

CULTURAL-HISTORICAL RESEARCH METHODOLOGY FOR STUDYING OF CHILD'S DEVELOPMENT: CONCEPTS AND PRINCIPLES

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Abstract

This paper summarises a series of studies on the cultural-historical research methodology for studying child development, which was created by the author in developing Vygotsky's experimental-genetic method. This article presents the main traits of Vygotsky's experimental-genetic method and main principles of cultural-historical genetic research methodology. The article provides with several examples of experimental studies of the process of child development in contemporary research which show the cultural-historical research methodology in action. The article argues that this methodology is a genetic as it is focused on the process of development, it is a research methodology as it allows to formulate new types of research questions and finally, this is a cultural-historical methodology as it includes the system of concepts (theoretical analytical tools) and principles of research method (experimental method) which create a coherent unity.

Keywords: Historical-cultural research methodology; Child development; Method in Vygotsky.

Metodologia de pesquisa histórico-cultural para o estudo do desenvolvimento infantil: conceitos e princípios

Resumo

Este artigo resume uma série de estudos sobre a metodologia de investigação histórico-cultural para o estudo do desenvolvimento infantil, que foi criada pelo autor ao desenvolver o método genético experimental de Vygotsky. Este artigo apresenta as principais características do método experimental-genético de Vygotsky e os principais princípios da metodologia de investigação genética histórico-cultural. O artigo apresenta vários exemplos de estudos experimentais do processo de desenvolvimento infantil na investigação contemporânea que mostram a metodologia de investigação histórico-cultural em ação. O artigo argumenta que esta metodologia é uma metodologia genética, uma vez que se concentra no processo de desenvolvimento, é uma metodologia de investigação, uma vez que permite formular novos tipos de questões de investigação e, finalmente, é uma metodologia histórico-cultural, uma vez que inclui o sistema de conceitos (ferramentas analíticas teóricas) e princípios de método de investigação (método experimental) que criam uma unidade coerente.

Palavras-chave: Metodologia de investigação histórico-cultural; Desenvolvimento da criança; Método em Vygotsky.

Méthodologie de recherche historique-culturelle pour l'étude du développement de l'enfant: concepts et principes

Résumé

Cet article résume une série d'études sur la méthodologie de recherche culturelle-historique pour l'étude du développement de l'enfant, qui a été créée par l'auteur lors du développement de la méthode expérimentale-génétique de Vygotsky. Cet article présente les principaux traits de la méthode expérimentale-génétique de Vygotsky et les grands principes de la méthodologie de recherche culturelle-historique-génétique. L'article fournit plusieurs exemples d'études expérimentales du processus de développement de l'enfant dans la recherche contemporaine qui montrent la méthodologie de recherche historique-culturelle en action. L'article soutient que cette méthodologie est génétique car elle est centrée sur le processus

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de développement, qu'elle est une méthodologie de recherche car elle permet de formuler de nouveaux types de questions de recherche et enfin, qu'il s'agit d'une méthodologie culturelle-historique car elle inclut le système de concepts (outils analytiques théoriques) et les principes de la méthode de recherche (méthode expérimentale) qui créent une unité cohérente.

Mots-clefs: Méthodologie de recherche historico-culturelle; Développement de l'enfant; Méthode chez Vygotsky.

Introduction

Finding a method {and therefore conceptualising a methodology} is one of the most important tasks of the researcher

(Vygotsky, 1997, p. 27).

This article summarises a series of studies, presented in my publications for several years (Veresov, 2010, 2010a, 2014, 2014a) on the cultural-historical research methodology for studying child development, which was created in developing Vygotsky's experimental-genetic method. The principles for organizing and conducting experimental research that underlie this methodology have been validated in several studies in Australia, Brazil, Russia, Sweden and Greece (Barbosa Nasciutti et al., 2016; Mandili, 2020; Minson, 2019; Minson, Hammer & Veresov, 2016; Fragkiadaki & Ravanis, 2016; Vidal Carulla & Adbo, 2020). In this summarizing text, I show the role and place of these principles in the general theoretical framework, as an alternative to classical empirical research methods which still prevails in educational sciences.

