PART THREE

Pedagogical implications of cultural-historical theory: (Re)designing literacy learning in multicultural classrooms

OVERVIEW

Benedict Anderson (1991) uses the term 'imagined community' to describe a nation. Nations do not arise 'naturally', but rather are the result of a complex process that requires substantial ideological work to form the collective consciousness of its members. In particular, literacy education plays a key role in and is fundamentally tied to the imperatives of nation-building. It is through textual practices that people establish an image and a sense of their community, even though "they never know most of their fellow-members, meet them, or even hear of them" (Anderson 1991: 6). For people to sustain the image of their national community, they must share common cultural knowledge, values and beliefs. As Hirsch (1999) argues, basic cultural knowledge and competency with communication technologies are key elements in achieving national community, social peace and economic justice. Literacy is then ideological through and through in that it is put to shape and maintain an image of a nation as a deep, 'horizontal comradeship'.

It is through people's engagements with various ideologically laden texts that a nation is imagined and modelled as a sovereign community governed by people (not by a hierarchy of nobility). Because a nation is imagined as a community, its members are on the same horizontal plane of social relations, with equal opportunities and access to public goods. Even though this may not occur in practical life, the nation must see itself this way for people to feel united and even "to die for such limited imaginings" (Anderson 1991: 7). However, Anderson has also explained that a nationalism project is inseparable from the processes of cultural homogenisation and exclusion of the Other. 'Official nationalism' models a nation as a limited social unit in that its membership is finite and does not include the entire world. For a community (a nation) to exist there must be the Other, against which the community can define itself. Nationalism intersects therefore all too often with colonialism and racism. The former thinks in terms of legitimising the national community vis-à-vis the construction of the inferior Other, while the latter "dreams of eternal contamination" (ibid.: 149).

These tendencies can be also seen in a national project of literacy education that promotes the 'language of state' and common 'cultural literacy' to normalise the Other through domination and assimilation. While this project is fundamentally tied to the imperatives of nation-building, it has contributed to the ideologically narrow image of classrooms as locations in which all students must (unproblematically) acquire the common knowledge and language of the state. Such images of classrooms recapitulate the imagined community of a nation. For students to see themselves as alike in some essential way, national education provides a particular model of cultural literacy to sustain the view of classrooms as striving toward and based on homogenous values, shared language, history and

ultimately culture. This pedagogic agenda serves to connect different students in a common activity of learning, thereby producing different degrees of community attachment and involvement in literate practices.

However, as sociocultural research into literacy has indicated, classrooms are not homogenous communities of learners. There is disagreement as to what meanings, knowledges and values should be included in a curriculum as shared by all and what are to be excluded or marginalised. A constant struggle over these issues exists in day-to-day classroom practices and in literacy events. Hence, sociocultural research calls for re-imagining classroom communities as multicultural, heterogenous and polyphonic collectives. Consequently, a great deal of pedagogic work is needed to redefine the bodies of knowledge, the modes of teaching and the nature of mediating resources in order to cater for a diversity of voices and needs in these newly imagined communities of learners.

Part Three of this thesis is intended to contribute to establishing the basis for an explicit and systematic analysis of literacy pedagogy in such multicultural classrooms. In Chapter Six, it is argued that cultural-historical Activity Theory (AT) provides some valuable tools for (re)designing literacy learning activities. The main idea of AT is that consciousness (and what is learned) is inseparable from how social activity is configured. By drawing on techniques developed by AT, we can then critically analyse the configurations of literacy activity in given classrooms. A classroom can be viewed as a literacy learning activity system consisting of primary components (classroom community, object-text toward which learning activity is oriented, and an individual learner) and mediators (other texts and intertextual links, rules and norms, and relations of power). This system is characterised by various contradictions between its components and between the classroom itself and other activity systems. A (re)design of literacy learning in multicultural classrooms therefore requires both an internal effort by the classroom community and the assistance of those activity systems to which the classroom is networked (e.g. families, communities, administration, research, etc.).

Chapter Seven elaborates the idea of a Thirdspace literacy pedagogy to locate literacy learning on the fault line between cultures - in a space of radical openness. The concept of Thirdspace pedagogy is an attempt to articulate a framework for the literacy education of L2 students that transcends the dualism implied in both conservative and liberal approaches to this issue. In so doing, this chapter examines the trialectic of pedagogic spaces and a political strategy of Thirding in classroom communities of difference, to suggest how this perspective, in its cross-fertilisation with Vygotskian perspectives on literacy learning, may be used productively in reconceptualising literacy pedagogy in/for conditions of multicultural life.

CHAPTER SIX

Modelling Literacy Learning Activity Systems

> The model itself becomes an instrument for *creating* the future environment ...
>
> Marx Wartofsky (1979: 153)

Introduction

In the last few decades the development of analytical tools for the research and design of learning environments has been the main issue in cultural-historical psychology. This can be seen in the contemporary elaboration of cultural-historical Activity Theory (AT), particularly by such researchers as Michael Cole, Yrjö Engeström, Kris Gutiérrez, David Jonassen, Bonnie Nardi, David Russell, Gordon Wells, and others. A growing number of researchers in a wide range of education studies value AT for its descriptive conceptual framework and the insights it provides into the role of sociocultural practices and their material-semiotic resources in learning and psychological functioning. AT offers educational researchers a model of activity as context that, I believe, bridges the traditional divide between theory and practice. It provides a way of approaching learning *in situ* empirically and yet being consistent with a postmodern research ethic. Because cultural-historical AT accommodates a range of qualitative methods, it also affords maximum flexibility in the analysis and design of learning activities.

The contemporary AT framework is based on Vygotsky's idea that psychological functions are mediated by material tools and cultural-semiotic artefacts. This idea was subsequently developed by Leont'ev and others to integrate the socioculturally constructed forms of mediation into human activity. The integration of mediating artefacts into social activity resulted in the concept of a *functional system* (Leont'ev 1978; Luria 1979). Leont'ev and Luria argued that 'activity' should not be used to describe active states of individuals but that, rather, individual actions are always part of a larger system of social relations. Following Vygotsky, Leont'ev maintained that to understand how functional systems work means conceiving their historical formation and their dynamic configurations, i.e., what drives social and psychological activities. The focus was placed on the analysis of material-ideal objects that give an activity direction and hence motivate actions of participants in that activity. The key idea here is that the psychological activity of individuals has the same configuration as the social activity in which they participate. This work has been further

developed by Engeström and others to study different functional systems of activities or, as they are now called, activity systems. Contemporary AT incorporates Vygotsky's concept of mediation and Leont'ev's concept of activity to emphasise that an activity is situated in a particular social context or, more specifically, in a community.

This chapter explores the potential of AT for a critical study and (re)design of literacy learning activity systems. It is argued that an AT approach provides a unique opportunity to triangulate a holistic view of an activity system (e.g. a system of collaborative literacy practice) and particular viewpoints within that system (e.g. a sociocultural diversity of literacy learners). Contradictions within an activity system encourage the construction of multiple critical perspectives leading to a redesign of the social, textual and procedural mediation of relationships among activity system components (e.g. between a learner and a classroom community, between a community and textual resources for learning, between actions of individual learners and a collective patterning of activity). Hence, a focus on contradictions in the configuration of literacy practice can reveal what is learned and what is not learned in an activity system. This can also give an impetus for innovative changes within communities of learners.

This chapter does not offer a grand solution regarding the (re)design of literacy learning environments. It rather explores the critical potential and heuristic value of AT in 'modelling' literacy learning environments. A model of the activity system (AS) is used to discuss the contradictions of literacy learning in multicultural classrooms. Because AT offers some powerful tools to detect those contradictions, it also maintains a position of radical localism in (re)designing activity systems. It argues that activity systems change themselves as an expression of learning (Engeström 1999). Through the cycle of expansive learning, members of a community become aware of contradictions within their community as well as between their AS and other neighbouring systems. Innovative changes are the results of efforts to reduce constraints that interfere with rich expansive learning. However, the resolution of contradictions and possibilities of redesign are constrained by many things. Among them, relations of power-knowledge are most important. Modelling is discussed therefore as a research tool that can be used for the analysis of particular literacy learning environments in order a) to analyse the system's configurations that produce differential privilege in literacy learning and b) to map possibilities for disrupting these.

6.1 Modelling as a critical-analytical tool in cultural-historical psychology

Marx Wartofsky (1979) once said that when we choose something to be a model, we choose it with some end in view, even if that end is simply to aid our imagination or understanding. Models are embodiments of *social* purpose and, at the same time, tools for

carrying out such purposes. Educational research is, probably, one of the richest model-producing fields in society. Any educational theory, without exception, will model the process of learning by deploying a metaphoric device in which this process will be represented as 'being like' or 'looking like' a thing or idea incorporated in a metaphor. Learning, like anything else, can thus be modelled in a number of ways and certainly in some specifiable respect.

For instance, if a computer is chosen as a model of learning, then some properties of this thing - the particular features of a computer - are seen to be shared with the features of learning. In this case, the workings of the technical device stand for the workings of the mind due to their perceived similarity in processing the flow of information. By deploying a computational model in educational research, cognitive psychologists can then say much about the purported mental topography of learning - the way people represent information in the mind, the means by which they encode and retrieve it, the dynamics of proactive and retroactive interference, etc. But the results of such technological modelling offer only a vague answer to practitioners who deal in their everyday life not with information processing mechanisms and their failures but with real people in specific social contexts.

Frank Smith (1985) says that a computational model of literacy learning is inadequate in many ways. Firstly, he argues, learning is rarely a matter of acquiring information and, secondly, the brain is not very good at this. A great deal of what we learn is not known but rather experienced. Learning and experience are inseparable in that both are constituted within the social forms of life which are more than just information-gathering. Furthermore, the human brain does not have much capacity to store information, unless this information makes sense. The situation, the context in which communication occurs, shapes and makes information socially meaningful. In other words, the workings of the mind should be conceived of only as embedded within the workings of the social. To paraphrase Lotman (1990), thought is in us but the ways by which we think are in culture. Any discussion of a prevailing metaphor of learning is then not just a matter of playing with words. The models we choose for representing learning structure the ways we perceive the world (Smith 1985).

To take this point a step further, we can say that the models of learning become normative and telic as soon as they receive broader social recognition (Wartofsky 1979). The computational model is already normative and telic in the most trivial cases of traditional research into learning. It is normative in that it is chosen to represent abstractly only certain features of the learning process, not everything all at once, but rather those features conceived by a particular group of educational researchers as valuable and significant. The social 'value' of the computational model lies precisely in its assumption of a fixed, universal representational language and a fixed, universal cognitive machinery (Hirst &

Manier 1995). Furthermore, this model is not simply a descriptive tool but also a prescriptive device - 'a call to action' (Wartofsky 1979). Once broadly accepted, it becomes a normative guide to how learning should be perceived, researched, organised and assessed. The computational model in this way constructs a particular type of learner - the 'Cartesian subject' - who is autonomous, educated, immutable, central (not marginal in any sense) and confident in his/her knowledge and power.

