

Summary and Comparison of Historical Developments in Sociocultural Theory

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### Abstract

Sociocultural theory is a theoretical perspective that allows educational researchers to take a non-dualistic ontology. It is an attempt to acknowledge the complexities involved in human activity. However, its pedagogy is struggling to develop because breaking the Cartesian Dualism is indeed a difficult task. In this paper, as an attempt to develop an international perspective of sociocultural theory I reexamined Vygotsky's notion of (a) mind in society (b) mediated action, and (c) zone of proximal development. Then I introduced the post-Vygotskian development in sociocultural theory in Russia, Finland, and the United States including (a) activity theory, (b) activity systems, (c) distributed cognition, and (d) community of practice. The goal of this paper is to develop an international perspective of sociocultural theory and identify the relationship between Vygotskian theory and post-Vygotskian theory by synthesizing the attempts to breakdown the Cartesian Dualism among sociocultural researchers.

## Introduction

Sociocultural theory is a pedagogical perspective that allows educational researchers to take a non-dualistic ontology. It is an attempt to acknowledge the complexities involved in human activity. However, its pedagogy is struggling to develop because breaking the Cartesian dualism is indeed a difficult task. Additionally, the enormity of this task is exacerbated from the language barriers and much confusion in Vygotsky's work especially from researchers whose first language is English. As a result there is a lack of synthesis among the sociocultural theoretical developments that take place in various locations of the world.

Therefore, in this paper I will reintroduce Vygotsky's work then compare and synthesize the efforts made by various post-Vygotskian sociocultural theorists in Russia, Finland, and the United States. It is my goal to develop an international perspective of sociocultural theory that is more diverse and inclusive of developments across the world. In this paper I will first present the historical context in which Vygotsky's work was developed. Then I will introduce the most common concepts in Vygotsky's theory that are not necessarily fully understood in the United States. Then I will introduce the post-Vygotskian developments of sociocultural theory in Russia, Finland, and the United States.

It is important to note that this paper is only a beginning to initiate the conversation for developing an international perspective, and there is by far much work to be done in the future. Finally, it is important to note that the research introduced in this paper is limited to text that has been translated into English.

## Vygotskian Theory

### *Historical Background*

In the early 1920s, Vygotsky recognized a crisis in Russian psychology. He thought that psychologists at the time were fractured into various schools of thought led by reflexologists and introspectionists who were taking one-sided approaches to examining, interpreting, and understanding human psychology (Kozulin, 1990; Vygotsky, 1986). The reflexologists and introspectionists focused their attention in research on studying either the organism or the environment, and chose not to study the interactions between the two. Consequently, there was no school of thought in psychology that undertook the psychological study of both the organism and environment as one unit. This limited the investigation of psychology to be within the realm of stimulus and response where observable reaction to situations presented to human beings or animals were associated to consequences that followed.

To Vygotsky's disappointment, the various schools of thought in psychology were becoming more distinct because of the way in which they interpreted and used the relationship between the organism and its environment to explain the development of human behavior and cognition (Scribner, 1997a). To overcome the proliferating trend in psychology of becoming trapped in the above Cartesian dualistic distinction, Vygotsky attempted to reformulate psychology based on Marxian theory to understand the intricate relationship between individuals and their social environment (Cole, 1985; Wertsch, 1985). Vygotsky contended that a unified framework of psychology ought to be developed that studied psychological theory of consciousness objectively (Gal'perin, 1992; Luria, 1979). In this unified theory Vygotsky did not treat the organism and the environment as mutually exclusive entities, but instead treated them as complex systems that co-created consciousness through participation in activities.

While fighting against the wave of mainstream psychology in the 1920s, Vygotsky and his colleagues took a critical review of the history of psychology in order to develop a new and comprehensive approach to human psychological processes (Luria, 1979). For the next 10 years until Vygotsky's death, Vygotsky, Leont'ev and Luria devoted their work to developing and conducting laboratory studies that examined the complex relationship between individuals and their social environment and how the interaction between the two influenced the formation of individual thinking.

