

Work Organisation and Development of Competencies. Organisation, Learning and Competencies (OLC) project

Gabriella Di Francesco*, Giuseppe Della Rocca, Giovanni Passarelli**, Fabio Roma***

*ISFOL - Institute for the Development of Vocational Training for Workers
Learning Systems and Methodologies Department
Via G.B. Morgagni 33 - 00161 Rome (Italy)
E-mail: g.difrancesco@isfol.it, f.roma@isfol.it

**University of Calabria
Department of Sociology and Political Science
Ponte Bucci – Cubo 0B
87036 Arcavacata di Rende (CS)
E-mail: giuseppe_dellarocca@alice.it, gpassarelli@unical.it

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Introduction

This paper intend to offer an overview of the diffusion of employee skills in the Italian manufacturing and services sectors and the relationship between their level and the organisational context.

The work follows on from the project carried out by ISFOL, in collaboration with ISTAT: 'Organisation, Learning and Competencies' (OLC). In 2003, ISFOL set up the OLC project, with the goal of improving our knowledge of the competences expressed and required in industry and the factors influencing their development. The project was divided into two major areas of survey, both independent of each other but strictly correlated in their content:

- 1. The survey on workers.** This was based on interviews using the CAPI method on a sample of over 3,600 subjects, stratified so as to represent a universe of around 9 million workers in Italian firms (excluding those in the extracting and building industries), aged between 15 and 64. The questions, on work perception and overall work conditions, were in ten sections: work position; general aspects of work; features of the organisation; skills, commitment and expended effort in carrying out the job; the exercise of discretion; skills training; 'required' competencies; pay, working hours and industrial relations; the situation in previous years and recent changes, and personal details of the worker.
- 2. The survey on firms.** This involved a stratified sample of around 1,800 'local units' from firms with at least eleven employees from the census of the Statistical Archive of Active Firms of ISTAT, the Italian National institute of Statistics. The subjects of the survey, also carried out with the CAPI method, were managers in charge of a local unit, in the case of a firm with several production units, and entrepreneurs in the case of smaller single-premises firms.

This present work is based exclusively on the survey on workers carried out between 2004 and 2005. Its aims are to analyse the skills of workers in the manufacturing and services industry, on the basis of the job they effectively carry out, and then to study the relationship of the development of skills to the organisational context. We will consider two aspects of skills in particular: qualification and competencies.

By qualifications we refer to the stock of knowledges required of workers, usually referred to as *broad skills*. Qualification does not only mean the ability or dexterity necessary to carry out a job, but refers to a more extensive use of the term which involves the concepts of knowledge and experience above all others. Qualification in this case means the capacity to do a job thanks to the knowledge acquired at school, in training courses and in learning on the job.

Conventionally, workers' ability or skill in carrying out a determinate activity in their work is deduced from their educational or other professional qualifications. It is however recognised that the changes that have occurred in the production field since the eighties have made this approach less effective in identifying the acquired or required abilities that are necessary for an individual to effectively carry out a specific job (Leoni, 2006).

Today this function is carried out more effectively by the concept of competencies, also known as *generic skills*. Competencies are those knowledges that are part of the cultural baggage of a worker, that can be brought to bear in any kind of occupation or organisational context, and which form the basis of any success in the labour market (Payne, 2004). They include: knowing how to read and write, mathematical skills, communication skills, problem-solving, developing others' skills, and so on. Generally speaking, the concept of competence involves attitudes innate to a person that are unconnected to the job they are doing, and also contextual elements linked to the behaviours required to carry out the job.

In the following paragraphs, we will analyse how qualifications and competencies are distributed within occupations and economic sectors, and then study the relationship between their development and the organisational context in which they are applied.

Qualification and organisational context

In the OLC survey, as in the British surveys, information on workers' qualification was based on the following information.

- The educational qualification required to perform the job;
- The length of training needed before starting the job;
- The time spent in learning how to do the job effectively.

