

Foundations of Activity Theory

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1. Introduction

Activity Theory is the science which takes life to be an aggregate of activities. That is, activity is the basic substance in Activity Theory and our units of analysis are activities.

Science must have as its subject matter a substance which is objective, that is to say, can be experienced from differing points of view and yet despite differing appearances be the same thing. The need for an objective subject matter was the great stumbling block which psychology faced in the nineteenth century. Human behaviour could be observed, but the inner workings of the minds of the actors could not. And yet everything that human beings do passes through their consciousness and human behaviour could not be understood unless we understand consciousness.

Introspection did not provide such an objective subject matter for psychology because (1) unmediated observation is restricted to only one point of view, that of the subject themselves, (2) the subject's observing of their own consciousness essentially modifies what is observed, and (3) people are not reliable reporters of their own state of mind. So it is not sufficient to ask someone what they are thinking and presume that you have thereby a record of their consciousness. Further, putting one's state of mind into words is itself a demanding task which inevitably *transforms* what is being described. In general, asking someone what they are thinking is just one clue as to their consciousness, but one would be a fool to think that what you are told is the unvarnished truth.

As a result, in the nineteenth century two currents of objective psychology emerged. The first was *Cultural Psychology*, whose subject matter was the rich field of cultural production – art, literature, institutions, and so on – objective manifestations of the mind in real human life (e.g., Wundt's *Völkerpsychologie*). The second was Physiological Psychology (e.g., Helmholtz, Pavlov *et al.*), which could, for example, measure the time taken for a stimulus on the tip of a finger to reach the brain, or detect changes in the heartbeat betraying a lie.

However, Cultural Psychology could *describe* the activity of consciousness in vivid colours, but it could not *explain* consciousness at all, while on the other hand, Physiological Psychology could *explain* psychological phenomena but its scope was limited to the *trivia* of human life.

Lev Vygotsky (1896-1938), the founder of Activity Theory (in the broad sense), was successful in uniting the *rich content* of Cultural Psychology with the *objectivity* of experimental science hitherto limited to the trivial domain of Physiological Psychology. Looking back at his work from the present, we can say that he did this by means of the concept of *activity*, and in particular, by means of the concept of *an artefact mediated action* – in which an individual

uses a product of the wider culture, be it a spoken word, a tool or a sign – to do something. As Hegel (1770-1831) had claimed, everything is *both* mediated *and* immediate.

People using an artefact to solve some task, such as using an alarm clock to wake up on time, or using a pen to write, or a word to comfort a friend, are activities which can be observed in the laboratory. By varying the task and the means provided for solving it a researcher can observe how culture forms human activity before their very eyes.

Hitherto, science had tried to understand the relationship between human beings and the world through the model of the philosopher contemplating a natural object. We could say that an observer contemplating a natural object was the unit of analysis for epistemology.

What this conception missed was (1) that the relation of the mind to the world is an *active* one; we must look in order to see, (2) the object and the observer are not foreign to one another, but are generally both part of the same culture, and (3) when we do something we always *use* something handed down to us by our forebears to do so. Our ideas are not just reactions to external stimuli. The cultural products we incorporate into our activity are *part* of our activity. In that sense, the products – tools and signs – of the activity of other people far away and long ago, are introduced into our actions from an early age and become part of our activity. This enculturation is accomplished thanks to collaborators who have helped form us as members of a certain community at a certain time and place by providing us with these artefacts and setting the problems we have to solve with them. This is how we come to act more or less like others in the same community and know about the objects to be found in our environment.

2. Consciousness, Behaviour and Activity.

“Activity” differs from “behaviour” in that behaviour is what is observable in what people do, abstracted from their reasons for doing it, their consciousness. Behaviour is the subject matter of Behaviourism. If consistently carried out, Behaviourism could lay claim to being an objective science, but its domain of explanation is extremely limited. Everything that people do – apart from physiological reactions such as producing goose bumps or sneezing – passes through the mind and can only be understood to the extent that we can understand the reasons people have for what they do.

For Activity Theory, “consciousness” refers to the totality of psychic processes mediating between physiology and behaviour as such. That is, “consciousness” includes not only conscious awareness but also psychic processes of which the subject is not aware at the given instant. A moment’s reflection tells us that there are numerous degrees of awareness – some things are almost inaccessible to us while other thoughts slip into and out of our awareness as our attention moves from one thing to another. Further, consciousness has no separate existence apart from nervous processes mediating between physiology and behaviour. However, both consciousness and the physiological processes accompanying it are part of a more complex process – *activity*, in which people incorporate tools and signs in their actions as they collaborate with others in some definite pursuit. Neither behaviour nor

consciousness will make any sense abstracted from this social activity.

“Activity” here includes both behavioural acts and the consciousness which makes those acts intelligible. We prefer not to say: “Activity is a *unity* of behaviour and consciousness,” but rather: “Consciousness and behaviour can be *abstracted from* activity.” That is, “activity” is the primary, most basic concept, the concept which is comprehensive and self-explanatory; consciousness and behaviour abstracted from the study of activity can only be explained and understood by reference to activity. Both “behaviour” and “consciousness” are abstractions; each represent only one side of the whole.

Activity Theory is a monist science, so we understand the whole field of human activity as a single coherent whole. Activity Theory has much to offer the natural sciences especially insofar as they touch on human activity, such as in the conduct of experiments or in matters of human health.

