Cultural-Historical Activity Theory Glossary of Terms

Abstract and Concrete

Abstract and Concrete are philosophical concepts concerned with the development of conceptual knowledge: abstract = simple and remote from reality, concrete = mature and closely connected to reality. But in appropriate contexts, these meanings can seemingly be inverted.

History

The meanings of Abstract and Concrete in CHAT derive from Hegel and Marx but both words have a long and complicated etymology from the Latin. 'Concrete' is derived from the Latin *concrescere* – to grow together. 'Abstract' comes from the Latin *abstractus*, incorporeal, but also the French *abstrait* – expressing a quality rather than a concrete object, or isolated, secluded, and as a verb, from the Latin *abstrahere* – to drag away, to appropriate, to set free, to separate.

Explanation

Abstract and Concrete are philosophical concepts concerned with the development of conceptual knowledge. The contrast between abstract and concrete does *not* mean the contrast between a theoretical idea and practical reality, but both words may have seemingly opposite meanings in different contexts.

E. V. Ilyenkov explained it this way:

> "Marx says that all the definitions used in (pre-Marxian) political economy were products of movement away from the concrete, given in the notion, to increasingly meagre abstractions. In describing the historical path traversed by political economy, Marx therefore characterises it as a path beginning with the real and concrete and leading first to 'meagre abstractions' and only after that, from the 'meagre abstractions' to a system, a synthesis, a combination of abstractions in theory.
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> "The reduction of the concrete fullness of reality to its abridged (abstract) expression in consciousness is, self-obviously, a prerequisite and a condition without which no special theoretical research can either proceed or even begin. Moreover, this reduction is not only a prerequisite or historical condition of theoretical assimilation of the world but also an organic element of the process itself of constructing a system of scientific definitions, that is, of the mind's synthesising activity.
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> "The definitions which the theoretician organises into a system are not, of course, borrowed ready-made from the previous phase (or stage) of cognition. His task is by no means restricted to a purely formal synthesis of ready-made 'meagre abstractions' according to the familiar rules for such synthesis. In constructing a system out of ready-made, earlier obtained abstractions, a theoretician always critically analyses them, checks them with facts and thus goes once again through the ascent from the concrete in reality to the abstract in thought. This ascent is thus not only and not so much a prerequisite of constructing a system of science as an organic element of the construction itself.
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> "Separate abstract definitions, whose synthesis yields the 'concrete in thought', are formed in the course of ascent from the abstract to the concrete itself. Thus the theoretical process leading to the attainment of concrete knowledge is always, in each separate link as well as in the whole, also a process of reduction of the concrete to the abstract." (1960, pp. 136-7)

An abstract concept may mean a simple, undeveloped idea which is the product of the analysis of a whole complex process. It is described as 'abstract' because the complexities and differences that were to be found in the representation of the process at the beginning of the analysis have been 'pared' down to simple characterisations of

the whole, or a number of such abstract concepts. For example, in lieu of a list of the names and details of all the unemployed people in a country we get the simple, average unemployment rate, say 6%. Such an analysis begins from the "imagined concrete" which Marx characterised as a "chaotic representation" (Marx, 1857) and produces a simple abstract representation. That initial representation is '*concrete*' in the sense that it is a combination of very many abstractions – the various facts, measurements and impressions which would be found, for example in historical records or personal recollections – although each fact is just an abstraction and of little significance in itself.

Each of the facts are 'abstract' in the sense that they have been torn out of their context, are one-sided and frozen in isolation from the whole process. Facts are abstractions. So a *collection* of many facts may be 'concrete', but is nonetheless "chaotic."

The product of the analysis of such data are abstractions – abstractions in the sense of being simple and stripped of all the complexity reflected in the data from which they were derived, such as an average or total.

They may also be 'concrete abstractions' if they contain within them the rational analysis of a large amount of diverse data and sum up the real connections between all that data. A 'more concrete' generalisation would be a considered characterisation, taking everything into account, summed up in concepts like, for example, 'recession' or 'recovery'. However, statistical data, such as the percentage unemployment rate, would be described as 'abstract generalisations', because such a generalisation, even though it is combination of a large number of isolated, 'abstract' facts, is a very poor reflection of the whole. In any case, the outcome of the first phase of analysis is abstractions.

So, as Marx famously remarked, must then begin the "ascent from the abstract to the concrete," from the principles and theories abstracted from the raw data, proceeding to the reconstruction of the "imagined concrete" of the whole process, but this time "the concrete is concrete because it is the concentration of many determinations, hence unity of the diverse." Thus the abstract concept of the whole (in terms of theoretical conceptions) becomes more and more concrete in the development of concepts into a practical and scientific theory – "a reproduction of the concrete by way of thought."

So in short, 'abstract' means simple, and isolated from connection with the whole, whilst 'concrete' means the combination of many abstractions.

But there are two senses of 'concrete': 'concrete' as in an unfiltered image of a complex reality ('one damn thing after another'), and 'concrete' as in the scientific concentration of many abstractions in a mature concept or theory (a 'concrete universal'). In both senses the 'concrete' conception captures all the complexity of the whole, but in the first case as a "chaotic conception" and in the second case as a reconstruction of the whole in concepts.

And there are two sense of 'abstract': 'abstract' in the sense of poorly connected to reality ('abstracted from its context' or 'cloud-cuckoo-land'), such as in the case of isolated facts or ill-founded theories, and 'abstract' in the sense of being the succinct product of a protracted process of analysis which strips away the inessentials and to capture things 'in a nutshell'. But to the extent that the abstraction captures the whole it is also *concrete*.

Whilst a bare average is a "abstract generalisation," the 'unit of analysis' is a "concrete universal" even though it is an abstraction!

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Action

what a person *does* – the most fundamental concept of CHAT.

History

"Action" is an ancient word, derived from the Latin and as old as the English language itself. "Consciousness," on the other hand, dates from the 17th century, and behaviour is a quite recent invention.

Action was introduced as a concept in philosophy by Johann Gottlob Fichte (1762-1814) to overcome the dichotomy between objectivity and subjectivity in Immanuel Kant's philosophy. Action is implicit in Hegel's philosophy but was given an idealist expression. However, Moses Hess, a follower of Fichte and a pioneer of communist philosophy, promoted the concept of Action with an essay called "The Philosophy of the Act." After meeting with Marx in Paris in 1843, Marx adopted the key tenet of this work and gave expression to it in "Theses on Feuerbach." Marx never elaborated the concepts of Action and Activity in a philosophical system, but Activity remained the fundamental concept for his work. When Vygotsky appropriated Marx's work in creating a foundation for Psychology, he recovered the concept of Action and gave it practical application as the key concept for psychology. A. N. Leontyev further elaborated the concept of Action and gave it a systematic philosophical definition.

Explanation

Actions are the main units of human life, of Activity. An Action is a purposive act or doing. An Action is therefore both objective, external, material, perceptible movement, and subjective, internal, mental – intentions, plans and feelings. That is, actions are a unity of both consciousness and behaviour. ('Behaviour' does not include any subjective component.) (See *LSVCW* v. 3, pp. 35-50.)

Since Actions are purposive, a person is generally consciously aware of their Actions; those Actions which are carried out without conscious awareness (such as stepping over a kerb while walking) are called Operations. But in human beings, Operations always have the potential to be transformed into Actions, whilst conversely, through force of habit, Actions may also be transformed into Operations. (See Leontyev 2009, pp. 369ff.)

An Action is not however objective behaviour + subjective thought; action is a prior unity which is subsequently (i.e., in development) differentiated into subjective thinking and objective behaviour, as, for example, a growing child learning to subject their own behaviour to conscious control. An Action cannot be 'broken down' into movements and meanings (what you did and what you meant to do), because without the real unity of the two, it is not an Action. Nonetheless, actions contain an internal Contradiction in that what you mean to do is not always what you do, and vice versa. An Action can only be understood together with the train of thinking which manifested itself in an objective act, not limited to a momentary state of consciousness. Nonetheless, even in CHAT literature, "action" is frequently used in the everyday sense of a behavioural act.

"The basic 'components' of separate human activities are the actions that realize them. We regard action as the process that corresponds to the notion of the result which must be achieved, that is, the process which obeys a conscious goal. Just as the concept of motive is correlative with the concept of activity, so the concept of goal is correlative with that of action." (Leontyev, 1978)

All human activity is made up of actions, and nothing other than actions. An Action is thus the basic Unit of human life and all the phenomena of human life have to be understood in and through the study of actions.

Actions are the 'molecular' (as opposed to 'molar') units of human life. Actions are always directed to the realisation of some Goal (or Object), but in general the goals to which actions are directed are not meaningful in themselves, but acquire meaning only to the extent that they serve a Motive which is provided by the Activity of which the Action is a part.

In the words of A. N. Leontyev:

> "Processes, the object and motive of which do not coincide with one another, we shall call 'actions'." (2009, p. 187)

An Action may require a whole series of phases (possibly carried out by different people) in order to attain its ultimate social aim, it remains an action insofar as it is executed by an individual, directed towards attaining its object, whose motive is implicit in the collaborative Activity of which it is a part.

Activities, on the other hand, are the 'molar' units of Activity (i.e., activities are made up of a large number of actions), are collaborative, rather than being carried out by individuals alone, and are (according to A. N. Leontyev and Y. Engeström) characterised by the motive to which the activity is directed. Whilst the motive of an Activity can be understood from the universal historical and societal context, the goal of an individual action cannot be so understood. It makes sense only within the context of the particular Activity. Although Leontyev would not have agreed, Yrjö Engeström said:

> "We may well speak of the activity of the individual, but never of individual activity; only actions are individual." (Engeström 1987, p. 87)

All actions are mediated by the use of artefacts, and we take an action to be inclusive of the artefact with which it is mediated. Actions are simply inconceivable apart from the use of artefacts (which could be a spoken word, a piece of land, a tool or machine, even a human hand, etc.), and it is by means of artefacts, which are products of the broader Culture which frames the activity of which the action is a part, that the broader societal context of an aAction places its stamp upon how an action is carried out. We learn how to use artefacts by using them jointly with other people.

Although actions are taken to be the actions of individuals, actions are always 'joint', in several ways. (1) The goal of the action makes sense only in the context of the collaborative activity of which the action is a part, (2) The motive served by the action (which differs from the immediate goal of the action) is produced by the collaborative activity which the action serves, (3) The means by which the action is carried out, that is the artefact, is provided by the broader culture, and (4) The object of the action (such as the addressee of a spoken word) is generally another person, the relation to whom suffuses the action. Thus CHAT writers always take even such a solitary action as writing a book as a collaborative, social action.

Vygotsky paid a great deal of attention to speech as the most developed form of activity, and its basic unit, word meaning. In this context, "word" has to be understood as an action, in which the mediating artefact, is a spoken word, and meaning is the inner aspect of the word. The relation between a word meaning and a concept is the same as the relation between any action and the activity of which it is a part.

'Doing' and 'Act' – synonyms for Action – are not given any different meaning in CHAT. See also: http://en.wikipedia.org/wiki/Action_(philosophy)

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Activity

Activity is the collaborative pursuit of social ends – the basic substance of human social life.

History

'Action' and 'activity' developed the distinct meanings that they have in CHAT, with the concept of Activity being given a specific scientific meaning by A. N. Leontyev (1904-1979) in his Activity Theory. Although several different currents of Activity Theory have developed since, the concept of Activity remains essentially the same as the generalised notion of activity that was implicit in Vygotsky's work, which introduced *mediation* to the concept of activity Marx elaborated in the *Theses on Feuerbach* in 1845.

Explanation

The main Unit of Activity is an Activity, the collaborative pursuit of a shared Object or Motive. Note the distinction between the mass noun 'Activity' and the countable noun 'an Activity' or 'Activities'. In Russian, there is no distinction between mass nouns and countable nouns (both are Деятельность), and as a result in English language CHAT literature, the distinction is often blurred. However, the distinct advance which Leontyev made over Vygotsky and Marx was the identification of Activities, each with their own object, as the *units* of Activity. By establishing a unit of Activity, Leontyev produced the scientific concept of Activity, which had formally been known only as a generalised substance.

Leontyev distinguished between activity and "the dynamics of the nervous, physiological processes that realize this activity." (Leonytev 2009, p. 396) Activity is composed solely of Actions, and involuntary and autonomous processes are not actions. He further specifies that activity is meaningful only in connection with the ensemble of social relations of which it is a part, and is essentially a collaborative process.

This is because activity arose from the development of a division of labour with the emergence of human society:

> "Genetically (i.e. in its origin) the separation of the object and motive of individual activity is a result of the disarticulating of the separate operations from a previously complex, polyphase, but single activity. These same separate operations, by now completing the content of the individual's given activity, are also transformed into independent actions for him, although they continue, as regards the collective labour process as a whole, of course, to be only some of its partial links." (2009, p. 187)

That is, activity arose when actions were differentiated from activities:

> "Processes, the object and motive of which do not coincide with one another, we shall call 'actions'." (2009, p. 187)

So that while every action of which an activity is composed is directed at and realises some immediate goal, the goal is not the motive of the action. The motive for each action comes from the activity of which it is a part, and is realised only through a number of actions. The motive (or object) of an activity, the human social need which it meets, is definitive of the activity, and this is the distinction between an action and an activity. Leontyev says that:

> "... The main thing that distinguishes one activity from another, however, is the difference of their objects. It is exactly the object of an activity that gives it a determined direction. ... The main thing is that behind activity there should always be a need, that it should always answer one need or another" (Leontyev 1978).

Activity is composed of actions and nothing other than actions, but "one and the same motive may generate various goals and hence various actions" whilst "one and the same action may realize various activities" (2009, p. 401), so an activity is not simply a set of actions. Leontyev sums this up by saying that Actions are not 'additive' and 'activity' is a molar unit, whilst Action is the main, or molecular, unit of human life.

The study of actions and their goals, on one hand, and activities and their motives, on the other, "deals not with different processes but rather with different planes of abstraction" (2009, p. 401)

This brings us to the question of the implications of this concept of activity for Psychology, that is, for the study of consciousness and personality.

