning of such tests in East Germany at the time as well as the subsequent disappearance of intelligence tests in China following the goings-on in the Soviet Union and the later cultural revolution in China (Guthke & Beckmann, 2000; Shi, 2004). This is perhaps a contributory reason why dynamic assessment or the learning-test concept took hold in Germany as strongly as it did (Kirmann & Sporer, 1983). There was a strong current and flow of ideas between the former East Germany and Soviet Russia; ideas which were not necessarily transported to the West (Robbins, 2001; Woodward & Clark, 1996). The works of Western psychologists were originally translated into Russian but were increasingly filtered so as to guard

against ideological contamination (Joravsky, 1989). Soviet psychology journals were likewise banned for 23 years and were officially declared acceptable only in the 1950's after Stalin's rule. Even the major journals ceased publication from 1932-1934 and publications remained sparse until 1946 when serial publications of the Academy of Pedagogical Sciences was inaugurated (Bauer, 1959). Leontiev's emphasis on socio-historical Marxist influenced approaches towards human behaviour moved away from Vygotsky's original concern with sign within culture.

Although it is possible to identify Marxist feelings within Vygotsky's work, he criticised others' works for abusing Marxist writings and inappropriately attempting to integrate Marxism into their work (Robbins, 2003). In fact so tumultuous were the times that Luria most likely changed his research direction from psychoanalysis to clinical neuropsychology due to its distastefulness. Luria's extensive work in neuropsychology has had much influence in the discipline today and intelligence models have been based on his research into brain malfunction. One need only think of the Das and Naglieri model of the assessment of attention, simultaneous-successive coding, and planning (Angus, 1985; Das, 1998; Das & Naglieri, 1992; Das, Parilla & Papadopoulos, 2000; Naglieri, 1997). Vygotsky's work has indeed seeped through to a very deep level in the West at a time when the Soviet Union had all but banned Western scientific literature and severed ties with Western academic counterparts (Valsiner, 1988).

The continuance of theory

Vygotsky's work was continued by the Kharkov group during the 1930-1940's in which internal or mental events mirrored and corresponded to external activities (Galperin & Talyzina, 1961; Kozulin,1986). Leontiev became leader and the group was populated by Vygotsky's students and co-workers who had 'disserted' him (Van der Veer & Valsiner, 1991; Woodward & Clark, 1996).

Years later during the 1960's various aspects of the Kharkov group's work was considered as representative of Soviet development psychology including 'perception as action' as pronounced by Zaporozhets as well as the concept of 'step-by-step formation of intellectual actions' of Galperin (Kozulin, 1986). Galperin was a follower of Vygotsky's socio-cultural programme but developed its educational implications further and was involved in the foundation of the Kharkov school (Haenen, 2000; Wertsch, 2000). He deviated somewhat from Vygotsky on his emphasis on more reductionist approaches to the study of development criticising Vygotsky's all-encompassing and overarching sub-areas of concern (Van der Veer & Valsiner, 1991). He preferred to scale down as opposed to enlarging the subject domain. Passing away in 1988 he was one of the last people to have personally known Vygotsky. Vygotsky never joined the Kharkovites but many of his students and followers did. Hence, emphasis within Russian dynamic assessment has traditionally been placed on two aspects; diagnosis of learning aptitude and Galperin's learning-teaching experiments (Lidz & Gindis, 2003).

'Destalinisation' or the depoliticising of psychological science resulted in the resuscitation of Vygotsky and the subsequent translations of his works into English including the criticism of Leontiev's work by Russian psychologists as well as the general restructuring of Soviet psychology (Bishop & Solso, 1996; Hydén, 1988). These 1960's translations culminated from the West's invigorated concern with cognitive aspects in psychology after the so-called grand collapse or downfall of behaviourism which had under the behaviourist tradition been a non-issue (Green, 2001; Turner, 2001;Valsiner,1988). It was also during the 1960-1970's that intelligence made its come-back in Russian psychology when tests were once again carried out (Grigorenko & Kornilova, 1997).