Activity Theory does not deny the existence of individual difference derived from each person’s biological inheritance and the effects of these differences on the personality. That such differences exist is an obvious fact. However, (1) these differences are given and we cannot retrospectively change our parents or the genetic accidents which formed us, and (2) in any case, to an overwhelming degree what we are is *what we have made of* our biological inheritance, and *that* is formed in activity, not biology, and *that* is the bit we can do something about.

Surgical or biochemical interventions may impact on the basic underlying neurological organs, but the higher psychological functions which characterise human life are formed by complex *systems* of the basic neurological organs, and it is only in activity that these systems underlying the higher psychological functions are formed and restructured.

Nor does Activity Theory deny the existence of material objects within its field of study. On the contrary! But insofar as material objects are involved in human life, we see them as *artefacts* – material entities which are produced or singled out by and used in and therefore given meaning and understood by means of human activity; they are *part of* activity. It is only as parts of activity that we can understand material processes. When teaching science concepts it is therefore important to situate them within a practical activity.

Thus Activity Theory is a *monist* theory, having only one substance, and as such, Activity Theory owes its origins to the philosophy of Hegel.

3. Continuity and Discontinuity

It was a discovery of Hegel’s, though one for which he is rarely credited, that to understand a phenomenon concretely, to be able to grasp it securely and clearly, you have to know it first of all as a definite, single, *discrete* instance.

Initially, we think of some phenomenon in terms of an abstraction like “space,” or “art” or “knowledge.” We understand them well enough for everyday use, but when we try to define them it often happens that we find ourselves tied up in an infinite regression of terms defined by other terms. This problem of “where to begin” has dogged philosophy and science for centuries. It was Hegel’s solution to this problem which created the tradition of monist science of which Activity

Theory is a part.

We can think of a whole phenomenon as a large number of instances rather than a continuous substance or process. Essentially, then, we can build up a coherent understanding of the many by first grasping the unit. The idea of a *continuous* substance is an abstraction based on what holds the units together. The unit could be a single event, action, thing or any discrete being.

It is only by forming a *concept* of the unit that we can form a concrete concept of the whole, which in turn allows the whole to be grasped concretely and integrally, *as a whole*. For example: if you claimed that the clouds, the rivers and icebergs were all “water,” everyday observation could not resolve this claim. The observation of one changing into the other would be a step forward, but does not yet *explain* it. But with a knowledge of natural science you would insist that all these forms of water are made up of the same water molecules in different combinations. Finally, with the concept of “water” founded on a water molecule with an 105° angle between the two H-O bonds, you have a scientific concept of water which unites clouds, rain, rivers, oceans and icebergs in a single process in which the bonds between identical water molecules vary according to temperature. But the idea of a molecule of water as one substance was known long before we knew about H₂O.

It is central to Activity Theory that we do *not* see activity as a *continuous* substance; rather, we see activity as made up of so many *activities*, each of which is made up of discrete *actions* sharing a common motive. It is crucial to grasp and explore single actions, single activities and how single actions and single activities cohere and relate to one another, and constitute definite social formations. This approach is the basis of the periodic table of chemistry and the foundations of biology in cells, organisms and species. Like the natural sciences, the human sciences need their own “units.” Activity Theory is a qualitative science.

But hasn't it been said that we must understand the world as so many *processes* rather than as being made up of discrete *things*? Maybe. But the problem of understanding processes is the same as that of understanding *any* continuous substance. A single snapshot of a process or even a series of snap shots, as in a movie, cannot capture *movement*, merely its appearance.

It was Hegel who showed us that movement can only be grasped and represented by discovering the *contradiction* in a single, discrete moment. Once we grasp the contradiction inhering in a single, momentary instance of a process or phenomenon, then we understand the *law* of its movement and development, its motive force. Mere patterns of observation mean very little. The ground of any difference we see has to be found in the underlying contradictions. If prices have been rising, we need to know whether it is increased production costs, shortages of supply or excess demand behind the increases if we are to know what's going to happen next and how to counter it.

So we must supplement the requirement to make some *unit* the starting point for a scientific understanding of a phenomenon with the requirement that we must grasp that unit in such a way as to exhibit the *internal contradiction* which is the source of its movement and development.

As activities are the single substance of Activity Theory, we see everything as an activity or a part or phase or kind or composite or a product of activities. It is not that everything is an activity, or that some things are activities and some are not; rather it is *as* and *through activities* that we understand *everything* in human life. Activities are not a special kind of thing alongside other things which are not activities.

4. Actions, Goals and Motives

The basic substance of human life, as we have said, is activity, but “an activity” is an *aggregate of actions*. An action is a “*process, the goal and motive of which do not coincide with one another*” (Leontyev, 2009) This is the contradiction at the heart of every action, which determines its development and makes it intelligible.

The goal is the immediate outcome intended of the action, and the motive is the reason for doing it, the more remote situation which is ultimately intended.

When we ask: “Why did the chicken cross the road?” the answer: “To get to the other side” is funny because we have imagined that the chicken must have had a *reason* to cross the road. In fact, the chicken did not have a reason; it is not a rational being. The goal of crossing the road had no other motive than to cross the road. If we were to ask a *person*: “Why did you cross the road?” then we would rightly expect them to give a *reason*. That is, the action of crossing the road would be part of a collection of actions (an activity), perhaps carried out by the person themselves (for example, to catch the bus into the city to buy a new jacket), perhaps carried out by a number of different people collaborating with one another (for example, to form a picket line to ensure the success of a strike). That is, the immediate intended outcome of the action (to get to the other side) *differs from* the reason for doing it (to catch a bus or form a picket line). Actions are oriented to intermediate goals towards fulfilling the situation which is the motive of the action. While the higher animals are capable of carrying out activities which require a whole series of actions to satisfy their motive, humans commonly carry out actions which are intelligible only on condition that their motive is achieved thanks to the *foreseeable collaborative actions of others*, even *strangers*. That is, that the action is part of a (collaborative) *activity*, which generally includes some social division of labour.