After Vygotsky's death in 1934, the Soviet government banned his work on intelligence and the study of consciousness (Wertsch, 1985). Consequently, Luria and Leont'ev were pressured to leave Moscow and abandon the study of mental activity (Prawat, 1999). Instead, they focused their work on human activity that was better accepted by the Soviet government as a topic of study in psychology. Luria and Leont'ev moved to Kharkov, a town in the Ukraine, and were joined by local psychologists such as P. Gal'perin and P. Zinchenko. Together they formed the Kharkov school of developmental psychology, and referred to themselves as the Kharkovites (Kozulin, 1990).

### *Understanding Mind in Society*

While undertaking the development of a unified psychology, Vygotsky envisioned that the development of human consciousness entailed the following process:

...human mental functions arose out of forms of communication among people by way of a 'growing from the outside inward' and a transformation, first, into a form of 'communication a person with himself,' and then into mental processes in the strict sense.

(Gal'perin, 1992, p. 37-38)

Vygotsky believed that when human beings engaged in activities with objects including other people in the environment, these activities triggered thought processes within human beings. This interaction between activities and human thought processes had the potential to transform the individual. Additionally, throughout the history of mankind, human beings have modified and created new activities based on their experiences that triggered subsequent transformations of objects and people in the environment (Scribner, 1997a). Therefore, the organism and the environment are thought to mutually transform one another, which keep them both in a constant state of dynamic interaction.

When explaining the interaction between the organism and the environment, Vygotsky used the notion of intramental and intermental planes as a conceptual tool to clarify his theoretical framework. The intramental plane refers to the metaphorical space where individuals engage in thought processes to understand a concept. The intermental plane refers to the metaphorical space where individuals interact with artifacts and social others in the environment. The following statement, frequently cited by American sociocultural theorists, presented by Vygotsky (1978), defines the two planes and provides the relevancy to human development: “Every function in the child’s cultural development appears twice: first on the social level, and later, on the individual level” (p. 57). Vygotsky rejected the simplistic notion prevalent in psychology that portrayed human development as a result of associations constructed from an individual’s stimulus and response experiences in the environment. Instead he took an approach to human development that recognized the essential relationship between individual mental processes and one’s interaction with cultural, historical, and institutional settings (Rogoff, 1990; Wertsch, 1991; Wertsch, Del Rio, & Alvarez, 1995).

Vygotsky used the term internalization when explaining the interaction between an organism and its environment. In his words: “all higher mental functions are internalized social relationships” (Wells, 1999). Additionally, Vygotsky (1978) defines internalization as the “internal reconstruction of external operation.” Post-Vygotskian sociocultural theorists have heavily criticized the concept of internalization because it not only lacks explanatory power, but also implies that there is an exchange process in human activity that is external and internal to the human mind and this takes researchers back to the mind-body dualism that is unacceptable (Wells, 1999).

### *Mediated Action*

Vygotsky was one of the first psychologists, along with Piaget, in his time to assume a constructivist epistemology. From this constructivist perspective, Vygotsky theorized that individuals actively construct their understanding of the environment while engaging in goal-oriented activities that encourage them to experience shifting back and forth between intramental and intermental planes. Vygotsky attempted to explain learning as a semiotic process, or mediated action in his terms, where individuals construct meaning while they interact with artifacts and social others in their environment. The dynamic interaction between these artifacts, individuals, and social others all contribute to the social formation of the individual mind (Wertsch, 1985) and shapes individual knowledge construction.