Vygotsky's work often reveals itself as thoughts and models in search of grounded theory, which he did not have time to formulate due to his untimely death. Translation of Vygotsky's work has undergone a parallel 'Americanisation' which resulted in the loss of his poetic and philosophical style and has also been 'tainted' by misunderstandings of his work primarily due to cultural differences between Soviet and American life (Kozulin, 2002 in Ageyev, 2003). Ecosystemic models of human functioning closely align with non-Western dynamic assessment precursors (Valsiner, 1988) and as Robinson-Zanartu and Aganza (2000) point out, it is easy to understand why a systems thinking approach in dynamic assessment was only a relatively recent phenomenon in the West. It is interesting to note here that perhaps Vygotsky's unadulterated readings are more in keeping with some non-Western collectivist cultures. Contrasting notions such as individualism as opposed to collectivism or American vs. Russian or European vs. African surface (Eskola & Weckroth, 1996). The psychology of person-in-society and the behaviour that accompanies it differs from that in many Western countries (Filatova, 1996).

Over and above this rather simplistic rendering of another culture, is what Ageyev (2003) refers to as high- and low-context communication cultures which dictate the nature of communication. Westerners tend to be blunt and straightforward vs. high-context communication cultures which do not engage as directly. What is not said or done is equally as important as that which is made manifest. All cultures express in some form or another intelligent functioning even if it is not directly referred to as such. Even within one single European framework competing alliances and histories evidence the varied paths followed by intelligence researchers. For instance, French research follows after Binet, German research after Wundt, British work after Spearman and United States' followed in the wake of, among others, Thurstone and Thorndike (Sternberg, 2004).

Regarding learning disabilities, which in the West is attributed to internal functioning of the child, socio-cultural understandings emphasise external factors and stress that learning abilities are in fact learned. Neurological underpinnings are not, however, swept aside for one need only look towards the work of Luria on brain functioning and injury and his citation of Vygotsky as his mentor. Socio-cultural and neurological theory become intertwined in the fuller understanding of the individual. Dialectical materialism as basis for much Soviet work is itself descriptive of research which poses contradictions in the hope of finding 'true' information (Coles, 1982). The continuous interplay between supposed polar opposites brings about development. One can express it as the individual within society, the neurological within the larger system and learning abilities within socio-historical contexts. Such 'activity' throughout life is not the equivalent of stimulus-response behaviour as understood by mainstream psychology because the mental intervenes and mediates responses. Pavlovian psychology was likewise criticised for this approach to human behaviour. Vygotsky transcended S-R research by including mediation. Yet he also did not veer off into introspectionist psychology where consciousness studies often sought explanations by referring back to that which they were attempting to explain; i.e. a tautologous system (Kozulin, 1986; Leiman, 1992). Activity is a loose term and has undergone changes in definition since its inception in the 1920's (Kozulin, 1986).

The future path

The appreciation for the greater context in which humans live their lives formed part of Soviet understandings of life and regarded Western experiments within psychology laboratories with scepticism (Coles, 1982). Echoing the dialectical relationship between contrasting aspects, Vygotsky followed on in the tradition of seeking to integrate both learning and the development process, denying that the two worked in isolation. His thoughts and views on human development

were not clearly defined into ready-made categories such as strict biological psychology or wholly hermeneutic and cultural but have been described as being 'in between' these various approaches (Brennan, 1982; Shotter, 1989). He also utilised static conceptions such as mental age and the validity of standardised assessment as reliable measures of psychological performance but did offer trenchant critique (Lidz & Gindis, 2003). Vygotsky's conception of mediation is also not a unitary description and ranges from mediation of activity to the acquisition of scientific concepts (Leiman, 1992). Vygotsky's theoretical contributions towards a more fully integrated contemporary dynamic assessment must be cognisant of the psychological tools which are in need of mastering by the developing child and this takes place within varied contexts such as language, cognitive and social development (Lidz & Gindis, 2003). Such tools are not individual implements but reflect social symbolism and communication (Kozulin & Presseisen, 1995). Tools can of course also refer to physical objects which are made and utilised by human beings in a way not used by higher primates and other animals (Luria, 1994). The former relies on 'native physics' and the latter on visual cues with no use of symbols in anyway (Vygotsky & Luria, 1994). At least one can say that the cognitive processes used are dissimilar, where primates may use spatial cues for manipulation of the environment, humans make use of causality.

