Production strategies, work organizations, and learning processes in the industrial sector in Italy

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Workplace learning as participation in the perspective of Cultural Historical Activity Theory

This paper aims to focus on work activity as one of the contexts where older workers' learning needs and learning processes occur. Older workers engage in leisure and care activities where learning phenomena can be appreciated also. Yet this research evaluates the issue of older workers and learning as subject matter that relates to the aims of the Lisbon Strategy. Specifically, this strategy seeks to include older workers in lifelong learning and to keep their employability and participation in the labour market, in order to facilitate a knowledge driven economy. Therefore this research focuses on learning and work activity, even if references to learning in other types of activity - such as leisure one - will be made in the empirical analysis.

Bruner distinguishes two ways of considering learning:

- ✓ The cognitivist view: mind as computational devise > learning as transmission of information and acquisition. Knowledge is seen as unambiguous, coded, and independent from context.
- ✓ The culturalistic view: mind as shaped by use of human culture and develops through meaning making > learning as knowing and meaning making. Knowledge is seen as interpretative, ambiguous, dependent on the context, and often after the fact (Bruner 1997).

Since the research deals with workers, I need to develop the culturalistic view on learning taking into account learning related to work. I have chosen Cultural Historical Activity Theory (CHAT) as my theoretical framework to deal with older workers learning. In this theoretical perspective, learning is a cultural and social process of mastering and internalizing symbolic and material artefacts in carrying out activities with other individuals. Each activity is moved by a motive and object which give direction to the individual actions (Leont'ev 1978)[1]. The subjectivity is inextricably linked to the collective processes of material production. In activity theory there are no personal attitudes, but the self is seen as co-evolving with the activities and forming a hierarchy of motives, internalized,

[1] According to Leontiev, activity has a three-level structure and he theorizes a link between this structure and the individual subjectivity. Stetsenko and Arievich develop further this relation (see Stetsenko, A. and I. M. Arievitch (2004). "The Self in Cultural-Historical Activity Theory: Reclaiming the Unity of Social and Individual Dimensions of Human Development." Theory and Psychology **14**(4): 475-503.).

although through a process of meaning making, in the participation and acting on the objects of activities. The engagement of older workers in learning depends on the quality of relation workers have with the object of their working activity. This depends on the workplace organization. Where workers can get engaged with the object of the activity, they can develop needs of learning and therefore motive to learn. Where workplace organizations do not allow engagement with the object of the activity, workers can have fewer opportunities to develop learning needs and motive to learn. The engagement does also depend on the correspondence between the object/motive of the activity and the personal hierarchy of motives.

The relevance of work in providing learning opportunities is a recent acquisition that stems from the elaboration of Lave and Wenger (1991, 9-10) over the legitimate peripheral participation in communities of practice such as craft activities. Since then the studies carried out within this perspective[2] have shown many aspects of learning at work that include the different opportunities for learning in workplaces, the learning dynamic in teamwork and the role of power and interests in shaping these, the biographic dimension in the individual learning at work, and the institutional factors (Boud and Garrick 1999; Billett 2001; Engeström 2001; Fenwick 2001; Fuller and Unwin 2003; Rainbird, Fuller et al. 2004; Evans, Hodkinson et al. 2006; Khan, Shirani et al. 2008).

In these socio-cultural studies, the situated and social character of learning is widely acknowledged. Yet, despite the analyses carried out in different types of workplaces, since the study of Zuboff (1988) there are no comparative analyses between work contexts based on different strategies of production and neither are there comparative investigations on older workers' learning at work.

My aim is to argue that vocational learning issues have to be discussed in the light of the object of the activity in which people are involved, that is the type of production and strategy of production. So far socio-cultural studies on workplace learning have been on discussion of the most favourable features of workplaces for learning, without taking into consideration the constraints of the strategy of production (Billett 2001; Rainbird 2004; Rainbird, Fuller et al. 2004; Evans, Hodkinson et al. 2006). In some cases, these latter are mentioned, as in Fuller and colleagues (Fuller, Munro et al. 2004), who point out – with Keep and Mayhew (1999) - that the first and second orders choices of employers concern market, competitive strategy, work organization and job design, while learning is not a third order purpose. Yet these authors focus on power relations (Rainbird 2004) and organizational features (Fuller and Unwin 2004) without discussing management

[2] It is worth to note here that Lave's and Wenger's work, as well as the following studies which take inspiration from it, are not developed into the perspective of CHAT. However it is possible to appreciate some similarities with CHAT as the emphasis on practices and the conceptualization of human development as occurring through participation in these latter . See also Lave, J. (1993). The practice of learning. Understanding practice: perspectives on activity and context. S. Chaiklin and J. Lave. Cambridge, Cambridge University Press**:** 3-32.

decisions about competitiveness and production strategies. Moreover they do not consider the issue of how motive for learning develop. They consider individual characteristics to explain the interplay between contexts and individuals. Yet Fuller and Unwin, adopting the Bourdieu's concepts of habitus and field, tend to explain the different engagement of older workers with new forms of working through reference to individual characteristics and prior position in the system of relations of production (Fuller and Unwin 2005; Fuller and Unwin 2006). Referring to individual characteristics and prior status does not fully appreciate the current interplay between subjectivities and activities. In this research the subjectivity conceptualization is grounded in the past and present activities in which the older workers have been engaging.