Do we need a new research methodology and why?

We are searching for a new methodology when the limits of an old one become obvious. In the beginning of XXI Century the dissatisfaction with pure statistical and empirical quantitative methods in psychological research becomes clear and obvious and cannot be neglected or underestimated anymore (Gelo et al., 2008; Mey, 2010; Molenaar, 2004). Simultaneously, as we see rising pleas for rethinking methodological issues, we find various attempts at the re-conceptualisation of these challenging matters on new methodological bases and theoretical frameworks (Toomela, 2007, 2010; Valsiner, 2009; Rosenbaum and Valsiner, 2011; Westerman and Yanchar, 2011 among others). Speaking on these issues, Valsiner (2009) pointed out that there are three major domains of oversight in psychology which are (1) eliminating

the dynamic flow of the phenomena in the data, (2) eliminating of the hierarchical order (part-whole relations) in the transformation of the phenomena into data and (3) eliminating the immediate context of the phenomenon in its transformation into data. In other words – with the task of studying the child development the study itself *is not on development per se*, but represents more or less systematic collection of observable phenomena without disclosing of what generates these phenomena with necessity and how are they connected in a course of child development.

“Dissatisfaction tendency”, which characterises the state of affairs in methodological debates, becomes a crucial and seemingly unavoidable problem with respect to developmental psychology and educational research. What are the methods for studying *the development* of a child in its dynamics and wholeness? It seems that studies in the field of early childhood should not remain indifferent to this new trend towards searching for a new methodology. Even more, findings in the field of child development might bring new solutions or, at least, may open new perspectives. However, is there any research strategy or method in this field which, compared to empirical methods, is able to reflect and to explain the dynamic character of the process under study? Is there any research methodology that is able not only to describe, but to explain the processes in their wholeness and complexity and can be applied to developmental psychology, providing a kind of fruitful combination of quantitative and qualitative approaches? For this we need to zoom out from our research field and take a look at the general meta-scientific scale and the framework; we need to start from the clarification of the question of what is the methodology in general.

Methodology and methods: towards new types of research questions

What do we mean by ‘research methodology’, ‘research methods’ and ‘methodological framework’? How this influence the ways we formulate the concrete research questions? The term ‘methodology’ might be considered in two contexts. Firstly, ‘methodology’

is a set of concrete specific tools and instruments of research selected by the researcher according to his/her research question and theoretical framework. Briefly, it might look like: ‘What are specific research settings, design, instruments and procedures I should use to answer my research question?’ Nowadays, this understanding of methodology is common in academia; however, looking from a historical perspective, this meaning is not the only one (see, e.g. Bickhard, 1992).

Another meaning of ‘methodology’ is a general view on methods and principles which constitute scientific knowledge. For example, In Russian scientific tradition ‘the methodology of science’ is used exclusively in this sense (see, e.g. Kornilova and Smirnov, 2007). In other words, methodology is related to a series of questions: How do researchers formulate their research questions? How do researchers create their research strategies and experimental designs by selecting appropriate and relevant methods according to their research questions? What are the principles of organising, conducting, monitoring and validating experimental procedures? What are the principles of collecting and analysing of data? This understanding of methodology is about a reflection on where your research question came from, what are the main principles of your selection of the research methods and procedures and whether your research question and methods fit the theoretical framework.

In other words, this creates the opportunity for developing the coherent methodological thinking of a researcher. On the other hand, it is not just abstract deliberations. There is a practical aspect here. To make this point clear I would use an example of Toomela (2010) which I slightly modified. Here is the list of five questions to be asked and answered in any study:

1. What do I want to know, what is my research question?
2. Why I want to have an answer to this question?
3. What theoretical and experimental tools do I need to create a research strategy to answer my research question?
4. Are my theoretical tools (concepts and principles) of research and experimental research tools (methods, settings, procedures) in correspondence with each other?
5. Are the answers to four first questions complementary, do they make a coherent theoretically justified whole?