Vygotsky had found that word meaning is the unit of verbal thinking, and Leontyev generalised this idea in taking action is the main unit of activity:

> "together with the birth of action, this main 'unit' in human activity, there also arises the main unit, social in nature, of the human psyche, i.e. the rational meaning for a person of that to which his activity is directed." (2009, p. 189)

So for Leontyev there are two units of consciousness:

> "(1) There is action as a process directed to a goal recognised in connection with a definite motive; this is the aspect of activity inwardly associated with the 'unit' of consciousness that we designate by the term 'personal sense'.
>
> "(2) We distinguished the content or aspect of the action that corresponds to its conditions; this is the operation. A singular 'unit' of consciousness, namely, *meaning*, is also associated with this content of the activity." (2009, p. 339)

Meaning differs from personal sense for Leontyev as follows:

> "Meaning is the reflection of reality irrespective of man's individual, personal relation to it. Man finds an already prepared, historically formed system of meanings and assimilates it just as he masters a tool, the material prototype of meaning."
>
> "The psychological fact proper, the fact of my life, is this, (a) that I do or do not assimilate a given meaning, do or do not master it, and (b) what it becomes for me and for my personality in so far as I assimilate it; and that depends on what subjective, personal sense it has for me." (2009, p. 203)

So

> "The question of personal sense can thus be answered by bringing out the corresponding motive." (2009, p. 205)

The difference between the personal sense of action for one person or another is illustrated by Leontyev with the differing personal sense the production of a commodity has for the worker (for whom it has the sense of wages) and the employer (for whom it has the sense of profit), whilst the meaning of the commodity remains the social need which it meets. (2009, p. 237)

Leontyev introduced the distinction between the really effective and merely understood motives, which he explains with the use of an example (2009, p. 365). A teacher may use a reward as an effective motive for a child to do their work, since the motive, to learn the subject matter, the child understands, but it is not sufficient for them to apply themselves. But over time, if the child submits to the teacher, Leontyev claims that the once merely-understood motive becomes a really effective motive.

The above is the conception of Activity of A. N. Leontyev. This conception has been subject to criticism. See 'system of activity' for a further development of the concept of activity by Yrjö Engeström.

See Concept for Vygotsky's conception of activities. Vygotsky sought to make sense of a subject's actions by means of the *concept* which motivates them. A concept is characterised not so much by the object itself (*predmet*), but rather by how the subject conceives of the object and consequently the *means* of addressing the problem. That is, one and the same problem may stimulate quite different actions as means of overcoming the problem.

They [Rimat and Ach] have emphasized that the concept is formed only with the emergence of a need that can be satisfied in the concept, only in the process of some meaningful goal-oriented activity directed on the attainment of a particular goal or the on resolution of a definite task.

... they have failed to reveal the actual genetic, functional, and structural nature of this process. ... In essence, they are reduced to the assertion that the goal itself creates the corresponding goal-oriented activity through a determining tendency. They are reduced to the assertion that the solution is contained in the task itself. (Vygotsky, 1934, p. 127)

See also the article by Kaptelinin (2005)

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Artefact

Artefacts (U.S. spelling: Artifacts) are material objects or processes which are products of human activity and/or are used by and incorporated in human actions, including both tools and signs.

History

'Artefact' is derived from the Latin *arte* (acquired skill) + *facere* (to make). The important distinction between products of nature and products of labour has been a central problem of political economy since the work of Adam Smith in the mid-18th century. Marx and Engels, following Benjamin Franklin (1705-1790), saw the production of tools as central to the evolution of the human species, and many have held the use of symbols to be the essential human trait. So, it has long been widely recognised that both kinds of artefacts are central to human development. However, it was only in the development of CHAT that 'artefact' took on a special philosophical/psychological meaning.

Explanation

Artefacts are material objects or processes which are products of human activity and/or are used by and incorporated in human actions (but not the actions or activities themselves). Artefacts are therefore both material and ideal, in that they are obedient to the laws of physics, etc., but serve human social means and human ends.

The category of artefact includes tools ('technical tools', such as computers, motor cars, spoons), features of the humanised environment (such as landscape, buildings, roads) and the human body and the various prosthetics we use as extensions of our body, as well as such natural formations as the moon and constellations which are vested with meaning in human activities such as navigation. Also included as artefacts are symbolic objects and 'psychological tools' such as maps, books, email messages, signage and so on, and prototypically, the spoken word.

Note that the fact that spoken words are entirely ephemeral does not undermine their status as artefacts. The material properties of an artefact mean that the billions of reproductions of a word may be identified as the 'same' word, and thereby share the same ideal properties, acting as signs for the same concept(s). The same applies to common objects, such as the artefacts which are excavated by archaeologists, who are able to reconstruct the role of an artefact in human activities which have long since passed away. It is human activity which invests an artefact with meaning and use-value, and while the material properties of the artefact may provide the substrate for the ideal properties, those ideal properties themselves are products of the use of the artefact in activity, not the physical or chemical properties as such.

Vygotsky was insistent on the functional distinction between an artefact's use as a tool (which are used for the control of material objects and processes) and its function as a sign ('psychological tools' which are used to control the mind and behaviour)

"The most essential feature distinguishing the psychological tool from the technical one is that it is meant to act upon mind and behavior, whereas the technical tool, which is also inserted as a middle term between the activity of man and the external object, is meant to cause changes in the object itself. The psychological tool changes nothing in the object. It is a means of influencing one's own mind or behavior or another's. It is not a means of influencing the object. Therefore, in the instrumental act we see activity toward oneself, and not toward the object." (*LSVCW*, v. 3, pp. 85-90).

A 'psychological tool' is not some formation of the mind or mental object, but like any artefact, a material object or process, but one which is used for 'psychological purposes'. This means that the distinction between technical and psychological tools is not a dichotomy, but is rather a distinction in how an artefact is used. Vygotsky explains that:

> "psychological tools and their complex systems: language, different forms of numeration and counting, mnemotechnic techniques, algebraic symbolism, works of art, writing, schemes, diagrams, maps, blueprints, all sorts of conventional signs, etc. ..." (*LSVCW* v. 3, pp. 85-90).

Psychological tools have profound significance for the development of the mind because:

> "By being included in the process of behavior, the psychological tool modifies the entire course and structure of mental functions." (LSVCW, v. 3, pp. 85-90).

The word 'artefact' does not include forms of activity or practices which have been 'objectified' in the sense that they have become standardised or institutionalised. Such standardised practices may indeed mediate actions, and are frequently referred to in psychological and sociological literature as 'tools', but they are not artefacts in the meaning of the word in CHAT. Usually, the institutionalisation or standardisation of forms of practice involves the creation of artefacts such as manuals, laws, journal articles and the coining of new words or terminology used in written and spoken language. But activities and actions are not artefacts; actions are mediated by artefacts, and it is these artefacts which are chiefly responsible for the stability and coherence of such practices, but it is important to distinguish between the artefacts and the actions which are mediated by the artefacts. When we utter a word or make a gesture, this is understood as the action of using a standardised material form (the sound of the word or the form of the gesture). The sound-object or gesture is an artefact, but the action of using it is an 'artefact-mediated action'. It is important to distinguish between the action and the mediating artefact; one and the same meaning can be enacted with different signs, and one and the same sign can be used to enact different meanings. When an Activity becomes so standardised as to be 'fossilised', it remains an Activity, but is often referred to as a practice or an institution. The standardisation of an activity is a type of objectification, but is still distinguished from the production of tools and it is important not to blur the distinction between Actions, Activities and the Artefacts which are used to mediate Actions.

Whereas Vygotsky emphasised the role of psychological tools, the objectification of human powers in material objects (i.e., tools) transforms the labour process and consequently also plays a profound role in the development of consciousness. See A. N. Leontyev on how the production and use of tools lies at the foundation of the development of human consciousness (something which Marx had emphasised in the past).

"Every object made by man – from a hand tool to the modern electronic computer – embodies mankind's historical experience and at the same time also embodies the mental aptitudes moulded in this experience. This point comes out even more clearly perhaps in language, science, and works of art. ...

"The child does not adapt itself to the world of human objects and phenomena around it, but makes it its own, i.e. appropriates it. ...

"Appropriation ... is a process that has as its end result the individual's reproduction of historically formed human properties, capacities, and modes of behaviour. In other words it is a process through which what is achieved in animals by the action of heredity, namely the transmission of advances in the species' development to the individual, takes place in the child." (Leontyev, 2009, 384)

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Artificial Concept

Artificial concepts are concepts that are formed under experimental conditions.

History

The formation of concepts under laboratory conditions was first carried out by the German Psychologist Narziβ Ach, whose method was critically appropriated by Vygotsky and his assistant Leonid Sakharov.

Explanation

Artificial concepts are concepts "that are formed under experimental conditions" (Vygotsky, 1934, p. 51). These concepts are invariably the combination of two or more contingent sensuous attributes of simple objects, such as "red-square" or "blue-round," indicated by 'nonsense words'. Sakharov modified Ach's experiment to require the child subject to freely create groupings of the blocks to solve a puzzle, rather than simply observing and memorising a grouping made by the researcher, and this provided a much richer experimental process, revealing the process of concept formation. Nonetheless, the experiment had built into it the kind of result which could be expected, namely, grouping blocks according to their contingent attributes. It turned out that this limitation of the experimental design has some justification for use with children, but it also reinforced the prejudice that concepts of this type can exhibit the properties and are of the same kind as *real* concepts, which arise in the life of a social formation and are acquired by adolescents and adults in the course of their participation in professional and social life generally. This is not the case. In general, the concepts by means of we which orient our lives are quite distinct from the sensuous attributes by means of which we recognise things.

The types of concepts whose formation can be created under laboratory conditions are potential concepts, syncretic concepts, complexes (chain complexes, diffuse complexes, collection complexes and pseudoconcepts) and pre-concepts.

See (Vygotsky 1934a), An Experimental Study of Concept Development, Chapter 5 of *Thinking and Speech*, for the details of Vygotsky's study of artificial concepts.

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Associative Complex

The associative complex is an emergent concept in which one object forms the nucleus, to which diverse objects are associated by a different point of likeness in every case.

Explanation

Vygotsky analysed 5 types of complexive thinking in his experimental studies of concept formation in children, and the associative complex is one of the paths of development of emergent concepts of this type. In Vygotsky's words:

> "because it is based on an associative connection between an object that is included in the complex and any of the features that the child notices in the object that acts as the complex's nucleus. Around this nucleus, the child can build an entire complex

> composed of the most varied objects. Some objects may be included in the complex because they are the same colour as the nucleus. Others may be included on the basis of similarity in form, dimension, or any other distinguishing feature that the child notices" (*LSVCW* v. 1, p. 137).

While the child is able maintain a representation of an object so as to recognise others resembling it in some way, the child is unable to isolate, retain and apply a stable representation of any one feature. Nonetheless, this form of activity exhibits the basic capacities required for the development of stable complexes.

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Behaviour

Behaviour (U.S. spelling Behavior) is the purely objective aspect of activity, excluding any reference to consciousness.

History

"Behaviour" became a fundamental concept of Psychology due to the work of American and Russian Behaviourism in the late 19th and early 20th centuries. Behaviourism (in the words of J. B. Watson) held that:

> "Psychology as the behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness. The behaviorist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute" (1913).

Behaviourism was the dominant trend in psychology at the time that Vygotsky entered the field, and his views developed through a critique of Behaviourism and its Soviet variants. CHAT differs from Behaviourism because it bases itself on actions, which are a unity of behaviour and consciousness.

Explanation

Behaviour is the objective aspect of activity, abstracting bodily movement from the consciousness which accompanies it, whilst, according to Vygotsky: "it is impossible to study human behaviour and the complex forms of human interrelated activity without reference to the human mind." And the mind is, after all, the very subject matter of Psychology. Vygotsky admired the work of the Russian physiological behaviourist, I. V. Pavlov, and credited Pavlov for his consistent methodology in which a conditioned reflex was taken as the unit of analysis for behaviour.

However, Introspection plays only a subordinate role in Vygotsky's psychology which relies on the observation of behaviour in order to reconstruct the psychological processes, by means of which alone human behaviour is comprehensible.

As Vygotsky pointed out, psychologists are in the same position as other scientists in including in their basic unit of analysis elements which are in principle unobservable:

> "We should not forget that there are whole sciences that cannot study their subject through direct observation! The historian and the geologist reconstruct the facts (which already do not exist) indirectly, and nevertheless in the end they study the facts that have been, not the traces or documents that remained and were preserved. Similarly, the psychologist is often in the position of the historian and the geologist. Then he acts like a detective who brings to light a crime he never witnessed" (LSVCW, v. 1, p. 49).

In his "Development of Mind," A. N. Leontyev traced the evolutionary development of activity (understood very broadly) from the behaviour of simple organisms which lack

a central nervous system through operations to actions and ultimately, with the development of conceptual thinking, activity. Likewise, actions, operations and behaviour change change one into another in the course of ontogenesis and microgenesis.

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Category

A category is a concept by means of which sensuous knowledge may be made intelligible, or more generally, any more fundamental philosophical conception underlying others; often a class, i.e., a means of categorising things.

Etymology

'Category' is derived from the Greek *kategoria*, which figured prominently in Aristotle's writing and was Latinised as *praedicare*, and thus 'predicate' and 'predicament'. Two main lines of development followed from these roots.

For Aristotle, *kategoria* was 'what can be said of a subject', i.e., in grammar, a predicate. In its Greek literal form, as kategoria, it came to mean in rhetoric, an accusation, the response to which would be an apologia. By transliteration into the Roman alphabet, category became a class into which concepts or objects could be assigned, and this is its principle usage in philosophy today. Kant took the categories to be *a priori* innate mental faculties which made it possible to make sense data intelligible, but this understanding was negated by Hegel and did not enter the Marxist tradition.

Explanation

Vygotsky uses 'category' in his analysis of the relation of internal speech and thinking in Chapter 7 of *Thinking and Speech* to contrast psychological categories with grammatical categories.

"Any part of a complex phrase can become the psychological predicate and will carry the logical emphasis. The semantic function of this logical emphasis is the isolation of the psychological predicate. According to Paul, the grammatical category is to some extent a fossil of the psychological category. It therefore needs to be revived by a logical emphasis that clarifies its semantic structure. Paul demonstrates that a wide variety of meanings can reside in a single grammatical structure. Thus, correspondence between the grammatical and psychological structure of speech may be encountered less frequently than we generally assume. Indeed, it may merely be postulated and rarely if ever realized in fact. In phonetics, morphology, vocabulary, and semantics - even in rhythm, metrics, and music - the psychological category lies hidden behind the grammatical or formal category. If the two appear to correspond with one another in one situation, they diverge again in others. We can speak not only of the psychological elements of form and meaning, not only of the psychological subject and predicate, but of psychological number, gender, case, pronouns, superlatives, and tenses" (p. 252).

Vygotsky never uses 'category', however, in the sense of today's Psychology of Concepts as the extension of a concept.

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Catharsis

The psychological "processing" or overcoming of a traumatic experience.

History

In Greek theatre, catharsis was the vicarious discharge of emotion through drama. In the 19th century, catharsis was a medical procedure involving cleansing the body by medications which caused vomiting, diahoreah to cleanse the body of disease. The Austrian psychologist Josef Breuer was the first to develop the "talking cure" which laid the foundation for Freud's psychotherapy. The aim was to bring to the surface repressed emotions in a "catharsis."

Explanation

The general idea of overcoming emotional crises by working over a critical experience is implicit in the Russian notion of perezhivanie, which was used by Fedor Vasilyuk in his approach to psychotherapy. It is arguable that is was also implicit in Vygotsky's use of the concept of perezhivanie.