Keep and Mayhew warn that discourses on vocational education should take into account the complexity of the production strategy to avoid political indications that will not be able to contribute to reach the desired outcomes of an affluent society and social inclusion:

"Current UK VET policies are failing to address these issues and appear incapable of acknowledging that skills are often a third-order issue. Unless and until first-order questions, such as choice of product market and competitive strategy, and consequent second-order decisions about work organization and job design, are confronted, the underlying causes of Britain's skills problem will continue to be ignored. The danger of policies and institutional devices (such as the National Targets for Education and Training) which concentrate on boosting the supply of qualifications and formalized skills and knowledge is that they appear to offer a relatively swift and simple short cut to a wide-ranging set of desired outcomes-increased economic competitiveness, greater productivity, rising GDP, and greater social inclusion-without having to confront complex and difficult choices about how businesses choose to compete."

(1999, 12)

My aim is to bring the concern about how businesses choose to compete into the analysis of workplace learning. Yet my focus is on the subjectivities of the older workers and how their engagement in workplace learning occurs. CHAT perspective allows connecting market strategy, workplace organization and individual subjectivity.

The correspondence between the motives embedded in the personal hierarchy of workers and the motives in the object of the industrial production can provide a way of interpreting the degree of engagement of workers in workplace. Workplace learning appears then as linked to the degree of engagement of worker in the workplace and this – in turn – can be interpreted as linked to the object of the production which shapes the workplace organization.

Strategies of production and workplace organizations

Strategies of production

From the literature reviewed, the strategies of production are discussed as interpretation of economic changes and tend to be seen as a sequence of models, where the latest overcomes the former (Herrigel 2004). Yet it is possible to find empirical evidence of past models operating in current enterprises that, although they may be considered to have

been overcome in the literature, are still present in the practices (Regini 1995; Victor and Boynton 1998; Huys and van Hootegem 2002).

The economic sociology, the sociology of organization, sociology of work and industrial sociology tell us about different market strategies. Yet these disciplines are not focused on the relation between the different market strategies and workplace organizations. However a careful discussion of works from these disciplines can provide useful elements to connect market strategies and workplace organizations (for a full discussion see (Migliore 2009).

The most popular strategy of production is the mass production with its Tayloristic way of organizing shop-floor. Since the development of mass production, other strategies have been developed to respond to changed circumstances and interpreted in the literature of economic sociology, sociology of work, sociology of organization and industrial sociology (Piore and Sabel 1984; Kern and Schumann 1991; Streeck 1991; Regini 1995).

From the 1970s new developments have changed the circumstances that previously operated the corporations organized in a Tayloristic way for the mass production. The spread of mass production enabled new corporations to emerge in other areas of the world, while the increasing saturation of domestic markets induced the search for new outlets as well as new economies of scale (Piore and Sabel 1984; Mathews 1989; Wood 1989; Hayter 1997). In other words, corporations now play on worldwide markets, tending more often to become transnational corporations, increasing competition in the markets, performing takeovers, bringing about the development of global information and financial services, producing interdependence and integration of the global market (Webster 2002, 68-73). At the same time the trend for the consumption of quality and diversity pushed the enterprises towards new concepts of production, both from the point of view of organization of production and work organization (Piore and Sabel 1984, 189-190; Kern and Schumann 1991). Similar scenarios effected the rise of the cost of the labour force and raw materials (Della Rocca and Fortunato 2006, 54). Moreover the introduction of the information technologies in manufacturing allows and requires new forms of flexibility (Piore and Sabel 1984; Mathews 1989; Castells 1996) as well as the possibility of corporation's global localization (Webster 2002).

All these changes have been discussed in literature with different approaches and theoretical frameworks in search of the identification of the new emerging paradigm of industrial organization. It can be found discourses on flexible specialization (Piore and Sabel 1984), diversified quality production (Streeck 1991; Regini 1995), mass customization and co-configuration (Victor and Boynton 1998), lean production (Womack, Jones et al. 1990), flexible mass production (Boyer 1987; Regini 1995). I now present each of these strategies in turn, emphasizing the implications for workplace organization.