However, the research questions might be of different types depending on what the research is focused on. The cultural-historical research methodology which I present in this paper might be considered as a new way to formulate the research questions with changing the focus from observable phenomena to development. Briefly speaking, this methodology allows:

- Changing the focus of research questions from stages and milestones of child development to the process of development;
- Changing the focus of research strategies from investigation of child’s behaviour to analysis of sociocultural contexts and institutions;
- Changing the focus from investigation of results of development (‘fruits’) to the processes of transformations of ‘buds’ into ‘fruit’;
- Changing the focus from ‘classical observations’ to observations in existing or specially created experimental conditions (Veresov, 2014a).

This article presents 1) main traits of Vygotsky’s experimental-genetic method; 2) main principles of cultural-historical genetic research methodology; 3) examples of cultural-historical research methodology in action in experimental study of the process of child development in contemporary research.

Cultural-historical theory, experimental-genetic method and research methodology

Theory

Vygotsky’s cultural-historical theory (CHT) takes the very process of development of human higher psychological functions as its subject matter. Development is not a simple change, growth or maturation (Vygotsky, 1998, p. 189). Moreover, it is “a historical complex...and an uninterrupted process which feeds upon itself; that it is not a puppet which can be controlled by jerking two strings” of heredity and environment” (Vygotsky, 1993, p. 253). Development is always a very complex and contradictory process, but first of all, *it is a dialectical process of qualitative change*. Psychology needs to create a kind of theory and methods which can investigate the process of development both theoretically and experimentally in its whole complexity and dynamics. By the word “complexity” I mean that the process of psychological

development is a complex process of the qualitative reorganization (metamorphosis) of a certain system, which includes several dialectically important aspects.

These aspects will be discussed later in this paper, yet what is important to mention here is that what makes CHT unique is that every concept refers to a certain aspect/aspect of the complex process of development of the higher psychological functions. The role, place and interrelationships of all the concepts within the theory become clear in terms of the origins and development of the higher psychological functions. Therefore, CHT provides a system of interconnected instruments for the theoretical analysis of the process of development in its wholeness and complexity.

However, theory without an experiment is a voluntary play of mind; an experiment without a theory is a knife without a handle. The researcher needs not only concepts as theoretical instruments of analysis, but the researcher also needs an appropriate experimental method, for which he/she needs adequate experimental instruments.

CHT is a theory that provides a system of concepts as theoretical instruments for investigating the complex process of psychological development. It provides a new, “nonclassical” type of experimental method, which is called the experimental-genetic method.

Cultural-historical experimental-genetic method: main traits

Vygotsky introduced the method of cultural-historical research highlighting that the method we use may be called an experimental-genetic method in the sense that it artificially elicits and creates a genetic process of mental development. Due to this, we are able experimentally, in the laboratory, to elicit a certain development... (Vygotsky, 1997, p. 68).

The first trait of the experimental-genetic method is that it is targeted not on results but on the analysis of the process of development. When the analysis of things is replaced by analysis of process, then the basic problem becomes the genetic restoration of all the instances of development of the given process. The task of analysis is restoring the process to its initial stage or, in other words, “converting a thing into a process” (Vygotsky, 1997, p. 68).

In short, the problem of such an analysis can be reduced to taking each higher form of behavior not as a thing, but as a process and putting it in motion so as to proceed not from a thing and its parts, but from a process to its separate instances (Vygotsky, 1997, p. 68).

The second general feature of the method consists in opposing descriptive and explanatory tasks in genetical analysis. According to Vygotsky, there are two types of analysis—phenomenological (descriptive) and conditional-genetic. The essential difference between the two is that phenomenological analysis takes a given phenomenon as it is in its external manifestation and proceeds from the assumption that there is a coincidence between the external appearance or manifestation of matter and the real, actual, causal-dynamic connection that underlies it. In contrast, conditional-genetic analysis proceeds from disclosing real connections that are hidden behind the external manifestation of any process and asks about “origination and disappearance, about reasons and conditions, and about all those real relations that are the basis of any phenomenon” (Vygotsky, 1997, p. 69).