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Chain Complex

The chain complex, in which each object is connected with the next according to some feature, but then the next object according to a different feature.

Explanation

Chain complexes is a form of proto-concept which is associated with the child's first attempt to use words to recognise objects:

> "The child selects an object, or several objects, to match the model on the basis of some type of associative connection they have with it. The child then continues to select concrete objects to form a unified complex. However, his selection is guided by the features of objects selected in previous stages of this action, features that may not be found in the model itself. For example, the child may select several objects having corners or angles when a yellow triangle is presented as model. Then, at some point, a blue object is selected and we find that the child subsequently begins to select other blue objects that may be circles or semicircles. The child then moves on to a new feature and begins to select more circular objects" (*LSVCW* v. 1, p. 139).

The child is becoming adept in isolating features of objects from the perceptual field, but is unable to retain stable representations of them so that their generalisations resemble members of an extended family, and although sharing a family name, there is no one attribute uniting all the elements.

The chain complex marks an important stage in the development of complexive thinking.

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Collection Complex

The collection complex is an emergent concept in which the subject associates 'complete sets' of objects, often based on some activity where the objects complement one another .

Explanation

Vygotsky analysed 5 types of complexive thinking in his experimental studies of concept formation in children, and the collection complex is one of the paths of development of emergent concepts of this type. In Vygotsky's words:

> "Here, the various concrete objects are united in accordance with a single feature, namely, on the basis of reciprocal supplementation. These objects form a unified whole consisting of heterogeneous, though supplementary, parts. ...
>
> "The most frequent form of generalization of concrete impressions that the child's concrete experience teaches him is a set of mutually supplementary objects that are functionally or practically important and unified. Sets such as the cup, saucer and spoon, or the fork, knife, spoon and plate, or sets of clothing are good examples of the kinds of complex-collections that the child encounters in his daily life (*LSVCW* v. 1, p. 138-9).

and Vygotsky was able to reproduce this kind of complex in the 'double stimulation' experiment:

> "Under experimental conditions, the child selects objects to match the model that differ from it in colour, form, size of some other feature. However, the child's selection of these objects is neither chaotic nor accidental. Objects are selected in accordance with features that differentiate them from the model (*LSVCW* v. 1, p. 138).

So the child endeavours to collect together a complete set of all the colours or all the shapes, and so on, like 'mummy bear, daddy bear and little baby bear'.

It is important to note that while the other forms of complexive thinking, objects are associated by means of *like* features, the collection complex unites objects according to *differing* features. This is not indicative of instability in the isolation and recognition of features, however. The effort to synthesise complete sets indicates an awareness of more general relations and may use some practical situation as the nucleus for synthesis of the complex, for example, uniting knife, fork and plate, as found on the dinner table.

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Complexes

Complexes are the simplest form of 'concept' in which a subject abstracts empirical features from objects or situations and connects them with features abstracted from other objects or situations.

Explanation

Vygotsky developed the concept of complexes, or 'complexive thinking' by use of the method of dual stimulation applied in Leonid Sakharov's experimental study of concept development, described in Chapter 5 of *Thinking and Speech*.

These forms of activity are not true concepts because they do not organise the subject's actions according to socially transmitted objective criteria, but rather by means of concrete attributes in the field of perception according to subjective and unstable criteria. As complexive thinking develops, it becomes more and more stable, and more and more coordinated with the activity of the social world around the subject, guided by the use of the language of the adult world.

> "The foundation of the complex lies in empirical connections that emerge in the individual's immediate experience. A complex is first and foremost a concrete unification of a group of objects based on the empirical similarity of separate objects to one another" (*LSVCW* v. 1, p. 137).

The features unified may be sensuous attributes of objects, functional or other contingent associations discovered in immediate experience. As the subject develops their ability to:

- abstract features from the perceptual field,
- retain representations of these features so as to recognise them and synthesise them with other situations, and
- use words appropriated from the speech of adults around them to guide the processes of abstraction and synthesis,

Vygotsky identified four types of complex which arise:

- the Associative complex, in which one object forms the nucleus, to which diverse objects are associated by a different point of likeness in every case.
- the Collection complex, in which the subject collects 'complete sets' of objects which complement one another, typically in connection with some activity.
- the Chain complex, in which each object is connected with next according to some feature, but then the next object according to a different feature.
- the Diffuse complex, where the subject unites objects according to empirical connections, but extended into domains in which the child has no practical experience.
- the Pseudoconcept, where objects, events and situations are grouped in the same way that they are grouped by words in the adult language; that is, the pseudoconcept has the same extension as a true concept, but remains a concrete thought-form tied to the perceptual field.

With the pseudoconcept, an adult may be unaware that a child means something quite different by the same word, and may only become aware that the child has not in fact grasped the concept by some unexpected gaff on the part of the child.

All these complexes share in common that they organise activity according to features isolated from the field of perception. As such, they allow the child to coordinate their activity with the adult world and recognise objects and their social significance. But as forms of *concrete thinking* they are not true concepts. True concepts are culturally-historically created and transmitted forms of orientation to the world which are independent of the perceptual field, standing between the subject and the field of perception. A complex rests immediately on the field of perception.

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Concept

A concept is a form of action organised around a word acting as a sign for it, which is the basic unit of a culture or project and a unit of the consciousness.

Explanation

Vygotsky never clearly says *what* he means by 'concept'. It has to be inferred from what he means by a 'true concept' as opposed to a 'pseudoconcept' on one hand and an actual concept on the other, how he defines other concepts, and by his declarations in favour of dialectical logic. This is not surprising, as it is extremely difficult to give an adequate and clear definition of 'concept' which avoids dualism, makes the distinction between 'true' concepts and other forms of activity, such as pseudoconcepts and in some way connects up with intuitive understandings of the word 'concept'.

Firstly, Vygotsky presents us with an apparent conundrum: he defines a true concept, which he distinguishes from other forms which are evidently not true concepts, such as pseudoconcepts. These forms are evidently also concepts, but not true concepts. Vygotsky never gives us a feature by which 'true concepts' may be distinguished from concepts which are not 'true concepts', but rather points to the path of development of a concept which marks it as a true concept, viz., that via some formal practice of *instruction*, it is consciously and effortfully appropriated as part of a *system* of concepts. But such a 'true' concept is still not fully developed. An actual concept, must also mature through practical life experience. This idea of 'concept', as a line of development which includes both mature forms and abstract, immature and undeveloped forms, is consistent with dialectical logic and with his own genetic method.

Secondly, Vygotsky investigates concepts by observing the activity of children with symbolic artefacts from which the child's consciousness can be inferred. That is, the inner aspect of actions, inaccessible to observation, is inferred from the observation of behaviour. Both internal and external aspects of the activity are essential to his idea of concept. The child or young person's actions can be understood in terms of a concept acquired by the subject which makes sense of a whole system of their actions, that is, that various artefacts are taken to be signs for a certain entity, the relevant concept. The inner and outer aspects of the activity are inseparable, and neither would be what they are without its connection with the other. This is consistent with saying that a concept is a form of activity. Although Activity Theory, with its precise definition of 'activity' was only founded by A. N. Leontyev only after Vygotsky's death, Vygotsky's concept of concept played the same role in his psychology: - that which provides the motivation for actions and allows the observer to make sense of a subject's actions.

Finally, what makes a 'true' concept true are that the concept is a cultural-historical product of the wider community, transmitted to the subject by instruction.

> "The tasks that are posed for the maturing adolescent by the social environment - tasks that are associated with his entry into the cultural, professional, and social life of the adult world - are an essential functional factor in the formation of concepts. Repeatedly, this factor points to the mutually conditioned nature, the organic integration, and the internal unity of content and form in the development of thinking." (1934, p. 132)

Vygotsky further supports this proposal by means of occasional observations about the cultural and historical development of concepts. That is, concepts are in the first place units of a culture, from which they may be acquired by an individual. This explains the distinction he makes between artificial concepts, manufactured in the laboratory, and actual concepts.

Vygotsky's taxonomy of concepts depends on the various paths of development by means of which actual concepts develop, represented by a number of ideal types.

There are spontaneous concepts, acquired from participation in activities, without formal instruction, and those which arise from formal instruction, non-spontaneous, or true concepts.

There are artificial concepts, produced in the laboratory, and actual concepts (both spontaneous and true concepts). Vygotsky takes as his paradigm of true concept the scientific concept.

Concepts which are not true concepts, but which arise in the course of the development of a concept (whether artificial or actual) are syncretic concepts, associative complexes, chain complexes, diffuse complexes, collection complexes and finally pseudoconcepts which are the crowning achievement of that line of development Vygotsky calls complexes.

Two other line of concept development are noted by Vygotsky, potential concepts which are pre-intellectual forms of activity arising from non-verbal activity, and pre-concepts which are embryonic true concepts associated with symbolic activities.

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Consciousness

Consciousness is the totality of the subjective processes of a human being which mediate between a person's physiology and their behaviour.

History

Consciousness first became an object of philosophical and scientific study with the philosophy of René Descartes (1596-1650), and has been a central problem for philosophy ever since. In the mid-19th century, the specialised and natural scientific study of consciousness emerged mainly in Germany, including the study of physiology, introspection, behaviour and cultural phenomena, leading to the development of Psychology as the science of the mind, or consciousness. By the 1920s, Psychology differentiated itself between those currents which affirmed Consciousness as the subject matter of Psychology, and Behaviourism, which rejected consciousness as a category open to scientific investigation. CHAT emerged out of this conflict.

Explanation

Consciousness is the *entirety* of a person's Subjective processes. Affect, Cognition, Thinking, Awareness, 'the Unconscious', Will, Intention, etc., are all included in the category of 'consciousness'. Although Consciousness mediates between the material behaviour and physiology of the person, consciousness is not itself material. Consciousness is an appearance. Like the reflection in a mirror, consciousness can be entirely understood in terms of the material processes which underlie it, but just like the subject matter studied by the historian or the geologist, the subject matter of the psychologist, can only be studied indirectly, but studying the material processes which it mediates, in particular the social behaviour of human beings (and its development), and human physiology.

The distinction between consciousness and matter is not erased, because matter (in the philosophical sense) is simply, by definition, what lies outside consciousness and is reflected in consciousness. Vygotsky quoted Lenin approvingly:

> "the only 'property' of matter connected with philosophical materialism is the property of being an objective reality, of existing outside of our consciousness ... Epistemologically the concept of matter means nothing other than objective reality, existing independently from human consciousness and reflected by it." (See 'Historical Meaning of the Crisis in Psychology', LSVCW, v. 3, pp. 233 - 370)

See Chapter 7 of "Thinking and Speech" for a concise exposition of Vygotsky's view of consciousness. Note that according to Vygotsky, his analysis verbal thinking based on the unit of word meaning opens the way to the study of consciousness as a whole, as opposed to the study of separate psychological functions in isolation:

> "There exists a dynamic meaningful system that constitutes a unity of affective and intellectual processes. Every idea contains some remnant of the individual's affective relationship to that aspect of reality which it represents. ... At this point, we will simply restate the claim that the method that we are applying in this work not only permits us to see the internal unity of thinking and speech, but allows us to do more effective research on the relationship of verbal thinking to the whole of the life of consciousness" (Thinking and Speech, Chapter 1, *LSVCW* v. 1. p. 50 - 51)

Note that the word "mind" is a synonym for consciousness and bears no special meaning in CHAT. The word "psyche" is used in a more general sense in that it is ascribed to all animate organisms, with "consciousness" being reserved for the human psyche. According to A. N. Leonyev:

> "The basic position of Marxism on consciousness is that it represents a quality of a special form of the psyche. Although consciousness also has its own history in the evolution of the animal world, it first appears in man in the process of the organization of work and social relations." (1978. p. 46)

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Defect/compensation

Defect/compensation is the unit Vygotsky used for the psychology of disability.

Background

In Soviet times, 'defectology' was the branch of science which dealt with the education and care of children with all kinds of disability, and Vygotsky chose to do a considerable amount of his work in this area. Vygotsky did not have a 'deficit model' of psychology, however. On the contrary, Vygotsky saw the deficit as being on the side of the community which fails to provide for people who differ from the norm.

> "The entire apparatus of human culture (the outer form of behaviour) has been adapted to a human being's normal psychophysiological organisation. Our entire culture is intended for a person who possesses certain organs – a hand, an eye and ear – as well as certain functions of the brain. All our institutions, our technology, all our signs and symbols are intended for a normal human being." (LSVCW, v. 2, p. 167)

Explanation

Vygotsky appropriated the approach of Alfred Adler in his work on 'defectology'. Here the disability becomes a source of development:

The existence of obstacles is not only the main condition for the *attainment of a goal but also the indispensable condition for the very emergence of the goal*.

... The existence of obstacles creates a "goal" for mental acts, that is, it introduces into development a future-directed mentality. The presence of this "goal" creates a stimulus for compensatory tendencies ... *development out of necessity*. ..."

> "The obstacles which thrust the child forward developmentally are rooted in those conditions of the social milieu in which he *is supposed* to grow. On the other hand, the child's whole development is oriented toward achieving a necessary social level. ... (1) a child's unsocialised, uncultured nature places powerful obstacles in the path of psychological growth; (2) these obstacles serve as stimuli for compensatory development and become the final goal, determining the whole process; (3) the presence of obstacles augments the operation of certain functions and their perfection.. This results in triumph over these obstacles and hence in adaptability or assimilation." (*LSVCW*, v. 2, p. 158)

Vygotsky insisted that "education must cope not so much with these biological factors as with their social consequences." (*LSVCW*, v. 2, p. 66) The defect and compensation must thus be understood in terms of their impact on the child's *social position*. The unit of defect and compensation forms the key to solving the problem of the development of the child who suffers from being different from the social norm.

Vygotsky's work was continued by many of his students and the work of Alexander Meshcheryakov on the education of deaf-blind children became famous.

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Dialectical and Formal Logic

Dialectical logic (or dialectics) is the logic of concepts,whereas *formal* logic is propositional logic.

Explanation

Although dialectics dates back to the ancients, it was only with Hegel that dialectical logic was given a systematic exposition.

Formal logic considers the relation between the truth-value of propositions of the type $x \in S$ ("x is an element of the set S"). Concepts are regarded as sets of discrete elements, that is, reduced to their extension and the validity of deductions is resolved by comparison of the elements of the relevant sets.

Dialectical logic, on the contrary, is concerned with the truth of positions of the form "c is absolute" (or "everything is c"). Thus, dialectics examines the limits of a concept, and the conditions under which it falls into contradiction with itself. The concepts which Dialectics deals with are true, concrete concepts, that is, concepts which embody the wisdom of human history and culture in them, not formal concepts.