That is, an action fulfils intermediate *goals* for the achievement of a different, more remote situation which provides the *motive* of the action.

The *goal* of an action can be determined simply by observing the action (including whether it evidently fulfils the intention of the actor). The *motive* of the action requires us to observe the foreseeable consequences of the action (insofar they evidently fulfil the intention of the actor) including the actions of others (such that the outcome evidently fulfils the intention of the actor).

“Action” and “activity” are not mutually exclusive categories, they are relational concepts. If a trade union carries out an action to stop work at some enterprise, then that action (goal: to stop work, motive: to get a pay rise) is itself an activity made up of a thousand different actions by different

members of the union – putting a picket line in place, distributing leaflets, etc. Thus, actions can be collaborative just as, conversely, an activity could be carried out by a single person. The point is the difference between the intermediate goal, on one hand, and the remote outcome which makes the action and its goal intelligible, on the other hand. Some activities, such as public hospitals which make sick people well, fulfil a normative expectation of the whole community – their motive is an “end in itself.”

Further, one and the same action can be part of different activities, serving more than one motive. For example, I go to work to earn a wage, but perhaps also to build up my CV, irrespective of whether I am motivated that my employer earns a profit or our customers receive a satisfactory product.

Operations

Leontyev also defined *operations* which are “portable” actions controlled by their conditions rather than being consciously controlled towards the goal of the action. For example, an operation would be taking a step as part of the action of walking across the road, unconsciously matching your balance and stride to the shape of the ground. If you stumble, your movement automatically springs back into conscious control until you regain your balance (momentarily reverting to the status of an action). Actions are made up of an aggregate of operations. Many of the actions of an institution may be “collective operations” as the operation is so routine for that institution or project that no special supervision is needed on the part of the executive.

It can be useful when teaching a complex action to divide it up into operations to be done by a group. This helps the learners identify the component operations.

In clarifying the meaning of “an action,” I have made reference to intentions, and not just outcomes. Activity Theory is not indifferent to the intentions of the actor since intentions are crucial to make sense of someone’s actions. While we have recourse to the observation of physiological reactions or simply asking a person about their intentions, as well as observing the activities of which the action is a part, in the end, intentions must be deduced from a comprehensive observation of activity not mind-reading. Actions must always be interpreted *in their context*, and their context is above all *other actions*. Thus, everything needed to understand an action is available for objective, scientific observation.

In short, an action is doing something for a reason. The motive is the reason for doing something and the goal is what is done, an intermediate step towards fulfilling the motive of the action. What characterises human activity is not so much *what* we do but the *reasons* we have for doing them. But in Activity Theory we do not conceive of these reasons as verbal explanations, but simply in terms of the activities to which an action contributes. Goal and motive are both situations in the world.

Vygotsky (1927) showed that as we grow up, we develop “neutral decision processes” in our nervous systems which allow us to deal with multiple stimuli and make decisions. Once “closure” is achieved, we move into action automatically. These decision and closure processes are built up through collaborative use of culturally acquired artefacts.

5. Artefacts

I mentioned above that while activities are the only substance for Activity Theory, the material world plays an ineliminable role in activity. By “material” I mean anything that exists outside of and independently of your consciousness. It exists objectively, but its meaning is dependent on human activity.

The concept of “Nature,” on the other hand, is everything which exists independently of human activity. Activity Theory is not Natural Science. That is, we do not speculate about the nature of a world beyond human activity. We leave that to others. But Activity Theory is concerned with the scope and limits of human activity and human activity is both constrained and enabled by the necessary inclusion of material objects and processes into our actions. The concept of “material” includes both the natural processes and objects which existed even before human beings existed, continue to exist outside of our activity *and* the products which constitute our “second nature.” Human behaviour is itself a *material* process. The concept of “matter” expresses the interconnectedness of everything outside of my consciousness and through this concept we are able to learn about natural processes outside of human activity as such, through our activity. But human activity is not a *natural* process, because it is mediated by consciousness. I do things for *reasons*, imagined future situations, not immediately in response to stimuli.

When we conduct experiments and interventions we treat the consciousness of other people as part of material processes which can be understood in terms of their conditions. However, when we are interacting with other people we must relate to them as human beings who do things for a reason, not simply as the result of some material cause. This is an important ethical caveat to the science of Activity Theory.

The material world is included in activity by means of *artefacts* – what we know of the world beyond human activity we know thanks to those material products of human activity which are included as mediating elements in our activity. The various measurements physicists take from the material world are products of specific forms of activity, and are meaningful in the context of the relevant actions. No one knew that light had a speed until we had instruments capable of measuring it.

Consequently, in Activity Theory actions are always conceived of as *artefact mediated actions*. An artefact is defined as a material object or process which is produced by or used in human actions. So strictly speaking, the words “artefact mediated” are redundant because all actions are essentially artefact-mediated.