The third feature is the method allows to find differences in what looks similar and to find similarities in what looks different. Very often two phenotypic common or similar processes may seem to be causally-dynamically extremely different and conversely—two processes that are extremely close from the causal-dynamic aspect may seem different from the phenotypic aspect. Thus, the basis for the phenotypic point of view is a combining of processes that is based on external resemblance or similarities.

Another example is the higher psychological functions. These psychological functions (processes) look differently – logical thinking looks different than the volitional attention, and logical memory looks different than creative imagination. However, genetic (developmental) approach allows to find the similarities: all higher psychological functions are 1) social in their origins (they originate as social relations in forms of cultural collective behavior); 2) they all are mediated by cultural tools (signs) in their construction and 3) they all are voluntary in their mode of functioning.

The experimental-genetic method of analysis was designed to investigate the process of mental development (1) in its dynamic and (2) in its complexity. Furthermore, this method was based on understanding development as a complex process of

qualitative change. And finally, this method provided a causal (genetic), not descriptive (phenomenological), analysis of the phenomena under study. This is true, the majority of Vygotsky's experiments were done with children: however, the fundamental task of experiments was neither to describe changes or differences in development related to age nor to detect specific psychological characteristics of different ages. The general approach was to reveal the general laws of psychological development which lay behind the external manifestations of changes. Early childhood is the most appropriate age to investigate this, since at this time higher psychological functions are in the process of

development. Thus, studies in child development are able to produce results which are important for general psychology, since they bring to bear on the experiment grounds for reconsidering general psychological ideas and principles. This shows the fundamental difference between applying the experimental-genetic method, compared to classical experimental methods, in relation to the area of early childhood studies.

Introducing cultural-historical genetic research methodology

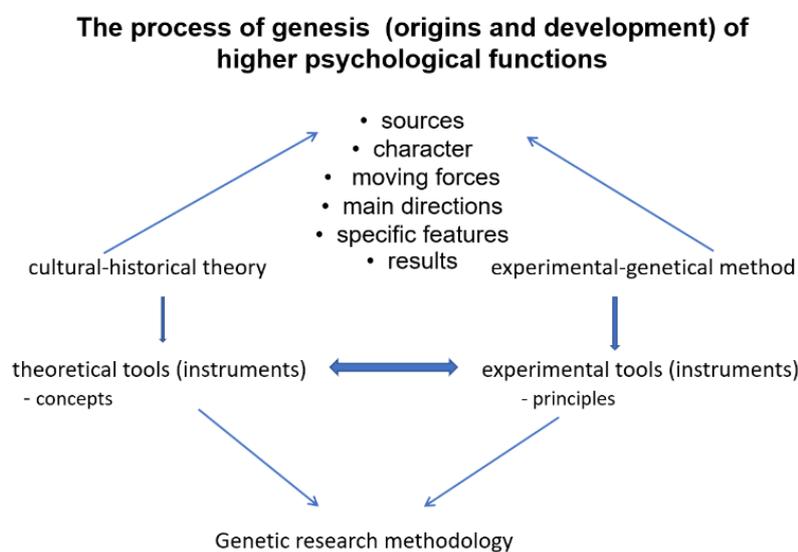


Figure 1: Cultural-historical genetic research methodology.

Cultural-historical research methodology is designed for studying the development process of higher psychological functions. It makes it possible to study a complex process of development in most important dialectical aspects (sources, character, moving forces, directions, specific features and results). At the same time, unlike traditional methods, even while exploring one (or several) specific aspects of dialectics of development, when using this methodology, the researcher retains the ability to keep the whole and does not lose the opportunity to lose sight of the dynamics of the whole process. For example, *exploring the sources of the development* of voluntary attention in a child (the social origin of voluntary attention), this methodology allows simultaneously reveal other aspects, such as *the driving forces of the development* of

voluntary attention (contradiction between natural attention and cultural attention, mediated by internal psychological tools) *and the main direction* (the process of the child mastering his own behavior through culture-mediated voluntary attention).

This possibility to study the process of development in its complexity is ensured by the fact that the first component of this methodology is the system of theoretical concepts. The concepts here are not just abstract generalizations, but tools, means of analyzing the process. First, the concepts are used as means, lenses for analyzing the data obtained. Secondly, the concepts are theoretically connected with the most important dialectical aspects of development and therefore make it possible to reveal the causal-dynamic connections of phenomena and to explain them.