Vygotsky acquired his knowledge of dialectics from a reading of Marx, Engels and Lenin, and he makes frequent reference to its importance for his thinking. For example:

> "Dialectical thinking does not place logical and historical methods for acquiring knowledge in opposition to one another. In accordance with Engels's well known

> definition, the logical method of investigation is itself an historical method. Logical methods are merely freed from their historical form and from the element of chance in history that interferes with the structure of the scientific account. The logical course of thought and history begin with the same thing. Moreover, the development of logical thought is nothing but a reflection of the historical process in an abstracted and theoretically consistent form. It is a refined reflection of the historical process, but it is refined in correspondence with the laws that historical reality itself teaches us. The logical mode of investigation provides the possibility for studying any aspect of development in it most mature stage and in its classic form." (*LSVCW*, v. 1, p. 47)

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Dichotomy

Dichotomy is the claim that "there are two kinds of X in the world."

Explanation

Dichotomy is derived from the Greek, meaning "cut in two," and means that a given field can be divided into two classes: male and female, emotion and reason, and so on.

In most cases, dichotomy turns out to be mistaken, except for trivial cases. "Inside the body" and "outside the body" does divide the world into two, but this dichotomy turns out to be of limited use in either medicine or psychology because of the continual interchange and movement between the inner and outer, and there are few processes which can be unambiguously assigned to either inner or outer.

But the problem of dichotomy is rarely resolved by the notion of "fuzzy boundaries" or "in-between cases." Rather, it is a matter of Mediation between one and the other, of the mutual constitution of each by the other, their interdependence and relativity and of continual movement between one and the other.

And nor should the effort to avoid dichotomy (or "dualism") lead us to deny *distinction*. To make a distinction, for example, between the individual and the social, is rational, though it is quite impossible to ascribe any set of features or characteristics unambiguously to the social or the individual. But to declare that the distinction does not exist is fruitless.

Often, the problem of dichotomy is most fruitfully resolved by introducing a third so that each of the three categories mediates between the other two, thus avoiding both dichotomy and trichotomy. Sometimes the dichotomy is resolved only by abandoning one or other category as simply a "bad concept."

Diffuse Complex

The diffuse complex is a form of proto-concept where the subject unites objects according to empirical connections, but extended into domains in which they have no experience.

Explanation

The attempt by the child to unite objects according to a common feature, becomes more and more diffuse as they struggle to bring a wider and wider field of activity within their domain of action. This tendency was exhibited in the 'double stimulation' experiment:

> "Given a yellow triangle as a model, for example, the child selects not only a triangle, but a trapezoid. With its sharp angles, the latter reminds the child of the triangle. Subsequently, a square is affiliated with the trapezoid, a hexagon with the square, a polygon with the hexagon and finally a circle with the hexagon" (*LSVCW* v.1, p. 141).

In everyday life: "What is unique to the diffuse complex is that it unifies things that are outside the child's practical knowledge. The result is that the connections which provide its unity depend on false, vague, and undefined features" (*LSVCW* v. 1, p. 141). The attempt to grasp relations outside the person's field of experience can only succeed through the mastery of true concepts.

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Dual stimulation

Dual stimulation refers to the process by which human beings control their own psychological functioning (memory, will, perception, attention) by using signs as auxiliary stimuli, associated with the immediate field of perception, which moderate and direct the response to the immediate (or 'first') stimulus. The expression often refers to an experimental method in which auxiliary stimuli are presented to an experimental subject to assist in completing a difficult task.

History

The experimental method of dual stimulation and the corresponding approach to psychological investigation and human development was originated by Vygotsky and is closely connected to his idea of Mediation and artefact-mediated Action in particular. However, the idea has its roots in Hegel's principle expressed in his Logic as follows:

> "There is nothing, nothing in heaven, or in nature or in mind or anywhere else which does not equally contain both immediacy and mediation."

In other words, dual stimulation is not just an experimental method, but a ubiquitous part of the human condition: human beings have created an entire world of signs and tools which intervene between humans and Nature, and regulate our interaction with Nature. Vygotsky acknowledged Hegel's contribution:

> "With full justification, Hegel used the concept of mediation in its most general meaning, seeing in it the most characteristic property of mind. ... man acts on behaviour through signs, that is, stimuli, letting them act according to their own psychological nature" (*Research Method*, p. 61-2).

Explanation

Vygotsky used the concept of dual stimulation in the design of a number of experiments using the Genetic Method, that is, in which he was able to foster the development of a psychological function in a subject while observing and controlling it by means of the presentation of stimuli-means (auxiliary stimuli).

See Chapter 5 of Thinking and Speech, in which nonsense words on blocks are offered to a child-subject who has to develop a concept to organise the blocks into sets.

In the two chapters in The Vygotsky Reader mentioned below, the experimenter offers cards for a subject to use as mnemonic tools to successfully complete a memorisation task. Vygotsky also refers to using a knot in a handkerchief as a reminder (Tool and sign ...), tossing a coin to make a decision (Genesis ...) or counting to three to summon the will to do something (Lecture 6).

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Elements

Whereas a unit is the smallest part of a complex process which exhibits the essential properties of the whole, Elements are the irreducible heterogeneous components which together make up the whole. For example, the H_2O molecule is the unit of water (clouds, rain, rivers, oceans, etc., are all made of H_2O), while the H and O are the elements making up water. Vygotsky thus described his methodology as "analysis by units."

See Unit of Analysis.

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Extension

The extension of a concept is the object(s) which are referred to by a word or concept, as opposed to the *sense* in which the object(s) is indicated.

Explanation

'Extension' is not a word which Vygotsky used, but the concept is implied when he says of the pseudoconcept that

> "We call this complex a pseudoconcept because it has strong external similarities to the concept that we find in the adult's intellectual activity. However, in its essence, in accordance with its true psychological nature, it is very different from the true concept.
>
> "A careful study ... demonstrates that this form of generalization is a complexive unification of a series of concrete objects. Phenotypically, on the basis of its *external appearance* and *external characteristics*, the pseudoconcept corresponds completely to the concept." (*LSVCW* v. 1, p. 142)

That is, the true concept and the pseudoconcept indicated by the same word have the same extension, but have a radically different sense.

Sometimes "reference" is used instead of "extension," but it is more common to use "extension" when a generalised *category* of objects rather than an individual object is intended.

See Wikipedia: http://en.wikipedia.org/wiki/Sense_and_reference

Genetic method

The genetic method (or is the research approach used by Vygotsky to reveal the essential nature of particular psychological functions by bringing them into being in an experimental setting.

History

The genetic method rests on the more general insight that processes can be understood by tracing their history. Goethe for example said "the history of science if science itself" (*Theory of Colours*, Preface), and Hegel in particular developed the historical approach to the understanding of natural and social processes, and Marx adopted this approach, insisting that "In the social production of their existence, men inevitably enter into definite relations, which are independent of their will, namely relations of production appropriate to a given stage in the development of their material forces of production" (1859 *Preface*) and in this way grasped bourgeois society as a specific and transitory stage in the development of human life, rather than something rooted in an eternal human nature. Likewise, Chapter 1 of *Capital* included section outlining the historical evolution of the commodity relation up to the formation of money. Vygotsky approached psychology in the same way, beginning his investigation with "The historical meaning of the crisis in psychology" in which: "The methodological investigation utilises the historical examination of the concrete forms of the sciences and the theoretical analysis of these forms in order to obtain generalised, verified principles that are suitable for guidance. This is, in our opinion, the core of this general psychology."

Explanation

Luria described a series of experiments that were developed by Vygotsky's team in which child subjects who are unable to complete a certain task, are offered a symbolic artefact to assist in overcoming the barrier and solving the problem. In *The Problem of the Cultural Behavior of the Child*, he shows that this experimental approach replicates the normal cultural development in which cultural artefacts are offered to a child when they come across a barrier and seek help from adults.

> "We can place a child in difficult situations, give him a task so difficult that he cannot solve it without the application of some special technical means. We are urging him to search for such means, to enter the field of inventions. In offering the child the corresponding material which he could utilize as such means, we are making such research visible and render it capable of being observed." (*Cultural Behavior of the Child*)

Using the experimental genetic approach, researchers are able to observe how, and at what stage of ontogenetic development, a child is able or unable to use a cultural artefact to solve tasks, and later internalise the cultural method. He shows that at a certain stage, the whole structure of a child's psyche is transformed, and problems are solved in ways which are qualitatively different to how the younger child is able to solve them.

In Chapter 4 of "Thinking and Speech" Vygotsky uses this genetic approach to unlock the meaning of children's egocentric speech, which arises at a certain point in the course of their cultural development, and thereby reveals he relation between thinking and speaking, which he summed up as follows:

> "1. In their ontogenetic development, thought and speech have different roots.
>
> "2. In the speech development of the child, we can with certainty establish a pre-intellectual stage, and in his thought development, a pre-linguistic stage.
>
> "3. Up to a certain point in time, the two follow different lines, independently of each other.

> "4. At a certain point these lines meet, whereupon thought becomes verbal and speech rational." (*Thinking and Speech*, Chapter 4.2)

The genetic method applies this insight to experiments in which the mastery of specific psychological functions or psychological tools is fostered, revealing the development of the child's psychology.

See the entry on Dual Stimulation for examples of application of the Genetic Method.

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Germ Cell

The germ cell is a simple, embryonic relation or concept which can develop into a complex process and thus provides a key to understanding that complex process.

History

The 'germ-cell' was introduced into the Activity Theory tradition by Vasily Davydov and further developed by Yjrö Engeström. The 'germ cell' indicates specific aspects of the 'unit of analysis', which was a central concept of Vygotsky's methodology.

Goethe originated the idea in his study of the morphology of plants, defining the *Urphänomen* as the simplest form of an organic process from which all the essential features of the whole organism could be generated. Goethe died before microscopes had sufficient power to observe the microstructure of living organisms, but it is widely recognised that what Goethe had imagined was the *cell*, the building block of all biological organisms. It was essential to Goethe's conception that the *Urphänomen* was not a suprasensible law or a principle governing a process from outside, so to speak, but a real, simple entity accessible to the senses. Hegel appropriated Goethe's idea, making it more precise and universal in its scope. The germ cell is the key concept of his *Logic* in which it becomes the 'abstract concept', and the structure of the *Logic* is just as outlined by Marx as follows in the *Grundrisse*:

> "It seems to be correct to begin with the real and the concrete, with the real precondition, thus to begin, in economics, with e.g. the population, ... However, on closer examination this proves false. The population is an abstraction if I leave out, for example, the classes of which it is composed... Thus, if I were to begin with the population, this would be a chaotic conception of the whole, and I would then, by means of further determination, move analytically towards ever more simple concepts, from the imagined concrete towards ever thinner abstractions until I had arrived at the simplest determinations. ...

This is the 'germ-cell'.

> "From there the journey would have to be retraced until I had finally arrived at the population again, but this time not as the chaotic conception of a whole, but as a rich totality of many determinations and relations. ...
>
> "The concrete is concrete because it is the concentration of many determinations, hence unity of the diverse. It appears in the process of thinking, therefore, as a process of concentration, as a result, not as a point of departure, even though it is the point of departure in reality and hence also the point of departure for observation and conception. Along the first path the full conception was evaporated to yield an abstract determination; along the second, the abstract determinations lead towards a reproduction of the concrete by way of thought." (1857)

The first phase of the development of a science begins from everyday perception and is complete when we arrive at the germ-cell (or unit of analysis), the singular entity which exhibits the essential relations of the whole process. The second phase of "rising to the Concrete" is when we 'reconstruct' the whole, now as a systematic whole exhibiting the essential features with which we are familiar in the unit from which we began. We can viscerally understand it because the germ-cell is a singular, finite relation. As Goethe demanded, it is not some *law* (like the law of supply and demand) which is hidden from perception and governs the process from outside, but something we can get to know at first hand, whether experimentally or in day-to-day life.

The term 'germ-cell' was first used by Marx in the first Preface to *Capital*:

"The human mind has for more than 2,000 years sought in vain to get to the bottom of it all, whilst on the other hand, to the successful analysis of much more composite and complex forms, there has been at least an approximation. Why? Because the body, as an organic whole, is more easy of study than are the cells of that body. In the analysis of economic forms, moreover, neither microscopes nor chemical reagents are of use. The force of abstraction must replace both. But in bourgeois society, the commodity-form of the product of labour – or value-form of the commodity – is the economic cell-form." (1867)

The commodity is both the germ-cell from which bourgeois society develops, *and* the unit of which bourgeois society is composed. All the essential features of bourgeois society may be grasped from the understanding of the commodity relation.

Vygotsky defined the 'unit of analysis' in his study of the verbal thinking (i.e., the intellect). He advocated a

> "form of analysis [which] relies on the partitioning of the complex whole into *units*. In contrast to the term "element," the term "unit" designates a product of analysis that possesses *all the basic characteristics of the whole*. The unit is a vital and irreducible part of the whole."

and directly alluding to Marx and Goethe's biological metaphor:

> "The word is comparable to the living cell in that it is a unit of sound and meaning that contains - in simple form - all the basic characteristics of the integral phenomenon of verbal thinking." However, the intellect is not really just matter of word meanings, it is far more complex and intangible than that! Word meaning is just the germ-cell.

Explanation

When Activity Theorists identify a relation or action or concept or artefact as the 'germ cell' of a complex process, they mean that the relation is the simplest possible relation which will over time develop into the more complex process. It *may* be the first, historically, but not necessarily. The germ may not appear in pure form until later on, perhaps after a series of trial-and-errors. It is the simplest because it contains without any further addition the essential relation which will stimulate further development and stimulate interaction with other processes.

Until a whole complex process can be understood in terms of a single concept we have nothing more than a description of the process in terms of its most prominent and

consistent features. This is not understanding at all. To say that word meaning is the germ cell or unit of analysis of the intellect is not to 'reduce' the intellect to discourse, but to take discourse as the *starting point* for the scientific study of the intellect. For an example of the concept of germ-cell being used in research, see the paper by Yrjö Engeström and Vasily Davydov's book on generalisation, which uses the "cell."

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Higher Mental Function

A Higher Mental Function (HMF), or Higher Psychological Function, is a psychological function organised by social cultural mediation.

History

In 1931 L. S. Vygotsky (1997, p. 1) wrote, "The history of the development of the higher mental functions is a field in psychology that has never been explored." Vygotsky provided the term, Higher Mental Functions, with a theoretical and methodological rigour previously absent from the study of higher mental processes (Vygotsky 1997, pp. 30-31).

Explanation

The topological significance of "higher" in the term "higher mental function" denotes the genesis of psychological functions that come to reorganise pre-existing functions on the basis of social cultural mediation. "Higher" also denotes the cultural significance of these functions analogous to "high art" and "high church" (Vygotsky 1997, p. 97):

The analysis and structure of higher mental processes lead us directly to disclosing the basic problem of the whole history of the cultural development of the child, to elucidating the genesis of higher forms of behavior, that is, the origin and development of the mental forms that are the subject of our study.

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Ideal, The

The ideal is those properties of an artefact which subsist only in their use in human activity, and not in of the physical or chemical properties of the artefact.