Tools and Signs

Vygotsky (1927) was hostile to the use of the term “artefact” to lump together tools and signs because the role of each in human action is different. “Artefact mediated action” cannot itself be a unit of analysis, because to understand an action a more definite specification of how the action is mediated is necessary. Writing in the early 1930s, Vygotsky feared that his insights into the origins of the intellect in word-use would be obscured by subsuming word-use and sign-

use under the abstract general heading of “artefact mediation” understood in terms of orthodox Marxist conceptions of labour, i.e., tool-use. Tools play a completely different role, expanding the scope of human activity, expanding the horizon of our experience and developing practical intelligence whereas signs which act directly on the mind, your own and others’. “Artefact” is only adequate as a general heading and to indicate the universality of mediation, but in every specific instance it is important whether the given action is mediated by tools or signs (all of which are material objects or processes).

In this context, there are two and only two modes of activity: tool-mediated activity and sign-mediated activity. Tools act on the material world, signs act on the mind, your own and that of others. Actions can be both, but there is no third. If I put a shovel outside my shop I am using it as a sign that I sell hardware; when I use a shovel to dig a hole I am using it as a tool. A concrete concept of an action or activity means that we understand it through a unit of analysis which will be either a sign- or tool-mediated action.

“Artefact-mediated action” is, as Vygotsky said, valid only as a general heading or to indicate the universality of mediation in human activity. It is not a unit of analysis.

(Technical) Tools, Psychological tools, Words, the Hand and Country

The accumulated mass of the artefacts of a society is both the residue of its past activity, available for future archaeologists to reconstruct how we lived, and the material basis for our present-day activity. On our own in Nature without the support of our “second nature,” most human beings would hardly survive a few days. (Equally, we would not last long without the help of other people.)

There are five kinds of artefact which mediate human actions which are connected with one another developmentally and distinguished from one another functionally, that is, by the specific role they play in a human action.

The first *tool* was the human *hand*. With our hands we plucked things from their natural setting, carried them home and used them for our own purposes. Our own anatomy developed through our facility with our hands. All the tools subsequently invented by human beings had their beginning with the human hand, extending its powers and combining them with products of their labour. The human body as a whole can be used as either a tool or a sign.

Indigenous Australians refer to the land where they belong as “*Country*.” This term nicely captures the fact that there is no “wild Nature.” Everything in the land we inhabit has been produced and used by human activity over the centuries. Its preservation is vital to the continuation of human life. For Indigenous people everything in their lived environment is significant, but so it is for settler peoples. The most pressing problem of our times is that human activity is undermining the natural conditions for human life. On the whole, the impact of human activity is now well understood, but what remains to be understood is how human activity can be changed so as to reverse this unsustainable, destructive process.

Spoken *words* are a form of sign-mediated action. The first *words* arose alongside and in close connection with tool-use. As our forebears plucked

things from Nature and used them they formed concepts of them. Their use of these artefacts was accompanied by gestures and words (signed or spoken) and these words gave objective form to our concepts and communicated them to our collaborators and helped us build communities. Speech is essentially *doing something with words* in the presence of the listener, but word-use has been enhanced by telecommunication and recording, blurring the distinction between speech and writing. “Word” in Activity Theory generally indicates a spoken or signed word, rather than a written word. Further, “word” is interpreted as a sign (symbol) for a concept, so it may include a *phrase* with a semantic content, as well as a single word.

It may seem odd to refer to a spoken word as an *artefact*, since it has only a transient existence. Although a given individual instance of a word has only a transient existence, the word (i.e., the universal which each instance realises) is ever present in the subject’s social environment, repeatedly appearing in specific contexts. A word is sustained as an artefact of a culture by its repeated use over a period of time in a variety of contexts.

The first enduring *signs* arose as extensions of our technical activity (i.e., tool-use). Written words or word-like symbols appeared only in the past 10,000 years. Written words are enduring and are interpreted in the absence of the writer, and thereby formed the basis for building large, class-based communities. Literacy did not arise naturally from the conditions of early humans but arose a few thousand years ago in a handful of civilisations and spread across the globe from there. All normally developing children acquire speech, but writing is like speaking to someone who isn’t present, and it generally acquired only in literate communities through deliberate instruction.

Vygotsky introduced the term “*psychological tools*,” functionally distinguished from “*technical tools*” to include “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.” (Vygotsky, 1930). A tool is a psychological tool (such as a book) or a technical tool (such as a hammer), depending on whether it is being used to influence the mind or to intervene in a natural process: to convey an idea, or prop open the door, for example, but all are material artefacts.

Nowadays, there is a manner of speech in which people use the word “tool” to refer to *any means* – concepts, actions, methods, etc. We do not use this manner of speech in Activity Theory, because it is always important to know exactly which *material objects and processes* mediate the relevant actions and this should not be conflated with the vague concept of a “means.”

6. Activities

But what is *an* activity? According to the Soviet-era founder of Activity Theory, A.N. Leontyev, an activity is characterised by the *object* which provides its motive. For Leontyev, the object is the externally existing situation which orients the activity.

Thus the concept of activity is necessarily connected with the concept of motive. Activity does not exist without a motive; “non-

motivated” activity is not activity without a motive but activity with a subjectively and objectively hidden motive.

Leontyev, 1978

“Society produces the activity of the individuals forming it” (op. cit.), but not in an immediate way, as if by a stimulus → response reaction. Participation in activities is mediated by psychic reflection, which in turn has been shaped by prior participation of individuals in the life of their society and the complex web of relations between the various activities. The object of an activity is generally a societal product which exists independently of any person and generally meets the needs of individuals in a socially mediated way, typically either by consumption of a product or by providing an income. But, to use a Hegelian expression, *the object differs from its concept in some way*; for example, it is a useful product which, having been consumed, needs to be *reproduced* before it can be consumed again, or it is a person’s health which is defective and needs to be *rectified* by medical treatment. Yrjö Engeström has called the object “‘the raw material’ or ‘problem space’” (Engeström, n.d.). In fact, it could be better to say the object is “the raw material *and* problem space.”