These indicators were already successfully employed in surveys carried out in the UK (Ashton *et al.* 1999, Gallie *et al.* 2002, Felstead *et al.* 2007)

The first indicator is the educational qualification required. This allows us to measure the stock of acquired knowledge that is effectively required by the labour market and to find out, over various time periods, if jobs are becoming more qualified or not (although in our case this is not at present possible, since we lack data for comparison with past years). The indicator should also be of use to help orient public education policies. All the interviewees were therefore asked: *'If someone applied for your job, what school qualification would they need to have, in your opinion?'*

The second indicator is based on the amount of training time for the job in question. The premise behind this measure is that the longer the training period, the higher the level of knowledge and required skill to do a specific job. The interviewees were asked: *'before starting work in the position you now hold, did you have to follow any training courses? – (Yes/no)'* *'If yes, how long did the courses last?'*

The third indicator, constructed along the same lines as the second, deals with the time taken to learn how to do a certain job. Interviewees were asked. *'How long did it take you to learn how to do well and reliably the type of work you are now doing?'* Here also, the implication is it takes longer to learn how to do more complicated jobs.

For each of these indicators, we calculated these indexes:

- The **Required Qualifications Index** was calculated from the responses: Compulsory School=1; Compulsory School + 1-3 years of vocational qualification 2=2; High School Certificate=3; Degree or above=4
- The **Training Time Index** was calculated from the responses: none=0; few hours in a day=1; one day=2; 1-3 days=3; few days =4; one week=5; 1-4 weeks= 6, more than a month = 7
- The **Learning Time Index** was calculated from the responses: Less than 1 month=1; 1-3 months=2; 3-6 months=3; 6-12 months=4; 1-2 years=5; over 2 years=6

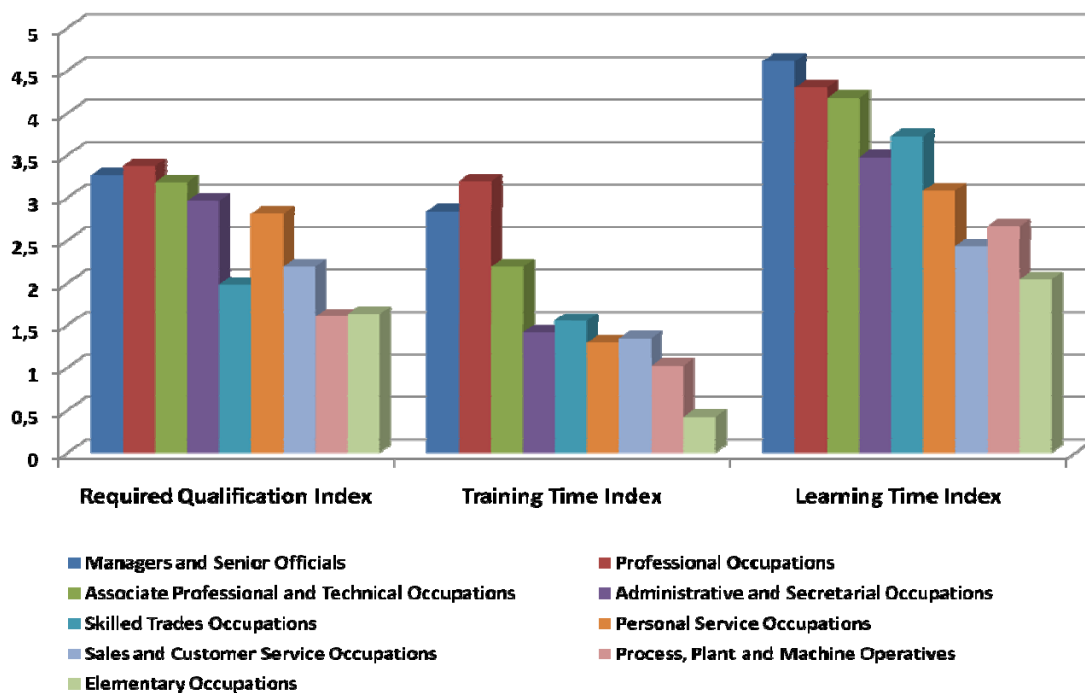
In analysing the qualification distribution we have specified the average index point obtained from the various groups of workers.

2.1. The distribution of Broad Skills

Graph 1 shows the relationship between broad skills and occupational role. Generally speaking, there is an obvious relationship between the occupational hierarchy and the qualification requirement. For example, the qualifications index goes from 1.60 for elementary occupations to 3.26 for managers. The training time index is basically similar, with a higher value for professionals than for managers, while the learning time index also corresponds to the occupational hierarchy.