History

The ideal has a long history in philosophy, having generally been taken as a property of the (individual) human mind. Hegel was the first to give it meaning at all close that which it has in CHAT, which is owed to the Soviet philosopher Evald Ilyenkov. According to Ilyenkov the materialist concept of the ideal is owed to Marx (in his analysis of value in bourgeois society) and was introduced into Soviet psychology by S. L. Rubenstein.

Explanation

Ilyenkov explained ideality as follows:

> "Ideality, according to Marx, is nothing else but the form of social human activity represented in a thing. Or, conversely, the form of human activity represented as a thing, as an object.
>
> "'Ideality' is a kind of stamp impressed on the substance of nature by social human life activity, a form of the functioning of the physical thing in the process of this activity. So all the things involved in the social process acquire a new 'form of existence' that is not included in their physical nature and differs from it completely – their ideal form." (Ilyenkov, 2009, p. 280)

It is important to note that everything that is ideal is also material; conversely, almost every material thing we know has ideal properties – material and ideal are not opposites in that sense. Nonetheless, one and the same material object may have ideal properties (the value of a coin, the meaning of a word, the scale of a map) and material properties (the weight of the coin, the sound of the word, the size of the map). But the ideal properties are independent of the material properties which determined by natural processes, while the ideal properties are determined by social practices and norms of human social life.

If we were to look for an opposite to 'ideal' it would be 'natural'. 'Natural' means not a product of human activity, whereas 'ideal' refers only to properties produced by human activity.

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Material

'Material' denotes, (1) in the broad sense, all that is outside the individual consciousness, but (2) in the narrow sense, those activities which are necessary for the production and reproduction of life itself.

Explanation

(1) 'Material' is used to describe material entities and processes, such as the paper and ink which are the carriers of the written word, the pressure waves and air which are the carriers of speech, the human bodies and artefacts which are the carriers of activities and actions. Even though these processes which have been given as examples are controlled by human minds and are also *ideal*, they are all *material* in as much as they exist outside of consciousness, interconnected with other material processes across the entire universe, whether observed or not, and independently of whether and how they are interpreted. Also material are the natural processes such as earthquakes, the

rotation of the Sun and the autonomic nervous system of the human body, over which human beings have no control and which existed before human beings walked the Earth.

See Matter and Ideal.

(2) 'Material' is also used in a narrower sense following Marx's use in, for example, the Preface to the *Contribution to the Critique of Political Economy*:

> '... it is always necessary to distinguish between the material transformation of the economic conditions of production, which can be determined with the precision of natural science, and the legal, political, religious, artistic or philosophic – in short, ideological forms in which men become conscious of this conflict and fight it out. Just as one does not judge an individual by what he thinks about himself, so one cannot judge such a period of transformation by its consciousness, but, on the contrary, this consciousness must be explained from the contradictions of material life, from the conflict existing between the social forces of production and the relations of production.' (1859)

The distinction Marx is making here, between those forms of activity which are necessary for the production and reproduction of life and those 'ideological' forms of activity which are necessary for the reproduction of the *social relations* or 'spiritual' activities not essential to the reproduction of *life itself*, is a *relative* distinction, important for the analysis of social change.

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Matter

Matter is a philosophical category simply indicating everything that exists outside of Consciousness.

History

The concept of Matter originates with the ancient Greek atomists, most famously Democritus. Matter was conceived as an identical substance underlying all forms, different forms arising from different modes of movement and interaction between identical atoms. It was only with the emergence of modern philosophical materialism with Ludwig Feuerbach (1804-1872) that the philosophical concept of matter acquired the scientific definition which it has in CHAT. In recent decades, a great deal of resistance has emerged to the recognition of a dichotomy between the philosophical concepts of matter and consciousness, often taking the form of an identification of thoughts with neuronal activity.

Explanation

Matter is a philosophical category simply indicating everything that exists outside of consciousness. In philosophy, and in the foundations of CHAT, the concept of 'matter' does not concern such distinctions as that between waves and particles, between processes and things or social base and superstructure, but simply the distinction between consciousness and the world outside of consciousness which is 'reflected' in consciousness. It seems counter-intuitive that a materialist psychology defines matter in terms of consciousness but in fact, these two terms are meaningful only in contrast to one another.

Everything we know about the material world passes through our consciousness, but it remains the case that scientific knowledge of consciousness is possible only by studying the material processes which underlie consciousness: human physiology and

human behaviour – interactions with other people, Nature and Artefacts – and their development. Thinking is undoubtedly a material process, but consciousness, the 'material of thinking' is an appearance which must be rationally distinguished from the matter reflected in appearance. As Evald Ilyenkov put it:

Here, then, is the question: take your thought, your consciousness of the world, and the world itself, the complex and intricate world which only appears to be simple, the world which you see around you, in which you live, act and carry out your work – whether you write treatises on philosophy or physics, sculpt statues out of stone, or produce steel in a blast furnace – what is the relationship between them? ...

These concepts are matter and consciousness (psyche, the ideal, spirit, soul, will, etc. etc.). 'Consciousness' ... is the most general concept which can only be defined by clearly contrasting it with the most general concept of 'matter', moreover as something secondary, produced and derived. (Ilyenkov, 2009, p. 302)

Further, he says:

The question about the relationship of consciousness to the brain is a question which is resolved scientifically and with full concreteness not at all by philosophy, but only by the joint efforts of psychology and the physiology of the brain. ...

In philosophy discussion is, was and shall be precisely about the relationship of consciousness to the material, objective world of natural and socio-historical phenomena, existing outside the thinking brain. This is the very question which will be answered by no variety of psychophysiology, no matter how refined it is. For the simple reason that it has never studied this question. (Ilyenkov, 2009, p. 305)

See *LSVCW*, v. 3, pp. 310 - 332.

See http://en.wikipedia.org/wiki/Matter_(philosophy).

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Mediation

Mediation means 'acting as a go between', specifically the use of tools and signs to act on an object.

History

Mediation entered the English language from the Anglo-Norman and French in the 14th century, initialling referring to the function of mediating disputes. Mediation was an important category for Hegel, but its use in Psychology dates from the first decade of the 20th century, to mean the interposition of processes between stimulus and result, or intention and realization. Vygotsky used 'mediation' in the specific sense of tool- and sign-mediation, and the concept is found in his earliest as well as his last works.

Explanation

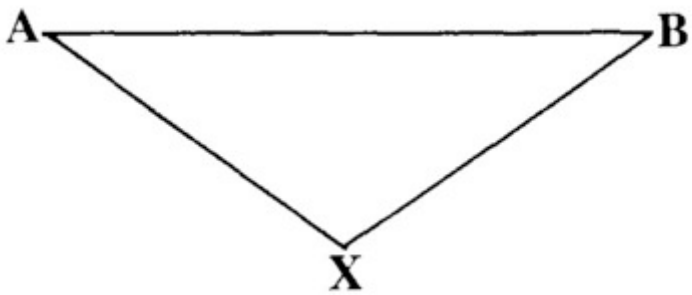
Mediation is an extremely broad ranging concept. As Hegel said:

"There is nothing, nothing in heaven, or in nature or in mind or anywhere else which does not equally contain both immediacy and mediation." (Hegel 1812)

Mediation means 'acting as a go between', i.e., intervening between a subject and its object. We can say that a teacher mediated a child's learning, that a computer mediated the reading of a text, or that a reading of all the witnesses' reports mediated the

investigation of an incident. Leontyev refers to “dual” mediation – “object activity and social contact.”

But there is one kind of mediation which has a special place in CHAT, and that is artefact-mediation of actions. Vygotsky describes artefact-mediation in terms of how a conditioned reflex: - stimulus A responds to stimulus B – is controlled by introducing the sign, X. X acts as the sign for B, and replaces B as the stimulus associated with A.



As Vygotsky explains this diagram:

In natural memory a direct associative (conditional reflex) connection A→B is established between two stimuli A and B. In artificial, mnemotechnic memory of the same impression, by means of a psychological tool X (a knot in a handkerchief, a mnemonic scheme) instead of the direct connection A→B two new ones are established: A→X and X→B Just like the connection A→B each of them is a natural conditional reflex process, determined, by the properties of the brain tissue. What is new, artificial, and instrumental is the fact of the replacement of one connection A→B by two connections: A→X and X→B They lead to the same result, but by a different path. What is new is the artificial direction which the instrument gives to the natural process of establishing a conditional connection, i.e., the active utilization of the natural properties of brain tissue.

This relationship is also described as ‘double stimulation’. See ‘The Problem of the Cultural Development of the Child’ (Vygotsky 1929), Chapter 5.2 of Thinking and Speech, and The Instrumental Method in Psychology (Vygotsky 1930).

For example, B might be some complex object, event or situation which requires a certain response from us, A. Once we learn the word for it, X, that word evokes responses appropriate to B. The word then enters into our language use and acquires a range of nuances and meanings, and connections with other words and concepts. When confronted with the situation, B, and the sign, X, is evoked, and both B and X act as stimuli. The sign stimulus is mediated though consciousness, rather than being a conditioned reflex directly responding to the situation B, thus the subject is able to make a learned and intelligent response to the situation B.

The same basic schema applies if X is not a sign as such, but for example, if B is the fuel injector in an automobile and X is the accelerator pedal (a technical tool for controlling the fuel injector). Once we have learnt to drive we don’t even think “I need to operate the fuel injector ...,” but simply step on the accelerator. The whole achievement of automotive engineering in controlling the fuel supply to an engine so as to regulate the car’s speed is incorporated into that simple artefact which the instructor teaches the learner driver to use; the learner easily appropriates the action of the accelerator, without even understanding how internal combustion engines work.

In short, the humanised world in which we live is a world of artefacts, which together embody the accumulated wisdom of centuries. These artefacts mediate everything we do; we think in terms of signs and tools rather than the immediate sensory stimulation of the natural, material world in itself. At first sight uttering a word seems to be an immediate action – the production of a word, and it seems odd to take the action as *using* the artefact to act on the mind or behaviour of another person. The spoken word

itself seems to be an action, rather than an artefact. But this way of seeing things is essential to being able to separate an action from its means.

Mediation is thus the means by which the culture of an entire community enters into the psychology of an individual, through the mediation of actions by signs (psychological tools) and (technical) tools. For example, at first a child's action may be controlled by an adult commanding the child, mediated by certain words. Later the child learns to command their own behaviour, by appropriating these words by means of egocentric, or later, inner speech, and finally the words enter into the child's psyche and, so long as everything goes well, without conscious awareness of the word.

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Microcosm

A microcosm is a component of a larger complex process which displays all the phenomena of the larger whole.

History

'Microcosm' dates from the 15th century when it captured the idea that a single individual person, represented an entire universe. Nowadays it is generally used in the relative sense: "x is a microcosm of X."

Explanation

Microcosm differs from unit of analysis or germ cell, because the microcosm must display not just the 'essential' features of the whole in embryonic form, but actually all the features. So, for example, the microcosm of capital would be one modern corporation, not a single commodity exchange. However, when Vygotsky says, in the final words of *Thinking and Speech*: "The meaningful word is a microcosm of human consciousness" it is unlikely that he intended anything other than to reiterate that word meaning is the unit of analysis of verbal thinking.

Object of Activity

The object of activity is the source of the motivation for an activity, either an imagined and desired situation, or a situation which is the problematic focus of the activity.

History

'Object' is a very polysemous word, both in common speech and in philosophical writing, and this polysemy is very longstanding and has been carried over from German philosophy to Russian and European Activity Theory.

In both Russian (the source of Activity Theory) and German (the philosophical roots of the concepts) there are two words translated into English as 'object': in German *Gegenstand* and *Objekt*, and in Russian respectively *predmet* and *obyekt*. But the availability of two words did not lessen the problem of polysemy and Russian and German are hardly better off than English.

In common German speech and in philosophical writing as late as Kant *Gegenstand* and *Objekt* could be used more or less interchangeably. Differences in usage began with Hegel and entered the Marxist tradition and thereby Activity Theory.

Etymology

Das Objekt is derived from the Latin *objectum*, 'something thrown before or against', first used by Duns Scotus in the 13th century where 'subject' had the meaning of the 'subject matter of discourse' and 'object' was what was thrown against it, i.e., what was said of the subject. In the 17th century, the meanings of subject and object underwent an inversion and Christian Wolff gave *objekt* the meaning of something thrown before or over against the *mind* (now the 'subject'), i.e., the object of knowledge, but also of striving, of desire and of action. The object does not *have to* be a real or material thing, though Kant also used it in that narrower sense, and in common speech it means just that. But it is taken to be an 'objective' situation, though imagined or perceived and given meaning by the mind.

From the 17th century onwards the native German word *Gegenstand* – 'what stands against' – became synonymous with *Objekt* in philosophical writing, including Kant. It was Hegel who introduced differences in meaning between *Gegenstand* and *Objekt*.

The Object in Hegel

Whilst in ordinary German speech, the two words remained synonymous, Hegel made *Gegenstand* an object of knowledge, of consciousness and intention, and thus a psychological concept. *Objekt* was a real object, independent of the subject, but the object *of* a subject, taken to be a complex system of things and relations, as in the modern concept of "The Other."

The *Subjekt-Objekt* relation is central to Hegel's *Logic*; both a subject and the *Objekt* of the subject are independent cognizing, practical subjects, taken to be not individuals but social projects, and the development of each involves a mutual interpenetration and transformation.

When Marx (1845) said in Theses on Feuerbach # 1:

> "The main defect of all hitherto-existing materialism ... is that the object [*der Gegenstand*], actuality, sensuousness, are conceived only in the form of object [*des Objekts*], or of contemplation, but not as human sensuous *Tätigkeit*, practice, not subjectively. Hence it happened that the active side, in opposition to materialism, was developed by idealism"

he was calling for a resurrection of the active conception of the object, but as activity (*Tätigkeit*) or practice, rather than as either thought-objects (*Gedankenobjekten*) or as objects of passive contemplation. It is this meaning of *Gegenstand* (*predmet*) which was taken up by A. N. Leontyev in the founding of Activity Theory.

The Object of Activity for A. N. Leontyev

'Object' is the most basic concept of Activity Theory as elaborated by Leontyev, more basic in fact than 'Activity' itself, because it is the object (*predmet*, or *Gegenstand*) which summons the activity into being and defines it.

> "A basic or, as is sometimes said, a constituting characteristic of activity is its objectivity [i.e., "object-relatedness"]. Properly, the concept of its object (*predmet*) is already implicitly contained in the very concept of activity. The expression "objectless activity" is devoid of any meaning. Activity may seem objectless, but scientific investigation of activity necessarily requires discovering its object. Thus, the object of activity is twofold: first, in its independent existence as subordinating to itself and transforming the activity of the subject; second, as an image of the object, as a product of its property of psychological reflection that is realized as an activity of the subject and cannot exist otherwise" (1978, ch. 3, p. 52).