Learning and instruction are intimately intertwined yet not identical and seeking the separation of the two will not result in a contextualised and situated approach as cultural-historical theory dictates (Kostyuk, 1972; Menchinskaya, 1972). Vygotsky's emphasis on the interdependence of instruction and development is evident in his discussion concerning the appropriation of academic concepts through schooling (Vygotsky, 1994g). Hence the need to continuously inform assessment from mediation and vice versa. It is still the case in more instances than not, that

dynamic assessment although attractive for a variety of reasons is still very difficult to implement in practice (Elliott, 2000).

ZPD's size can change throughout life and is not fixed and can change in relation to the task as it is a product of the interaction. This is in keeping with modern-day understandings of the plastic brain. ZPD can shrink and grow depending on the nature of intervention as well as on the timing of such intervention. The length of intervention or training will also likely change depending on the nature of the task and the level of experience. In keeping with cognitive theory which states that the more one knows the easier it becomes to know, ZPD and the handling of it becomes compatible with the broader encompassing cognitive theory. The larger the number of currently maturing functions within the developing child the more indicative of potential as opposed to those functions which have already matured. Shared or joint activity (with more able peers, teachers, parents and family) stimulates the growing functioning of the child and in order to ascertain or pinpoint maturing functions, collaboration is necessary. Functions which are not yet matured cannot easily be used in assessment so the next best aspect to look towards is the level of imitation which indicates the readiness of the child to engage socially with his function. This is most likely the reason why Vygotsky emphasised the importance of play as measure and developer of cognitive functioning towards higher mental functioning but has been criticised due his overemphasis on imitation. Such higher mental functioning was assessed across domains including memory, attention and decision making (John-Steiner & Souberman, 1978; Kozulin, 1990).

Conclusion

It is considered necessary to plumb the depths regarding dynamic assessment's history and growth within its Soviet origins. Dynamic assessment is a perennially intuitive and appealing framework around which assessment issues have constantly interacted in some form or manner whether it was explicitly or tacitly admitted as such. A defining feature of this manner of assessment is its origins in chiefly non-Western countries where mainstream Western methods of assessment have either been banned or sceptically viewed. This has been due, in part, to the resulting appearance of low functioning individuals or due to reigning political ideology which via grand philosophising was not only considered deviant but dangerous. The need to somehow assess and assist low performing individuals necessitated an alternative approach which was both grounded in some sort of theoretical approach and amenable to wide-scale testing. Various themes emerged from a few core ideas that germinated during the early half of the twentieth century yielding parallel forms of assessment ideas that were both geographically and temporally separated yet shared a common theme stretching across these dimensions. Themes include a concern for fairness in assessment and a sustained effort to help those in need of assistance in a manner befitting more clinical-like modes of interaction.

Coming to grips with dynamic assessment requires knowledge of its historical and philosophical roots. These tendrils are varied and only a brief look into Lev Vygotsky's Russia transpired in an effort to place one origin of this manner of testing. In essence, Vygotsky did not denounce mainstream testing and was forced to reckon with unpalatable dictatorial powers which coerced so many of his colleagues into other areas of research. Perhaps in hindsight it can even be said that had it not been for these circumstances, the model from which much has grown might never have come to light. Attendant to this was Vygotsky's seemingly own under-emphasised notion of the zone of proximal development which was not a fully fledged theory. It has since inspired

many researchers in the West, however, to continue in similar vein. An important question to ask as this juncture is the feasibility of continuing to develop dynamic assessment allied to the notions set out by Vygotsky and Feuerstein or to develop this manner of change-based assessment along new lines. To what extent can it be stated that dynamic assessment is dependent on its history? How far can we proceed before violations of core assumptions deviate too broadly? The answers to these questions are open for much debate but will aid in the further development of dynamic assessment in the 21st century.