The second component of this methodology is the experimental genetic method for designing and conducting a concrete experimental study. The data obtained during the experiment are analyzed with theoretical concepts. This makes it possible to reveal the development processes hidden behind the phenomena and allow not only to describe these phenomena, but also to explain them from the point of view of the laws of development. For example, the concept of ZPD allows one to investigate the concrete source of development (cooperation between a child and an adult) and experimentally investigate the child's movement from the level of potential development to the level of actual development (what a child can do in cooperation today, he can do on his own in a nearest future).

This research methodology provides the coherence of theoretical and experimental sides of the entire research and therefore allows exploring the development process in content and dynamics as a holistic process. Thanks to this, the disadvantages of traditional methodologies (Valsiner, 2009) are overcome. First, there is no eliminating the dynamic flow of the phenomena in the data, on the contrary, the dynamic flow becomes the data for analysis. Second, there is no eliminating of the hierarchical order (part-whole relations) in the transformation of the phenomena into the data, on the contrary, part-whole relations are in the focus. Third, there is no eliminating the immediate context of the phenomenon in its transformation into data.

The methodology, however, was found to be incomplete in one aspect. In Vygotsky's works there is a carefully developed system of concepts as analytical instruments, but, at the same time, in Vygotsky's works we find only a general characteristic and the main features of the method. My task was to further develop the cultural-historical research methodology through the identification and verification the experimental principles of constructing a specific experimental research. These principles have been substantiated (Veresov, 2010, 2010a, 2014, 2014a), tested in experimental studies (Minson, Hammer & Veresov, 2016; Monson, 2019; Fragkiadaki & Ravanis, 2016; Vidal Carulla & Adbo, 2020) and shown to be effective.

Principles of designing and conducting the experimental study of development

The principles I present here are taken from Veresov (2014) are reproduced specifically for discussing cultural-historical research methodology for early childhood education.

Principle of Buds of Development

Psychological development is not a linear and homogeneous process; there are different levels of development of different psychological processes in the child. In each period of development, there are functions which are already developed and there are functions that are in a process of maturation. There is always a complex nexus of (1) functions that have not yet developed, but which are in the process of development; (2) functions that will develop but are currently in an embryonic state and (3) developed functions. Metaphorically, they could be defined as "buds", "flowers" and "fruits" of development (Vygotsky, 1935, p. 41).

This principle orients a researcher to focusing on defining the empirical/experimental study as a general question from that of "What psychological process am I going to investigate in my experimental study?" to the specific question of "Which stage of development is the process/function in?" To put it simply, the study should begin with revealing that the function under study is on its "bud" (embryonic) stage and is not yet developed. It does not make any sense to study existing developmental conditions or to organise specially created developmental conditions when the function is already developed. That is, the function under study is in the "fruit" state. This methodological principle orients concrete research programs to identify not the objects under study, but rather the process under study, the process of the development of higher psychological functions in the child, especially by purposely trying to construct them.

This requirement follows Vygotsky's statement:

Like a gardener who in appraising species for yield would proceed incorrectly if he considered only the ripe fruit in the orchard and did not know how to evaluate the condition of the trees that had not yet produced mature fruit, the psychologist who is limited to ascertaining what has matured, leaving

what is maturing aside, will never be able to obtain any kind of true and complete representation of the internal state of the whole development (Vygotsky, 1998, p. 201).

An example of this methodological principle can be found in the study of van Oers (2008) on children role-playing being in a shoe shop. The research conditions were created that allowed to focus on the “buds of development”. Through children role-playing setting up a shoe shop, the children encountered a problem during the process of finding relevant sizes and colours of shoes for the “customers”. The children did not have a system for storing different-sized shoes or colours in boxes. Rather, they had to open each box to find the correct colour and size of shoe for their customer. The young children’s development of mathematical reasoning, problem-solving and classification had not yet developed into the mature form. The study made visible the complex nexus of functions that had not yet developed, but which were in the process of development. The study allowed to study closely how both the problem formulation and the use of cultural signs changed the children’s practices and how this in turn supported (or not) the development of mathematical competencies, competencies which his study showed were initially in an embryonic state.