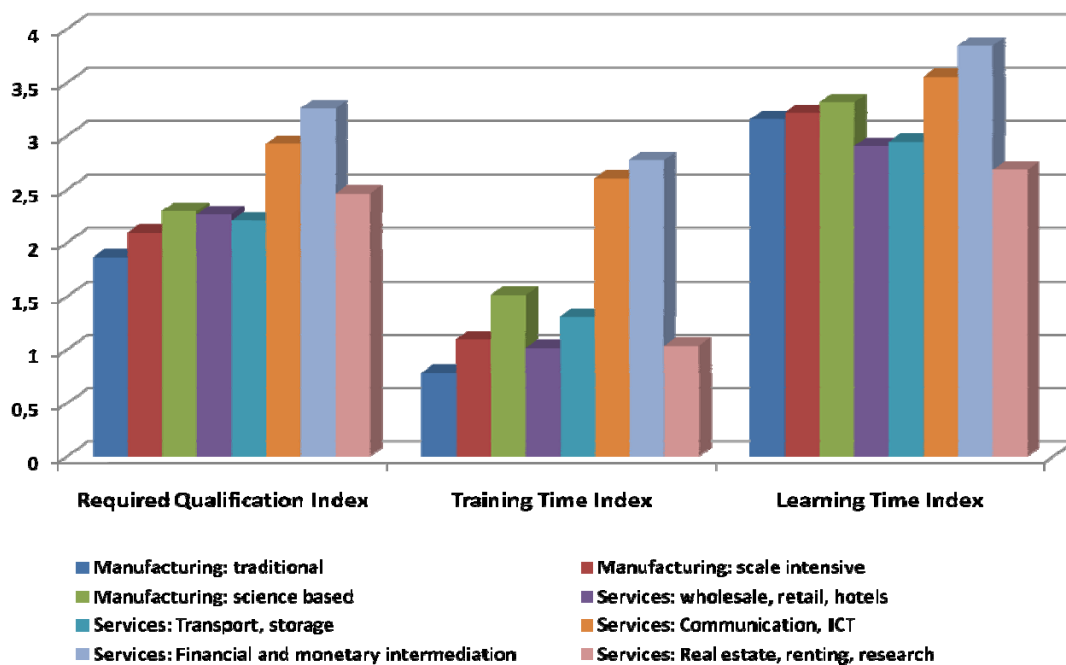
Clearly, therefore, the stock of knowledge has a direct relationship to the hierarchy of occupational roles. There are, however certain exceptions - as regards, for example, the process, plant and machine operatives, whose jobs require on average a learning time that exceeds that of sales and customer service occupations; or the training time for professional occupations which is longer than that for managers, and also the personal service occupations which require educational qualifications that are considerably higher than the skilled trades occupations and almost equal to those of office workers.

Graph 1 – Broad Skills Index by Occupations



Graph 2 shows the relation between economic sector and qualification index. The most obvious item of data, as one might expect, was that higher qualifications were required in the advanced services sector: monetary and financial intermediation, and communications and ICT. In these sectors, all three indexes are considerably higher than in the other sectors. One should note, however, that the qualification required in the most innovative of the manufacturing sectors, the science based sector, according to Pavitt's classification (1984), is at a higher level than that required in more traditional services such as commerce and transport, and the training time is the highest of all, with the sole exception of the advanced services sector. A similar picture is given for the learning time index, with once again the exception being the advanced services sector. This illustrates how the level of worker qualification is linked to the innovative dynamics of the sector concerned.

Graph 2 – Broad Skills Index by Economic Sectors



2.2. Qualification and human resources management practices

We now examine the relationship between the level of qualification and certain human resources management policies that can be found in workplaces with high worker performance: 1. participation in quality circles; 2. organisation of information meetings on the firm's activities, technical problems and work definitions; 3. suggestions for improving job efficiency; 4. appraisal of work performance; 5. teamwork.

As Table 1 shows, in firms where workers are asked to involve themselves in the activities of the organisation, their level of qualification is on average higher than in more traditionally oriented firms; the only exception being the required qualification in the case of teamwork – on average, a

person working alone has a position that requires an educational qualification at a higher level than that of a person working in a group.