Although Leontyev’s definition is intuitively compelling and remains the main foundation of Activity Theory to this day, it is rife with contradictions. For example, Leontyev meant by “activity” both the unit and the substance and never differentiated between these concepts, and he meant not specific activities but *types* of activity, such as “work” or “play.” Further, I have come to realise more recently that his definition is *too restrictive*, from the point of view of using Activity Theory as a means for social research or intervening in order to foster social change.

Also, Leontyev frames the source of activities in terms of a *need*. However, activities define and produce their own needs. Further, Leontyev’s conception did not allow for activities which are in the process of formation or are dysfunctional or confused about their object. If clarified and purged of a number of contradictions, Leontyev’s definition of an activity indicates an *ideal-typical* activity, within the entire field of activities for which the connection between the constituent actions and the activity as a whole is problematic or less well defined.

For example, the anti-vaccine protests in 2020 had no clear and agreed object, but were an important subject for Activity Theory research.

What is an Activity?

Actions are the *micro* units of analysis for Activity Theory and activities, which are the *macro* units of Activity Theory, are nothing more than aggregates of actions. The question is: *how* do the mass of actions segment themselves into coherent aggregates of actions to constitute activities?

An activity is not an aggregate of people, such as an organisation or institution, or an aggregate of behaviours such as is generally the subject matter of “social psychology.” It is an aggregate of *actions*. Further, Leontyev observes that activities are “non-additive” units of activity because any action may be part of more than one activity at the same time; activities can “overlap” and subsume one another. The issue is: what is it about all the actions which mean that they

are all part of the same activity?

An activity is an aggregate of actions, each in general executed by a different person pursuing a specific goal, and all directed towards the achievement of the same more remote object. But the concept of “an activity” does not actually exclude a series of collaborative actions all carried out by the *same person* and which constitutes the life of that person or even an *episode* in the life of a person, such as their “life project.”

The concept of “object” in Leontyev represents both the thing acted upon and the state of that thing which the activity tends to bring about – the process of its (re)production, its maintenance. The “object” here is not strictly a psychological concept, because it does not necessarily function in the mind of the actors *as a* motive. It is more correctly a societal entity, and a product of societal processes. Nonetheless, the “object” is evident in the collaborative tendency of all the actions towards the realisation of a certain condition of the object and the participants will generally all be aware of it. For Leontyev, societal norms or policy determine what is required of the object – if it is automobiles, it is *enough* automobiles to meet the needs of the community, if it is a patient in a hospital, it is a good state of health for the patient. The activity is regulated by business owners, government officials, administrators, and so on to see that the object is achieved. In general, it is *societal* processes (such as the market or bureaucratic or political interests) which determine the various objects as norms of activity. The object itself determines the intermediate goals needed for its achievement in conjunction with the division of labour which is determined internally to the activity.

For the people engaged in the activity, the object is the *merely known motive* of the activity, but their *really effective* motive may be to earn a wage, while the really effective motive for the business owner is the expansion of their capital. For example, a child knows that the object of learning to read may be to get a good job, but they do not have the psychological resources for this to be an effective motive for them, and the teacher must find a really effective motive for the child to read. Obviously, in some cases in some activities, or projects – such as political movements or charities – the object is indeed the effective motive, but Leontyev did not have these kinds of activities in mind.

Activities which fall short of Leontyev’s ideal-typical activity

In reality, there are many activities to be seen in the world which on the face of it fall short of Leontyev’s representation of an activity; actions may lack coordination and achieve a collective outcome either not at all or unintentionally; there may be no “merely known” motive for the activity distinct from the joy or otherwise-compelling attraction of taking part or the object may be the on-going subject of dispute.

Using our dialectical approach, we do not say that such phenomena are *not activities*, but rather that they are activities which (as yet) fall short of the concept of “an activity” – they may be activities in an early stage of formation or at a late stage of degeneration or simply a malformed activity. Activity Theory needs to be able to encompass activities which are not the archetypal collaborations aimed at a well-known, explicit motive. A theory of *the*

development of activities, not just a definition, is necessary.

Even when the concept of “activity” has been generalised in this way, Activity Theory appears to be a theory adapted to a *specialised kind of social phenomenon* and something quite distinct from psychology. People tend to think of psychology as being just about thoughts and feelings rather than activities, but emotions are the springs of action and concepts are *forms of activity* and exist wherever people are *active*. Even when you just sit and think you are active, even if that activity is only manifested later when you put your thoughts into action, so to speak. When properly conceived, Activity Theory can be a general theory of all human life and an immensely powerful lens for a wide spectrum of research projects and the solution of a wide variety of problems, from clarifying the foundations of mathematics to improving the training of doctors to motivating children to learn to read or overthrowing capitalism.

7. Motivation

Motivation is how a researcher or in fact any human being approaches the world and tries to understand it. At first what you see is a lot of actions. You can see what people are doing, that is, the outcome of each of the actions and the extent to which the outcome corresponds to the evident goal of the action, fulfilling the actor’s purpose. This will be evident from the emotional expression of the actor and the coherence of the operations which are normally consciously controlled towards the achievement of the goal. But what is still unclear is this: why are people doing these actions? what are their reasons? what is it all for? The world is not full of people “just doing things.” People do things for a reason and it is these reasons which bind them and their actions together into coherent activities and communities.

