Coparticipation at work: Knowing and work practicer

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A basis to understand how doing and learning coalesce through work, referred to as co-participation at work, is advanced. Co-participation encompasses, on the one hand, the affordances provided by the workplace for engagement in activities and the provision of guidance. However, workplaces are contested, their affordances are neither benign nor distributed equally to those who participate or wish to participate in them. Accordingly, these affordances determine how individuals participate and learn in workplaces. However, on the other hand, individuals determine how they engage in work, how they know and transform their ways of knowing as a result. In this way there is a reciprocity and interdependence which underpins thinking, acting and learning through work.

Introduction
The notion of individuals participating and learning together in communities needs to be appraised critically least they be conceptualised as being benign, neutral and unconditional. Just as power and interest influence the socially constituted genesis of knowledge, so is the mediation of learning. Within communities, the processes of learning are as likely to be contested, turbulent and discriminatory as they are supportive of participation and engagement. Consequently, in seeking to understand how individuals come to learn at work there is need to account for the mediation of knowledge. Conceptually, discussions about individuals learning at work draws on key debates within sociocultural and historical activity theory. These include: the relations between the social practice of work and individuals’ development, the relations between individuals’ ontogenies and history, and evolving conceptions of inter-psychological processes and intra-psychological outcomes within sociocultural theory.

In discussing these relations, the paper advances the concept of coparticipation at work (Billett 1999) as a means to conceptualise the reciprocal bases for thinking, acting and learning, that constitutes knowing through paid work. Coparticipation emphasises the reciprocity between contributions to learning afforded by the social practice of work and how individuals decide to act in that practice. Workplaces’ affordance determines the opportunities to participate in different kinds of goal-directed activities as well as the support and guidance in coming to know about those activities. The kinds of goal-directed activities individuals’ engage in influence what they learn and reinforce that learning through subsequent experiences. The support and guidance afforded by the workplace influences the prospects for socially constituted knowledge being made accessible. Perhaps this is no more so than with the kinds of knowledge that have to be experienced through close guidance on the social plane (interpsychologically) before they can be appropriated by individuals. This includes procedures such as tricks of the trade and conceptual knowledge that is opaque. However, and reciprocally, learners determine how they engage with the opportunities afforded by the workplace. Therefore, how they come to know and engage with the activities and guidance is not wholly
determined by the workplace. In all, coparticipation at work advances a view of learning through work. It also aims to contribute to deliberations about the relations between individuals and the social world in which they act.

**Relations between social practice and individuals’ thinking and acting**

The concept of dualism --- that there is a separation between the mind (the internal processes of conscious thought and phenomena) and the external world of space and activity --- is currently the focus of critical debate. Increasingly, rather than a separation, relations between the two are being proposed, suggesting a need to identify and understand further these relations (Scribner 1988/1997). Having proposed that the mind is inseparable from and embedded in the world beyond the skin; the nature of its embeddedness, the genuses of knowledge and how individuals’ thinking and acting are influenced by social factors are just some of the issues now required to be understood more fully. Some bases for understanding these relations can be found in reconciliation between the cognitive and sociocultural theories of knowing and learning (e.g. Rogoff 1990, 1995, Billett 1996). This work seeks to reconcile theories that separately and respectively accentuate conceptions of the mind as a skilful organiser and deployer of knowledge, and the mind as interacting with and appropriating historical, cultural, and situational sources of knowledge. The aim of this work is to embed thinking and acting reciprocally in social practice, rather than proposing it as a mere context where thinking and acting occurs. Similarly, theories of distributed cognition (cognition is shared with others and artifacts) (e.g. Resnick, et al.1997, Suchman 1997) refer to cognition being distributed across social practice, with the individual comprising but one element in that system.