Vygotsky (1978) claimed that this semiotic process is a result of a mediated activity between signs, mediating artifacts/tools, and the individual. In *Thought and Language* (Vygotsky, 1986), he describes the process entailed in concept formation as follows:

The process of concept formation, like any other higher form of intellectual activity, is not a quantitative overgrowth of the lower associative activity, but a qualitatively new

type. Unlike the lower forms, which are characterized by the *immediacy of intellectual processes, this new activity is mediated by signs*. (p. 109) [italicized in original text]

In the above, signs are impressions made on individuals from their interaction with tools, and this impression assists the mediation or the meaning making process in the activity. Signs do not have concrete physical existence in the environment. Instead, signs are the byproduct of the interaction between individuals and the tools that mediate thought processes. Signs then assist the individual (subject) of an activity, in attaining the goal. Therefore, the interaction between a subject and the mediational tool generates signs.

This higher mental process in mediated action between the subject, tool, sign, and object is viewed as a means of interpersonal communication (Kozulin, 1996). Furthermore, once a sign materializes in this interpersonal communication process it can then act as a tool in another activity. Consequently, in the above system, human activity can be explained as a mediation process triggered by artifacts (“technical tools”) and signs (psychological tools”) available in the social environment (Wertsch, Tulviste, & Hagstrom, 1993) that contribute to the formation of the individual meaning making of the world.

The above process has been traditionally identified as the basic structure for mediated action, and graphically represented as Vygotsky’s basic triangle (Cole, 1996; Cole & Engeström, 1993), as in Figure 1. The *subject*, in Figure 1, is the individual or individuals engaged in the mediated action, the *mediating artifact/tool* includes artifacts, social others, and prior knowledge of the subject. The *object* is the goal of the activity. This triangular representation of mediated action was Vygotsky’s attempt to explain human development that did not rely on the stimulus-response association advocated by the growing behaviorist movement of his time.

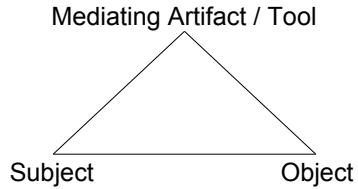


Figure 1. Vygotsky's Basic Mediation Triangle.

It must be noted that mediated action does not only represent the mediation of human activity through tools. It is easy to conclude that tools are the single mediator in an activity; however, mediated action entails the subject, object, and tool mediating one another. The subject, object, and tool have a synergistic relationship with one another, where each of them can mediate each other and affect the entire activity (Cole, 1996). Therefore, mediated action is a transformation process, not only for the subject but also for the tool and object as well.

*Zone of Proximal Development.*

Vygotsky used the concept of zone of proximal development (zpd) as a metaphorical space that captured the potential learning of children while collaborating in problem solving activities with an adult or peer. It should be noted that zpd is one of the major legacies of Vygotsky's work in education; however, unfortunately, it is frequently used to justify instructional strategies that are quite incompatible with sociocultural theory as a whole. In much research literature circulated in the United States zpd is referred as a pedagogical tool for justifying instructional strategies; however, zpd from a sociocultural point of view is a theoretical tool for understanding the complexity involved in human activity while individuals engage in the meaning making process through interactions with the environment. Researchers cannot be entirely blamed for misinterpreting Vygotsky's work, because zpd was a concept introduced in Vygotsky's later work during his short life, and he did not live to fully develop the implications

(Wells, 1999). Therefore, according to Wells, even though zpd is a provocative metaphor, the applications of it by Vygotsky himself are somewhat contradictory with the rest of his theory.

For example, in *Thought and Language* (Vygotsky, 1986), to clarify his explanation of the zpd, Vygotsky applies the metaphor in an assessment situation. There, he reports on the zpd as a numerical value based on a measured problem solving score of a child while collaborating with a peer minus the same child's problem solving score working alone. This application of zpd promotes its use as a measurement for assessing student performance. However, to the contrary, zpd is not a measurable phenomenon, nor another construct for assessment. The zpd is instead a tool that Vygotsky used to further develop his sociocultural theory of human psychology.

The renowned definition of zpd presented in *Mind and Society* is as follows:

*It is the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers.* (Vygotsky, 1978) [italicized in original text]

Vygotsky believed that a child's intellectual development ought to be examined during problem solving activities with social others, whether it be with adults or more capable peers. These problem-solving situations that Vygotsky created in the laboratory gave him the opportunity to examine the interactions that took place between the intramental and intermental planes. Thus zpd is the metaphorical space for the interactions between the intramental and intermental planes to take place.