I will not engage, at this point, in a critical analysis of the modernist ideology of self central to this model of learning. The profound *aspiration for* individuality, self-autonomy and, consequently, for the construction of illusory freedom have been broadly discussed in postmodern literature. Here, I would like to focus on an alternative model of learning that can help make a difference in designing learning activities, particularly in multicultural classrooms.

A cultural-historical model of literacy learning, as an embodiment of a different social purpose, seems to provide important critical-analytical tools for local reconfigurations of learning environments. As Nardi (1996) has noted, the attraction of AT lies in a concrete and yet highly adaptable conceptual vocabulary, on which researchers and practitioners can build a model of learning that is relevant to sociocultural life. Hence, in what follows I will highlight those concepts that are germane to modelling a literacy learning activity. First, I will briefly explore the genealogy of AT concepts on the Vygotsky - Leont'ev - Engeström nexus. The ideas of each scholar in this 'troika' emphasise different, albeit not exclusive, slants in representing learning as a social activity. However, a general cross-historical tendency can be seen as a move from an abstract to a more particular (situated) model of learning. The key concepts of Vygotsky, Leont'ev and Engeström will be discussed in relation to literacy learning. Next, the model of the Literacy Learning Activity System (LLAS) will be analysed in detail to make contradictions in multicultural communities of learners visible.

6.1.1 Vygotsky's model of mediated learning

AT's central tenet is the idea of the unity of consciousness and activity. This notion evolved from Vygotsky's work, challenging mentalist models which had been confined in a vicious circle of 'explaining' consciousness by the concept of consciousness. Vygotsky's contribution to the development of AT was immense. Specifically, his notion of mediational tools was crucial for this purpose. Vygotsky argued that if one is to take consciousness as a subject of study, then the explanatory principle must be sought in some other layer of reality, namely in tool-mediated activity (*deyatel'nost*).

Vygotsky's first step toward the substantiation of this principle was his proposal that individual consciousness is built from the outside through relations with others. Consciousness must therefore be viewed as a product of social activity, in which material-semiotic tools and means of interpersonal communication are mediators of psychological processes, both interpersonal and intrapersonal (Kozulin 1998). This perspective on consciousness extended the Marxist concept of tool-mediated labour by introducing the notion of 'psychological tools'. Vygotsky (1981a: 137) presumed that psychological tools mediate thought activity in the same way as technical tools mediate the material activity of production:

> Psychological tools are artificial formations. By their nature they are social, not organic or individual. They are directed toward the mastery or control of behavioral processes ... just as technical means are directed toward the control of processes of nature ... By being included in the process of behavior, the psychological tool alters the entire flow and structure of mental functions. It does this by determining the structure of a new instrumental act just as a technical tool alters the process of a natural adaptation by determining the form of labor operations.

Consequently, the inclusion of such psychological tools as "language; various systems for counting; mnemonic techniques; algebraic symbol systems; works of art; writing; schemes, diagrams, maps, and mechanical drawings; all sorts of conventional signs; etc." within an interpersonal activity denies a strict separation of the individual from social practices (ibid.). These artificially created (or cultural) tools, together with the people that historically produce and use them, were considered by Vygotsky as mutually constitutive elements of the social environment - the interacting *system* of cultural practice.

From this perspective virtually all human activity is embedded in a social matrix composed of people and artefacts (Nardi 1996). The interaction between artefacts and people in an activity is profoundly dialectical: cultural artefacts and tools are created by people but, at the same time, people's consciousness becomes fundamentally moulded and transformed by cultural artefacts (Cole & Wertsch 1996). In systems of social practice, artefacts are themselves 'participants' that can resist some and afford other practices, shaping the minds and actions of those who conceived them (Latour 1994, 1996; Newman & Holzman 1993). Because of this dialectical relationship, neither an individual nor a mediating artefact functions in isolation; a disjunctive approach to the individual-artefact interaction can not provide the necessary grounds for an account of the ongoing activity (Wertsch 1995, 1998). Rather, they should be conceived as a unity - "individual-operating-with-mediational-means" - to maintain an ecosocial view of agency (Wertsch 1995: 64).

This conception of agency implies that individuals can not be viewed as subjects who use cultural artefacts as the raw material out of which their minds fashion something to meet

their rational end. Nor can an artefact be seen alone, separately from the social activity in which it is incorporated. To fully understand what goes on in real-life situations (e.g. in a learning situation), an extended view of agency is needed. The unity of individuals and mediating artefacts creates the minimum meaningful context of social activity outside of which individual actions would be impossible to understand.

Vygotsky's concept of mediation can be represented as a triadic model of an interacting system, consisting minimally of two interlocutors who are engaged in a dialogue and mediating artefacts that index a specific sociocultural setting (Figure 6.1). This model signifies a minimal contextual view of social activity. The main idea here is to emphasise the social construction of consciousness and, consequently, the sociality of individuals' actions as they become shaped by the available psychological tools - the semiotic resources for meaning-making. Vygotsky applies this model predominantly for the analysis of communication between the child and the adult to examine how the interpersonal plane of practice is internalised by the child. The triadic model is an analytical tool for understanding the dynamics of learning, i.e., the analysis starts from a system of subject-artefacts-subject interaction in a social context, and then moves on to contemplate the intramental plane of its participants.

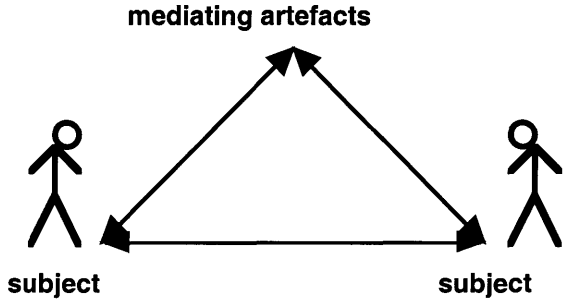

Figure 6.1 Vygotsky's model of socially mediated learning

However, the Vygotskian model of interpersonal communication, like any analytical abstraction, involves the inevitable creation of contradictions. They arise from the partial relationship of the model to the reality of social practice. That is, the triadic model excludes certain properties and relationships inherent in the broader system of social practice and emphasises only the one feature, albeit essential from Vygotsky's point of view: the focus on meaning (Chapter Three). Meaning becomes the unit of analysis in Vygotsky's studies of human mental functioning and learning. Consequently, social activity serves as an explanatory principle of interpersonal and intrapersonal meaning-making (Yudin 1978). He puts an analytical priority on the study of meaning-making because this, in his view, provides an activity with its social specificity. This stance gives Vygotsky (1962, 1982a:

165) a theoretical foundation to conceptualise consciousness as a social phenomenon that resides in the interpersonal semiotic space established in some fundamental mode of activity. Consciousness, in this way, is formulated as a) knowledge in social relations and b) a cooperation of consciousnesses. However, what drives such a cooperation remains unclear in this model. This problem is addressed by Leont'ev (1978) and his colleagues, as will be discussed below.

Another contradiction arises from Vygotsky's (1981a: 139) conception of interpersonal communication as an "instrumental act". A psychological tool in this model is a "structural center", i.e., the feature that functionally determines interaction between interlocutors. Such an abstraction of the mediating artefact tends to homogenise its meaning as the same for all participants in practice by leaving out of consideration the internal or hidden differences. The meaning of a mediating artefact conceived in this way then allows for the construction of common 'apperceptive mass' needed for the socialisation of children by adults, newcomers by oldtimers, foreigners by natives, etc. As such, the mediating artefact functions as an immutable 'instrument' for the transmission of knowledge, norms and modes of acting and signifying. While this function of the mediating artefact is very important for learning, the interpersonal differences of those who operate with it make a common understanding either always incomplete or virtually impossible.

Vygotsky makes this point clear in his discussion of alterity in communication, i.e., interpersonal differences (senses of meaning) may disrupt intersubjectivity (Wertsch 2000a). While he ties this phenomenon solely to social-historical personality, this should be made plain also with regard to mediating artefacts. Mediating artefacts are characterised by their internal contradictoriness that, in turn, can also lead to meaning dynamics. On the one hand, they carry a relatively fixed meaning and hence their specific functions become recognisable by the participants in a practice. On the other hand, mediating artefacts also embody a potential for multiple meanings and uses. This refers in particular to such complex artefacts as texts - the primary mediating tools of literacy activity.

To elaborate this point, let us turn to Lotman's (1988, 1994) paper *The Text within the Text*. He distinguishes here between two major functions of texts: the first function is the transmission of information in communication, and the second is the generation of new meaning. The first function is "fulfilled best when the codes of the speaker and the listener most completely coincide and, consequently, when the text has the maximum degree of univocality" (Lotman 1988: 34). This requires the creation of an intermediate space - a metatextual level - that will furnish the prescriptive way of interpreting the text. In contrast, a text fulfilling its second function ceases to be a passive link (an instrument) in conveying some constant information. It exhibits the heterogeneity of its constituent elements; it turns

out to be a 'thinking device' incorporating the junction of other texts or texts within a text. If we put these two functions together, it becomes clear that meaning is not simply transmitted but can be also transformed.

The emphasis on the first function of texts - the transmission of information from the writer (author) to the reader - is still a privileged literacy practice in many classrooms. This assumption maintains the view of the text as a 'container' - a structural-generic entity - to be filled with information. Therefore, as Olson (1994) maintains, it is necessary to know the decontextualised parameters or a metatextual reading paradigm of how the text should be read to get the author's message. This view overemphasises the knowledge of textual structures and homeostatic norms in order to decode information and thus privileges decontextualisation over situated reading action. These themes are also prominent in 'genre-based' literacy pedagogy (Martin 1999). Teaching genres in regard to the first function of texts involves teaching those metalinguistic codes that will give an opportunity to create univocality in reading. If the knowledge of a genre - a single 'text-code' (Lotman 1988, 1994) - is deployed to the plurality of texts represented as a bundle of variants of that genre, then, according to Bakhtin (1984), the 'context is killed' in the singularity of metalanguage. Furthermore, Lotman (1994: 378) says, following Bakhtin, that:

> Not only is a single text composed of various subtexts but, more to the point, the subtexts are mutually untranslatable. The text is thus revealed to be internally in conflict ... Inevitable action, change, and destruction are latent even in the stasis of the texts.

This should not be understood as a call to negate teaching the metalinguistic tools of decontextualisation (or reading paradigms), but rather as an invitation to take the second function of texts more seriously.

The second function is revealed when the focus is shifted from the central message to the peripheral semiotic spaces against whose background that central message is generated. It becomes clear then that meaning can not evolve from a single semiotic space; for this to occur, at least two heterogeneous semiotic spaces are required. When a text, understood in such a way, "interacts with a heterogeneous consciousness, new meanings are generated, and as a result the text's immanent structure is reorganised" (Lotman 1994: 378). That is, the text needs both an interlocutor within its frames (another text) and an interlocutor outside its boundaries (another consciousness) for meaning to be generated. However, neither the text nor the reader generates new meanings separately. Rather, this occurs in a mediated action of reading which is carried out by the *extended* agency in question here - that is, individual-operating-with-mediating-text (Wertsch 1998).