Activity theory contends that activities are central to human thinking and acting, with humans interacting with each other and the world (Leonteyev 1981). Scribner (1987/1997) proposes that activity fulfils specific purposes which are socially constituted; individuals engage in actions and operations that have both mental and behavioural dimensions to their enactment. In this way, cognitive and motivational processes are embedded within the "larger activity structures whose goals they serve" (Martin & Scribner, 1991, p. 582), refers to reciprocity between the social and cognitive contributions to thinking and acting. Activity is seen as being transformational, mediating between individuals and social circumstances through reciprocal interactions and transformations (Cole 1998; Scribner & Beach 1993; Leonteyev 1981; Wertsch 1991, 1998). Perspectives emphasising the interpersonal and semiotic contributions (e.g. signs and tools) (Hutchins 1991; Scribner 1985; Wertsch 1985) also accentuate the mediation between social sources and the mind as a means to understanding thinking, acting and learning. Scribner (1990/1997) points to the significance of this mediation in stating that human cognition and development has been usually discussed in terms of relations between the organism and environment. However, cultural mediators influence how humans engage in cognitive acts and development, thereby operating as an intermediary between the organism and the environment. In Vygotsky’s (1978) view, humans are distinct because they do not directly engage with the environment. Instead, their interactions are conducted through the intermediary of cultural tools and signs, for instance, language. When we use language, work or otherwise engage in purposive activities, the individual organism’s cognitive functions are engaged by these socially constituted activities. Reciprocal relations between the social and cognitive contributions to thinking and acting are common to all these accounts, although the particular privileging of these relations are accentuated in different ways and with different emphases. Perhaps most contentious, in terms of theoretical conceptions and analyses, is the positioning of the individual in these relations. The degree by which individuals are
embedded in social practice or act independently remains unclear. Commonly, however, it is held that the goal-directed activities and artifacts and other mediational means are a product of socio-historical development and that individual development is in part explainable through their engagement in activities and access to the mediational means (Rogoff 1990; Scribner 1984). Indeed, history in conjunction with ontogeny helps conceptualise how human development proceeds, such as that occurring over a working life. This relationship is evident in the conceptual premises that follow.

**Ontogeny and history**

Learning at work positions closely ontogenetic development with history. The nature of work, the vocational practice that comprises work and how it is organised is constantly transforming. Changes in sociocultural needs over time leads to transformations in vocations (e.g. type-setting), their decline (e.g. watch repair) and the emergence of others (e.g. web-site development). These transformations are historically and culturally determined, as vocational practices themselves are a manifestation of sociocultural need. Taking history to be a product of socially-determined actions and activities seems to be a clearer explanatory principle for development than those which emphasise biological transformation over time in response to changes in environmental factors, as in phylogenetic changes. Cross-cultural studies have shown how intelligence is constituted differently across social practices. If, as is argued from the sociocultural perspective, each individual is not the epistemological equivalent of Robinson Crusoe, that the knowledge to be learnt does not spring from within, then there are rich associations between the historical practice and adaptations of human development. Therefore, linking ontogeny with history suggests a rich relation between cultural mediation and individual development. Vygotsky (following Bolonsky) proposed that “behaviour can be understood only as the history of behaviour” (1978: 8). So individual development at work can be conceived as the history of mental processes with those processes being mediated by sociohistorically derived activities.

**Transformations in interpsychological processes and intrapsychological outcomes**

The kinds of relations advanced above can be viewed in terms of interpsychological processes and intrapsychological outcomes. The bases for interpsychological processes have been emphasised in accounts of distal (indirect) contributions to cognition (e.g. Scribner 1985), including the idea of thinking and acting being distributed (e.g. Hutchins 1991) or stretched across (Lave 1991) social practice. These bases accentuate the cultural and situational levels of sociogenesis through interpsychological processes. They also warrant an appraisal of Vygotsky’s concept of interpsychological outcomes. Traditionally, psychological accounts of intrapsychological outcomes refer to internal mentalistic processes, within the individual, rather than being projected beyond the skin. However, Vygostsky (1978) characterises the internal as being something that continues to interact with and be transformed by cultural developments, rather than becoming a fixed internal representation. This is an important distinction. If sociogenesis is only a means of representing stimuli encountered in the social world, then the organism would be merely responding to this stimuli. Instead, interpersonal processes continue to shape intrapersonal outcomes as a “… result of a long series of developmental events” (1978: 57) and the “process being transformed continues to exist and to change as an external form of activity before definitively turning inward” (1978: 57). In emphasising inner functions arising from “only extended periods of development” associations with changes in activities that mediate that development are formed. Hence, rather than ‘internal’ processes being remote from history, the ontogenetic development that arises from working life and history can be seen as progressing hand-in-hand. However, this
suggests that Vygotsky’s sequencing of cultural development occurring first at the social and, then, the individual level, may need to be extended to account for the ongoing interactions between these two planes of development. Moreover, as is argued below, not only are these interactions ongoing, but they are reciprocal.