In the flexible specialization (Piore and Sabel 1984), whose object is to produce a wide and changing array of products with skilled workers using multi-purpose machinery, the worker participates in the design of work reflected on computerisation and reprogramming systems. Since the production is flexible, the labour process is less standardized and dotted with unpredictable inconveniences. To be efficient it needs employees who are able to intervene and solve the mishaps, but more often than in other types of production, employees need to know the entire production processes to be able to respond adequately and improve the overall system (Webster 2002, 90-91).
Initially the authors have referred to flexible specialization as a mode of production typical of small and medium enterprises (SMEs), however, Sabel later argued how large firms have tried to elaborate a strategy similar to the one of SMEs and take advantage of the flexibility of SMEs as subcontractors (Sabel 1989).
Boyer interprets this latter as a new paradigm of industrial organization which he calls as flexible mass production: compared to the traditional mass production, this is able of a larger variability of product and design by means of a flexible programmable automation (1987). Regini develops further this ideal-type with respect to skills. He points out that its strategy to meet changing demand and volatile markets keeping prices down is based on a internal polarization of the employment structure (1995). It implies a reduction of skilled personal and less emphasis on technical abilities to employ low skilled workers and save labour cost. On the opposite, high-level skills employees are concentrated in sales, marketing, and customer relations.
Yet this debate on work organization in large firms is complex. Other authors - belonging to sociology of organization and industrial sociology - prefer to emphasize the emerging of new models of workplace organization, such as Toyotism and Lean Production, based on the principle of process enhancement.
Strategies and techniques to enhance the work process were first developed by the Japanese car manufacture Toyota. It takes the name Toyotism or Toyota system (Ohno 1988), that has spread in the United States and more recently in Europe. Womack and his colleagues, who wrote the most quoted book on process enhancement, call this type of production and work organization "Lean Production" since it aims at reducing all sorts of waste of time, space and resources through a continuous improvement in the production organization (Womack, Jones et al. 1990). The enhancement is also pursued with respect to the quality of the product. Each worker can ideally stop the assembly line if they discover a defective part or are falling behind. In this system, cooperation and teamwork are necessary with possible interruption to analyse in depth the reasons for a particular problem (Ohno 1988; Womack, Jones et al. 1990; Della Rocca and Fortunato 2006). Such workplace organization softens the Tayloristic principles of tasks fragmentation, separation of cognition from execution, control and supervision. The workers have

broader skills and tasks and the role of managers is transformed from controllers to coaches (Mathews 1989; Victor and Boynton 1998). Skilled workers with multiple tasks are now required and welcomed to give feed-back and suggestions about the design of work process to the production engineering.

A similar strategy of production is the 'diversified quality production' (DQP) proposed by Streeck (1991) and elaborated further by Regini (1995). This latter author refers to DQP as a strategy adopted by firms to compete on quality and price. They respond to the competition from low-wage economies orienting their products to higher market segments and through customization[3]. Quality is achieved by significant organizational and coordination capacities: this implies high and broad skills of the whole workforce and its involvement in the firm constant tension towards improvement and incremental innovation.

The trend of concentrating on the core competence has brought about the development of networks of firms (Powell 1990; Castells 1996; Helper, MacDuffie et al. 2000; Sturgeon 2002; Whitford and Zeitlin 2002; Bonazzi and Negrelli 2003). Debate is widespread and organized in many different threads, mainly with reference to the US case. What is relevant for this research is that the relationship between cognition and execution emerges again (Herrigel 2004; Sabel 2004). Instead of finding such an issue in the interior of the firm as in the mass production, it is now located in the network of the firms. In the modular hypothesis, increased codification and standardization of designing modular parts of the final product, allows outsourcing of modules of production (Baldwin and Clark 2000; Sako and Murray 2000; Sturgeon 2002; Baldwin 2007), bringing about a separation between design and production. In the pragmatic collaborations hypothesis, cognition and execution are fused in an institutionalized practice of learning by monitoring through which teams of workers from different firms deal with simultaneous engineering, benchmarking and control/correction of errors (Sabel 1994; Helper, MacDuffie et al. 2000). Firms are moved to pragmatic collaborations by high uncertainty and volatility of markets.

In general terms, these new forms of production appear to be characterized by the need to promptly respond to market changes, produce high-quality, high-value-added products and services. This required a revision of the production direction. If in the Fordist production the flux model of information followed the planning of the top management, along top-bottom lines towards the market, including the creation of needs of consumption in the mass, now most of the literature conceptualizes the current organization of production as "market driven" (Della Rocca and Fortunato 2006, 56). This remark sheds

[3] For a clear definition of what is customization and examples of firms adopting customization see Victor, B. and A. C. Boynton (1998). Invented here. Maximizing Your Organization's Internal Growth and Profitability. Boston, MA, Harvard Business School Press. It is a vision and approach from a consultants point of view.

further light on the current historical object of capitalistic industrial production. Taking into account the contribution of Castells (2000), the object of the industrial production is producing a certain type of goods according to a more differentiated and volatile markets demand and using a new type of organizational culture[4] that tends to enhance flexibility, save labour, interact with information technology, and manage knowledge and information. With reference to CHAT, this observation on the market as the driving force points out the motive of the production activity at the end of the XX° century.