Vygotsky (1978) points out that, in the past, psychology has been representing individual intelligence based on battery tests that reflected the intellectual ability of individuals at the time of the test. However, he further suggested that in real life problem solving situations, such as in

schools, children engage in learning activities while in cooperation with social others. Therefore, the zpd is not only a measurement of an individual's potential growth, but in fact is a metaphorical space that captures the arena in which the interactions between individuals and their environment, including objects and social others, take place.

Furthermore, by using this metaphor, Vygotsky attempted to eliminate the solid boundaries he himself created, like the Cartesian dualists, between the organism and its environment in his earlier notion of intramental and intermental planes. The zone of proximal development is where the intramental and intermental planes blend and fuse and no longer exist as two different entities. Finally, intelligence can no longer be seen as a commodity owned by an individual that grows within, but instead is a shared embodiment between individuals and their environment that influence one another's development.

#### *Summary and Criticisms to Vygotsky's Work*

In describing Vygotsky's contributions to psychology, Scribner (1997b) eloquently summarizes as follows:

...Vygotsky committed himself to two propositions that it entails: (1) Because socially organized activities change in history, the human nature they produce is not a fixed category that can be described once and for all; it is a changing category. Questions about what human nature is, or more appropriately to Vygotsky's enterprise, what human mental life (the "psyche") is, cannot be separated from questions about how human mental life becomes what it is. Questions of genesis thus move to the forefront of the scientific enterprise; psychological study of human nature (thought and behavior) must concern itself with the processes of formation of human nature. (2) Changes in social activities that occur in history have a directionality: handpowered tools precede

machines; number systems come into use before algebra. This movement is expressed in the concept of historic *development* in contrast to the generic concept of historic *change*, and its reflection in human mental life is expressed as mental *development*. (p. 244)

[italicized in original text]

As indicated in the above, Vygotsky attempted to overcome the Cartesian dualism by taking an approach that considered behavior and mental activity as one unit in human development, rather than considering them as two separate entities associated with human nature.

Additionally, Vygotsky pointed out the importance in psychology to examine both the social and historical relationship of psychological and technical tools. Therefore, psychologists can no longer accept that the progress they observe in cultural tools, from various cultural groups, is simply a linear development associated with technological development over time. Instead, researchers need to examine and analyze the associations between the changes that occur in tools and the sociocultural influences in the culture that mediate the transformation.

Vygotsky's efforts to reconcile the Cartesian dualism may have been a bold attempt, but his arguments themselves were not free from binding dualistic language. For this, he has been criticized by both Russian and American post-Vygotskian sociocultural theorists. Gal'perin, one of the Kharkovites, on numerous occasions has vehemently argued that, despite Vygotsky's attempts to rid the divide between the organism and its environment, "the external remained external, and the internal remained internal" (Gal'perin, 1992). Furthermore, Gal'perin recognized that Vygotsky's major flaw was the omission of explaining what exactly took place in mental activity:

Even the use of signs as instruments of mental activity and their "growing from the outside inward" (i.e., the use of "for oneself" and "in one's mind"), without an

explanation of what exactly took place in this case or how external activity and its external instruments changed, were unable to alter the former views of the mind. The forms of external activity, including speech communication, were “within,” in the mind, and conceptions remained external; hence, the “strictly psychological aspect” of external activity was distinguished. (Gal’perin, 1992, p. 44)

To rectify the internal/external problem, Gal’perin suggested Russian sociocultural theorists consider the function of mental activity in mediated action as what he termed as “orienting activity” (Stetsenko, 1997). Gal’perin (1989) provides an explanation of mental activity that portrayed it as the ability of human beings that allowed them to explore, examine, and predict potential results of actions they were preparing to initiate. This mental activity, according to Gal’perin, provided the subject with an abbreviated experience of the activity prior to physically enacting it. In other words Gal’perin interpreted mental activity as a metaphorical space for the subject to consider and weigh the potential consequences of an activity (Prawat, 1999).