Another example of how this principle frames the concrete research is in Minson (2019) study on developing the capacity of telling stories in Eve. Eve seemed to have a problem with telling story about her monkey-toy during “show and tell”. To identify the buds of development, the researcher made a series of observations and discovered that Eve is great in telling stories in a dialogue with others (adults). So, the bud of development was correctly identified that allowed to build a series of activities helping Eve to move from the level of potential development to actual development – what Eve could do in cooperation (dialogue) with adults at the beginning of experimental study, she became able to do independently at the end of the experiment.

1. The Principle of Interaction of Ideal and Present Forms

This principle follows from the idea that in contrast to classical psychology, which describes the development of the human mind as influenced by two

main groups of factors (biological and social), cultural-historical theory defines social environment not just as a factor but as a source of development.

The social environment is the source for the appearance of all specific human properties of the personality gradually acquired by the child or the source of social development of the child which is concluded in the process of actual interaction of “ideal” and present forms (Vygotsky, 1998, p. 203).

I will illustrate the interaction of ideal and present forms with the example from Vygotsky’s original research (Vygotsky, 2019, p. 78-79). The child, who just began to speak, speaks in single word sentences but his mother speaks to the child in fully grammatical and syntactically formed speech. Mother’s developed speech is a final or ideal form—ideal in the sense that it is a representation of what should emerge at the end of development. The child’s speech is the primary (beginning) form. The greatest peculiarity (specific feature) of child development is that this development takes place through the interaction with the environment when the ideal form that should emerge at the end of development not only exists in the environment and comes into contact with the child from the very beginning and has a real interaction, a real influence on that primary form, on the first footsteps of the child’s development; “that is, something which should emerge at the very end of development somehow shapes and influences the very first footsteps of that development”. (Vygotsky, 2019, p. 78).

There is no development if there is no interaction between the ideal and present forms. If the task of the concrete experimental study is to artificially elicit and create a genetic process of the process of development – and this is the main purpose of the experimental-genetic method as discussed earlier in this section of the paper, - this methodological principle orients the researcher to focus on the study of developmental conditions in two interconnected ways. First, it orients the researcher to the identification of what are the actual ideal and present forms within the research design, and second, it focuses the design on the identification and analysis of how these ideal and present forms interact in existing or specially created developmental conditions. In some cases, the creation of experimental ideal forms and organisation of an interaction of ideal and present forms is in itself the developmental condition.

An example of recent research based on this principle is the study of the process of English speech development in Saudi Arabia primary school students (Mandili, 2020). Analysing English language teachers' strategies, it was found that students limited progress in development of English speech was the result of the lack of appropriate ideal forms (developed English speech) provided by teachers and inappropriately organised interactions of ideal forms and students' English speech (the lack of free communication in the classroom).

2. Principle of Drama (Collision, Dramatic Event)

The principle follows from two interconnected theoretical positions. The first is expressed in Vygotsky's statement: "Processes must be analyzed, and through analysis, the true relation that lies at the base of these processes, behind the external form of their manifestation, must be disclosed." (Vygotsky, 1997, p. 70).

The keywords here are "the true relation". What kind of relation is this "true relation"? The answer is the general law of cultural development: "...every function in the cultural development of the child appears on the stage twice, in two planes, first, the social, then the psychological, first between the people as an intermental category, then within the child as an intramental category..." (Vygotsky, 1997, p. 106)

Does it mean that every social relation can become higher psychological function? Vygotsky clarifies this with the term of drama.

Genetically, social relations, real relations of people, stand behind all the higher functions and their relations. From this, one of the basic principles is ... of experimental unfolding of a higher mental process into the drama that occurs among people. (Vygotsky, 1997, p. 106)

Social form of the existence of higher functions is a social relation that appears as an emotionally coloured and experienced collision, the contradiction between two people, the dramatical event, a drama between two individuals. Being psychologically experienced as social drama (on the social plane), it later moves to the individual intra-psychological plane. Such emotionally experienced collisions can bring radical changes to the individual's mind and therefore can be a sort of act of development of psychological functions. Without internal drama, an internal category,

such mental changes are hardly possible. Dramatic character development, development through contradictory events (acts of development) and the category of dramatic collision—this was Vygotsky's formulation and emphasis.