Workplace organizations

With respect to workplace organizations, I am interested in one of the organizational principles of the Tayloristic organization of work. This is the separation between conception and execution: managers organize the labour process; workers execute tasks and jobs as these have been designed by managers.

The relation between conception and execution reflected in workplace organizations is relevant to the issue of learning[5]. Where cognition and conception of aspects of the labour process are allowed, workers can get engaged with the object of the activity, develop learning needs and motive to learn. Where organizations of workplace do not promote, value, and support cognition and conception of aspects of labour process, workers may find fewer opportunities to develop learning needs and motive to learn[6].

Indeed, from the presentation of production strategies and organizations of workplace it appears that this separation can reach different degrees, from the most Tayloristic way of organizing work in some mass production activities to lean production and Toyotism which transform the workplace organization towards more participative work practices. In the first case, which corresponds to the Fordist model of producing, the separation between conception and execution and the limitation of mediated cognition about production activity can be at its highest level. In the second case, identified by some authors as post-Fordism, this can be moderated, allowing some degrees of conception and cognition

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[4] Instead of organizational culture, Castells uses the locutions 'legitimating principle' and 'ideational bases'. I deem that the locution 'organizational culture' can interpret what Castells refers to, because he inserts his discourse in a reflection about cultures that frame economic strategies. More precisely he writes: "The culture that matters for the constitution and development of a given economic system is the one that materializes in organizational logics ..." Castells, M. (2000). The Rise of the Network Society. Oxford - Malden, Blackwell., 164.

[5] For a full discussion of the relation between the organizational principle of separation between execution and cognition, and learning see Migliore, M. C. (2009). Older workers and learning in the industrial sector: when participation and objects matter. London, Institute of Education. I use ideas from Vygotsky's and Leontiev's works to pull out interpretations of the significance of this principle for learning.

[6] Huys and van Hootegem discuss how to increase regulation capacities for workers as a way of enhancing learning opportunities Huys, R. and G. van Hootegem (2002). A Delayed Transformation? Changes in the Division of Labour and Their Implications for Learning Opportunities. Work Process Knowledge. N. Boreham, R. Samurcay and M. Fischer. London, Kogan Page.. They compare traditional tayloristic and lean production assembly lines in car industry to a theoretical design of assembly line aimed at mobilising knowledge and experience of workers. Yet they do not focus on the issue of the motivational implications of regulation capacities.

as legitimized. Here workers may not be involved in the planning of their jobs and tasks, but they can be asked to critically think and give feedbacks - which imply cognition - about the way labour process is organized and thus have some influence on the design of tasks or autonomy in working practices. However cognition about the production activity can occur despite the Tayloristic way of organizing work. What is different is that in the Tayloristic case cognition is unwelcome and little room is allowed to its development, while in the second case it is encouraged, legitimized and appreciated at different degrees.

The strategies of industrial production found in literature are listed in the following table, grouped according to the organizational principle on the separation between conception and execution in shop-floor they tend to be associated with.

Table – Typology of strategies of production based on the relation between execution and cognition (the sign & stands for conjunction and the sign # stands for separation)

Strategies of production	*Relation between execution and cognition*	*Typology*
Craft Flexible specialization Pragmatic collaborations Process enhancement	Execution&cognition	Type 1
Mass production Flexible mass production Modular systems	Execution#cognition	Type 2

It is my intention to investigate with the lenses of CHAT how older workers engage with the object of the activity and develop motive for learning. In particular, I want to analyze the role played by degrees of autonomy in changing working practices or degrees of influence on the design of tasks and jobs. With this research I want to move some ways forward the understanding of the mechanisms that explain the relation between workplace organizations and learning. I will come back to this issue in the empirical work.

Older workers and learning

The cognitive approach considers older workers' development from a biological point of view, playing down the role of the social and cultural side. So in the absence of further biological development which occurs in the first part of the life, the cognitive approach considers only decline of mental capabilities. Yet, as reported by Billet, referring to the works of Baltes & Staudinger, and Sigelman, the older workers' capacities and knowledge developed through experiences can be important to compensate the slower nervous system:

" … the evidence also suggests that older adults have developed significant memories and capacities that are highly effective in resolving problems and performing effectively in work-related roles. This capacity can compensate for slower nervous system (Baltes and Staudinger, 1996), because the level of performance is not dependent on processing capacity alone. For instance, while typing speeds might decline with age, older typists are as efficient as younger typists, possible because their wealth of previous experiences allows them to predict and execute the typing task more efficiently than the younger counterparts: "…while older adults may develop specialised knowledge and strategies that may compensate for these losses." (Sigelman, 1999:229)"

(Billett 2006, 160)

Billet adds that the older workers' exercise of agency can find support and favourable conditions in the workplace (2006, 161).