This mental activity before its physical enactment orients the subject to the external activity, and once the subject experiences this orienting nature of the mental activity, it has already served its purpose. Hence, the mental activity itself does not exist separate from the observable non-psychological action, but is part of the psychological content of an action. Indeed psychologists can examine the psychological and non-psychological content of an activity separately, but by doing so they fail to encapsulate the complex nature of activity in its psychological and behavioral entirety. This is an issue researchers in the United States need to consider as well. It is becoming close to taboo in the works of American sociocultural theorists to speculate what is happening in the minds of the individuals.

Researchers can become closer to overcoming the Cartesian dualism by studying activity as a unit of analysis rather than treating mental activity and externally observable activity as two separate functions of human nature. In a lecture for a course on child psychology at Moscow State University, D. B. El'konin cited in B. D. El'konin (1993) made note of this relationship between meaning (mental activity), behavior (external activity), and the subject:

Human action with objects has two aspects. It contains human meaning as well as an operation aspect. If you omit meaning, it ceases to be an action, but if you void it of the operational and practical aspect, then too, nothing remains of it... Thus, these two aspects already exist within the unit of human behavior, and that unit of human behavior is a purposeful, conscious action. Moreover, these must be seen as two aspects as well, not as different spheres of the world having nothing to do with one another. (p. 23)

When examining other works that attempt to overcome the Cartesian dualism, Dewey (1963) circuitry notion of the reflex arc bring further insights to the relationship between the psychological and non-psychological content of activity. Dewey points out that the traditional notion of the reflex arc, which explains the relationship between stimulus and response, portrays an incomplete relationship between the two. When demonstrating this incompleteness, he states the following:

What we have is a circuit, not an arc or broken segment of a circle. This circuit is more truly termed organic than reflex, because the motor response determines the stimulus, just as truly as sensory stimulus determines movement. (p. 258)

In the above, Dewey (1963) clarifies the organic nature between the relationship of stimulus and response. From a circuitry perspective of the reflex arc there are no boundaries between the stimulus, response, individual, and her reactions. This organic nature can be

transposed to mediated action among subject, tool, and object. Additionally, the relationship between intramental and intermental planes should not be viewed as a divide; instead, it should be acknowledged that the two planes organically co-evolve.

### Post-Vygotskian Theory in Russia, Finland, and the United States

#### *Activity Theory*

Post-Vygotskian sociocultural theorists in Russia continued their attempt to overcome the Cartesian dualism by examining human activity as the unit of analysis. However, it has been proved to be a tough battle to fight because no matter how much researchers try to abandon the dualistic framework, it is extremely difficult to find other methods to describe the relationship between an organism and its environment. The root of “all our thinking compels us to look for structure-imposing invariants and to talk in terms of objects and abstracted properties” (Sfard, 1998).

Post-Vygotskian sociocultural theorists took Vygotsky’s mediated action as their basic framework and have continued to contribute to the theoretical development of activity theory. In activity theory, by overcoming the divide between the organism and its environment, the cognitive processing of meaning making can be distributed among multiple individuals and objects in the environment. Scribner (1997a) refers to this activity theoretical framework as a metatheory that introduces analytic categories for developing new theoretical frameworks in epistemology and psychology.

In Russia, A. N. Leont’ev contended that a subject’s activity and its corresponding conditions, goals, and means are the middle link between the organism and its environment (Leont’ev, 1974). This middle link is difficult to record in empirical studies because it is not

visible in the overt behavior of the subject. To make this middle link more apparent, Leont'ev developed his well-known three level scheme that addressed the relationship between observable human behaviors of activity-action-operation, which are correspondingly contingent on the non-observable human terms of motive-goal-instrumental conditions.