**Positioning the individual in sociogenesis**

The positioning of the individual within sociogenesis remains uncertain and contentious (Smolka, De Goes & Pinto 1995). In the emerging focus on the social genesis of thinking and acting, (e.g. cultural mediators, environment and activities) the individual has been positioned as a mere element in the distributed nature of cognition (e.g. Resnick et al. 1997, Hutchins 1991). However, these developments may have denied individuals’ agency and independence in acting within social practice such as work (Engestrom & Middleton 1996). For instance, Cobb (1998) cautions against assuming all thinking and acting is wholly distributed across social systems. He argues that individuals act independently in the social world rather than just being an element of it. While agreeing with the necessity to review the overly individualistic and mentalistic emphasis in mainstream cognitive accounts, he proposes that more circumspection is required in considering the individual’s role in relations between the mind and the social world. For example, Wertsch’s (1998) distinction between mastery and appropriation, builds upon precepts associated with the reciprocal process of learning negotiated by individuals through their construction of knowledge as does references to the co-construction of knowledge (Valsiner 1994, Lawrence & Valsiner 1993). Clearly, individuals do not respond in a unitary way within social practices such as work. Valsiner (1994) proposes that explanations of sociogenesis need to account for degrees of relatedness between the individual and the social practices in which they engage. These can range from maximum social relatedness to the total independence of the individual acting in the social practice. Therefore, more than just reciprocal and negotiated bases for interactions, the degree of concurrence between the individuals’ learning (including their values and beliefs) and the cultural norms and values of the workplace will influence participation and learning at work. Accordingly, it is useful to consider the independence of individuals acting within the interdependent social practice of work. As individuals’ ontogenetic development will likely result in unique dispositions, ways of knowing and knowledge (Billett 1996), it cannot be assumed that there will be uniformity in either engagement in social practice or outcomes from that engagement.

**Coparticipation at work**

Participation at work necessarily includes engagement with socially-determined activities, partners, tools and signs. Accordingly, how we learn at work and what we learn is socially mediated by the activities and guidance we can access. These mediational means provide a basis to understand the relations among individuals acting in the social practice of work and how they think, act and learn. Socially-mediated action influences knowing throughout a working life by: (a) work activities being a product of social practice and through which doing and learning coalesce (Engestrom 1993, Luria 1976, Leonteyev 1981, Wertsch 1991, 1998); (b) close interpersonal interactions between social partners is the means through which knowing is made accessible and its development can be guided (Vygotsky 1978, Rogoff 1990); (c) more indirect (distal) influences of social and cultural practices upon individuals’ thinking and acting (Scribner 1985, Cole 1998); and (d) the microgenetic development (Rogoff 1990) or moment-by-moment learning (Cole 1998, Lave & Wenger 1991, Wenger 1998, Scribner 1984) arising from work activities. Accordingly, the contributions that the workplace affords workers’ learning of vocational knowledge are through access to workplace activities and guidance. Engagement in work activities reinforces, refines and transforms existing
knowledge about work. Each workplace has a particular pathway of activities, as the goals and the procedures it privileges are likely the product of a unique activity system (Billett 1995). It follows that, how workers participate and thereby learn are influenced by the invitational qualities of the workplace. In particular, the requirement for intentional guidance are dependent upon close and shared interactions with more experienced coworkers and are salient affordances. Workplaces have and are likely to remain contested environments with opportunities to access activities and guidance distributed on bases of affiliations, individuals’ acceptability, willingness of more experienced workers and the status and bases of employment (Billett 1999). However, there is an interdependence between that which the workplace that affords and how individuals participate in the workplace. As proposed above, there is a reciprocity between the social practice in which individuals participate and how individuals participate and engage with the practice. Reciprocally, these comprise two different bases for participation in work and learning – coparticipation at work. This reciprocal learning occurs at the intersection between the trajectories of the evolving social practice of particular workplaces and individuals’ socially-influenced personal histories or ontogenies (see Figure 1). Coparticipation also emphasises mutuality between contributions to knowing (thinking, acting, learning) afforded by the workplace, on the one hand, and how individuals decide to act in that practice, on the other hand. These mutual elements of coparticipation are now discussed.

Figure 1 – Intersection between the evolving social practice and evolving ontogeny

Affordance of social practice

Although knowledge is socio-historically and culturally constituted, it is manifested in particular ways by situational factors (Cole 1998, Wertsch 1998) with activity systems providing the situational basis for performance (Leonteyev 1981, Scribner & Beach 1993, Engestrom 1993). These, in turn, mediate knowing (learning, problem solving and transfer) as discussed above. The knowledge to be constructed, the kinds of problems to be resolved and problem solutions, how that knowledge is constructed and the kinds of support and guidance available are the product of particular communities of social practice (Lave & Wenger 1991, Wenger 1998), such as workplaces.