The introduction of such an agency has far-reaching consequences only when a mediated reading action is understood contextually. Due to its first function, the text sets limits on its situated restructuring. Even in drastically different historical contexts, it will carry its 'universal' message across chronotopes "restricting the arbitrary imposition of meanings that lack formal means of expression" (Lotman 1994: 378). The second function of the text however allows for its reconstruction into "material for the creation of new, derivative texts" (ibid.). But this pragmatic impulse can be attributed to the reader only partially. Texts themselves contain the potential for self-reorganisation as an active aspect of their functioning in different cultural-historical contexts. To understand the text's first function, the reader needs tools of decontextualisation, i.e., a metalinguistic reading paradigm. To understand the second function of the text, the reader needs a 'paradigm shift', i.e., a focus on peripheral semiotic spaces leading to a deconstructive stance. Hence, mediated reading action carried out by the extended agency is not solely about acquisition of the transmitted meaning. Rather, this is a journey full of uncertainties and contextually situated possibilities for transformations (*'perestroika'* in Lotman) of both the text and the reader.

Because readers and texts, as well as 'texts within texts', find themselves in continuous contradictory tension, there can be no complete integration or univocality within the Vygotskian triadic model of mediated communication. This model can serve to represent literacy learning as a *dynamic* system of mediated actions. This requires the recognition of sociocultural polyglotism to simultaneously activate the two functions of texts as prerequisites for rich learning outcomes. Which textual function is emphasised - knowledge transmission or new meaning generation - depends on the social purpose of the literacy activity. The social purpose forms the link between the subjective and the mediating textual poles within the extended notion of agency and anchors the forms of its actions. However, it is not clear from Vygotsky's model where the purpose of the activity comes from. This problem was addressed by Leont'ev and his colleagues, in their further development of AT.

6.1.2 Leont'ev's model of activity

Drawing on Vygotsky's emphasis that human consciousness and thinking can not be explained by studying the mind but only through the examination of human engagement in social activities, the Khar'kov school of AT (Leont'ev, Bozhovich, Zinchenko, Zaporozhetz, Gal'perin) concentrates on the study of activity as both a unit of analysis and a subject matter (Davydov 1981). It stresses that activity is not only mediated by tools and signs but is also socially mediated. Leont'ev (1978) elaborates extensively on how consciousness, personality and meaning are always formed in the joint *object-oriented* activity of people. Activity theorists take great pains to study (individual and collective) *subject - object* relations in the complex open environment of social practices. This interaction develops

within social communication in which the production of tools, cultural-semiotic artefacts, and their use is driven by some object (here in the sense of 'thing'). The object of a collective activity determines the social purpose of the latter (Figure 6.2).

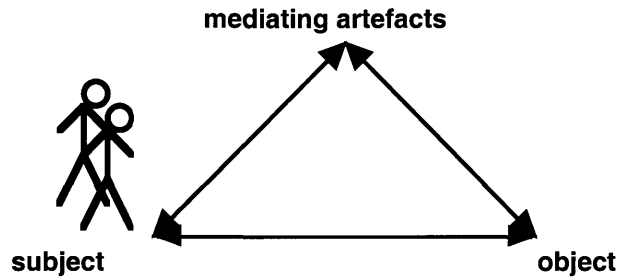

Figure 6.2 Leont'ev's model of an object-oriented activity

Hence, Leont'ev's model of activity is composed of a subject, an object, and mediating tools. A subject is a person or a group engaged in an activity. An object (here in the sense of 'objective') is held by the subject and motivates the activity, giving it a specific direction. The mediation can occur through the use of many different types of tools, material tools as well as ideal tools, including language, instruments, cultural artefacts and social representations (e.g. division of labour). According to Leont'ev (1981a: 46), "activity emerges as a process of reciprocal transformation between subject and object poles"; they are both transformed and transformative. This process is represented as a dynamic movement of the subjects in activity toward the object that defines the specificity of an activity and its type, distinguishing one activity from another.

To make this point clearer, let us connect this argument to literacy activity. Literacy as a social activity is not primarily directed by objects (things) in the natural world but, rather, by social-semiotic processes and artefacts in culture. The field of cultural practices itself produces a variety of semiotic objects that reciprocate with and give purpose to various social activities. In a broad sense, then, literacy activity is a social activity driven by culturally created texts. These incorporate bodies of knowledge and social meanings without which cultural life is unthinkable. Thus, we can say, following Lotman, that the cultural world is a text - a complexly structured text - that is the general object of literacy activity.

The formulation of social activity as an object-oriented activity allows Leont'ev (1978) to say that people themselves historically generate social activities (contexts), in part through their own objects (objectives). Because of this an activity is as much internal to its participants as it is external to them, involving other people, artefacts and specific settings. The crucial point here is that in social activity, external and internal are fused, unified. For an individual participating in a social activity, activity is not something 'out there'.

Individual consciousness does not preexist a social activity but is formed in and hence fused with it. In other words, the social activity and the psychological activity of its participants have fundamentally the same configurations. Leont'ev (1978) sees the likeness between their configurations in their common origin, namely in the sociocultural nature of human life itself. Regarding this socio-psychological unity, Leont'ev formulates a three-level model (Figure 6.3) to show how this unity functions as a dynamic system of both the *social* (activity - actions - operations) and the *psychological* (desire/motive - goal - task in particular instrumental conditions).

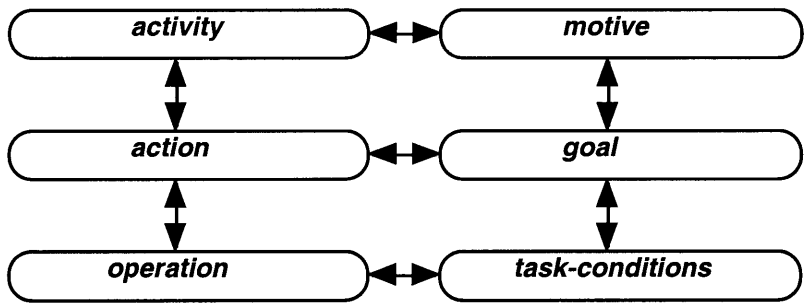

Figure 6.3 Leont'ev's three-level model of a socio-psychological activity system

Let us again return to literacy activity to illustrate the main ideas of this model in relation to literacy research. The first level (activity-motive) in Leont'ev's model pertains to the emergence of the motivational sphere of participants in an activity as they become engaged in social practices with certain objects. Literacy activity is not merely doing something with texts. Rather, it is doing something that is driven by a culturally constructed desire - the need to be literate in certain cultures. This need becomes a motive once it is directed at a specific object - a text. Texts, as material objects (and objectives) of a literacy activity, are characterised by certain ideal properties such as social values or meanings. As such, they are directly related to the social formation of a psychological motive to learn how to communicate meaning with the help of print (and other means of semiosis) in particular cultural activities. The formation of the general motive therefore is inseparable from the social production of the need/desire to be literate in order to participate in the text-oriented and text-mediated activities of a culture.

The next level (actions-goals) deals with a set of concrete actions that constitute an activity (Leont'ev 1978). In our case, this level consists in multiple actions which are directed to and mediated by texts. Literacy activity then can be understood as a complex configuration of reading, writing, and communicative actions: actions with and about texts. If on the first level we are dealing with some historical-ideological totality of cultural texts that drives a general motive to learn literacy, on the second level this totality becomes split into textual fields related to particular sets of actions (practices). The textual field constitutes a set of

goals for participants-in-practice. That is, all social practices have their specific sets of texts. They are read and reread, written and talked about, reproduced and transformed. All these actions carry out specific goals within collective practices of meaning-making. Literate actions-goals mediated by texts are characterised by all the multiplicity, richness and mobility that can ever be imagined within heterogeneous sociocultural communities of practice.

Lastly, the third level has to do with the cultural 'affordances' (Gibson 1979), conditions and tasks of an immediate situation (Leont'ev 1978). At this level people confront the problem of not what should be done (a meaningful action) but how it should be done (an operation) under particular 'instrumental' conditions. For instance, if an action of writing is a goal-directed, meaningful and communicative action, how it will be executed depends on the affordances of the situation. Writing operations can be performed with a stick on sand, or with a pen on paper, or processed on a computer keyboard. But there is more to it; writing operations can be seen as unconscious acts depending on the mastery of the technology available, such as the technology of typewriters. This instrumental situation first requires conscious or voluntary attention from novices to learn the position of the keys on the keyboard (see a discussion of the 'QWERTY' keyboard in Wertsch 1998). As soon as this technology is mastered, typing acquires the characteristics of an operation, i.e., it is performed gradually more automatically to support meaningful writing actions. Thus, the types of operations depend on the material conditions and affordances of a particular situation and represent the technical side of an action.

Even this concise and somewhat oversimplified interpretation of Leont'ev's activity model can shed some light on the very important implications it has for literacy studies, especially for rethinking the psychological side of literacy activity. First and foremost, following Leont'ev, the motivational sphere of individuals in literacy activities is formed retrospectively through their participation in text-oriented practices. The social construction of needs and desires in literacy activity is mediated by the ideological in texts. The psychological activity of participants, their emotions, needs and goals, embody the systematic socio-ideological relations within actual literacy practices. Hence, as Leont'ev (1981a: 46) puts it, "activity is the ... unit of life" for participants-in-practice, in which they appropriate social experience in its historical specificity.

Secondly, the fact that people produce texts (semiotic and psychological artefacts) stresses their active, albeit decentred, agency. The production of texts and meanings is a collective enterprise in which individual actions and intentionality are related to the actions and intentionality of other participants in the activity. Even though individuals can be seen as actively involved in the process of meaning-making, the meaning is not made by

individuals but rather is modified or transformed to the degree allowed by the overall social context and conditions. Studying the psychological activity of literacy learners involves a close investigation of the social activity in which they participate. Because social activity and psychological activity have the same structure (Leont'ev 1978, 1981b), it becomes possible to 'derive' the psychological activity of literacy learners from the fundamental unit of analysis: a text-directed, culturally situated and text-mediated activity. That is, literacy activity, as a system of differential relations and as a unit of real life, becomes the central tool of cultural-historical literacy research, foregrounded in the practice account of learning (Brown & Cole 2000; Lave & Wenger 1991; Lee & Smagorinsky 2000; Rogoff 1990, 1994; etc.).