In Activity Theory, motivation (or motive) is what gives us reasons for doing something: the object, which produces the internal emotional conditions of the psyche which are in turn the springs of action in the mind. But we do not see the object which is providing the reason for an action as a material or natural *thing*, an objective condition lying *outside* of human activity, motivating activity from outside, so to speak. In this I part ways with A.N. Leontyev’s dualism. Although Leontyev agreed that human needs are produced by society, that is, by activities, he saw the motivation for any given activity as something objective, lying outside the given activity, drawing the activity towards itself, so to speak. But this is mistaken; a theory of social life which sees human activity simply as a response to objectively existing *needs* is a vulgar materialism, not Marxism. I align with Leontyev’s student Fedor Vasilyuk (1984) – the units of an actor’s mind are the same as the units of their life-world, or more precisely a *selection* of those units, those activities.

The source of the motivation, the reason for doing something, is the *object-concept*. The object-concept is *implicit* in the material activity of the participants in an activity. That is, people carry out some action to contribute to a whole collection of actions, by themselves and by other people, which tend to bring some *Arbeitsgegenstand* (object being worked on) into correspondence with a concept of how it ought to be: the *object-concept*. From a psychological point of view, the motivation of an individual action is a concept of the object, at the

heart of which is a moment of volition, emotion, a commitment. The object-concept is an ideal form of activity, a norm of activity, which is acquired by individuals in and through their participation in activity. Their actions are realised as material actions by means of the mediation of artefacts incorporated in the action, and as such are objective. It is impossible to understand an activity if you do not have a clear concept of its object-concept.

The motivation, the actions, the object-concept and the artefacts used are all elements of the activity; they are internal to the activity. But the actions are *material* actions, and as such they are part of the material world, interconnected with everything else in the world.

The “Unconscious”?

The concept of the “Unconscious” long ago entered into popular consciousness mainly thanks to the work of Sigmund Freud. For decades, psychologists had wrestled with the problem that conscious awareness did not seem to be explicable from itself; awareness flipped from one thought to another and then brought back thoughts which had been left behind and at times seemed to be driven by motives which the subject themselves was unable to explain. Freud took the bold step of hypothesising that one could speak of ideas of which one was not conscious, despite the fact that for the psychology of the time this was a contradiction in terms. That is to say, he broadened the subject matter of psychology to include consciousness beyond conscious awareness.

Freud hypothesised that these ideas of which one was not conscious at the moment resided in some *physiological* structure from which ideas could move into and out of conscious awareness. This was a misconception because consciousness is in any case inseparable from the physiological processes which realise it. Attention moves from one thought to another, but it is all part of consciousness – an integral psychic process. Both consciousness (including subconscious thoughts, thoughts of which we are not aware, as well as the thought of which we are aware), physiology and behaviour are all inseparable parts of the broader, more complex process of *activity*, and make sense only as aspects of activity.

For us, the “Unconscious” is not a psychic process which *pre-existed* conscious experience and determines motivation “behind the back” of the conscious actor, so to speak. Freud’s idea that dreams, hypnosis and “Freudian slips” reveal this otherwise inaccessible realm does not stand up to the evidence, despite the popularity of the idea. Vygotsky and his associates were able to demonstrate that the origin of the *subconscious* lies in prior conscious awareness. The origins and *development* of the subconscious are key to understanding its place in the overall pattern of activity. “The subconscious is the potential conscious” (Vygotsky, 1930a).

As said I above, “consciousness” in Activity Theory means the *totality* of the psychic processes mediating between physiology and behaviour, and our physiology and behaviour are in turn part of the totality of *activity* in which we are participants. “Totality” is important. Our starting point is the totality, not some part which has to be added to other parts to make the whole. There is indeed psychic activity which lies “below” conscious awareness but it is not

something deposited without ever having passed through experience. That *subconscious* psychic activity had its origins in experience and can be recalled even if sometimes the aid of a therapist is required.

8. Germ Cell Cell and Unit of Analysis

“Units of analysis” and “germ cells” are so central to Activity Theory it is impossible to talk about Activity Theory without reference to them. The two terms – “unit” and “germ cell” – both refer to the same entity, but in a different sense, and both terms have their origin in 19th century German philosophy – *das Eins* or *das Einheit*, and *der Keim*. “Unit of analysis” was originally understood in Sociology as the smallest entity which figures in analysis as an instance of a phenomenon. Typically it would be an individual person, a group or a nation. Although originating in 19th century German science, the term was rarely used when Vygotsky first used it in 1934, and only came into widespread use after World War Two. Vygotsky invested the term with Goethe’s sense that the unit also represented the concept of the phenomenon as a whole, a *Gestalt*.

The idea of the “germ cell” has its origin in the work of J.G. Herder (often regarded as an early founder of anthropology) and the great naturalist and poet, J.W. v. Goethe, before Hegel gave the idea a systematic philosophical formulation. Hegel referred to it as the One or the First in his *Logic*. The idea was subsequently taken up by Marx, Vygotsky and the Soviet Activity Theorists. (Blunden, 2021).

The term “cell” in this context was used by Marx for the basic entity of political economy, by analogy with the cell of Biology:

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.