Dynamic assessment's tenets and founding fathers, although grounded in what has been described above, have not decried the use of mainstream intelligence testing nor have they advocated its disuse. Dynamic assessment's concern with educability and trainability of individuals is underscored by the various assumptions regarding child development, specifically cognitive development. There is a traceable link between Vygotsky, Piaget and Feuerstein and their respective theories and models infiltrate modes of learning potential assessment with various differences and similarities. Perhaps one of the major issues within the field as it touches upon development theories is the degree to which humans are collaborators in their construction of the world as opposed to operating on the environment due to inherent timings which are genetically controlled. Piaget's theory was not a mechanistic treatise suggesting that the child develops only in strict accord with genetic developmental pacing but placed emphasis on the continuing interplay of both environment and genetic determination. Vygotsky's similar notion of environmental concern was more directed upon mediators in the environment which could helpfully provide enough 'push' for the developing child so as to bring about growth which may not have occurred had such mediation never taken place. It is hoped that dynamic assessment will be set upon a firmer footing both conceptually and practically and that the movement will outlast

initial scepticism in both local and international assessment arenas. Yet in order for this footing to be more solidly grounded nascent beginnings need to be understood which is what this article has striven to highlight.

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Table1 Placement of dynamic assessment precursors within the broader context of Russian psychological history (Sahakian, 1975)

A cursory glance: Pedology as placed within the broader context of Russian psychological history	
Precursors of Russian psychology	• The Russian enlightenment – chiefly characterised by M.V. Lomonosov (1711-1765) who founded the Moscow University in 1755 and is considered the founder of Russian philosophical materialism • Russian associational psychology – P.M Lyubovsky, who initiated experimental psychology and put forward the notion of associationism as explanation of mental processes (the mind is organised via a process of organisation emanating from the ideas of Locke and James; Harnish, 2002). Binet, in France chose to break away from mainstream associationism thus propelling the study of intelligence towards the direct measurement of processes as opposed to the then current manner of associationist research (Lautrey & De Ribaupierre, 2004) • The revolutionary democrats – materialistic psychology, active in and around the 1860's concerned with issues such as psychology's placement within the broader field of science, its link to other areas of science and the questions surrounding physiological and mental processes • Early experimental psychology – founded by N.N. Lange (1858-1921) who founded one of the earliest psychological laboratories. This period also witnessed progress in personality, general and comparative

	psychology
The reflex period	• Reflex theory of mental activity – I.M. Sechenov (1829-1905); considered the founder of Russian physiology • Conditioned reflex or classical conditioning – I.P.Pavlov (1890-1936) • Typology – the study of human individual differences and psychological types – B.M. Teplov (1896-1965) • Orienting reflex – E.N. Sokolov who investigated the neural mechanisms of the orienting reflex • Reflexology – V.M. Bekhterev (1867-1927) who influenced Watson but was historically eclipsed by Pavlov • Reactology – K.N. Kornilov (1879-1957) – who challenged and criticised the work of Bekhterev, stressing the link between the physical and mental, hence the reaction of organisms to the environment (biosociological) • Theory of the dominant – A.A. Ukhtomsky (1884-1942) whose work centred chiefly around neurology thus further inspiring experimental psychology
The pedological period	• Pedological theory – P.P.Blonksy (1884-1941) who emphasised the importance of the relation between heredity and environment within child psychology
The dialectical	• Dialectical materialism (1930-1950) was the main authoritative

era	representation of Russian psychology during the period of test bans. Prior to this movement human beings were considered products of genetic heritage and environmental influences. Education as notion now intervened heavily. This movement was a fusion of German Hegelian and Feuerbachian philosophies mixed with Marxist thought culminating in the primacy of 'the social' in many aspects of theories developed during this period • Sociohistorical or cultural historical development – L.S. Vygotsky, A.R. Luria and A. Leontiev (more on these researchers in the discussion below) • Formation of psyche as activity – S.L. Rubinstein (1889-1960) who sought and advocated the unity between the mental and the physical; that mental is fully integrated into the physical development of the organism, that human beings change as society changes and that theory and practice should function as a unit • Involuntary memory – A.A. Smirnov and P.I. Zinchenko who viewed involuntary memory as the result of goal-directed behaviour (i.e. learning and retention is aided by the nature of the task and its context)
Psychology in Armenia and Georgia	• Relevant research