Furthermore, literacy learning can be analysed on three levels, referring to particular social planes, locations and their contextual specificity. At the first level, literacy learning can be conceptualised within a broader sociocultural community. This community (a sociocultural group) produces specific desires/needs and hence 'motivates' literacy learning by novices and newcomers. Literacy learning unfolds within a broader agenda of socialisation into dominant sociocultural values and into preferred ways with words and texts. This level of analysis corresponds to the concept of practice in sociocultural literacy studies. At the second level, literacy learning can be studied in local contexts by delineating the particular field of the texts and goals of participants. At this level, literacy learning can be understood as a set of contradictory actions because participants can have multiple and not necessarily intersecting social goals. In addition, their actions in the situated contexts can be mediated by multiple texts. Therefore, this level requires particular attention to how collective work with a text is organised, what leading goal is pursued, and how this relates to other social texts and goals of participants. This level of analysis corresponds to the concept of the literacy event in sociocultural studies of literacy. At the third level, the focus of literacy learning analysis is on the tasks and conditions of a situation in which individuals are engaged with texts. Because the 'instrumental' condition is a relatively stable phenomenon in a particular practice setting, some actions become operationalised and performed unconsciously. Unconscious operations are the most frequently performed acts and tasks that constitute an action.

However, Leont'ev's activity model should not be understood just as a hierarchical structure of separate levels. Rather, this is a dynamic system through which literacy learning can be analysed as a socio-psychological phenomenon of cultural life (Figure 6.3). In particular, Leont'ev (1978) argues that an activity can be performed as an action in another social activity. For instance, literate activity is a constitutive action within activities at work. While many work activities will have leading objects not directly related to texts, textually mediated actions are performed en route in manifold work activities today: e.g. reading

actions mediated by texts, maps, diagrams, graphs or plans, carried out to clarify, organise, and coordinate activities of production or customer services. In this way, literacy can be observed as a part of other social practices. Furthermore, an action in some particular activity may acquire over time the status of a separate activity. Schooled literacy is an example of this tendency, in which concrete literate actions in social practices have been generalised and elevated to the status of a separate activity. An action can also move to the level below and acquire the status of operation. When actions become frequently repeatable operations, they can also be performed by machines. The most familiar examples are the automatic transmission in cars, as an alternative to the manual operations of gear-shifting, or the replacement of routine labour operations in various assembly lines by robots. Needless to say, such observable shifts within a system of social activity constitute a dynamic transformation of psychological functions. This is a particularly interesting issue in understanding literacy learning processes.

As has been mentioned, literacy learning activity can be conceived of as a dynamic configuration of actions and operations. Despite the multiplicity of actions-goals in schooled literacy-learning activity, it is still possible to classify them according to their essential characteristics into types. The formation of action types is defined by the field of teaching goals and developed in learning tasks with texts. Readers perform four essential tasks and agentive roles in a text-based activity: code breaker, meaning maker, text user, and text critic (Freebody & Luke 1990, 1999). With an emphasis on actions rather than on roles, the textual actions can be defined then as (de)coding, semantic-structural, pragmatic, and critical-analytic types. These action types should be thought of as an integrated whole on the level of activity, although they can be analytically separated into particular types to emphasise different foci (goals) at particular moments of the interplay of reading actions. These goals may shift as one type of reading action may require other types. For example, meaning-making action implies code-breaking action, and text-using pragmatic action implies both coding and semantic-structural actions, etc. Thus, literacy-learning activity is not a hierarchical sequence but a very dynamic change of reading action types within a given reading event. That is, all four types can be experienced by the reader as s/he participates in the literacy event. But what type is emphasised in classroom literacy events depends on the context, the available semiotic resources and their underlying ideologies.

For instance, (de)coding actions are the main type of reading actions engaged in cognitive research. Indeed, this type is very important at the initial stage of literacy learning. However, following Leont'ev, these actions are the most repeatable, and over time they become operations - "automated or mechanised psychological processes" (Vygotsky 1978: 64). (De)coding operations can acquire the status of a meaningful action again only when the experienced reader encounters some kind of a 'script' problem. Coding-decoding and

sound-symbol matching operations support reading actions of the pragmatic and critical-analytical types. These actions are never automatised or performed unconsciously, because they are central to meaning-making. Paradoxically, these types of reading actions, pivotal for literacy development, are marginalised, if not absent, in many cognitivist paradigms of literacy. To put a priority on (de)coding - the 'technology of script' (Freebody 1992) - means then to reduce reading practices to those types of actions that turn over time into operations with script material. Not only does the 'code cracking' view of literacy hinder the development of psychological functions but it also has negative social outcomes, restricting learners' knowing how to 'read the world' (Freire & Macedo 1987).

Leont'ev's model of socio-psychological AS supports the critique coming from sociological studies of literacy (Baker & Luke 1991; Green 1993; Janks 1993a, b; Knobel & Healy 1998; Muspratt, Luke & Freebody 1997; Street 1995; etc.). It is symptomatic that cultural-historical AT emphasises the social in order to understand the psychological, and in that it concurs with the New Literacy Studies. As Leont'ev (1981a: 47) says, "the human individual's activity is a system within the system of social relations. It does not exist without these relationships". Because Leont'ev's model stands on this key position, the study of social activity configurations becomes fundamental for our understanding of psychological configurations, i.e., what types of literacy actions are privileged and what types are marginalised. This involves a close analysis of textual resources and sociocultural relations in activity as they determine the political value of literacy, the pedagogical goals and, ultimately, the psychological trajectories (motives, goals) of learners.

In this regard, the analysis of social activity systems is of paramount significance for understanding what might be involved in the playing out of situated literacy actions. In the current sociocultural context we need models of literacy learning that reflect the social and psychological diversity inherent in activities. Contemporary AT elaborates Vygotsky's and Leont'ev's ideas in order to address this issue. Recognising that any situated activity is nested within a broader social context, the challenge for AT-based literacy research is how to take account of cooperative learning while not ignoring creative, disruptive and resistant reading actions on the part of multivoiced participants. This requires an increased commitment to disclosing relations of power and those contradictions that arise from the heterogeneity of participants-in-activity and the variety of their social actions, goals and mediating resources.

6.1.3 Modelling learning within activity systems

Contemporary activity theorists take Vygotsky's and Leont'ev's ideas of tool-mediated and object-directed activity a step further to disclose the dynamics of activity, both in terms of

historical continuity and local contingency, as a dialogue between different perspectives. From Engeström's (1987) point of view, the triangular Vygotsky-Leont'ev models for the analysis of the 'subject - mediating artefact - object' action depicts only the top of the iceberg. The subject of an activity must be the collective heteroglossic subject. As Engeström (1990: 78) further notes, "if we take a closer and prolonged look at any institution, we get a picture of a continuously constructed collective activity system which is not reducible to series or sums of individual discrete actions". To show the collective, distributed and asymmetrical nature of human activity and cognition, AT theorists expand the base of the mediational triangle (Engeström 1987; Cole & Engeström 1993) by introducing three additional elements to the model of AS: community, division of labour, and rules (Figure 6.4).

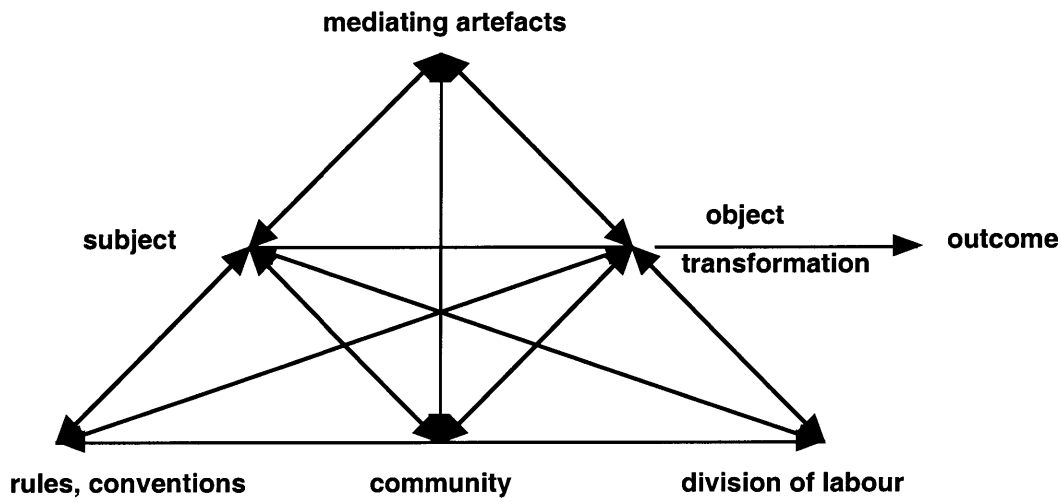

Figure 6.4 Engeström's model of an activity system.

With such an expansion, the unit of AT analysis is also redefined. Engeström (1987) explicitly conceptualises 'activity' as a minimal unit of analysis. But now it is emphasised that 'activity' means not just an object-oriented activity but a collective culturally-mediated activity. *Activity* is defined as a *system* of collaborative human practice which includes the *object, subject, mediating artefacts, rules, community, and division of labour* (Engeström 1987; Cole & Engeström 1993).

The elements of the new complex model are represented by the following principles (see Figure 6.4):

1) *Social constructivism.* Individuals (the 'subject') are constituted in 'communities'. The relations between subject and community are mediated, on the one hand, by a variety of cultural artefacts (signs, tools, texts, etc.) and, on the other hand, by 'rules' (norms, values, and sanctions) that pattern interpersonal and asymmetrical relations in practices;

2) *Distributed cognition.* The mental functions of the collective members within a system take place in a social milieu and hence the locus of knowing is social practice. Knowing, learning and cognition are social constructions, expressed in the actions of people interacting within communities. Without participation in social activity (in situated community actions), there is no knowing and no cognition. People learn best by engaging in socially meaningful tasks which become distributed through the "division of labour" - "the continuously negotiated distribution of tasks, powers, and responsibilities among participants of the activity system" (Cole & Engeström 1993: 7);

3) *Historicality.* An historical analysis of activity remains the main research tool. However, in this model it is neither reduced to "ontogeny or biography" nor expanded to such a macro-scale that "history becomes very general or endlessly complex" (Engeström 1999: 26). The solution is found in utilising a collective AS as a manageable unit for historical analysis;

4) *Dynamics of activity system.* The historical study of a system's dynamics concentrates on the analysis of periodisation or cyclic time-scales. Cycles are larger time patterns in a system which have "meaningful characteristics of their own" (Engeström 1999: 33). An AS is a perpetual change machine, transforming and self-organising itself through a series of expansive cycles - time-scales of reproduction and transformation. These are energised by both internal (within an AS) and external (in a network with other systems) contradictions which create disturbances and ruptures in the normal flow of activity. The expansive cycle begins "with an almost exclusive emphasis on internalisation, on socialising and training the novices to become competent members of the activity as it is routinely carried out" (Engeström 1999: 33). As inner contradictions create disturbances within the system, emphasis is placed on the creation of tools to reduce this tension. Externalisation, the apex of transformation, is reached when new tools and critical innovations are used to modify or create a new AS that replaces the old one.