It has been noted in Wertsch et al. (1995) that Leont'ev cautions researchers that, in the above scheme, activity does not refer to the general “theory of activity” that encapsulates human activity in general, but refers to observable activities taken by individuals. Therefore, activity in “activity theory” refers to the general paradigm of interactions between an individual’s activity-action-operation and motive-goal-instrumental conditions. However, “activity” in “activity-action-operation” refers to sets of physical actions made by an individual attempting to obtain an object. Furthermore, an action is goal-directed, and could refer to actions made by individuals that are independent of the activity unit. Finally, operations are associated with the concrete institutional conditions imposed on the subject.

When addressing the relationship between physical and mental activity, Leont'ev (1974) takes a similar position to Gal'perin (1989), as indicated in the following excerpt from Leont'ev:

Activity is a molar and nonadditive unit of a material subject's life. In a narrower and more psychological sense, activity is a unit of life mediated by mental reflection whose real function is to orient the subject to the world of objects. Activity is thus not a reaction or a totality of reactions, but rather a system possessing structure, inner transformations, conversations, and development. (p. 10)

This position has been passed on to the new generations of Russian sociocultural theorists represented in such works of A. A. Leont'ev and D. A. Leont'ev, who are A. N. Leont'ev's son and grandson, and V. P. Zinchenko (Leont'ev, 1981; Leont'ev, 1995; Zinchenko & Leont'ev,

1995). In the above authors' work, there is a continual struggle to overcome the divide between the organism and its environment by treating mental activity as an engagement that orients subjects toward enacting a physical activity and therefore is an element of the activity as a whole.

Activity emerges through a reciprocal process that transforms the subject, the object, and the relationship between the two and their context (Davydov, 1999; Rogoff, 1995). Additionally, the activity itself holds cultural formations with its own structures (Engeström & Miettinen, 1999; Leont'ev, 1974). Once an activity is institutionalized and is no longer an individual goal-oriented action, then it becomes robust and enduring tool within the culture (Cole & Engeström, 1993).

The unit of analysis in activity theory is the object oriented activity itself (Engeström, 1987; Rogoff, 1995; Wertsch, 1991; Wertsch et al., 1995). Furthermore, when conducting research based on activity theory, examining individual behavior is the gateway for the researcher to enter into and vicariously experience the activity of the subject. Once the researcher identifies the activity, she needs to shift the focus of her examination to understanding the motive-goal-instrumental conditions rather than the observable individual behaviors, and use that information to understand the collective meaning making process {Yamagata-Lynch, 2003 #245}.

### *Activity Systems*

To further develop the theoretical framework implicit in activity theory and provide a root model of human activity with a non-dualist ontology Engeström (1987) from Finland conducted a theoretical research and developed the notion of activity systems, shown in Figure 2.

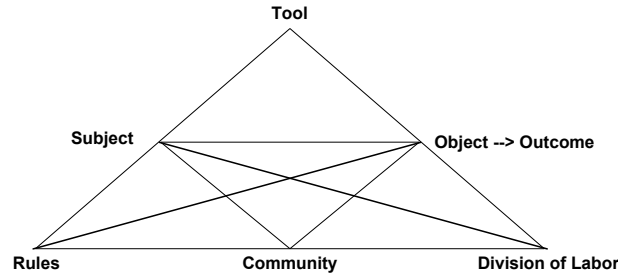


Figure 2. Engeström's Activity System

In Figure 2, the top triangle of an activity system is identical to Vygotsky's mediated action triangle in Figure 1. Therefore, the foundation of activity systems is mediated action. The *subject* is the individual or groups of individuals involved in the activity, the *tool* includes social others and artifacts that act as psychological or technical tools, and the *object* is the goal of the activity. Additionally, the artifacts, which function as tools, are not conveniently handed to the subject. They are invented, purchased, discarded, and replaced in the activity system, and can even be sources of disruptions (Engeström & Middleton, 1996).