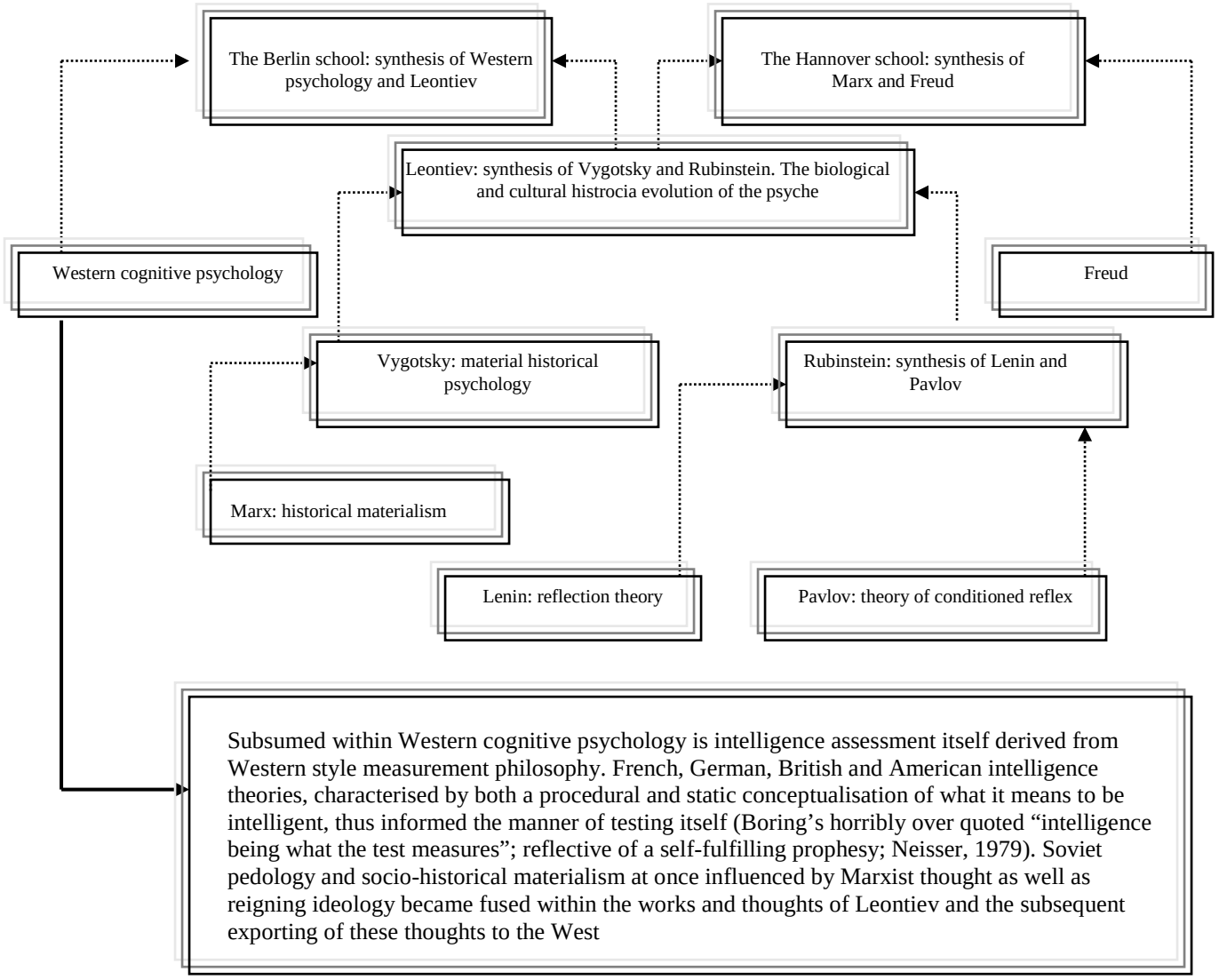


Figure 1 Linkages between schools of thought with emphasis on Soviet systems (Madsen, 1988, p.444)