These more elaborated principles of AS analysis are crucial for reconceptualising literacy learning from the contemporary AT perspective. The AS model presents learning as it occurs by doing, in complex semiotic environments of social practices. Learning is no longer conceived of as a unidirectional process in which all learners internalise a single body of decontextualised knowledge. Rather, from the AT perspective this process acquires a radically local character. All knowing and learning is seen as situated in the particular cultural activity systems in which learners participate during their life-time. This position emanates partly from the conception of society as a 'multilayered network' of interconnected activity systems, in which power is not concentrated in a single location but flows through the capillaries of this network (Engeström 1999: 36). This decentred view of society presupposes among other things a decentring of such constructions as

decontextualised, abstract, scientific knowledge and, associated with this, literacy (Scribner 1997).

Historically, the acquisition of decontextualised knowledge in educational settings has been equated with the acquisition of schooled literacy and perceived as a neutral ground apart from and beyond real world practices. Consequently, schooled literacy has been presented asituationally as an accumulation of knowledge and skills, to be transferred and applied later to other practice settings. As Lucy Suchman (1993) observes, this conception is fundamentally misleading. All learning is *in situ* and "schools constitute a very specific situation for learning in its own cultural, historical, political, and economic interests: interests obscured by the premise that schools are asituational" (ibid: 72). That is, schooled literacy learning occurs within specific activity systems (schools, classrooms) and should be seen as a situated practice with particular socio-political objectives. "Schools", as Suchman further comments, "prepare students not for some generic form of [abstract knowledge and literacy skills] transfer..., but to be students, to succeed or to fail, to move into job markets or not, and so forth" (ibid.). In challenging the 'insulated' view of schooled literacy and learning, AT provides an alternative system-network perspective from which what counts as literacy learning, illiteracy, and literacy standards can be made problematic. As individuals participate in different activity systems and learn *in situ* different ways with words and texts, schooled literacy can be seen as only one, albeit a more powerful literacy practice, among other cultural practices with texts.

The decentration of schooled literacy on the basis of the AT perspective brings about two kinds of concerns with regard to modelling literacy learning environments. Firstly, the analysis of a particular AS will reveal multiple uses of literacy, and hence 'literacies', as they occur in different cultural activities. Multiple literacies are textual practices or sets of literate actions performed en route and subordinated to the leading activity around which a community is formed. For instance, worshipping is a leading activity for a religious organisation which is realised through text-mediated (e.g. the Bible) actions such as reading, singing, writing and communication. While literacy in religious communities has specific values and acquires distinct textual practice characteristics, this social type of literacy is not insulated from other literacy practices and activity systems. On the contrary, literacy events in religious communities are meaningful only in terms of their relationships with other sociocultural settings and literacies. By the same token, in a classroom community the acquisition of schooled literacy can be viewed as a leading activity, while other cultural literacies, at least covertly, will also be constantly used to make meaning. Therefore, a second set of concerns relates to the explication of differential power relations between multiple uses of literacy in a particular AS.

Modelling literacy learning environments involves then not only a definition of what is particular about literacy practices in the specific AS, but also an analysis of those contradictions that arise from the tensions between multiple literacies and funds of knowledges within local communities. Because communities within activity systems are as heterogeneous and multivoiced (Engeström 1999) as a society itself, disequilibrium in them is the norm rather than an exception. Some literacy practices always become legitimised and gain power over time through the social relationships in communities. A legitimate literacy practice stands in relations of power to other knowledges which are brought to presence through their role in meaning-making. For this reason, Engeström (1987) places a particular emphasis on the contradictions within and between activity systems that give the impetus for an AS to change.

With regard to the contradictory nature of any social activity, Engeström defines four types of contradiction. Primary contradictions are to be found within each constituent component of the activity (e.g. community, subject, object, etc.). Secondary contradictions arise between the constituent components of the activity (e.g. between the community and the subject). Tertiary contradictions occur between the activity itself and a more advanced form of the activity (e.g. between traditional and innovative forms of literacy teaching). Quaternary contradictions occur between the central activity and its neighbouring activities (e.g. between the classroom and the administrative, research, neighbourhood, etc. communities). Considering these types of contradiction, we can see that changes occur as an expression of expansive learning, something that usually begins with a primary contradiction and gradually expands into a collective movement, leading to innovative learning and culturally novel practices.

The focus on transformative dynamics within situated literacy practices has been emphasised recently by Tusting, Ivanic and Wilson (2000) as one of the critical tasks for the New Literacy Studies. Hence, in what follows I will discuss the application of AT modelling (particularly Engeström's model) to the examination of possible tensions within and between the relevant components of what I shall call the Literacy Learning Activity System (LLAS). An AT-informed analysis of a literacy learning activity can give a good indication of the types of relationships, contradictions and transformations that have occurred over time. What is more, it can assist researchers, practitioners and participants to make informed decisions about probable future directions in (re)designing a local LLAS.

6.2 Application of AT to the analysis of Literacy Learning Activity Systems

The procedures described below come particularly from the analysis of AS proposed by Engeström (1987, 1990, 1991, 1999), as well as from the ethnographic studies of situated cognition (Lave & Wenger 1991; Chaiklin & Lave 1993; Wenger 1998).

Definition of the LLAS. The first step in applying AT to literacy studies requires identification of the activity systems in which literacy practices occur. As stated before, any activity is socially and contextually bound. An activity occurs in the system of social relationships without which it does not exist (Leont'ev 1981a). Literacy activities are thus as diverse as those systems of social relationships in which literacy is used. While a literacy learning activity is a distinct phenomenon within many cultural practices, it can be conceived as an AS only when it binds individuals to communities. That is to say, literacy learning in such communities becomes a leading activity and a central objective which necessitates collaborative effort (Engeström 1987). However, the LLAS does not imply a well-defined and identifiable group. Rather, it presupposes the participation of people in a literacy activity about which they share many social goals and through which they become a part of something larger than themselves (Barab & Duffy 2000). The LLAS then can be defined as a full activity system in sociocultural settings that have historically developed educational technologies to support learners' participation in text-mediated sociocultural practices.

Consequently, the LLAS can be defined in three senses, depending on the meaning we invest in the concept of community. Firstly, the LLAS, in the broadest sense, can refer to culture as a system which promotes a certain view of cultural literacy and historically develops technologies to educate its members. By focusing on the print technology and dissemination of texts, Anderson (1991) described the role of literacy in the formation of such a broad community - a nation. Being a part of a national community, according to Anderson, requires the individual's relationship to the land and culture to be mediated by the texts promoting consciousness of common values or shared interests. The LLAS, understood in this way, is a system of relations within an imaginary community which involves a sense of semiotic connection with a vast body of people with whom one can have little or no direct contact.

Secondly, in a narrower sense, the LLAS can be defined as systems of literacy practices in different sociocultural communities (e.g. literacy practices in a family, a religious organisation, a political movement, a neighbourhood, a research laboratory, a discipline, a profession, etc.). This definition of the LLAS presupposes the multiple character of literacy activities (Street 1995) and spells out literacy learning activities in more local terms. At this

level, literacy learning can be seen as a process of apprenticeship to certain sociocultural practices with texts.

Lastly, in the third and narrowest sense, LLAS can be defined as a classroom community provided that literacy learning constitutes one of its central activities. Importantly, one social purpose of literacy learning in classroom communities is constructed in the macro-social domain of a national community (in the first sense above). However, the process of literacy learning is also informed by the out-of-school experiences and knowledges of students as they participate in the literacy practices of diverse communities (in the second sense). There is a tension in such an LLAS between school and out-of-school literacies.

In what follows I will concentrate on the LLAS understood as a literacy learning activity in a classroom community. This requires, on the one hand, a macro-social perspective on the LLAS in educational settings, i.e., on how students' needs and motives are constituted in the broader social milieu. The LLAS (a classroom community) must be seen as always constructed and situated in this larger social context. On the other hand, to understand how the broader social purpose interacts with a classroom and what contradictions arise in the ongoing activity of literacy learning, we need to analyse the elements constituting this system. The LLAS is a dialectically-structured and self-organising community of learners. For this reason, I propose a slightly modified version of Engeström's model to address the specificity of literacy activity in classroom communities.

In designing the LLAS in classrooms, I propose to represent the basic triangle in the model as relations between 'classroom community - learner(s) - knowledge' which are mediated by 'rules - power - textual resources' (Figure 6.5). All the elements within the model of LLAS (including mediators) are connected, forming a system of relations in the literacy learning activity.

The relations within the LLAS can be defined as an apprenticeship of a learner within a classroom community to a certain body of knowledge (see the central sub-triangle in Figure 6.5). In this sub-triangle, the activity of the classroom community is directed at an object-text. A text is not just a linguistically constructed object but, rather, it embodies the ideal properties of social practice. Texts are both objects of literacy learning activity and 'carriers' of sociocultural patterns and knowledge (Wertsch 1991, 1998). Hence, knowledge(s) (concepts and meanings) embodied in texts motivate the literacy activity of a classroom community, giving it a specific direction.

AT emphasises that an object of an activity not only gives an impulse to the psychological activity of individuals; it also gets transformed into an outcome. In our case the peculiarity

of the LLAS lies in the fact that texts carry not only knowledge but also power. So when we conceive the possibilities for the transformation of dominant knowledge, the question of power is central (see the 'community - power - knowledge' sub-triangle). The transformation of knowledge and textual meanings depends on how participation in an activity will be distributed in terms of central and peripheral roles and voices in meaning-making. Because the knowledge of particular texts gives power, the transformation of knowledge will be corrected, controlled and monitored. As such, the social and intellectual outcomes of literacy learning in the LLAS are directly related to the relations of knowledge-power and the possibilities of their disruption or transformation.

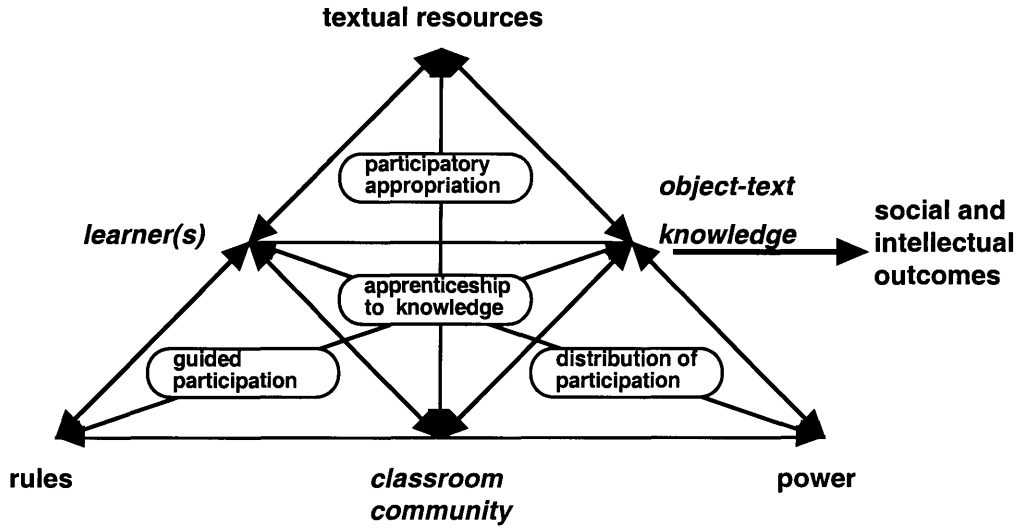

Figure 6.5 A model of literacy learning in a classroom community (LLAS)

The relation between a classroom community and a learner in a literacy activity is mediated by rules. They cover both explicit and implicit norms, conventions, and patterns of practice within the classroom community of learners (see the 'community - rules - learner' sub-triangle). Relations in this sub-triangle can be defined as guided participation, signalling the role of the teacher in organising literacy learning events. Of interest here is an analysis of such organisational patterns as the collective and individual modes of work, the time-scales of learning (how much time is needed to accomplish a task), the management of behaviour, seating arrangements, etc.