The *rules*, *community*, and *division of labor* components add the socio-historical aspects of mediation that were omitted by Vygotsky (Engeström, 1999). Rules refer to any formal or informal regulations that in varying degree can constrain or liberate the activity and provide guidance to the subject of what are correct procedures and acceptable interactions to take with other community members (Engeström, 1993). The community is the social group that the subject identifies being a member of while exercising the activity. The division of labor refers to how the tasks are shared among the community. All of the above components of activity systems, including the top triangle and the bottom socio-historical components, can mediate change not only for the object but also for each other. After the attainment of the object, activity systems are molded or transformed into outcomes (Engeström, 1993).

Activity systems are not stable and harmonious systems; instead they can be described by inner contradictions caused by tensions among the components of the system (Cole & Engeström, 1993; Engeström, 1987; Engeström, 1993). These tensions arise when the conditions of components cause the subject to face contradictory situations that hamper the attainment of the object. In other words, the working conditions that a subject faces in an activity system may not be in favor of the subject attaining the object because of the conditions that one component brings to other components.

For example, (Engeström, 1993) reports on contradictions that medical doctors face when working with patients. In Engeström's study in a hospital, patients' complex medical situation demanded the doctors' time and thorough diagnosis in a cooperative group of doctors; however, the division of labor, regulated by rules in the hospital, randomly distributed patients to available doctors at health stations. This tension in the activity system made the doctors face contradictory situations where they felt obliged from a moral standpoint to make a thorough and proper diagnosis of their patients, but also felt obliged from institutional rules to see as many patients as possible in any given day. Contradictory situations caused by tensions can also assist subjects to attain their object. In an activity systems analysis of teachers and their participation in a technology professional development program Yamagata-Lynch {, 2003 #245} found that tensions could act as psychological tools for participating teachers of the program to achieve their curricular goals.

### *Distributed Cognition*

To further understand the social dimensions captured in human activity, it is useful to examine the literature related to distributed cognition primarily developed in the United States. The boundaries between individual cognition and social cognition become difficult to identify

because individuals are constantly interacting with social others and artifacts, which act as tools available in their environment. This blurring of boundaries exists not only between individuals and their peers, but also among individuals, context, activity, and artifacts. If individuals mediate meaning from activities in their environment, then knowledge construction is shared between the individual and the activity. Therefore, cognition from a sociocultural perspective is viewed as being “stretched across mind, body, activity, and culturally organized settings” (Lave, 1988).

This distributed nature of cognition is thoroughly examined by Hutchins (1993). Hutchins studied how navigating a navel vessel is accomplished through a cooperative effort among its crewmen interacting with one another and the tools available on the ship. The shared experiences among the crewmen enabled them to communicate with one another. Each crewman had various responsibilities in the process of navigating (e.g., quartermasters share among themselves the task of the plotter, bearing tracker, the bearing time-recorder) and manipulated appropriate tools for the task. The result of this cooperation was the collective understanding for how to navigate the ship. This understanding enabled the proper navigation of the navel vessel. Hutchins concluded that in a complex activity that involves joint problem solving among a team of individuals, individual minds cannot be considered to be the only locus for the structures that organize thinking.

Furthermore, Werstch et al. (1993) summarize Hutchins’ findings as follows:

...the whole of socially distributed cognition is greater than, or at least qualitatively different from the sum of the individuals cognitive process that constitute it. There is no way to reduce the analysis of socially distributed cognition to set of individuals’ processes, and as result of type of agency is attributed to the group rather than to individual. (p. 339)

The above quotation implies that the understandings constructed by a community are owned by the entire community. It is impossible to divide this shared meaning making and find individual owners. At the same time community understandings are not simply the accumulated understandings of each of its members. Community understandings are artifacts resulting from the semiosis that takes place among community members, tools, and activities. Furthermore, human beings participate in activities that have been determined to be meaningful by the community. Therefore, actions taken by individuals are most meaningful within the community that shares a common experience and understandings.