Marx, Preface, 1867

Hegel explained the concept of “unit” (*die Einheit*) or “germ-cell” (*der Keim*) in a little-known passage in the *Science of Logic* (1816). In *Thinking and Speech* (1934), Vygotsky gave a definition of “unit of analysis” which united the sense of Hegel’s “the One” (*das Eins*) and “the First” (*das Erste*). Hegel shows that the crucial point in analysing some phenomenon is the determination of the One: the single instance of the phenomenon. That One then becomes the First: the starting point for a conceptual reconstruction of the whole phenomenon. That is, the unit represents a concrete *concept of the whole* “in embryo,” and the selection of the unit determines how the whole process is conceptualised. As the starting point for analysis, the unit is the simplest, undeveloped instance of the phenomenon which can be perceived without reference to a concrete theory of the phenomenon.

Vygotsky cleverly redeployed the already-known term “unit of analysis,” so that it also represented an abstract (embryonic) concept of the whole phenomenon. It is just a “germ cell” of the whole, developed phenomenon, *der Keim* (seed) in

Hegel's expression. But it is "concrete," in the sense that it is immediate and available as an everyday conception in the context in which the activity arises, that is, at a level of theory *below* that of which the cell is the germ. It is at hand; you don't need to know the theory as a precondition to understanding the unit or germ cell. You don't have to be an economist to grasp what a commodity is and how it is a really-existing value. So the germ cell is a "potential concept." It is available to practical or everyday intelligence, not just as a pseudoconcept, but a potential concept which can grow into a true concept by means of theoretical reconstruction.

Unless the concept of a phenomenon is rooted in such a One, a single instance which is comprehensible without reference to the theory or concept for which it functions as the unit or germ cell, then the concept is just an abstract concept. By "abstract" I mean a concept detached from experience and lacking in definite content, a concept based on appearances alone. Any valid *concrete* concept, any concept with genuine explanatory power, must have its One. This does not exclude concepts which are subordinate or specialised concepts *within* a well-grounded theory which in themselves are abstract since they rely for their meaning on their place within a broader theory.

So the importance of the "germ cell" in Activity Theory is two-fold. First, it allows us to form an everyday understanding of a social practice by stripping it back to its simplest form. This simplest form or "germ cell" of an activity is rooted in a form of human action, and as such, the germ cell will necessarily embody a contradiction, typically the difference between the goal and motive of the archetypal action. Sometimes the germ cell is formed by the intersection of two distinct processes, like Vygotsky's "word meaning," which first arises as the intersection of pre-verbal intelligence and pre-intellectual speech.

So the germ cell does not rely on the theory itself to be understood, but arises from the lower level of activity, the context from which the activity in question arises. Such a germ cell can shed light on the whole activity which unfolds from it and allows it to be grasped concretely – a simple concept of the process as a whole. A *concrete concept* like this is distinguished from a pseudoconcept which simply indicates a field of objects according to a shared attribute.

A good approach to teaching elementary Science is to engage students in measuring, simple measurement of materials, things and processes in their environment because measurement is the germ cell from which natural science grows.

This understanding opens the door to practical intervention in human development. A germ cell can be utilised for intervention in an institution by introducing a simple "germ cell" practice which takes root in the environment and grows spontaneously without further intervention to transform the environment. Citizens who take care to recycle their own waste are much more likely to support environmental action in the business or political arenas than people who have never taken such simple actions.

Or introduce a tool which enables some simple action which has the potential to transform an activity, such as providing a poor village with a sewing machine. Or complex fields of study mastered by introducing school students to the basic

concept in the form of a germ cell, and assisted through problem-solving methods of pedagogy to reconstruct step-by-step, germ cell by germ cell, the conceptual framework of the entire theory.

This is particularly important in designing the mathematics curriculum. A child who has learnt how to add can see the problem with question: what can I add to 2 to get 1? What do I get if I have 4 lots of 6? So far as possible, the curriculum must be so designed that each topic contains a germ cell problem which finds its solution in the next topic.

At the same time, the idea of the unit of analysis is that some complex social practice is nothing more than an aggregate of “units.” It orients our approach to understanding a phenomenon. Identifying and understanding a simple unit and how different units can relate to one another allows us to form a unifying concept of the phenomenon and build up an understanding of how a whole complex process works.

Because we see the unit as a germ cell, we expect to see that the broader phenomenon develops while the unit itself develops and *vice versa*.

Marx (1867) expressed this double meaning in the opening words of *Capital*:

“The wealth of those societies in which the capitalist mode of production prevails, presents itself as ‘*an immense accumulation of commodities*’, its *unit* being a single commodity.”

But the appearance of wealth in capitalist societies (money, credit, services, contracts, intellectual property, shares, etc.) differs widely in form from the simple commodities from which that wealth has developed. By making the commodity the unit *and* germ cell of value he made his starting point such a simple relation that anyone who has had even the most rudimentary experience of economic life will immediately understand without recourse to any prior theory about money and value. The single commodity is “the simplest social form of value” (Marx, 1881). And yet understanding how value arises from being a commodity, i.e., a product of labour to be used for exchange, is the foundation for understanding the entire dynamics of capitalism.

The first task Marx set himself was to show how a commodity is both an exchange-value (i.e., it contains a definite quantity of necessary labour) and a use-value (i.e., has a certain use for a buyer). The goal of the act of production (in Leontyev’s terms) is the use-value, but the motive for the act of production is its exchange-value. Marx was the first to see that these two determinations of value were not identical and were in conflict with one another, and the contradiction between the two determinations of value drives the development of capitalist society. This is an example of using the unit/cell as a method of analysis and conceptual reconstruction.