In this paragraph, Leontyev also highlights that the object of activity is both an objective situation, which can exist only by force of material interactions outside the

consciousness of the subject, and an subjective representation of the object, a product of psychological reflection, which is its meaning for the subject. So both subjective and objective are united in this concept of the object of activity. This view, in which subject and object are mutually constituted, has its roots in Hegel's concept of *Objekt*. It also carries the meaning of *Gegenstand* as the intentional object, or goal to which the subject is striving and which provides the motive for activity. So the object is not just something contemplated or cognised, but is equally tied up with all the emotions associated with striving – suffering, hope, pain, desire, and so on, as well as will, attention, and so on.

This also means that the object of activity is the ultimate reason explaining an activity, the source of the motivation underlying participation in the activity. For Leontyev, despite the emphasis given to the objectivity of the object of activity (and all practical action for that matter), and the social nature of all an individual's activity, his interest is as a psychologist. So it is the individual's object(ive) which is at issue, the ultimate motivation of his or her actions, and which is betrayed to an observer by the individual's actions.

In *Activity Consciousness and Personality*, Leontyev specifically assigns distinct meanings to *Gegenstand/predmet* on one hand, and *Objekt/obyekt* on the other in order to clarify the meaning of the 'object of activity' (predmet). As Kaptelinin (2005) put it:

> "*Objekt*, denoting the objective, material reality in general (as "things having an existence"), was used to describe a pole of the "subject-object" opposition, through which opposition the notion of activity as a process of mutual transformations between subject and object was defined (Leontiev, 1978, p. 50).

"The term *predmet* was used consistently with the previous analysis (Leontiev 2009), that is, to denote objective orientation of activity. The crucial role of the object (predmet) of activity was emphasized by Leontiev by repeatedly referring to activity as "object-related" activity (*predmetnaja dejatelnost*)."

This distinction which Leontyev specified between *predmet* and *obyekt* translates easily into German, but is lost when both words are translated into English as 'object'. The reader must determine from the context whether *predmet* is meant: 'the object of activity', the imagined and desired outcome, or *obyekt* is meant: the Hegelian subject-object relation or the objective existence of something independently of the subject.

Note that for Activity Theorists, a 'goal' (цели) is the object of an action, and differs from the object of activity in that the goal provides no motivation in its own right, but only insofar as it contributes to the realisation of the object of activity. The difference between the immediate goal and the ultimate object of activity, is definitive of an action.

The Object of Activity for Yrjö Engeström

For Engeström, the object of activity is defined as:

> "the 'raw material' or 'problem space' at which the activity is directed and which is molded and transformed into outcomes"

(http://www.edu.helsinki.fi/activity/pages/chatanddwr/ activitysystem/ – cited by Kaptelinin)

Engeström developed his version of Activity Theory with his seminal book, *Learning by Expanding*, in which he begins from the triangle which Vygotsky used to represent mediated action (See Mediation), taken as representing the Hegelian subject-object relation (*Subjekt-Objekt*), and introduces further levels of mediation so as to bring into the model the broader community with its division of labour, norms and rules and means of production. As a result of the activity, the object is changed, and this is called the Outcome. In Leontyev's terminology, it would be the outcome which is the object of activity, except that the outcome is objective, and may not be at all what was desired

or imagined. The outcome is the change effected in the object, the subject being deemed to remain unaffected.

The domain in which this conception was to be applied was organisational change, that is the organisation to be changed was the focus of activity, the *Gegenstand/predmet*, and is entirely objective. The object of a blacksmith's activity is a piece of iron, the object of a teacher's activity is a class of students. The outcome is what results from this activity. Engeström holds that *preliminary* phenomenological work is required, that is, enquiry into the consciousness of the actors in a system of activity, but once the researcher is oriented, the research proceeds entirely on the basis of actions rather than intentions, desires, suffering, hope, etc.

Both these conceptions of the object of activity have been subject to criticism, Leontyev's mainly for being too subjective, Engeström's mainly for being too objective. But when Leontyev's system is extended to analyse societal issues it falls into a naïve objectivism, with social projects governed by "objective motives," whilst Engeström's system, in which the object changes into the outcome whilst the subject itself remains unchanged, fails on the psychological domain.

The Object for L. S. Vygotsky

Instead of using activities, characterised by the *predmet* as molar units, Vygotsky sought to make sense of a subject's actions by means of the *concept* which motivates them, in a sense which is closer to Hegel's use of *Objekt*. A concept is characterised not so much by the object (task) itself (i.e., *predmet*), but rather by how the subject conceives of the object (i.e., *Objekt*) and consequently the *means* of addressing the problem. That is, one and the same problem may stimulate quite different actions as means of overcoming one and the same problem.

They [Rimat and Ach] have emphasized that the concept is formed only with the emergence of a need that can be satisfied in the concept, only in the process of some meaningful goal-oriented activity directed on the attainment of a particular goal or the on resolution of a definite task.

> ... they have failed to reveal the actual genetic, functional, and structural nature of this process. ... In essence, they are reduced to the assertion that the goal itself creates the corresponding goal-oriented activity through a determining tendency. They are reduced to the assertion that the solution is contained in the task itself. (Vygotsky, 1934, p. 127)

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Operation

An operation is an action controlled by the condition and in which the subject is not consciously aware and controlling the action.

Explanation

In A. N. Leontyev's studies (1947) of the phylogenetic evolution of activity from the most primitive organisms whose activity is determined by reflexes, the formation of operations marks an important stage of evolution. Operations emerge along with the cerebral cortex as fixed patterns of behaviour which can be adapted to conditions. The emergence of operations manifests the first capacity of organisms to form a generalised image of objects in its world. In the course of evolution, organisms increasingly gain control over operations, and when an operation is fully under the conscious control of the organism, which is able adapt the operation to conditions by conscious control, it is called an action.

In the course of the ontogenesis of human beings, we at first manage only the simplest tasks by consciously controlling them towards achieving the goal of the action. However, with repeated practice, in variable conditions, we learn to carry out the action, modified according to conditions without paying attention. This is typically illustrated by stepping over a kerb 'automatically' as we walk along, being aware only of the goal of our walk, such as reaching the next corner. These actions, which are carried out without conscious control and awareness, and determined by the conditions, are operations. This allows the subject to carry out a complex action, characterised by the fact that it is directed towards its goal, but composed of a multitude of operations (each step, for example) which are all controlled by the goal of the action, but determined by the immediate conditions.

However, when something 'goes wrong' – for example, a pot-hole in the footpath causes you to trip, the operation immediately reverts to conscious control as we try to regain our balance and the operation has become an action.

The development of the psyche to the point of being able to carry out a multitude of operations without paying attention allows the subject to carry out complex actions. Operations and actions may transform one into the other, but the action is controlled by its goal, the operation by its conditions.

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Perezhivanie

Perezhivanie is a Russian word which means (more or less) "an experience" or more particularly a "cathartic experience."

History

Pere- means carrying something over something, letting something pass beneath and overleaping it; *zhivat* means to live. This word carries a huge cultural load of connotations and meaning in Russian; it carries associations of suffering, survival, excitement and personal growth. Vygotsky first used the term in *Psychology of Art*, while Constantin Stanislavskii (a friend of Vygotsky's) claimed that a perezhivanie

was a unit for actors, that each movement had to be associated with a specific perezhivanie.

Later, in *The problem of the environment*, Vygotsky used the example of three children of different ages who all suffered from having a drunken mother, but the experience, the perezhivanie, is different for each, because each was at a different stage of their development, and only the older child is able to transcend the experience and grow into being the senior man in the house; the middle child is traumatised and is unable to cope with it; the youngest child does not even know about it. Thus it is said that perezhivaniya are "lived experiences," including the psychological significance the event has for a given subject, and how it felt for the subject, not just the event in itself. Further, people often emphasise that perezhivaniya are intensely *emotional* experiences.

In 1984, Fedor Vasilyuk wrote "The Psychology of Perezhivanie" in which this concept plays a central role in his approach to psychotherapy. The distinction between conflicts having an essentially internal source (such as value conflict) and those having an essentially objective source (such as grief) is key. Vasilyuk then outlines a therapeutic method by means of which a patient is helped to "process" the experience and overcome it. This *overcoming* of a crisis corresponds to what Freud (1914) called "Catharsis." To Russian-speakers, a perezhivanie includes the catharsis.

Explanation

Vygotsky claimed that perezhivaniya are units of (the development) of personality (or character). This is because he believed that it is through surviving specific, memorable, intensely emotional experiences, usually some kind of crisis which confront the subject, that people develop their character. Each such perezhivanie leaves its mark on a person's character. Perezhivaniya may be very brief or may be protracted, but they have an essential unity and stand out from the general background of experience as "an experience."

Because a perezhivanie corresponds not just to the nature of the environment in itself, nor to the subject in themself, but rather to the specific *relation* between the person and the environment, the "significance" of the event for the person, it is often said that perezhivaniya are a "unity of the person and the environment." This phrase can be confusing; clearly only certain aspects of the environment are entailed in this relation.

Likewise, because perezhivaniya are emotionally intense experiences, life-changing events, that is, *learning experiences*, it is often said that a perezhivanie is a "unity of cognition and affect." But this can be confusing. It is also a unity of will and attention. The point is that it is a *whole*, from which learning, emotion, development of will, etc. can be *abstracted* through analysis.

The nature of perezhivaniya differs between children and adults and between children at different stages of development. An adult is already an independent citizen of their community, but perezhivaniya - such as the death of a spouse, the loss of their job, an unexpected victory in a court struggle – very often lead to changes in a person's life and their social standing, and consequently in their psyche and personality. Sometimes however a person is not able to cope with the experience and "live through" it; in this instance a therapist may be required.

However, a child is by definition generally not able to "process" such experiences on its own; it always requires the intervention of an adult to assist the child in overcoming the crisis, reflecting on its meaning and making a development out of it. In this sense, for children, perezhivaniya are similar to the crises children experience as an outcome of their Social Situation of Development.

See the collection of excerpts on Perezhivanie at
http://www.ethicalpolitics.org/seminars/perezhivanie.htm

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Potential Concept

A potential concept is a pre-intellectual form of activity which develops around the shared use of an artefact.

Explanation

A potential concept is a pre-intellectual form of activity which people share in common with some animals, either through training or in cooperative activity in the wild. Like a complex, the potential concept is a response to the perceptual field, but unlike a complex sensuous features of the relevant stimulus are not isolated from the whole field. The potential concept fixes the functional significance of the object, situation or event for practical action, as a sign or signal for some action which becomes a habitual response to the whole given situation.

Vygotsky stresses that "the potential concept and the pseudoconcept are fundamentally different" (Vygotsky, 1934, p. 157) and quotes approvingly the German child psychologist, Karl Groos:

> "The potential concept can be nothing other than a habitual action. In its most elementary form, it consists in that we expect that a similar ground will elicit a similar common impression. More precisely, we have an established set that this will be the case. If the potential concept is actually as we have just described it, a set on a habit, then it emerges very early in the child .... In my view, it is a condition that necessarily precedes the appearance of intellectual characteristics. In itself, however, it has nothing intellectual in it" (Groos, 1916, p. 196).

Vygotsky comments:

> "Thus, this potential concept is a pre-intellectual formation arising very early in the development of thinking. Most contemporary psychologists agree that the potential concept, in the form we have just described it, is found in animals." (p. 158) These pre-intellectual formations provide the basis for a child to break up the unity of the field of perception and so as to isolate objects and begin the process of concept formation.
>
> "If we consider the child's first words, it becomes apparent that they are similar in meaning to these potential concepts. They are potential, first, because of their practical relatedness to a certain circle of objects, and, second, because of the isolating abstractions that underlie them. ...
>
> "Potential concepts often remain at this stage of development, not making the transition to true concepts. Nonetheless, they play an extremely important role in the development of a child's concepts. It is in the potential concept, in the associated abstraction of distinct features, that the child first destroys the concrete situation and the concrete connections among the object's features. In this process, he creates the prerequisites for the unification of these features on a new foundation." (1934, p. 158-9).

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Practice

Practice means purposive activity; a practice is a form of purposive activity which is in some way routinised or institutionalised.

History

'Practice' is derived from the Latin *practizare* and the synonymous Latinised Greek word *praxis* – to direct practical experience, carry on a profession, habitual or customary mode of action, method, technique, etc., and has always had the meaning of conscious, purposive activity.

'Practice' and 'praxis' are synonymous in Marxist literature, including CHAT. However, the use of the phrase 'theory *and* practice', in reference to the practical and theoretical aspects of practice, has tended to suggest that theory was something *distinct* even opposite to practice. This is one of the reasons that the synonym *praxis* has come into use to definitively mean a unity of both practical and theoretical activity.

Practice in the sense in which Marx uses the term in *Theses on Feuerbach*, is synonymous with activity in the sense given it in CHAT, but "a practice" had not yet been given the scientific meaning which Leontyev gave to "an activity."

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Pre-concept

Pre-concepts are an embryonic form of true concept, manifested in the child carrying out logical or rule-governed operations within a restricted context.

Explanation

Pre-concepts form typically with children who are already attending school and being confronted with school-like tasks, or engaged in social activities including processes such as measuring, buying and selling, calculating time, and so on. Such activities oblige the child to use culturally transmitted symbols of some kind (such as numbers, coins or measuring devices) to abstract features from a concrete situation and use these abstractions in a rule-governed way within the bounds of a finite circle of actions. In general, these symbols are appropriated effortfully and with conscious awareness, but at the stage of preconcepts, the child uses them, but is not yet consciously aware of them as symbols. In Vygotsy's words:

To become consciously aware of something and master it you must first have it at your disposal. However, concepts, or, more properly, preconcepts (we prefer this designation for these concepts of the school child, since they have not yet attained the higher degree of development), emerge for the first time in the school-age child. They mature only during this period. Prior to this stage, the child thinks in general representations or complexes (a term we have used elsewhere to refer to the structure of generalizations that dominates the preschool period). Since preconcepts emerge only during the school age, it would be odd if the school child attained conscious awareness or mastery of them. This would mean that consciousness is not only capable of becoming consciously aware of its functions (i.e., of mastering them) but of creating them from nothing before they develop.

It has been suggested that, in the 'double stimulation' experiment, the artificial concepts created in the laboratory setting may make the transition to pre-concepts when they are freed from the immediate context in which they are acquired. For example, the nonsense word for round-short may be applied to candles of that shape, or counting 4 dolls is transferred to counting 4 cats.

Note that by "pre-concepts" Vygotsky does not mean all those thought forms used prior to the formation of true concepts, but just a certain type of immediate precursor to true concepts.

Although pre-concepts are acquired through concrete activities, there is nothing of the shared attribute or functional relation in preconcepts like that of number. Children may arrive at the use of preconcepts via the use of pseudoconcepts and potential concepts, but a preconcept is already a leap from complexive thinking.