This principle orients the researcher to discover or to design social collisions, dramatic events in children's social environments, which might be turning points for their individual developmental trajectories. This might be in a real-life situation related to periods of transition, such as when a child starts school, where a potential crisis emerges, or during specially created conditions, such as dramas in fairy tales, dramatic story narratives and playworlds. Such specially created conditions - critical moments of "small dramas" where transitions from inter-psychological to intra-psychological takes place - provide very rich empirical data where these transitions are made visible and analysable.

We can see this principle of dramatic events through the research of Lindqvist (1995) who used drama pedagogy to introduce young children to imaginary situations created through the story telling where the story line held dramatic moments or collisions and acting of story books, folk tales, etc. Through the entering into the imaginary world (playworld) of specific books, children encountered problems they had to solve. This research focused on how these dramatic events supported the development through playing out the problem situations, this changed the collectively united social relations between children and teachers in the dramatic events (inter-psychological), and which acted as the source of children's development as they took on the characters and solved the problems themselves (intra-psychological).

Another example is the study of Brazilian school psychologists professional and personal development (Barbosa Nasciutti, et al., 2016). To support the development of the participants of the professional development sessions they were organised as a series of collisions to resolve, taken from the participants' practical experiences. The results shows that this kind of organisation of professional development does not only increases the level of professional development, but significantly contributes to the development of school psychologists' personal traits.

In general, by studying the dramatic events (Principle 3), the researcher is tuned into not just the present form of development, but also the maturing

functions that are in the process of development through interaction of ideal and primary forms (Principles 1 and 2).

3. *Principle of Developmental Tools*

This principle is strictly connected with the concept of sign and sign mediation, which is rightfully considered as one of the core ideas in cultural-historical theory. In Vygotsky's writings, we could find various examples of sign mediations such as knots for memory, drawing straws in case of two equal stimuli and many others. In other places he gives more examples: "language; various systems of counting; mnemonic techniques; algebraic symbol systems; works of art; writing; schemes, diagrams, maps and mechanical drawings; all sorts of conventional signs and so on" (Vygotsky, 1981, p. 137)

The transition from the biological to the social path of development is the central link in the process of development, a cardinal turning point in the history of the child's behaviour (Vygotsky, 1999, p. 20). The psychological essence of the sociocultural path of development is that:

... the basic and most general activity of man that differentiates man from animals in the first place, from the aspect of psychology, is signification, that is, creation and use of signs. Signification is the creation and use of signs, that is, artificial signals. (Vygotsky, 1997b, p. 55).

The development as a process is a "transition from direct, innate, natural forms and methods of behaviour to mediated, artificial mental functions" (Vygotsky, 1998, p. 168). The sign (or system of signs) originally exists as an external tool, and later it becomes a tool of internal mediating activity. This principle orients researchers to study the process of child development in three interrelated ways, depending on the research question. First, it allows for the study of different cultural tools existing in different cultural settings from the point of view of their developmental potential and efficiency. Second, it allows for the investigation of the existing or specially designed situations of transitions of a child from direct to mediated activities at different stages of development. Third, it provides for an opportunity to study key aspects of the re-organisation of the whole system of child's psychological functions in everyday or specially

designed situations, where the child begins to use or create cultural signs as external tools which become internal psychological tools.

An example of applying this research principle is a story of Andy (Minson, 2019). For a long period of time, in the mornings the boy Andy was upset on being dropped off by his parents. Unless he was being supported by a teacher to engage in an activity, Andy was observed to not be engaged in play, often leaving the play to ask about the time of the day, what would happen next and how long it would be before he was picked up. This means that Andy is unable to psychologically process the daily routine independently which created obstacles in his activities and involvement in play. To support Andy's development, daily schedule poster was suggested as a tool to help Andy self-navigate and predict his day. Using this "day schedule" first in collaboration with the researcher and then independently, Andy could overcome the problem and use this cultural device as an internal psychological tool to organise his day. This means that the "transition from direct, innate, natural forms and methods of behaviour to mediated, artificial mental functions" (Vygotsky, 1998, p. 168) took place in Andy's development.