Lastly, the relations between the learner and the text-object (a body of knowledge) are mediated by other textual resources (see the 'learner - textual resources - knowledge' sub-triangle). Textual resources here can be anything used in the process of meaning-making, ranging from the texts used by a learner in out-of-school practices, to a variety of texts used

in a classroom, to such texts as curriculum documents and literacy policies. The latter are implicitly present in classroom texts that are put to mediate literacy learning.

In having defined the LLAS as a system of classroom literacy learning, we must start its analysis with the macro-perspective (i.e., with a clarification of its purpose), and then proceed with the analysis of this AS itself. In this way, the analysis of an LLAS can be carried out in three phases: 1) an historical macro-analysis of the LLAS to clarify its purpose; 2) an analysis of relations and contradictions within and between the elements of the LLAS; 3) a 'prediction' of its possible transformations and developmental directions.

6.2.1 Clarification of the purpose(s) of the LLAS

This phase of LLAS modelling involves an historical inquiry into the social construction of literacy in institutional settings. Following Vygotsky's (1982a) observations on the two incommensurate tendencies in knowledge construction, we can say that the struggle over literacy similarly reflects the tension between two epistemological accounts: the tension between the *rational* and the *practice* accounts of literacy. These ontologies of literacy resonate with the two major social purposes reenacted in school literacy activities. The rational account sees the purpose of literacy learning in the development of cognitive skills, deep competencies and strategies, whereas the practice account considers multiple purposes of literacy learning - in and for participation in a variety of social practices. From the point of view of the former, literacy learning and teaching is an apolitical activity directed towards the acquisition and processing of information by the mind. The latter necessarily conceives literacy education at least in relation to the cultural-ideological practices of socialisation (Cole 1996; Scribner & Cole 1981; Wells 1999; Wertsch 1998; etc.) and, in more radical definitions, to social practices in which relations of power-knowledge, domination-subjugation and inclusion-exclusion shape particular cultural and normative-institutional ways with words and texts (Freebody & Luke 1990, 1999; Gee 1996a, 2000b; Green 1993; Janks 1993a, b; Lankshear 1997; Luke 1995; Street 1993, 1995; etc). While there may be a number of perspectives on literacy education, their variety comes down essentially to these two epistemological accounts.

Another Vygotskian (1978) methodological principle - that history can be observed in the present - can be helpful in this phase of analysis, too. This principle aims to study not so much past events but, rather, present-day processes as a unity of opposites, in which the inherent genesis of the relation between those opposites *is* the very historical essence. This principle may help clarify the contradictions arising from the holistic construction of the purpose of literacy learning and the contextual multiplicity of objectives within a local LLAS. In this phase of the analysis, then, the researcher should address such issues as:

1) What are the social expectations for literacy learners?
2) How do these expectations relate to the communities in whose practices the learners participate?
3) What might be the possible tensions within the LLAS due to discrepancies between the broader holistic-mentalist purpose and the emergent diversity of learners' social and practical motives and goals in the local activity setting?

With regard to these issues, AT-based analysis adopts a critical perspective in addressing why it is that a single purpose and cultural objective of literacy activity systematically excludes students from socially marginal and culturally different backgrounds (Gutiérrez 2000; Moll 2000). To ensure effective literacy instruction, the LLAS should be seen as a situated activity system in which multiple purposes (objectives) intersect. The disturbances caused by the tension between different social purposes (and relations of power) may play a key role in shaping activity systems that can 'make a difference' in the construction of new learning environments, learners' identities and literacy activity objectives.

6.2.2 Analysis of contradictions within the LLAS primary components

In the second phase of the analysis, the contradictions within and between the primary component of the system should be made clear so as to understand the possible dynamics within the LLAS. The three primary components of this AS are community, learner(s) and knowledge as embodied in the object-texts. They do not act on each other directly; instead their interaction is mediated. Rules are mediators (and negotiators) between a classroom community and the learner; relations of power mediate interaction between a community and the knowledge to be learned; and textual resources mediate the relationship between the learner and the object-text (Figure 6.5). We can start the analysis of the LLAS model from virtually any element of the AS. Here, however, I begin with the definition of the community and of possible internal contradictions in configurations of its practices.

Classroom community. The model of the LLAS, in question here, is fundamentally concerned with the role of joint activity in the construction of meaning in formal learning settings, primarily those that take place in classrooms. Because of the general emphasis of AT on the social nature of learning, a primary focus in modelling LLAS is on how students and teachers form communities of practice and operate within them. Classrooms, when reconsidered in terms of communities of learners (Rogoff et al. 1996) rather than as locations in which isolated learners interact, can be seen as social systems of literacy learning activity. However, these communities of learners are often problematic constructions.

Unlike other communities of practice which have a significant history and a common cultural heritage, classroom communities of learners are more artificial and 'imagined' (Anderson 1991). These communities are constructed within the broader sociopolitical context as something relatively homogeneous; so when they become normative notions, it is easier to imagine what those communities need to know grade-by-grade (Hirsch 1996). Such social constructions of classroom collectives and of the knowledges they need to know unify the notion of literacy learning across schools and districts. They also provide the ideological basis for educational administrators involved in designing literacy learning environments. These images of homogeneous classroom community are then materialised in texts and other organisational and instructional tools to structure literacy learning activity in actual classroom communities.

Designing learning environments on the basis of the relative homogeneity of learners has historically produced at least three strategies for classroom community maintenance. According to Matusov (1999: 166-173), these strategies are observable in so-called 'filter', 'funnel' and 'linear' models of classroom communities. The 'filter' model is based on a selective process in which "the community attracts those prospective members who fit with its philosophy of practice and repels those who do not". This becomes explicitly clear in such selective practices as interviews, tests, 'open-door' events demonstrating classroom practices, etc. The selection process is mutual and asymmetrical, involving the parents considering whether to enrol, or not to enrol, their children in a particular program. But whatever decision is made, difference in this model is filtered already at the initial stage and hence is neither wanted nor expected. Unlike the 'filter' model, the 'funnel' model of community maintenance "involves an initial diversity of community members". But later, those learners who do not fit the communal philosophy of learning become marginalised (silenced) or forced to leave. These marginalised students however may choose not to be silenced or to leave. Lastly, the 'linear' model of community maintenance is based on a process of homogenisation and involves progressive assimilatory strategies in dealing with difference. Within such a community of learners, there is a strong sense of developmental trajectory - the proper way of doing things. According to the estimation of learners' proximity to this ideal trajectory, their diversity can be seen as 'developmental', reflecting the assimilatory tendency, or as 'residual', reflecting a deviation from the appropriate way of doing things. All three models of classroom community maintenance embody particular strategies for dealing with diversity: ranging from exclusion (the 'filter' model), to marginalisation (the 'funnel' model), to assimilation (the 'linear' model).

Notwithstanding differences between these models of community maintenance, the idea of a classroom community as a homogeneous (or homogenising) social entity with a single philosophy of learning can produce major contradictions within the LLAS. This is

particularly the case in classroom communities which are characterised not only by racial, ethnic, socioeconomic and linguistic diversity, but also by diversity in terms of the mediational tools of learning. The resolution of this contradiction can only be reached in an ecological model of literacy learning that makes diversity a resource rather than a problem (Gutiérrez 2000). Thus, while recognising that communities will remain to a large extent imagined (Moll 2000), AT invites both researchers and practitioners to (re)imagine classrooms as multivoiced collectives whose literacy learning is related to the practices, discourses and 'funds of knowledge' of other communities. The AT idea of the ecological model of community does not necessarily refer to a sense of harmony through domination, but rather to a shared set of social practices that become differentiated among subgroups or ideocultures (Smagorinsky & O'Donell-Allen 2000).

For instance, Matusov's (1999) ecological perspective on joint activity within a heterogeneous community of learners lies outside the traditional teacher-run or student-run one-sided continuum of community idealisation. Instead, students and teachers alike are considered to be learners in the flow of an ongoing activity or a collective inquiry. According to the ecological perspective, a community of learners establishes a multifaceted relationship of mutual interdependence and support among its members. Notwithstanding its sociocultural diversity, a community of learners forms cultural-semiotic 'niches' of mutuality and thus opens channels for collaboration. In this ecological model, diversity is valued, and communal relations are not based on the homogenisation of participants. On the contrary, participants' diversity becomes a source of openness and 'incompleteness' of their identities, leading to the productive enrichment of resources for literacy learning and hence to enhanced possibilities in meaning-making.

For these reasons, literacy researchers and practitioners should pay particular attention to the definition of the relevant community within the LLAS. This can be done by addressing the following issues:

> 1) Define the philosophy of literacy learning according to which the community of learners is organised and its activities are patterned;
> 2) Identify community members and activity participants in terms of their sociocultural diversity (cultural values, norms, funds of knowledge, semiotic resources, etc.);
> 3) List contradictions that exist within the community as viewed by learners;
> 4) Inquire as to what conflicts exist between ideocultural groups within the community of learners and how this may relate to the larger communities the learners belong to.

Learner(s). A community within the LLAS, depending on its underlying philosophy, establishes a particular set of rules, norms and rituals that mediates social relationships between the community and the individual. Within this cultural-semiotic sphere of

mediation, both teacher and students construct rules and norms as well as negotiate them on a daily basis. On the one hand, rules and norms are mediators through which the community reproduces itself by enculturating learners into certain recognisable ways of doing things. Rules and norms, in this sense, are semiotic artefacts which play a "central role in preserving and transmitting modes of action" (Cole 1999 : 91). However, knowing the rules - how to go on in the activity of learning - is more than just building up a conception of how practices are organised. Through them, learners are constructed as certain identities, such as good students - those who follow the rules - and as negative identities - institutionally disapproved burnouts and trouble makers (Lave 1993b). Because rules and norms have to do with relations of power, they become the point of reference in making judgements about diversity, and hence in ranking and in disciplining. Indeed, through rules and norms social relations within communal activities of learning are mandated and the learners' identities are differentially constructed.