It is worth pointing out that machines, as well as very young children who lack any life experience outside the family home, are capable of a high level of logical operation by means of preconcepts. What is required for the transition to true concepts is conscious awareness.

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Primary Contradiction

In Engeström's Activity Theory, the primary contradiction is the internal contradiction within each element of the System, which in capitalist social formations is that between exchange value and use value.

Reference

CRADLE *The Activity System* http://www.helsinki.fi/cradle/activitysystem.htm

Pseudoconcept

The pseudoconcept is a form of complexive thinking which resembles conceptual thinking because pseudoconcepts subsume the same objects and situations as the true concept indicated by the same word. However, like all complexes, the pseudoconcept unites objects by shared common features and is not a true concept.

Explanation

The crowning achievement of the line of development which Vygotsky calls complexive thinking is the pseudoconcept, the distinguishing feature of which is that the abstraction and synthesis of objects or situations is directed by a word in the adult language. Here the abstraction of common features, whether from the field of practical action or from the field of sense perception, reaches a sufficient degree of precision and stability that the child is able to form groups of objects or situations which, within the bounds of their own experience, match those that adults indicate with the same word. That is, the pseudoconcept has the same *extension* as the true concept.

> "The pseudoconcept is the most common form of complex in the preschooler's real life thinking. It is a form of complexive thinking that prevails over all others. It is sometimes the exclusive form of complexive thinking. Its wide distribution has a profound functional basis and significance. This form of complexive thinking gains its prevalence and dominance from the fact that the child's complexes (which correspond to word meanings) do not develop freely or spontaneously along lines demarcated by

> the child himself. Rather, they develop along lines that are preordained by the word meanings that have been established in adult speech.
>
> "It is only in the experiment that we free the child from the directing influence of the words of the adult language with their developed and stable meanings" (*LSVCW* v. 1, p. 142-3).

The crucial point here is that because the child and an adult indicate the same things with the same word, not only is communication between adult and child now maximally effective, but the adult may be unaware that the child actually means something quite different:

> "The child formed a complex with all the typical structural, functional, and genetic characteristics of complexive thinking. For all practical purposes, however, the product of this complexive thinking corresponded with the generalization that would have been constructed on the basis of thinking in concepts.
>
> "This correspondence in the result or product of thinking makes it extremely difficult for the researcher to differentiate between cases where he is dealing with thinking in complexes and those where he is dealing with thinking in concepts" (*LSVCW* v.1, p. 143-4).

It is worth noting that what Vygotsky calls a pseudoconcept is the form of generalisation which is called 'concept' in the mainstream psychology of concepts. While Vygotsky explains the difference between the development of pseudoconcepts and true concepts, he never clearly defines what he means by 'concept'. This has to be imputed from what he says about pseudoconcepts and true concepts. To use contemporary terminology, the pseudoconcept corresponds to the true concept in its *extension* but not in its *sense*.

The important point is that the pseudoconcept, like all forms of complex, is a *concrete* form of thinking, tied to the field of perception, and based on the spontaneous and effortless abstraction of the common features of objects guided by the adult use of words. True concepts on the other hand are acquired with conscious effort and awareness by means of formal instruction in an institution of some kind, and originate independently of sensuous contact with the objects concerned. Here the 'sense' of the concept and its relation to other concepts in a system of knowledge is emphasised.

Vygotsky's repeated insistence that these issues can only be solved on the basis of dialectical logic and not formal logic, makes it clear that he conceives of concepts as Hegel taught, and not according to Gottlob Frege. As Vygotsky says:

> "[Pseudoconcepts] may possess all the features of the concept from the perspective of formal logic, but from the perspective of dialectical logic they are nothing more than general representations, nothing more than complexes" (*LSVCW* v.1, p. 160).

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http://www.marxists.org/archive/vygotsky/works/words/ch05.htm

Psyche

The Psyche is the mind of an individual organism.

History

In ancient Greek, *psyche* meant breath or life, the animating principle in man and other living beings, the source of all vital activities, rational or irrational, the soul or spirit, as distinct from its material vehicle, the body, *soma*. Psyche is by definition the subject matter of Psychology.

In CHAT, 'psyche' is used synonymously with 'consciousness', but has the advantage connoting an individual mind rather than a general substance or state. A psyche may

also be imputed to simple living organisms without any implication that the organism has awareness, intellect or any other particular psychological faculty.

Quaternary Contradictions

In Engeström's Activity Theory, quaternary contradictions are those that arise between the System and neighbouring activities in their interaction.

Reference

CRADLE *The Activity System* http://www.helsinki.fi/cradle/activitysystem.htm

Real Concept

Actual (or Real) concepts are those which arise in the course of the person's real life development in contrast to the concepts which are identified in the laboratory.

Explanation

Vygotsky calls 'actual concepts' the concepts which arise in the course of the person's real life development in contrast to the artificial concepts identified in experimental work such as that of Narziβ Ach and Leonid Sakharov, and in contrast to 'ideal typical' concepts. All the various kinds of concept which Vygotsky defines are in fact *ideal paths of development* for concepts, which do not perfectly describe any real concept, which is always the product of multiple paths of development.

'Actual' concepts may also be spoken of as those of mature adults in contrast to the abstract, idealised 'true' concepts that a child has been taught at school, but which have not left the classroom and are untouched by experience, and in contrast to the child's spontaneous concepts, which have not left the home and remain unaffected by contact with the wider world. All our actual concepts owe their origin to some mixture of both instruction and life experience, and their structure demonstrates traces of both origins. 'Actual' means concepts which reflect a concrete understanding of the real world.

References

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Scientific Concept

A scientific concept is a concept developed and transmitted by the institutions of science and thence through formal instruction in the education system.

Explanation

In *Thinking and Speech*, Vygotsky devotes one chapter to the artificial development of concepts in children and one chapter to the development of scientific concepts, and no other 'types' of concept are given explicit treatment. This has contributed the idea that Vygotsky saw principally two kinds of concept: the spontaneous (or everyday) concept and the scientific concept.

This is mistaken in three ways.

Firstly, the only 'categorisation' Vygotsky did in this field was the determination of two ideal-typical paths of development for any concept: the spontaneous path of development, arising effortlessly from everyday practical experience, and the path of development of true concepts, which originate from formal instruction. Spontaneous and true concepts are not categories of concepts but ideal-typical paths of development found in actual concepts from whatever domain of social practice.

Secondly, such 'true concepts' include not only scientific concepts, but artistic, religious, professional or whatever concept that are developed and propagated by instruction, and represent forms of activity in some kind of institution or practice.

Thirdly, the concepts dealt with in the chapter on artificial concepts shed light on the spontaneous formation of concepts in childhood, but are not themselves spontaneous concepts, since a kind of instruction is used in the experiment. But the artificial concept and the scientific concept between them allowed Vygotsky to focus his investigations on the two principle roots of concept development.

Vygotsky took scientific concepts, and in particular, the concepts of Marxist social science, as paradigms of the true concept, because these concepts are maximally removed from sensuous contact with objects and the possibility of forming spontaneous concepts of the subject matter. In line with his own methodological principles, he focused his research on well-defined paradigmatic processes rather than vague and broadly-defined phenomena, and thereby produced results which had clear and far-reaching implications.

Vygotsky may well have had a special place in his heart for science, but there is nothing in his theory of concepts which suggests a special status for the concepts of science. It is not the place here to consider the unique character of the scientific enterprise which gives the scientific concept its special status in the Vygotsky's Soviet Union and modern society generally.

References

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Secondary Contradictions

In Engeström's Activity Theory, secondary contradictions are the contradictions between each of the elements of the System, which appear whena new element enters into the activity system from outside.

Reference

CRADLE, *The Activity System* http://www.helsinki.fi/cradle/activitysystem.htm

Social situation of development

The social situation of development is the unique set of relationships which meets a child's needs while limiting its freedom thereby creating the 'predicament' which can only be overcome by the child (and its carers) making a development.

Explanation

This is a concept first elaborated by Vygotsky in *The problem of age*, which forms the basis for his theory of child development.

Vygotsky proposed this concept in direct opposition to the dominant theory which specified the child's social position in terms of the various *factors*: parents' education, income and social status, number of siblings, sibling position, etc. Instead Vygotsky captured the child's social situation as a *concept*, - a unique predicament in which the child's needs are met according to socially determined concepts such 'infant', 'child', 'pre-schooler' and so on, which determine the expectations which are placed on the child and limit what they are permitted to do. So in order to develop, the child must somehow break out of this trap and define a new role for themselves (generally the socially determined successor role), step into that role and demand that the family treat them in a new way, according to this new role.

This process divides the child's development into a series of stages in which the child occupied a series of social roles, and each step requires a kind of 'leap' in development, with one psychological function taking the leading role in each stage. Each 'leap' to the next available stage requires a specific development of the will, culminating in the child achieving physical, biological, psychological, interpersonal and social independence. Accordingly, each stage is divided into three phases of development. The main part of the period is marked by the gradual development of one central psychological function – the leading 'neoformation'; as this has reached the limits of its development within the social situation, the child becomes aware of its limitation and a critical phase of development takes over, characterised by a further development of the will and often marked by negativity, by means of which the child makes a passage into a new social situation; this is then followed by a further critical phase of development in which the child 'finds their feet' in the new role and embarks on a new phase of gradual development.

Collaboration with adult carers is essential for the child to achieve this development, particularly the passage through the critical phases of development which entail adult carers accepting the child in a new role. The roles the child is to fulfill are constituted by the adults, and cannot be achieved without adult recognition.

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Spontaneous concept

A spontaneous concept is a concept acquired without effort through participation in social practices.

Explanation

In his study of concepts Vygotsky identifies two distinct paths of development through which concepts are acquired: 'true' concepts are acquired through formal instruction and spontaneous concepts arise through participation in social practices. Note that these are not two types or *categories* of concept, but rather two paths of development which are manifested in the development of *actual* concepts. 'True' concepts are a "top down" type of development, whilst spontaneous concepts are a "bottom up" type of development.

Spontaneous concepts are grounded in sense perception and practical experience and are acquired effortlessly and without the subject being consciously aware of them. In contrast, 'true' concepts are acquired with conscious effort in the course of formal instruction in some institution.

At first spontaneous concepts are concrete in the sense of being tied to the perception of objects and situations, and become in time more and more flexible, less and less tied to the word with which they were originally associated, more and more closely matching the extension defined by the true concept. By contrast, true concepts begin as abstract and formal definitions tied to the classroom situation and the theoretical framework in which they are defined, and become over time more and more concrete and nuanced as they mature in the course of life experience.

Spontaneous concepts are not 'true' concepts in another sense: insofar as the subject consciously and more or less correctly uses a word as a sign for the concept, spontaneous concepts are at best merely complexes. A complex is a combination of contingent attributes which conforms to formal (propositional) logic. A true concept,

by contrast is independent of the sensuous characteristics by which relevant objects are recognised, and conforms to dialectical (conceptual) logic.

The contrast between spontaneous concepts and scientific concepts (as the paradigm of the true concept) is a major theme in Vygotsky's study of concepts, which turned on the relation between instruction and development.

References

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Subject

(1) The focus of an experiment, usually the human 'subject matter', or (2) the morally responsible, active agent of action.

History

'Subject' comes from the Latin translation, *subjectum* – 'that which is thrown under' – of the Greek term coined by Aristotle, (*hypokeimenon*). For Aristotle, 'subject' meant that which underlies an existing thing, the substratum which makes the thing what it is and to which attributes may be attached. It also meant 'subject' in the grammatical sense, in which a predicate is 'what is said of a subject'. In the sense of what is underneath, in mediaeval England, 'subject' came to mean the subject of a king's power, and in Shakespeare's time 'subject' still meant the subject matter of a poem or a murder plot. It is this sense of 'subject' which is continued in today's usage as the subject of an experiment.

The Aristotlean meaning of 'subject' was inverted when Descartes used 'subject' to mean the *cogito*, the thinking mind to which thoughts are 'attached'. For Kant, the 'subject' was "the transcendental subject of thought, which is cognized only by means of the thoughts that are its predicates." This sense of subject as a cognitive, active and moral agent but which is transcendental¸ remains the dominant meaning in philosophy.

The Subject in CHAT

CHAT writers commonly use 'subject' in the sense (1) both for experimental subjects and the subject matter of lessons, etc., and its meaning will be obvious from the context. A. N. Leontyev extended the sense (2) to refer to any active organism, even an amoeba, as well as 'collective subjects' and is taken as a form of material interaction ("a physical, material subject" – 1978 §3.2), not 'transcendental':

> "Psychic reflection, taken in the system of connections and relations of the matter of the subject himself, is only a special state of this matter, a function of his brain; taken in the system of the subject's links and relations with the world around him, it is an image of this world" (Leontyev 1947).

Leontyev did not develop his idea of a 'collective subject', which he broached in *The Development of Mind*, but such a conception would suggest a CHAT response to more recent critiques of the subject. When we consider the object of activity in Leontyev's work, in the context of the Hegelian subject-object relation, then a 'collective subject' of some kind is implied.

In Engeström's Activity Theory, the subject is one of at least 6 elements in the model, and means an individual actor or a group.

> "In the model, the subject refers to the individual or sub-group whose agency is chosen as the point of view in the analysis." (CATDWR, 2003)

But there is a strong sense that the model itself represents a collective subject, which 'share the same general object and who construct themselves as distinct from other communities'

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Subjective and Objective

Subjective is what relates to, depends on or exists in an individual's mind or standpoint. Objective is what exists outside the mind and may be verified independently of the standpoint from which it is viewed. Subjective and Objective do not form a dichotomy and are relative concepts, as no view is entirely subjective or entirely objective.

Vygotsky used the terms to categorise the two opposing currents of psychology of his time: subjective psychology and objective psychology. Subjective psychology relied for its data on introspection by the researcher and trained subjects, whilst objective psychology relied exclusively on observation of behaviour, rejecting the validity of introspection as a research method.

"Objective" is sometimes used by Leontyev in the sense of "object-oriented activity," i.e., activity oriented to an object, though activity is also "objective" in the usual sense that it exists outside the mind, in the world.

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Substance

A substance is a fundamental component of the world as it is represented in some theory.

History

The Atomists held that the only substances were atoms, Pythagorus thought everything was numbers, but according to Aristotle, there are three kinds of substance: (1) sensible matter, manifested as appearance, composed of Elements, and which form a unitary *material substratum*; (2) the "Nature" towards which the movement of the thing takes place, that is, *natural kinds* (e.g., dogs and water); and (3) the *individual* substances (e.g. Barak Obama), which is composed of these two.

These are the various things which are irreducibly what they are and which have contingent and changing attributes.

Explanation

Activity is the substance of Activity Theory. The concept of substance differs from unit of analysis however, because "unit of analysis" answer to a specific problem and allows a complex process to be conceived as a whole, whereas "substance" is a more general conception. For example, if we say "the universe is made up of particles and radiation," particles and radiation would be elements rather than units. Also such a definition of substance tells us nothing about how the universe works.