In the sociological and human resources approaches the management, the working conditions, employer's support and the trades union's attitude emerge as necessary for the older workers' participation in learning activities (Warr and Birdi 1998; Tikkanen and Nyhan 2006). Yet, it is not clear the mechanisms through which older workers can get engaged in learning. The assumption underlying this type of studies seems to be that older workers could get engaged in learning if they had more support from the companies and training systems more adapt to their specificity (experiences and personal interests). It corresponds to the economic model of demand and supply, supported by incentives. This implies a view of learning as an individual endeavour, based on willing and in which learning needs don't matter. Moreover these studies tend to consider all types of workplaces to be similar and fail to thematize the link between learning and strategies of production.

On the basis of a life course approach, educational gerontology points out how erroneous it is to consider older people as a homogeneous group (Settersten 2006). This research acknowledges the specificity of contexts and bound its investigation to older workers with low education in the industrial sector.

The educational gerontology was certainly enriched by the critical perspective too, which contributed to overcome the dominance of the psychological 'deficit' model of older

adults' learning abilities (Formosa 2002). Yet some parts of the literature stresses the communal effort needed across the different groups of older people, in order to proceed in the process of liberation from the subjugated role. In this way the emphasis is again on the indifferentiation of older people to the detriment of their subjectivity.

The invitation of the educational humanist gerontology to consider the review and interpretation of the past as the characteristic of growing old also stresses the relevance of older workers' subjectivity. The contribution of the humanist approach is to frame older workers' subjectivity in the process of growing old. This means to investigate how older workers give meanings to their past life experience as an element to interpret their engagement with the present. While I acknowledge the relevance of the theme of the meaning of growing old and the role of the past in it, I take a different stance from Moody who adopts a cognitivist view on personal development. I refer to the cultural historical approach to take into account subjective ways of growing old in the issue of older workers' learning.

I note that Leontiev also points out the role of the past review in self development, underlining that "the contributions of past experience to self were dependent on self itself and became its function" (1978). Once again it is stressed that the past experiences can be re-interpreted according to the cultural-historical development of the self. On the basis of this view, it is important to allow room to the subjectivity of the older worker in the analysis to understand his or her engagement in learning in function also of her/his interpretation of past experiences.

The concept of past experiences – for its relevance in the process of growing old - requires some specifications. Fischer, in his discussion of the definition of labour process knowledge[7], investigates the conceptualization of experiences. Drawing on Hegel's dialectical account of experience, he distinguishes between having experiences and making experiences. Elaborating his remarks to deepen his brief mention to the differences between the two types of experiences, in the first case it prevails the immediate sense perception, while in the second this latter is enriched by imagination, memories, emotions and thought. As I can interpret, a person makes experience when she uses this latter to appropriate and internalize cultural elements to be used in following actions.

Few lines from a poem of Eliot, quoted by Moody (1990) remind that even experiences that were not enriched can find a meaning later and this latter has an historical aspect:

[7] Labour process knowledge develops in context of work where theoretical knowledge is not sufficient to cope with the tasks assigned and practical knowledge acquired through experiences is also crucial. This is typical – according to the scholars who introduced the concept of labour process knowledge – in workplaces where computer-aided tools have been introduced. I will come back to this concept in Chapter Five.

"... We had the experience but missed the meaning,
And approach to the meaning restores the experience
In a different form ... I have said before
That the past experience revived in the meaning
Is not the experience of one life only
But of many generations ... (p. 39)"

Research Design

This research focuses on the relation between the object of the industrial activity and the subjectivities of workers, as mediated by the workplace organization, in order to get insights on the motivational aspects for workplace learning. As mentioned above, most of the socio-cultural studies focus on the collective side and when they attempt to include the individual motivational aspects, they frame the discourse as reciprocal influences between the workplace and the workers through individual dispositions as conceptualized by Bourdieu. When the analysis refers to motivational issue, they tend to use the cognitivist concept of motivation. To be consistent with the adoption of CHAT, I conceptualize motivation as motive for learning related to the correspondence between the self as individual hierarchy of motives and the motive/object of the industrial production in which the older workers participate. This relationship between the self and the object of activity is mediated by the workplace organization and its degree of autonomy and regulatory capacity allowed to workers.
This research aims to answer the following questions:

- How do older workers engage in learning? Do strategies of production affect their engagement in learning?
- How their subjectivities play in engaging in learning?