Consequently, the affordances (Gibson 1969) or invitational qualities of the social practice determine individuals’ participation in work and what they learn. How these affordances are constituted is determined by workplace hierarchies, group affiliations,
personal relations, workplace cliques and cultural practices, and the kinds of activities in which individuals are able to or requested to engage (Billett 1999). Affordances such as these likely determine the quality of individuals’ participation in terms of the activities and guidance they can access, both of which have consequences for the knowledge to be constructed. Moreover, rather than being benign, social practice such as workplaces, are highly contested (e.g. Darrah 1996, Hull 1997). Opportunities to participate in and to access support and guidance are not uniformly distributed across participants. Beyond perceptions of personal competence, they are distributed on the bases including affiliations, race, gender, worker or employment status. Importantly, the kind of goal-directed activities individuals are able to engage in will likely have clear consequences for their learning. Equally, access to the guidance required to assist learning that which would not be learnt by discovery alone will also likely determine the quality of learning. Further, the situational factors that constitute social practices are dynamic and in constant transformation (Lave & Wenger 1991). Hence, the affordance of the workplace in terms of the kinds of tasks, their goals, interactions, participants, relations in social practice such as workplaces are likely to be constantly changing. This emphasises that rather than being of once-off source of knowledge, engagement with social practice such as work remains an ongoing interpsychological source of learning. Again, the dynamic of the geneses of knowledge and the changing manifestations of practice, emphasise the close associations between history and ontogeny.

**Fig. 1 Coparticipation at work**

*Individuals’ participation*

Beyond the affordance of the social practice, is the agency of individuals --- how they elect to engage or participate in the social practice. Recent discussions (e.g. Cobb 1998; Salomon 1994) suggest that the current emphasis on social practice (e.g. distributed cognition) has positioned the individual to being a mere element a process of thinking and acting that is distributed across social practice and that all thinking acting. Instead, it is proposed that individuals act in social practice in ways not wholly mandated by the social practice. Moreover, individuals determine how they participate in the social practice, how they engage in goal-directed activity and what they appropriate from their participation (Rogoff 1995, Wertsch 1998). Wertsch (1998) distinction between the intrapsychological outcome of ‘mastery’ - that is constructed without commitment or enthusiasm - and ‘appropriation’, in which the learner empathetically constructs knowledge - ‘taking it as their own’ illustrates the process and outcomes of this agency. Consequently, the mediation process is reciprocal with the individual making judgements.
about, and thereby transforming their perception of the source of learning. Similarly, as foreshadowed,Valsiner (1994) refers to the co-construction of knowledge, the reciprocal process of knowledge construction through which both the object and the subject are transformed. Analogously, the interactions between individuals and social practice are held to be reciprocal and interdependent between the social practice and the individual acting in that social practice. This engagement is coparticipative: an interaction between the affordance of the social practice and the quality of individuals’ engagement in that social practice.

**Summary and conclusion**

The conceptual significance of coparticipation at work can be seen as illuminating relations between the social world and the mind at intersections between the trajectories of the constantly transforming social practice of the workplace and individuals’ evolving ontogenesis as they participate in different kinds of social practice. Conceptually, it highlights the mutuality and irreducibility of these relations in ongoing processes that are associated with conscious thought and action. There is also intersubjectivity or relatedness that arise in these relations that are infinitely variable. Central to these relations are interpsychological processes that mutually transform both the object and subject. These transformations may be transformed qualitatively over time through ongoing coparticipation. However, even those proposing a strongly socially deterministic view (Hutchins 1991) also concede that there are intrapsychological outcomes that cannot be understood on the immediate or situational social plane alone. The agency of the individual plays an important role.

In these discussions, relations between doing, knowing and learning have been exercised and some fragments of these relations identified and some of their complexity illustrated. These only serve to indicate the extent of the task before psychological theories and practice. These include, understanding the relations between social practice and individuals’ thinking and acting further requires delineating and identifying the nature of the intersections, between social practice (i.e. workplaces) and how individuals engage in the social practice, the different kinds of intersections and relations, the different kinds of transformations in both interpsychological and intrapsychological processes as they occur and are embedded in both history and ontogeny.

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