Hegel showed that, in outline, any science has this same structure. Further, at nodal points (*Knoten*) in the unfolding structure of a science, *new* units/cells appear, marking the development of the various branches and subfields in the science.

Consequently, the unit/cell can also be used as a method of teaching and learning. For example, typical mathematical expressions and problems differ

vastly from counting, but it is from counting which a large swathe of mathematics grew. But understanding geometry begins from the understanding of lines and triangles, not counting. New methods can be introduced using games or puzzles that contain the germs of new mathematical topics. Awareness of this structure of mathematical knowledge allows a school to design the curriculum so as to lead pupils through the whole of mathematics by gradually building on the practice of counting, adding, multiplying ... determining new units at each step.

Understanding that the germ cell is the active essence of a real process, an elementary social practice can be introduced into a community or institution, and, if the soil is propitious, it will grow and may ultimately transform the entire social formation. It depends of course on whether the context really is propitious. For example, providing good paying work for women can limit inequality in the domestic sphere because women have a choice. As the terrain changes under the impact of the proliferating germ cell, so the germ cell itself must change. Word meaning changes as the intellect develops. The labour process changes as the products being exchanged develop and as the production process changes the people doing the work change and their needs change. Germ cell and environment develop in interaction with one another.

Leontyev's students Petr Galperin (1902-1988) and Vasily Davydov (1930-1998), pioneered the use of "germ cell" in Activity Theory, and this idea has proved to be very productive over the decades since, although the connection with "unit of analysis" seems to have been lost.

The concept of "germ cell" is the most important insight that Activity Theory brings to those who want to change their situation. Identification of the contradiction or *trap* or situation or predicament or conflict of motives (all terms used by activity theorists) is often the first step in finding a way out of the situation. For example, instead of giving trainee doctors fail-safe tasks, safe-fail tasks allow a person to learn by making mistakes without doing damage when they fail (Gillespie et al, 2021). Likewise, old people who are becoming unable to care for themselves through lack of exercise need safe-fail exercises like sit-to-stand before they can be safe to move around their room. The sit-to-stand exercise is a germ cell from which a whole program can be built (Engeström, 2012). The task is always to identify the "trap," name it and figure out how to transcend it with a germ cell which can be expanded.

Sometimes this trap can only be revealed by extensive analysis. It may be enough to identify the simplest instance of the problematic phenomenon you are facing, without first having some elaborate theory of the phenomenon. Marx's identification of the commodity as the unit of value in a market economy is the most well-known example here. A great deal of dialectical reconstruction was still needed once the first germ cell had been identified for the contradictions of capitalist production to be fully revealed through the disclosure of a series of germ cells.

Sometimes the phenomenon can be grasped not as a simple action, as such, but in terms of a paradigmatic artefact or tool which is mediating the activity. For example, Marx took unpaid labour as the germ cell of surplus value, reframing the problem of the origins of profit to figuring out how the capitalist

expropriated unpaid labour.

Many a time has a problem arising in the labour process been resolved by the introduction of a new tool which forces the operation of a new norm of labour, overcoming difficult problems. Equally, an inappropriate tool or norm or division of labour has proved to be the site of problematic contradictions. Or it might be an inappropriate division of labour.

The problem of identifying the unit or germ cell is not one which can be solved by any recipe. It requires analysis. It was possible for Vygotsky to determine word meaning as the germ cell of the intellect only by close examination of the interlocking development of speech and behaviour in young children – the observation of pre-intellectual speech and pre-verbal intelligence, and their subsequent merging in intellectual speech and the subsequent transformation of speech into verbal thinking.

In analysing a problematic phenomenon, the germ cell is something *discovered* by analysis, not invented. Nonetheless, different people will determine different germ cells from the same phenomenon. For example, for Marx the germ cell of bourgeois society was commodity exchange, for Foucault it was a prison cell. The germ cell reflects both how each writer saw bourgeois society and ultimately the kind of activity they proposed to respond to the oppressive relations it produces. So looking from different standpoints, different germ cells are discovered.

But *solutions* to problems can also be *given* the form of germ cells. “Sustainable mobility” was not something Engeström’s (2012) team *introduced* into the home care system in Finland, it clearly expressed the fact that *object* of the system which was as yet not satisfactorily conceptualised. But the object-concept clearly expressed the task: to find the simplest possible safe-fail exercise which could be the basis for achieving sustainable mobility. In this case, Engeström found that this exercise *already existed*. Once the problem was clearly posed, the staff themselves could identify it.

Sometimes, it is not just a question of *improving* a practice through identifying the germ cell of its object concept, but of identifying points of failure, contradictions, and here again germ cells can be discovered by analysis of the predicaments or situations which generate failures.

Sometimes, however, the problem is to transform a harmful activity and the issue is the introduction of a new germ cell which has the capacity to grow and proliferate in the activity and transform it by displacing a former practice. For a germ cell to grow it must be planted in activity which is appropriate to the object of activity. Solidarity – helping someone who is struggling, but under their direction, not your own - is meaningful only where the target is actually struggling.

Again, in any concrete activity, if there is a need for the activity to be transformed, this germ cell probably already exists. It needs to be discovered and fostered. Sometimes, a problem can only be solved by building an entirely new practice from its germ cell up.

In the words of Vasily Davydov (1999), “the problem of activity and the concept

of activity are interdisciplinary by nature.” The entire field of human practice is open to us. from psychology and child development to organisational change and political action.

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