The research design is shaped by both the theoretical framework and the research questions. The focus of this research on the relation between strategies of production and older workers' learning requires the application of case study method. Two case studies are carried out, one on an enterprise identified as an example of flexible mass production and the other one as an instance of flexible specialization. However, the data are mostly collected at individual level, configuring a multiple embedded case study. Data from older workers and other key individuals in the enterprises are collected through free discursive interviews. These are transcribed following a code of notations that highlights subjective aspects in the individual narrative (Poland 2002; Cardano 2003; Cardano 2007). Together with interviews, other types of documentation on the two enterprises are collected.
The analysis of the transcripts and other documents is carried out with constant comparative method (CCM) (Boeije 2002) that I apply in an original way. As I have commenced

this study employing theoretical categories, I will use these to support the interpretation of the themes surfacing from the interviews. However, they are seen as provisional and need to be refined in the comparison with the themes and dimensions emerging in the interviews.
The theoretical framework, drawing on CHAT and the thick literature on sociology, provides a set of theoretical propositions which allow logical inference and generalization of the relation between strategies of production and older workers' learning. However, such a relation, if confirmed, is seen as probabilistic and not deterministic.
I selected case studies in the region of Piedmont, in the area of Turin. This Italian region presents an ageing trend of the workforce as well as a context of significant transformation from the traditional manufacturing economy towards an economy in which high-value-added products and services are strategic and production is market-driven.

Preliminary results

So far the analysis of the data confirms profound difference of older workers' engagement in workplace learning in the two types of industrial strategies. In the flexible specialization production (FSP) the object of the industrial activity has allowed workers to learn and develop skills and professional capacity. In the flexible mass production (FMP) workers complain about what they are been taught in vocational training courses and how the labour process is then shaped by practices which contradict the content of the courses. They complain they are not told about the functions and place of components they assembly in the final good. In fact, they have difficulties to describe the functions of the components they assembly. However some of them keep samples of these components at home, showing involvement with their jobs.
In both companies older workers critically judge the workplace organizations and working practices from their professional experience, often developed in other firms. In both companies older workers lack of knowledge of the whole labour process, details about the contract supplies they are working for (for whom, what deadline).
However levels of frustration are very different. In the FSP older workers say they are proud of the level of professionalism they have achieved. Most of the conversation in the interviews focuses on how they have mastered the job; they explained me the complexity of their jobs, the use of machine tools and the role of experience in using these; the relations with the younger colleagues; the differences with other firms; suppositions on the business of the firm. In this type of production older workers carry out whole phases of labour process, lasting even two-three days, and giving them autonomy and responsibility. The level of disappointment seems very low and marginal.
In the FMP older workers did not focus on professionalism, but they tended to shift the conversation towards complaints about conditions of work and relations with the supe-

riors. They have ideas about how the tasks should be organized and the efficient allocation of workers in the labour process. In other words it seems that they are frustrated for they are not able to influence the labour process and suffer from the consequences of decisions made (or not made) by superiors.

Workplace learning appears as a cognitive process intimately connected to the object of the industrial production. Learning appears as embedded in the engagement with the object of the activity which is declined in tasks and jobs in the shop floor. However the engagement with jobs and tasks is different in FMP and in FSP. In this latter engagement is described by an older worker as something that happens because one ends up to like the job he/she is doing, especially if you can engage with other colleagues to enhance the process. In the FMP older workers also show engagement, but it is an engagement made of discontentedness, profound disappointment, and sometimes anger. The high level of discontentedness seems linked to the lack of influence on the labour process and the position of being subjugated to decisions they do not share and that they judge as not grounded on competence. In the case of FMP, potential professional development of workers – useful to keep employable workers when they are older - seems wasted because workplace organizations do not allow them to use the knowledge they have developed in their workplace learning.

Other studies have already pointed out the importance of workplace organizations in fostering opportunities for learning. This is confirmed in this study too. Yet here the object of the activity emerges as pivotal because older workers engage with it. The engagement is with the object of the activity and this engagement provides the motive for learning. In particular the motive for learning emerges in the meeting between the self of the older worker and the motive behind the task or job she/he is carrying out. When the object of the industrial activity is the production of goods with high quality, and older workers are also keen on quality, the engagement is high and learning is just part of the activities they carry out. It is interesting to notice that being keen on quality seems a symbolic artefacts older workers have been internalized (and subjectively developed) in their professional life (if not as citizens in social and economic contexts in which quality has become a dominant discourse).

In this framework, workplace organization provides the conditions about how learning occurs, as already pointed out by other authors, but not the motive for learning, which, as stressed in this research, is linked to the meeting between the motive (object) of the activity and the subjectivity of the older workers.

The analysis of interviews and other materials is in progress and focusing on the relation between the object of activities and the subjectivities of older workers to seize the characteristics of the engagement and motive for workplace learning, in particular in the FMP.