### *Community of Practice*

To further understand the participatory nature of human activity it is helpful to examine the community of practice literature primarily developed in the United States. Community of practice is a term popularized by Lave and Wenger (1991) when they examined the legitimate peripheral participation of apprentices in a professional community. They claim that apprentices of a community of practice are given legitimate roles within the community, and their actions have a direct consequence for the entire community.

As an apprentice gradually appropriates the skills that are necessary for her to become a more skillful member of the community, she is assigned legitimate tasks that have greater consequences. Within this theoretical framework, communities of practice consist of groups of individuals with common goals that are engaged in joint activities. The way that work related activities are exercised in a community of practice affects the way that its members view the world, and it also defines the legitimacy of a task practiced in the community. Lave and Wenger (1991) define the term as follows:

A community of practice is a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice. A community of practice is an intrinsic condition for the existence of knowledge, not least because it provides the interpretive support necessary for making sense of its heritage. Thus, participation in the cultural practice in which any knowledge exists is an epistemological principle of learning. (p. 98)

Additionally, the history and experience shared in a community of practice defines what constitutes competence within that community (Wenger, 2000).

Wenger (1998) further examined the concept of community of practice and reported that it is an integral part of our daily lives. According to Wenger, a community of practice is everywhere. They do not have a name or a membership card, but members of a community of practice identify themselves as a “we” defined by the joint participation for attaining a common goal. This notion of “we” draws boundaries between multiple communities of practices, and these boundaries can act as an important agent for learning systems because they connect communities and offer opportunities for learning (Wenger, 2000).

The notion of a community of practice lays out a framework of the social context within which human activities develop. In other words, individuals do not participate in activities for the sake of participation. The participation in an activity has a “historical and social context that gives structure and meaning to what they do” (Wenger, 1998). This structure and meaning guides the rules and division of labor of activities that subjects initiate in their activity setting. The researcher’s task is not to argue for collective reality, but to capture and present how collective learning takes place in a community of practice (Yanow, 2000).

## Conclusion

In this paper I reintroduced Vygotsky's work then provided a comparison and synthesis of the works of post-Vygotskian researchers' from Russia, Finland, and the United States. I specifically examined Vygotsky's notion of (a) mind in society (b) mediated action, and (c) zone of proximal development. Then I compared and attempted to provide a synthesis of (a) activity theory, (b) activity systems, (c) distributed cognition, and (d) community of practice in relation to Vygotsky's theory. I contended that the common thread in the efforts made by various sociocultural researchers' theory development efforts is the commitment to develop a method of describing and conveying complex collective human activities by breaking down the Cartesian dualism.

Much of the post-Vygotskian theorists' efforts in Russia have been concentrated on further development of Vygotskian theory from the perspective of human psychological development. Additionally, they have focused their efforts in identifying and rectifying the contradictory nature of Vygotsky's work and developing a more robust theoretical framework of human activity. The theoretical development of sociocultural theory in Finland introduced in this paper has focused on developing an operational model for activity theory so that it can be used as a descriptive tool for understanding the complex nature of human activity. This effort is very important because it allows the much abstract notions in sociocultural theory to become a more explicit theoretical tool for educational researchers. The theoretical developments of sociocultural theory in the United States have focused on understanding the socially shared and organized nature of human activity. Both distributed cognition and community of practice are theoretical metaphors that allow educational researchers conceptualize organizational learning from a sociocultural perspective rather than the predominant individualistic models prevalent in

the United States. In all of the above developments the common thread has been to continue to crusade that Vygotsky began in the 1920s for identifying a theoretical framework for explaining the complexity involved in human psychology from a non-dualist viewpoint.

Finally, it is important to note that many of the metatheories inherent in sociocultural theory are derived from sometimes-idealistic non-dualistic framework developed by Vygotsky. Therefore, there is much necessary future theory development work before researchers can describe and convey complex human activities from a non-dualist ontology. It is my hope to continue to contribute to this theory development and to the development of an international perspective to sociocultural theory.

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