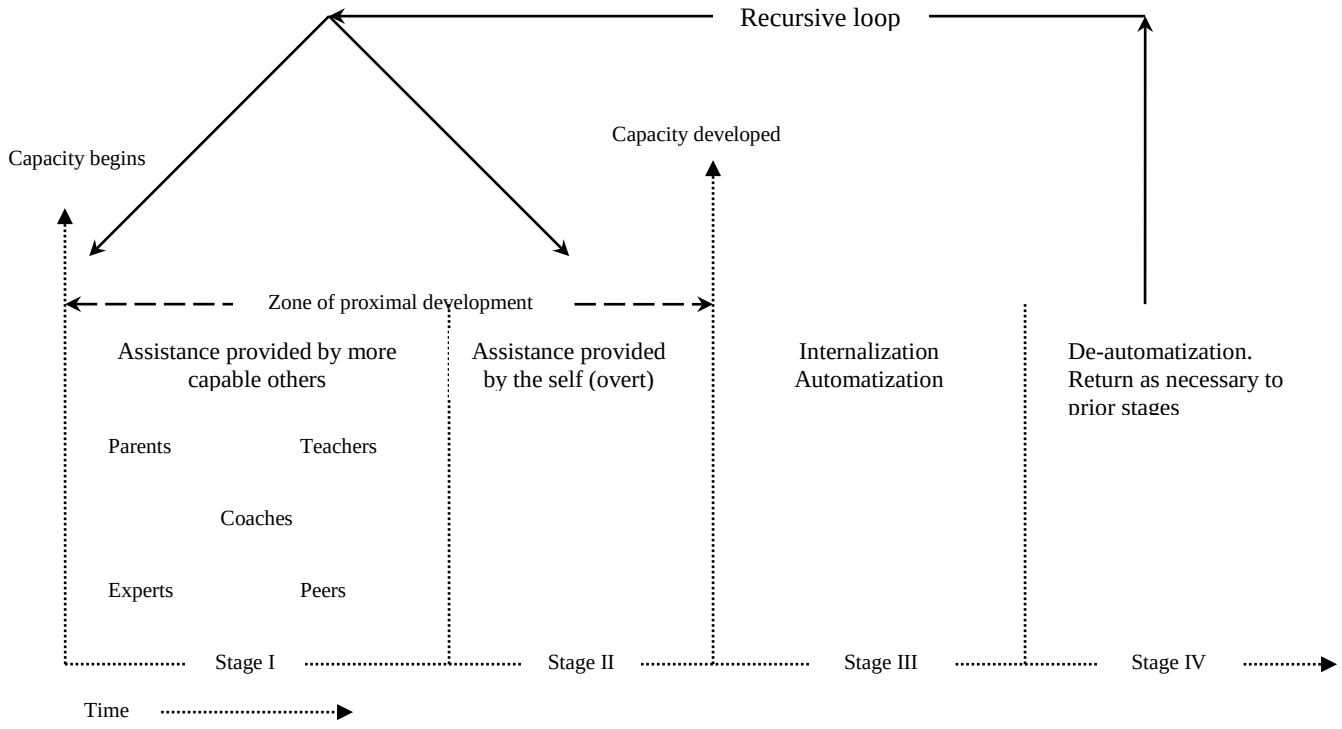


Figure 2 Tharp and Gallimore's (1988, p.35) depiction of Vygotsky's zone of proximal development