Conclusion

The research argues the importance of taking into account the object of the activity in interpreting the engagement of older workers in workplace learning. The role of workplace organization seems less crucial for motivational aspects than what was expected. Adopting in a modified way the contribution of Brown (2001), policies on lifelong learning and active ageing should take into account the type of economic development they support as an aspect of the social capacity for higher skills.

References

Baldwin, C. Y. (2007). Modularity, Transactions, and the Boundaries of Firms: A Synthesis. Boston, MA, Harvard Business School.

Baldwin, C. Y. and K. B. Clark (2000). Design Rules. The power of modularity. Boston, MIT Press.

Billett, S. (2001). "Learning Throughout Working Life: Interdependencies at Work." Studies in Continuing Education **23**(1): 19-35.

Billett, S. (2006). Work, change and workers. Dordrecht, The Netherlands, Springer.

Boeije, H. (2002). "A Purposeful Approach to the Constant Comparative Method in the Analysis of Qualitative Interviews." Quality & Quantity(36): 391-409.

Bonazzi, G. and S. Negrelli, Eds. (2003). Impresa senza confini. Percorsi, strategie e regolazione dell'*outsourcing* nel post-fordismo maturo. Milano, Franco Angeli.

Boud, D. and J. Garrick, Eds. (1999). Understanding Learning at Work. London, Routledge.

Boyer, R. (1987). The Eighties: The Search for Alternatives to Fordism. Sixth International Conference of Europeanists. Washington, DC.

Brown, P. (2001). Skill Formation in the Twenty-First Century. High Skills. Globalization, Competitiveness, and Skill Formation. P. Brown, A. Green and H. Lauder. Oxford, Oxford University Press**:** 1-55.

Bruner, J. (1997). The Culture of Education, Harvard University Press.

Cardano, M. (2003). Tecniche di ricerca qualitativa. Roma, Carocci.

Cardano, M. (2007). Notazione ATB per la trascrizione delle interviste discorsive. Turin, Social Sciences Department -University of Turin**:** 7.

Castells, M. (1996). The Rise of the Network Society. Oxford, Blackwell.

Castells, M. (2000). The Rise of the Network Society. Oxford - Malden, Blackwell.

Della Rocca, G. and V. Fortunato (2006). Lavoro e organizzazione. Dalla fabbrica alla società postmoderna. Roma-Bari, Laterza.

Engeström, Y. (2001). "Expansive Learning at Work: toward an activity theoretical reconceptualization." Journal of Education and Work **14**(1): 133-156.

Evans, K., P. Hodkinson, et al. (2006). Improving Workplace Learning. London and New York, Routledge.

Fenwick, T., Ed. (2001). Sociocultural Perspectives on Learning Through Work. San Francisco, CA, Jossey Bass/Wiley.

Formosa, M. (2002). "Critical Gerogogy: developing practical possibilities for critical educational gerontology." Education and Ageing **17**(1): 73-85.

Fuller, A., A. Munro, et al. (2004). Introduction and overview. Workplace learning in context. H. Rainbird, A. Munro and A. Fuller. London, Routledge**:** 1-18.

Fuller, A. and L. Unwin (2003). "Learning as apprentices in the contemporary UK workplace: creating and maintaining expansive and restrictive participation." Journal of Education and Work **16**(4): 407-426.

Fuller, A. and L. Unwin (2004). Expansive Learning Environments: Integrating organizational and personnel development. Workplace Learning in Context. H. Rainbird, A. Fuller and A. Munro. London, Routledge.