Hence, the learner's actions within the LLAS are constituted through the mediation of rules and norms as established in the literacy activity of the classroom. As a member of the community, the student has to follow the established rules of how to proceed with her reading, writing, and other communicative actions in the collaborative effort of meaning-making (see the 'community - rules - learner' sub-triangle in Figure 6.5). Whether the literate actions should be performed collectively or individually, in the form of a dialogue or a monologue, how much reading or writing is involved, and when students should read and write in the classroom, are defined by certain rules and norms enacted by the teacher. It is interesting, of course, how decisions are made by the teacher to pattern the literacy actions of students in certain ways; for example, what types of reading actions are emphasised, how much time should be spent on reading, discussing, or composing a text, will there be a space provided for different kinds of readings, etc. (see Smagorinsky 2001). Such decisions, from the AT perspective on mediated (by rules, norms, and conventions) social relations, are continuously redefined by the actions of the AS members (Barab & Duffy 2000).

While classroom community - learner relations constitute a nested interactive system, the rules and norms of an activity are not only maintained but also contested and transformed to ensure productive learning in literacy events and an ecological mode of community maintenance. Rodby (1992: 93) observes, with regard to the literacy activity of ESL students, that the distribution and negotiation of power in the normative and ritualised practices of the classroom help create new, more just relations between differences:

> The rituals of the class, of group work, help to create normative, ongoing communitas. When the teacher is a collaborator rather than the director of the class, much of the other classroom ritual can be turned over to the students:

attendance, announcements, distribution of work, and so forth. In addition, group rituals that ask students and teacher to think about (describe, analyse, evaluate) the group experience and their own role in the group help level differences among participants and build group cohesion simultaneously.

That is to say, by participating in practices through which power flows (Popkewitz & Brennan 1998), both minority and mainstream students can reconsider their subjectivities in terms of the presences of some identities and the absences of others. This may lead to situations where students and teachers question the saliency of authoritative, generalised, prototypical rules and norms in literacy learning events.

To sum up this point, learners within the LLAS are formed as identities through the semiotic mediation of rules and norms. The representations of these rules and norms are the varieties of formal and informal, explicit and implicit, as well as situated and more general guides of how to proceed with the different actions involved in a literacy learning activity. They incorporate the belief and value systems of classroom communities of learners, and it is through them that an individual binds herself to those communities. It is also in this way that literacy learning comes to involve the building of relationships with other community members. The learner's actions are always bound up and codependent with the actions of other participants in the LLAS, with the activity of the community. Therefore, the learners in this model are no longer autonomous but, as Lemke (1997: 38) says, 'persons-in-activity'. Even though the students negotiate meanings, rules and norms situationally in local communities, such a negotiation is not a construction of meaning from scratch (Wenger 1998). The social discourses of a community are historical and dynamic; they are local and, at the same time, a part of something larger, a part of the larger cultural domain within which communities, their activities, and the identities of learners themselves acquire broader societal meanings (Kostogriz 2000).

Questions to consider while analysing the 'community-rules-learner' sub-triangle within the LLAS:

1) How are the learners constructed as multiple identities in a classroom literacy activity? What formal and informal rules, norms and conventions are at work in the particular LLAS?
2) What are the learner's goals in relation to how s/he perceives and understands the organisational patterns of the literacy learning activity?
3) What are the contradictions, especially those that might exist between the current conditions of an activity and the historically evolved rules? How does the enforcement of certain rules constrain the productivity of diversity in literacy learning?

Object-text (knowledge). As mentioned before, texts comprise the leading object of the LLAS. However, to understand how texts work, how they determine the ideational side of a

literacy activity and the opportunities for meaning-making they (re)present, they should not be conceived of solely in formalistic terms. Rather, what is more important is the definition of a text as an index of social relations and the embodiment of ideological worldviews (Medvedev 1985; Voloshinov 1973). On this basis, texts can be seen as similar in some ways and dissimilar in others. On the basis of their similarities and differences, they can be perceived more broadly as representations of particular bodies of knowledge or, as Medvedev (1985) puts it, the distinctive branches of an 'ideological creation'. Leaning upon a sociological definition of the activity object, we can stress that ideology in texts precedes the individual within the LLAS. Therefore, the student's need and motivation to participate in a literacy activity have a socio-ideological nature rather than being an individual and biological one, as many psychological explanations of literacy and language learning suppose. The socio-ideological definition of the object in the LLAS is congruent with AT's central concern with the exposition of the object's internal nature (Davydov 1999). The ideological nature of the object determines such processes as directionality, intentionality and transformation in the social AS.

One of the main features of the LLAS lies in the fact that the leading object of its activity is always already provided from other activity systems. Many texts used in educational settings are written specifically for consumption within imagined communities of learners. They carry certain cultural-ideological views of students' development and relate to such notions as prolepsis (Cole 1996) - the acquisition of scientific and cultural knowledges conceived to be essential for an ideal learner to know. It is in this sense that LLAS participants are motivated from the 'outside' by powerful sociocultural discourses, in which what counts as knowledge and literacy have already been defined. Thus, when texts appear as the object of the literacy learning activity they give this activity a direction by framing the intentionality of its participants. Because the internal, ideological properties of texts have already been designed in other sociocultural contexts, the LLAS initially starts its activity from those available designs (see Cope & Kalantzis 2000).

To elaborate this point further, we must emphasise that a community of learners engages with texts via the mediator - that is, power (see Figure 6.5). Consequently, the distribution of participation in a collective, text-mediated activity reflects asymmetrical relations. The teacher, as a more authoritative, knowledgeable and hence powerful figure in the community, already has a certain objective in mind when s/he introduces a text and organises students' work in a certain way. That is, all participants must ideally be involved in a productive literacy learning process in which the general motive overrides the actual multiplicity of students' social goals. In traditional teacher-run classrooms, the distribution of participation in an activity is rather straightforward: the teacher performs a controlling

function, while the students work individually with texts. This mode implies the merging of students' voices into the final, authoritative voice of the teacher (Wells 1999).

In communities of learners, however, the distribution of participation acquires more complex characteristics: the teacher is the facilitator of the general activity of inquiry and the students themselves distribute their participatory roles within the collaborative group (Putney et al. 2000; Wells 1999). Such a division of participation presupposes a set of dialogical actions. Activity theorists, very much in the spirit of Bakhtin (1981, 1984, 1986), argue for a polyphonic unfolding of literacy events. This allows the authoritative voice of a teacher or a text to reside beside the voices of the students, rather than submerging the multiplicity of positions beneath the single perspective of official knowledge.

While the division of participation and roles mediates relationships between the community and the object-text-knowledge, the relationship between the learner and the object-text is also mediated by other textual resources (see Figure 6.5). As such, the text-object does not stand in isolation but, rather, becomes a part of the mediating space of intertextuality through which the learner and the object-text reciprocate. Engeström (1987: 101) argues that a text undergoes "the strange reversal of object and instrument". First, it appears as an object-motive of the literacy activity and then it moves into the sphere of mediational resources (instruments). Here, the text is connected with other texts, social contexts, and languages. Due to the possible multiplicity of intertextual connections, the participants within the LLAS must then negotiate and appropriate the text's meaning. Intertextual negotiations may have two major outcomes: the reproduction of textual meanings and hence a certain body of knowledge, and the appropriation of textual meanings in the production of new modified texts (i.e., the outcomes of the literacy learning activity). As Fairclough (2000) observes, when a text is intertextually relatively normative, its meaning will be reproduced with no or minimal changes. On the other hand, when intertextual connections are made to heterogeneous cultural discourses, the text becomes creatively appropriated and redesigned through the hybridisation or mixing of those different discursive practices.

Hence, the relationships between the community and the object-text and between the learner and the object-text occur within two spheres of mediation - the distribution of participation and the participatory appropriation in the process of intertextuality (Figure 6.5). The analysis of these relations is a rather complex procedure. Smagorinsky and O'Donnell-Allen (2000) call this the relational framework of a group's interaction. Their analysis has revealed both productive and counterproductive text-based interactions within two groups of students engaged in a collaborative literacy activity. In Group 1, the configuration of participants (and the distribution of participation) was optimal for

promoting productive learning. In contrast, Group 2 established a different goal to that envisioned by the teacher. Learning outcomes in this group were also productive but disparate from the teacher's expectations. Smagorinsky and O'Donnell-Allen (2000) come to the conclusion that the socio-ideological telos embodied in a teacher's effort to structure students' literate actions toward a particular developmental end can be reconstructed by students whose social goals are different from that of the teacher. Incompatibility of goals is explicitly clear in the mediational sphere of intertextuality. The focus on how students establish intertextual links in situated meaning-making allows us to see their negotiations as connected to multiple contexts 'radiating outward'. This reveals the ideocultural diversity, which makes it difficult to predict learning outcomes from knowledge of the context alone. Rather, literacy activity within the LLAS leaves space for negotiations, textual appropriation and transformation which suit 'persons-in-activity', even if this activity unfolds against official claims to universal validity and the ossified conventionality of canonic knowledge and meanings.

Some issues to consider while analysing the 'community - power - text-object (knowledge)' sub-triangle within the LLAS model are:

1) What are the socio-ideological values and knowledges embodied in the object-text?
2) How does the object-text direct a collective activity due to these internal, sedimented properties?
3) What kinds of knowledge constitute positions of power in a community of learners? How are participatory roles distributed among community members to perform a literacy task? What are those roles and how are they assigned? Is the distribution of participatory roles in a literacy activity permanent or dynamic?

Questions to consider while investigating the 'learner - textual resources - object-text' sub-triangle:

1) What texts (and other semiotic resources) are used in a literacy-learning activity?
2) What mediational functions do they perform (e.g. social, cultural, ideological, political, scientific, etc.)?
3) What intertextual links are established between available texts in the classroom and other social texts (as they are conceived by the learners)?
4) How does the object-text become transformed when it enters the sphere of intertextual mediation and participatory appropriation? What are the current transformative possibilities for the production of new meanings and textual redesign? What are the constraints?

In sum, analysis of an LLAS reveals contradictions within and between its components, due to their dependency on one another. The primary components of the LLAS (classroom community - learner(s) - object-texts) influence, constrain, afford and, in due course, transform one another. In other words, contradictions within the LLAS emerge in dynamic relationships between the components, and are the results of the functioning of the AS itself. Sociocultural diversity within the LLAS is one of the major sources of contradictions in literacy learning and hence is a motive-force of its change. Changes occur to reduce the

tension and conflict within each primary element of the LLAS and between the elements in the mediating spheres of rules, power and textual resources. Articulating each of these contradictory entities and their dynamic interrelationships is important when designing literacy learning environments. Specifically, this requires an understanding of the fluidity of power within the LLAS. When relations of power are relatively unsettled, the conditions of the literacy learning activity are more favourable for the production of new meanings, for transformation and for expansive learning. On the other hand, secure relations of power and domination put constraints on the creative potential of the community of learners and hence on the richness of intellectual and social outcomes in literacy learning.