References

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Syncretic concept

A syncretic concept, or 'Heap', is a collection of objects brought together with no objective sense at all, simply based on what has taken the subject's attention.

Explanation

When the child begins to vocalise and tries to make words, they are not at first able to form the words of the adult language and instead utter words like *poo-poo* and *ba-ba* and so on. Although adults cannot make sense of what the child is trying to say, this marks the beginning of 'autonomous speech' (*LSVCW* v. 5, p. 249). When a very young child attempts to respond to the researcher's urging to find all the *gur*, the result is that the child simply collects blocks at random, just whatever next strikes the child's eye. The following excerpt appears in the context of a presentation of the 'double stimulation' experiment with very young children.

The first stage in the formation of concepts is most frequently manifested in the behaviour of young children. Faced with a task that an adult would generally solve through the formation of a new concept, the child forms an unordered and unformed collection. He isolates an unordered *heap* of objects. The child's isolation of these objects, objects that are unified without sufficient internal foundation and without sufficient internal kinship or relationships, presupposes a diffuse, undirected extension of word meaning (or of the sign that substitutes for the meaning of the word) to a series of elements that are externally connected in the impression they have had on the child but not unified internally among themselves.

At this stage of development, word meaning is an incompletely defined, unformed, syncretic coupling of separate objects, objects that are in one way or another combined in a single fused image in the child's representation and perception. A decisive role is played in the formation of this image by the syncretism of the child's perception and action. This image is, therefore, extremely unstable (*LSVCW* v 1, p. 134).

In the second phase of development of syncretic concepts, the spatial relationship between the blocks gathered into a heap comes forward as the determining feature.

Once again, the purely syncretic laws that govern the perception of the visual field and the organization of the child's perception are critical. The syncretic image or heap of objects may be formed on the basis of the spatial or temporal encounter of isolated elements, the direct contact among these elements, or some more complex relationship arising among them in the direct process of perception. The factor that continues to be basic to this period is the fact that the child is guided not by the objective connections present in the things themselves, but by the subjective connections that are given in his own perception. Objects are brought together in a single series and subordinated to a common meaning not on the basis of general features that are inherent to them and that have been isolated by the child but on the basis of a kind of kinship that has been established between them by the child's impressions (*LSVCW* v 1, p. 135).

In the third phase of this earliest stage of concept formation, the child's entirely unstable and unconscious behaviour is unified and given some stability by the child bringing all the blocks together in a heap and giving them their name. The category of "these ones here" is at least a step towards some kind of stability, albeit entirely subjective. In Vygotsky's classification scheme, these syncretic concepts are the first major stage of concept formation.

References

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Tertiary Contradictions

In Engeström's Activity Theory, tertiary contradictions in the object of the System, which appears when a culturally more advanced object and motive is introduced into the activity.

Reference

CRADLE *The Activity System* http://www.helsinki.fi/cradle/activitysystem.htm

True Concept

A true concept is a concept which has been acquired with conscious effort and awareness by means of formal instruction in an institution of some kind.

Explanation

Vygotsky called this type of concept 'true' simply because they are true to what 'concept' means, that is, they are completely independent of the concrete, sensuous perception of the objects, events and situations indicated by the concept and are essentially objective, a product of cultural and historical development rather than individual experience. True concepts are acquired through instruction in some kind of institution which has made provision for transmitting its concepts to neophytes. In that sense, such a concept must be a *true* representation of the norms of the relevant social formation. Not all social formations have such formal practices for transmitting concepts to future generations, relying to a greater or lesser extent on informal, effortless learning. In such circumstances, the concepts acquired by newcomers would derive only partly from instruction in the esoteric knowledge of the institution and partly through observation and participation. For Vygotsky, a 'true' concept is one acquired solely through instruction or 'book learning', where emphasis is on the 'sense' of the concept and its relation to other concepts in a system of knowledge.

He took as his paradigm for a true concept, the scientific concept.

True concepts are transmitted in religious organisations, military, political and other professions which induct people into their practices, schools of art, interest groups and sects of all kinds, but (especially in the Soviet Union of Vygotsky's times) it is science which relies for the acquisition of its concepts entirely on instruction (whether didactic or laboratory-based) and least of all on spontaneous, sensuous acquisition of knowledge.

Furthermore, all children have spontaneous concepts of the operations of basic physics (witness Piaget's experiments), and the new scientific concepts children acquire in the basic physics classes (conservation of mass, conservation of volume, acceleration under gravity, etc.) intersect with the concepts they have acquired spontaneously through handling objects in everyday life. Thus concepts of this type are never entirely 'true' concepts since from the beginning they are complex formations reflecting at least two paths of development. On the other hand, the concepts of Marxist social

science owe absolutely nothing to everyday experience; a child who does not understand the meaning of 'feudalism' before they are taught the concept in social science classes at school, acquires the concept as pure 'book learning', and thus as a 'true concept'.

It is an essential characteristic of 'true concepts' that they are completely independent of sensuous perception and practical experience. Vygotsky found that children are unable to acquire true concepts until adolescence. But even then the true concepts acquired by school children, marked by formalism and situated within the self-enclosed activity of the classroom remain only embryonic until the young adult enters a profession and social life in general where they encounter concepts in the social situations from which they have developed in the first place. What marks the 'true' concept is its path of development rather than its form at any given moment in a trajectory which begins with instruction.

It is self-evident that such a 'true concept' is at first hardly likely to be 'true' to concrete experience in the real world. For that it needs the nuances and complexities spontaneously acquired through life experience. Most actual concepts worthy of the name have their origins in both instruction (whether formal or informal) and experience.

It is worth emphasising that 'true concept' refers to an ideal-typical path of concept development, not a *category* of concept. After all, all Vygotsky's concepts represent paths of development rather products of development. Further, scientific concepts (and the concepts of Marxist social science in particular) are but one example of concepts which have such a path of development. At early stages in its development, a true concept is marked by abstractness and formalism, and only later acquires the status of a truly concrete concept. But a spontaneous concept can never acquire the same level of development which is ultimately acquired by the true concept. None of the artificial concepts dealt with in Vygotsky and Sakharov's experiments are true concepts, since in every case they are formed on the basis of concrete perception of the experimental objects.

See chapters 5, 6 and 7 of *Thinking and Speech*.

References

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Unit of Analysis

A unit (of analysis) is the smallest part of a complex whole which possesses all the essential properties of the whole and forms a starting point for reconstruction of the process in theory.

History

The concept of Unit of Analysis in CHAT was first elaborated by Vygotsky in Chapter 1 of "Thinking and Speech," (1934) by bringing together the concept of 'unit of analysis' used in mainstream social science with the concept from the dialectical tradition variously called the "*Urphänomen*" (Goethe 1795), the "abstract concept" (Hegel 1812) or "the cell" (Marx 1867 - mentioned by Vygotsky in 1929). In mainstream social science the term was used without any consideration for the relation between the unit and the whole. (See the Wikipedia for an illustration of this conception). In the dialectical tradition, however, the unit of analysis is the simplest unit which can be observed which exhibits the properties which *constitute* the process as a whole – that is, there is a reciprocal relationship between whole and unit.

The dialectical tradition originated with Goethe's studies in morphology for which the *Urphänomen* was the simple, empirically-given instance of the whole organism and its

development which held the key to the whole development and which alone allowed the whole to be scientifically grasped as a *Gestalt*.

Hegel appropriated Goethe's idea, setting it upon a sound philosophical foundation and making it the key part of his Logic. The Abstract Concept (or Notion) is the unity of two processes: the process of accumulation of data (Being) and the process of critiquing the existing concepts through which the data has been apprehended (Essence) and which arrives at a new abstract concept which captures what is essential in the data, and through which it can be grasped as a *Gestalt*. Starting from the abstract concept, the phenomenon can then be reconstructed through the further concretisation in a developed theory and practice.

It was this idea of a two-fold movement of science which was described by Marx in his famous passage about "rising from the abstract to the concrete" in "The Method of Political Economy" (1857), and led to his claim in the First Preface to *Capital*, that "in bourgeois society, the commodity-form of the product of labour – or value-form of the commodity – is the economic cell-form," (Marx 1867). Marx went on to elaborate all the economic phenomena of bourgeois society by means of a critical analysis of the commodity form. When Vygotsky said:

> "In order to create such intermediate theories – methodologies, general sciences – we must reveal the essence of the given area of phenomena, the laws of their change, their qualitative and quantitative characteristics, their causality, we must create categories and concepts appropriate to it, in short, we must create our **own** *Das Kapital*," (1929)

he foreshadowed the appropriation of this method in Psychology.

Explanation

The unit of analysis provides an 'entry point' for scientific work. It is thw effort to grasp a process holistically in this way which Vygotsky expressed with idea of 'units' as opposed to 'elements'. Vygotsky arrived at a unit of analysis through dialectical criticism of the basic concepts of each sphere of research he approached.

The idea of a 'unit of analysis' is closely related to the idea of the 'germ cell' used to encapsulate contradictions inherent in the basic concepts of a study and for organising and studying the process of problem-solving and concept formation in science.

1. Vygotsky (1934) approached the concept of a Unit of Analysis by contrasting units with *elements*. Elements are the heterogeneous components which have to be brought together to make the composite whole, such as the example of Hydrogen and Oxygen as the elements of water. But Hydrogen and Oxygen both exhibit radically different properties from H_2O. It is the molecule, H_2O, which must be the unit of analysis from which the ordinary physical properties of water may be explained. On the other hand, the same molecule of H_2O is found in all forms of water – rain, snow, ice, steam and in rivers, oceans, lakes, ...

2. The unit of analysis is a *methodological* concept, not an ontological concept: the selection of the unit of analysis is relative to the problem (or contradiction) which the researcher wants to resolve. In that sense, the unit of analysis is a succinct expression of the problem itself. In "Thinking and Speech" Vygotsky says "the central problem is that of *the relationship of thought to word*," (1934, p. 43) and his unit of analysis (word meaning) reflected that problematic.

3. The unit of analysis is an *empirically-given phenomenon*, not some theoretical or mental entity. So mental entities, such as 'ideas', or theoretical or hypothetical entities such as 'force', cannot be units of analysis.

4. A unit is itself a *whole*, that is, it is *discrete* not a continuum, and in the English language is always expressed by a countable noun (carrying a definite or indefinite article or demonstrative, "a unit" or "this unit," etc., and has a plural, "units") rather than a mass noun. Because the Russian language does not use articles, translators

sometimes omit the article when translating from Russian into English, for example, translating *perezhivanie* as "experience." But while "experiences" may be units, "experience" cannot.

5. Generally speaking, because the unit of analysis captures the contradiction at the root of the development of a complex organism or process, it is itself a unity of opposite. So for example, word meaning (the unit of verbal thinking or the intellect) is *both* subjective and objective. As Vygotsky put it:

> "The word is comparable to the living cell in that it is a unit of sound and meaning that contains - in simple form – all the basic characteristics of the integral phenomenon of verbal thinking" (1934, p. 46)

Sound is objective and apprehended by the senses; "meaning" is subjective. But "word meaning" remains an empirically given action, even though the Inner aspect of the word has to be reconstructed from observation of the action, its development and its context.

6. By characterising the process as a whole, that is, as a *Gestalt*, the unit requires the investigator to *reconceptualise* the whole, now in terms of the unit, even though at first, the whole was approached as a phenomenon, characterised by some common feature, which analysis proves to be inessential. So for example, Marx's analysis of bourgeois society did not reveal the nature of the family or the state, since these aspects of 'bourgeois society' turned out to be inessential, even though they are dominated by the relations of the market, which were essential. 'Word meaning', then, is not going to reveal the development of attention or will; it is essential however to understanding the Intellect. However, it turns out that by solving the problem of the relation of thinking and speech, word meaning sheds new light on Attention, Affect, etc., but it is not thereby a unit of Attention, Affect, etc.. In order to build up a concrete science of the human psyche, of consciousness, it will be necessary to discover very many units of analysis, which each encapsulate an aspect of the development of human life, and only by the bringing together of all those insights can a concrete psychology be created - not just with one unit of analysis.

7. The unit of analysis may, in some cases, be *far from typical* of the complex whole. For example, Marx took the commodity as the unit of modern bourgeois societies, despite that fact that in modern capitalist societies people hardly ever actually exchange commodities; buying and selling is the norm. Taking the commodity as a unit of analysis meant taking money to be a special form of commodity, but one in which the nature of the commodity is mystified. Likewise, although Vygotsky has in mind the spoken word in the unit of analysis, 'verbal thinking' is normally silent and differs in structure from the spoken word. However, verbal thought is *genetically* connected to the spoken word from which it develops.

8. Likewise, the unit of analysis is not a *microcosm*. A microcosm may be small (micro), but it is not simple, but rather must be an exemplar of the highest level of development in order to manifest all the phenomena of the macrocosm. A microcosm bears a different relation to the whole than does the unit: the unit and the *Gestalt* mutually determine each other. On the other hand, the microcosm is the *highest product* of the macrocosm and does not *constitute* the macrocosm.

9. Although 'unit of analysis' is often spoken of in the sense of being the 'major entity being studied' (see the Wikipedia entry), and is thus taken as a self-sufficient whole in itself. On the contrary, 'unit of analysis' is only meaningful when the complex process in question manifests a *vast number* of combinations and interactions of the units of analysis. 'Unit of analysis' is not CHAT jargon for the 'subject matter'.

10. Vygotsky praised Pavlov for identifying the conditioned reflex as the unit of analysis for understanding animal behaviour (1929), but condemned the Reflexologists because they simply worked on the principle that "everything is a reflex." (1925)

Speech for example is simply named the "speech reflex." This concept is that of the *Substance* (Stanford 2004) of the science, not its unit of analysis. In general, the Substance is taken as given by the science and does not yield any scientific insight. To say everything is Matter, for example, does not yield a materialist methodology. On the contrary. A unit of analysis presupposes a precise and empirically verifiable concept of the entity which functions as the unit.

11. Where the unit of analysis is constituted as a unity of opposites, this means that the opposites have their own independent existence and paths of development, the unit arising in those circumstances where these two processes *intersect*. The dynamics of the unit cannot be revealed until the independent dynamics of the processes being united are grasped. So, for example, "In the initial stages of child development, we can clearly identify a pre-intellectual stage in the formation of speech and a pre-speech stage in the development of thinking." (1934, p. 112) This is something more than can be revealed simply by conceptual analysis of the inner and outer aspects of word meaning.

12. Vygotsky's approach (like that of Goethe, Hegel and Marx before him) is a genetic or *developmental approach*. The unit of analysis reveals not just the structure or composition of a complex whole, but the logic of its *development*. That is why there is always a tension between the opposites united in the unit of analysis; meaning is not an attribute of the sound of the word, but has its own origins and development – word and meaning may at times even be in contradiction with one another.

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