Fuller, A. and L. Unwin (2005). "Older and wiser?: workplace learning from the perspective of experienced employees." international Journal of Lifelong Education **24**(1): 21-39.
Fuller, A. and L. Unwin (2006). Expansive and restrictive learning environments. Improving Worplace Learning. K. Evans, P. Hodkinson, H. Rainbird and L. Unwin. London and New York, Routledge**:** 27-48.
Hayter, R. (1997). The Dynamics of Industrial Location: The Factory, the Firm and the Production System. Chichester, John Wiley and Sons.
Helper, S., J. P. MacDuffie, et al. (2000). "Pragmatic Collaborations: Advancing Knowledge While Controlling Opportunism." Industrial and Corporate Change **9**(3): 443-448.
Herrigel, G. (2004). "Emerging Strategies and Forms of Governance in High-Wage Component Manufacturing Regions." Industry and Innovation **11**(1/2): 45-79.
Huys, R. and G. van Hootegem (2002). A Delayed Transformation? Changes in the Division of Labour and Their Implications for Learning Opportunities. Work Process Knowledge. N. Boreham, R. Samurcay and M. Fischer. London, Kogan Page.
Keep, E. and K. Mayhew (1999). "The assessment: knowledge, skills and competitiveness." Oxford Review of Economic Policy(15): 1-16.
Kern, H. and M. Schumann (1991). La fine della divisione del lavoro? produzione industriale e razionalizzazione. Torino, Einaudi.
Khan, A., F. Shirani, et al. (2008). "The Prawn Sandwich Will Live Forever": Learning to Innovate in Commercial Sandwich Production. Learning as Work Research Paper. Cardiff, Cardiff School of Social Science, Cardiff University**:** 39.
Lave, J. (1993). The practice of learning. Understanding practice: perspectives on activity and context. S. Chaiklin and J. Lave. Cambridge, Cambridge University Press**:** 3-32.
Lave, J. and E. Wenger (1991). Situated learning. Legitimate peripheral participation. Cambridge, New York, Port Melbourne, Madrid, Cape Town, Cambridge University Press.
Leont'ev, A. N. (1978). Activity, Consciousness, and Personality. Englewood Cliffs, N.J., Prentice-Hall.
Mathews, J. (1989). Tools of change: new technology and the democratisation of work, Pluto Press.
Migliore, M. C. (2009). Older workers and learning in the industrial sector: when participation and objects matter. London, Institute of Education.
Ohno, T. (1988). Toyota Production System. Beyond Large-scale Production. New York, Productivity Press Inc.
Piore, M. J. and C. F. Sabel (1984). The Second Industrial Divide. New York, Basic Books, Inc.
Poland, B. D. (2002). Transcription Quality. Handbook of Interview Research. Method&context. J. F. Gubrium and J. A. Holstein. Thousand Oaks, London, New Delhi, Sage**:** 629-649.
Powell, W. (1990). Neither Market Nor Hierarchy: Network Forms of Organizations. Research in Organizational Behavior. L. L. Cummings and B. M. Staw. Greenwich, JAI Press. **12:** 295-336.
Rainbird, H. (2004). The employment relationship and workplace learning. Workplace Learning in Context. H. Rainbird, A. Fuller and A. Munro. London, Routledge**:** 38-53.
Rainbird, H., A. Fuller, et al., Eds. (2004). Workplace Learning in Context. London, Routledge.
Regini, M. (1995). "Firms and institutions: the demand for skills and their social production in Europe." European Journal of Industrial Relations(1): 191-202.
Sabel, C. F. (1989). Flexible Specialization and the Re-emergence of Regional Economies. Reversing Industrial Decline? Industrial structure and policy in Britain and her competitors. P. Hirst and J. Zeitlin. Oxford, Berg**:** 17-70.

Sabel, C. F. (1994). Learning by Monitoring: The Institutions of Economic Development. The Handbook of Economic Sociology. N. J. Smelser and R. Swedberg. Princeton, Princeton University Press.
Sabel, C. F. (2004). "Pragmatic Collaborations in Practice: A Response to Herrigel and Whitford and Zeitlin." Industry and Innovation **11**(1/2): 81-87.
Sako, M. and F. Murray (2000). Modules in Design, Production and Use: Implications for the Global Automotive Industry. International Motor Vehicle Program. Cambridge.
Settersten, R. A. J. (2006). Aging and the Life Course. Handbook of Aging and the Social Sciences. R. H. Binstock and L. K. George. Amsterdam, Elsevier**:** 3-17.
Stetsenko, A. and I. M. Arievitch (2004). "The Self in Cultural-Historical Activity Theory: Reclaiming the Unity of Social and Individual Dimensions of Human Development." Theory and Psychology **14**(4): 475-503.
Streeck, W. (1991). On the Institutional Conditions of Diversified Quality Production. Beyond Keynesianism: The Socio-Economics of Production and Employment. E. Matzner and W. Streeck. London, Edward Elgar**:** 21-61.
Sturgeon, T. (2002). "Modular Production Networks: A New American Model of Industrial Organization." Industrial and Corporate Change **11**(3): 451-496.
Tikkanen, T. and B. Nyhan, Eds. (2006). Promoting lifelong learning for older workers. An international oveview. Cedefop Reference series. Luxembourg, Cedefop.
Victor, B. and A. C. Boynton (1998). Invented here. Maximizing Your Organization's Internal Growth and Profitability. Boston, MA, Harvard Business School Press.
Warr, P. and K. Birdi (1998). "Employee age and voluntary development activity." International Journal of Training and Development **2**(3): 190-204.
Webster, F. (2002). Theories of the Information Society. New York, Routledge.
Whitford, J. and J. Zeitlin (2002). Governing Decentralized Production: Institutions, Public Policy, and the Prospects for Inter-Firm Collaboration in US Manufacturing, University of Wisconsin-Madison.
Womack, J. P., D. T. Jones, et al. (1990). The machine that changed the world, Rawson Associates&Macmillan
Wood, S. (1989). The Transformation of Work? Skill, Flexibility and the Labour Process. London, Unwin Hyman.
Zuboff, S. (1988). In the Age of the Smart Machine. London, Heinemann.