6.2.3 'Prediction' of the development of the LLAS

The last phase of analysis is concerned with an external perspective on the unfolding of the LLAS. This research activity requires again a macro-perspective on the situated AS, to see that literacy learning in particular institutional settings is nested within the broader network of social activities. In reality, any LLAS has a number of neighbouring activity systems that interpenetrate it in multiple ways. For example, the LLAS closely interacts with the institutional administrative systems, the sociocultural communities the members of LLAS come from, the systems that produce education policies, curricula, texts and other semiotic materials for schooling, educational research systems, etc. In other words, the LLAS participants experience interpenetrations from other more powerful activity systems which construct their group identities as learners. By providing semiotic resources for learning, these systems also expect that those resources will be used by LLAS participants in appropriate socio-historical ways. This means that communities of learners are perceived by the neighbouring activity systems as groups to be socialised into certain knowledges and identities.

However, these neighbouring activity systems do not all have the same view of learners' developmental trajectories. The language and literacy development of L2 learners is also mediated by the constructions of their identities in the families or sociocultural communities they come from. Hence, we have to comprehend neighbouring activity systems as any network in which the particular LLAS is nested. Due to various contradictions within a network of activity systems, the prolepsis (Cole 1996) and identities of L2 literacy learners are never finalised in singular terms.

While powerful neighbouring systems will strive to ensure the unchanged reproduction of the dominant cultural literacy, L2 learners will develop a range of voices (Hall 1995) in learning to 'ventriloquate' the resources that are available to them (Bakhtin 1986; Wertsch 1991). In light of sociocultural research on L2 learning (Lantolf 2000), it seems reasonable

to propose a view of interpenetrating activity systems in terms of contradictions between the expected and the locally-situated uses of language and literacy. The main idea inherent in this view is that intersystemic interaction within the network of activities is characterised by tension between the socio-historical and locally situated conditions of semiotic motion across the fuzzy and porous boundaries of the LLAS.

Modelling the internal dynamics of the LLAS and any changes it undergoes is impossible without giving an account of the complex interpenetration of neighbouring activity systems. Engeström and colleagues (1999: 346) have develop the concept of 'knotworking' to address this problem:

> The notion of knot refers to a rapidly pulsating, distributed and partially improvised orchestration of collaborative performance between loosely connected actors and activity systems.

The 'knots' within the LLAS are the points of penetration/tension between the central (in the sense of research focus) and the neighbouring activity systems, as well as tensions between elements within the system. These are the points within and between which contradictions in the activity systems occur. The resolution of these contradictions leads to transformations and changes either in the system itself or in relations between the systems (Figure 6.6).

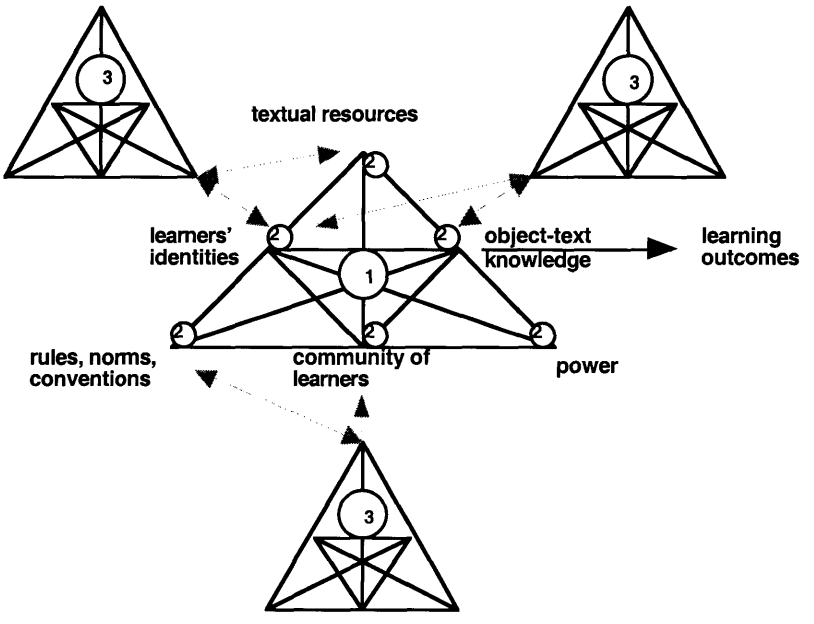

Figure 6.6 Knotworking and the configuration of the LLAS
1 - a central LLAS; **2** - knots of interpenetration and contradiction; **3** - neighbouring ASs

Internal contradictions within the LLAS propel the activity of literacy learning by changing its patterns through transformations occurring in particular literacy events. For instance, primary and secondary internal contradictions (Engeström 1987) will show those

limitations to literacy learning imposed by a monocultural purpose on a multicultural community of learners. Likewise, such quantitative changes in the LLAS components as an increased diversity of students, knowledges on which to draw, multimodal and multicultural variability of semiotic resources, etc., lead to tension with the older ways of literacy teaching.

However, the outcome of this tension does not necessarily mean that the old LLAS will be transformed into a new system. Old monocultural ways presuppose certain patterns of literacy learning which are aimed at neutralising diversity and the need for radical changes. This strategy is observable in literacy events of the traditional LLAS, based on the progressive convergence of learners' goals with the goals of the dominant groups, i.e., in the developmental view of literacy leading toward a single meaning. This is partly reached through balancing the degrees of freedom given to learners as they participate in meaning-making. To give diversity a voice, while leaving the dominant, visible and influential ideology of literacy intact, is a popular 'cosmetic' change carried out in striving to resolve the primary and secondary contradictions ingrained in the traditional LLAS. Notwithstanding innovations in some patterns of literacy teaching/learning activity, the systems of schooled literacy and their ideological essence remain the same.

Hence, in order to project possible qualitative changes within the LLAS, AT-based literacy research has to conceive of this activity system as a part of a cultural-historical network of practices. It is from this perspective that we can concentrate our analysis on the tertiary and quaternary contradictions. The former are related to the tension between the situated learning activity itself and a more advanced form of this activity, and the latter are associated with contradictions between the central AS and its neighbouring activity systems.

Tertiary contradictions arise as literacy learners and teachers become influenced by innovative activity systems (e.g. new literacy studies/research systems and those educational practices informed by them). 'Knotworking' established on this basis ties together otherwise separate activity settings. The main feature of such knotworking lies in the fact that LLAS as a local social agency can make initial innovative decisions despite its structuration by administrative systems. The locus of innovative changes lies here in the actual interaction between the new and the traditional literacy activities. Through interaction and collaboration, these activity systems become engaged in the co-configuration of their activities.

At this point, quaternary contradictions come into play as the LLAS tries to implement changes in connection to other socio-historical systems of practices such as the

communities and families from which the learners come, school administration, district and state boards of education, etc. The neighbouring systems will produce socio-political and historical impacts on the implementation of changes in the local LLAS by either assisting or constraining its transformative dynamics. Consequently, modelling innovative changes involves analysis of the complex patterns of interaction, the social conditions and the relations of power between the LLAS and other activity settings.

A knotworking perspective on the LLAS allows us to conceptualise its transformative trajectory in terms of attempts to resolve all four types of contradictions. Because any LLAS is an historical entity, it contains sediments of earlier historical types (practices) as well as emergent, future types. A consideration of how the contradictions between recognised and emergent practices produce tensions in and between components (knots) of an AS may shed light only in general terms on transformative directions within LLAS. In a particular local LLAS, there is a great deal of contingency, hybridisation, strategic decision-making and meaning redesign (see Cazden (2000a, b) and Toohey (2000), for a discussion of local reconfigurations of literacy learning practices in multicultural classrooms). Thus, we can conceive of the LLAS as a system of transformational hybrid activity characterised not only by its juxtapositional (contradictory) but also its synthetic nature. Due to the heterogeneity and multivoicedness in the LLAS, there are always two or more perspectives brought to the textual practice of meaning-making. Transformative changes occur in such a way that literacy learning activity acquires a form of synthetic hybridisation significantly different from literacies assumed in their pure states. Moreover, synthetic hybridity in literacy activity is not an equal fusion of literacies, but rather an incorporation of some distinctive sociocultural ways of meaning-making into what remains recognisably schooled literacy, conceived here not in its pure decontextualised sense but in its contextual socio-political sense.

In this phase of analysis some questions to consider might be:

1) What innovative literacy research and literacy activity systems inform the LLAS under study? What kind of configurational changes has their interaction produced? (Particular attention should be paid not to the changes in teaching 'methods' but rather to the changes in learning practices);
2) What formal relations are established between the LLAS and other neighbouring systems? How accepted will innovative changes be by the systems of educational administration and curriculum design?
3) How have interrelationships between neighbouring systems changed over time (e.g. school - community - families)? What impacts have these changed interrelationships produced on the local LLAS?
4) How lasting and permanent are the synthetic transformative changes in the LLAS (e.g. changes in rules, norms, division of participatory roles, and, most importantly, in mediating texts and bodies of knowledge)?

Conclusion

Modelling literacy learning activity systems (LLAS) on the basis of AT provides a unique lens for analysing literacy learning processes and outcomes. Rather than focusing on the information-processing capacities of the mind, AT focuses on the social activities in which people are engaged, on the nature of the mediating resources they use, on the social relationships among activity participants, on their motives, goals and intentions in their object-oriented activities, to grasp psychological functions. In this way, AT provides a specific framework which can be used by educational researchers or instructional designers to critically assess the context of literacy learning, as this originates in the social, cultural and political field of practice.

AT-based modelling of learning environments is a methodological path toward reaching a systematic conceptualisation of literacy learning. I have endeavoured to show the intergenerational unfolding of those AT heuristics that can be used in the process of modelling literacy learning in contemporary multicultural conditions. The models of Vygotsky, Leont'ev and Engeström form an important mediation between an educational researcher and a situated learning activity by providing the basis for a deeper understanding of the social, historical and spatial embeddedness of human consciousness and learning.

Furthermore, AT-based research expresses the need for a complex re-imagining of literacy learning in contemporary multicultural classrooms. Classrooms are socio-historical local activity systems through which multiple texts, knowledges and meanings - in a word, literacies - flow to inform and transform school literacy learning. These multiple literacies come constantly into contact in local educational settings, shaping relations of power, students' identities and their participatory roles in meaning-making. The relation of situated literacy learning to other practices is the key idea here, in considering how meanings are produced and reproduced, exchanged and distributed, appropriated and contested. Therefore, if modelling and designing literacy learning environments from the cultural-historical AT perspective problematises school-effectiveness and diversity management, it also suggests some directions for continuing the transformative activity of changing textual, cultural and epistemological politics, both within the broader social networks and in the local systems of literacy learning. It also gives an impetus for considering a framework of a Thirdspace literacy pedagogy, which will be discussed in the following chapter.