4. *Principle of Sustainable Results*

This principle of cultural-historical method reflects the results of development. Continuing Vygotsky's metaphor, we could say that the results are "fruits" of development. However, these "fruits" are of very special nature. The result of development is not just new functions that appeared as outcomes at the end, they are not new higher mental functions only, they are "qualitative neoformations" (Vygotsky, 1998, p. 189). "Neoformation" is the result of the reorganisation of the whole system of functions, a new type of construction of the child's consciousness and mental functions (Vygotsky, 1998, pp. 189-190). Not a new function, or even a new higher psychological function, but rather a qualitatively new system of functions characterises the result of development. Like fruit cannot return back to the "bud's" stage, the neoformations are sustainable and irreversible.

The principle of sustainable results in relation to concrete research means that the results of the research must not simply be statistically valid changes but rather a new quality. Therefore, an experimenter must

have enough supplementary means to investigate what type of changes happened during the experimental study to make sure that the changes reflect the new system (new structure) that appeared.

An example of this principle is in Vygotsky's research on the development of cultural memory in children (Vygotsky, 1997, pp. 180-182) when the child begins to use pictures and stories to memorise the given set of single words. In this case, as Vygotsky puts it, when the child memorises the word "theatre" with the aid of a picture of a crab at the shore, he creates a special auxiliary structure: "The crab is looking at the stones on the bottom, it is beautiful, for him it is a theatre." The child connects the "crab" and the "theatre" for the first time and creates created this structure exactly for memorising.

...the child begins to create new structures actively and this is the basis of the process of mastering memory. For this reason, from the psychological aspect, in such experiments it is not memory that is studied but the active creation of structures (Vygotsky, 1997, p. 182).

Another example of this principle in concrete research is the experimental study of Minson (2019). Being unable to tell the story about her monkey-toy at the beginning of the experiment, Eve could independently tell the whole story of "The three little pigs" at the end. This shows that Eve obtained a new quality of the system of higher psychological functions (logical memory, voluntary attention, thinking/speech) which remain for the long period of time showing the qualitative changes in Eve's abilities of story-telling.

I presented these five principles one by one separately from each other because my task is to show their relations with main aspects of the process of development and their connections with the main concepts of CHT. In fact, they all are interconnected and, in some sense, define and complement each other, representing a unity of experimental requirements and tools.

Summarising in conclusion

Cultural-historical genetic research methodology (GRM) is a new and interesting research methodology which allows to change the research lens from studying the phenomena to the studying of processes, from "objects under study" to "process under study".

This methodology is a **genetic** as it is focused on generating the process of development in specially created conditions. However, it is applicable educational research through observing the process of development in everyday settings. It is a **research** methodology as it allows to formulate new types of research questions: the process of development might be investigated in its main aspects. Examples of such research questions might be: What are the conditions in the changes of child's psychological functions from buds into fruits? What are the ideal forms the child interacts with and what kind in interactions they are? What cultural tools the child use to create new structures of her higher functions? What kind of dramatic collisions are the most effective to support the children in various educational contexts and settings? How long the results of experimental intervention remain? What sort of qualitative changes happened during the experimental intervention?

This methodology is the **cultural-historical** methodology as it includes the system of concepts (theoretical analytical tools) and principles of research method (experimental method) which create a coherent unity.

Cultural genetic research methodology is an alternative to the existing mainstream methods and overcomes three major domains of oversight in psychology (Valsiner, 2009). It does not eliminate the dynamic flow of the phenomena from the data; on the contrary it makes the dynamic flow of the process the data. It is not eliminating the hierarchical order (part-whole relations) in the transformation of the phenomena into data – on the contrary it allows to convert the process of formation and transformation into the data. And finally, this methodology is not eliminating the immediate context of the phenomenon in its transformation into data.

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