Table 1 – Broad Skills and Human Resources Management Policies

	Required Qualification Index	Training Time Index	Learning Time Index
1. Quality Circles			
YES	2.46	2.28	3.52
NO	2.28	1.20	3.09
2. Information Meeting			
YES	2.63	1.85	3.54
NO	1.99	0.78	2.74
3. Suggestions in the last 12 months			
Yes, more than once	2.51	1.61	3.64
Yes, once	2.30	1.09	3.01
No	1.98	0.87	2.39
4. Appraisal of work performance			
YES	2.57	2.32	3.81
NO	2.22	1.00	2.93
5. Teamwork			
Working with a team of people	2.26	1.41	3.24
Working alone	2.33	1.19	3.02

Table 2 – Broad Skills and Human Resources Management Practices (*Process, Plant and Machine Operative*)

	Required Qualification Index	Training Time Index	Learning Time Index
1. Quality Circles			
YES	2.01	2.02	2.59
NO	1.55	0.92	2.67
2. Information Meeting			
YES	1.76	1.29	2.83
NO	1.49	0.85	2.56
3. Suggestions in the last 12 months			
Yes, more than once	1.75	1.39	3.17
Yes, once	1.55	0.46	2.80
No	1.46	0.77	2.15
4. Appraisal of work performance			
YES	1.55	1.28	2.98
NO	1.60	0.98	2.61
5. Teamwork			
Working with a team of people	1.56	0.98	2.65
Working alone	1.63	1.07	2.67

We saw above (graph 2) how the required qualification was directly related to the level in the occupational hierarchy. Table 2, on the other hand, shows that in firms with less traditional human resources management practices, the rise in competencies reaches the middle and lower ranks of the hierarchy, in this case the plant and machine operatives. The differences are particularly noticeable

for training and learning times. In the case of suggestions, we can see that the higher their frequency, the higher the average level of qualification; the only exception, again, being in teamwork, where the educational level required is always higher for persons working alone.

The ISFOL questionnaire contains a series of questions that let us investigate the level of discretion that a worker has in carrying out his or her job. The degree of discretion perceived by each respondent is shown by their response to an initial general question, which asks them how much choice they have, generally speaking, in decisions, while further questions become more specific: what *personal influence* the respondent has on the energy he puts into his job, on which tasks he has to carry out, and how they are to be carried out. The first question involves a general perception, the second the respondent's capacity to control the working process, the third his ability to choose what tasks to do (with the possibility of planning one or more sequences between them), and the fourth how he can carry out the tasks. In the last two cases one presumes that the position requires its holder to organise his own work and make a contribution to how the methods of work and production are planned. The questions in the questionnaire were in the form:

- Do you think that your personal space for choice or discretion is very limited, limited, etc.?
- How much influence do you have over how much time and energy you put into carrying out your job?
- How much influence do you personally have over deciding which tasks to do and the order to do them in?
- How much influence do you personally have over deciding how to carry out the tasks you have to do?

From three questions on the influence of the worker on certain aspects of the production process we obtained an additive indicator on the discretionary level of the worker – the task discretion index¹.

One of the factors that led to a rethinking of the techniques of personnel management is the idea that traditional 'Fordist' methods, with their emphasis on work divisions, repetitive tasks and strict supervision demotivated workers and engendered a purely functional attitude to working and very little attachment to the firm.

The questionnaire also asked:

- How often are you required to do short, repetitive tasks?
- How much variety is there in your job?

These two questions enabled us to obtain a concise indicator which, like the task discretion indicator, was able to show us the relationship between working conditions and qualification – the

¹ We totalled the scores for the three questions and divided by three to get an average score for the influence of the worker on the production process. The principal component analysis, which gave us only one component, and the high Cronbach's alpha (0.88), confirmed the legitimacy of this operation.

working conditions index². A job that is fragmentary and repetitive leaves little room for initiative, and this does not allow a relation to develop with the firm that is anything more than functional. The working conditions index, one could say, is an indicator of the ‘monotony’ of a job; in other words, the lower the level of this indicator, the nearer the working conditions are to the ‘Fordist’ formula. The indicator is therefore a mirror image of the discretion level index, we saw above. In fact, as can be seen from Table 3, the results are that low levels of work conditions, i.e. jobs that are less repetitive and more varied, require higher qualification levels, and the opposite occurs when the work condition index is high.

Table 3 – Broad skills, task discretion and working conditions

	Required Qualification Index	Training Time Index	Learning Time Index
How much choice/task discretion			
<i>Low</i>	1.99	0.94	3.55
<i>Middle</i>	2.31	1.32	3.94
<i>High</i>	2.62	1.64	4.65
Task discretion Index			
<i>Low</i>	1.97	0.92	3.38
<i>Middle</i>	2.37	1.25	3.99
<i>High</i>	2.58	1.80	4.83
Working Conditions Index			
<i>Low</i>	2.58	1.75	4.78
<i>Middle</i>	2.28	1.18	3.82
<i>High</i>	1.97	0.88	3.35
Total	2.30	1.29	4.02

3. ‘Required’ Competences

The aim of this chapter is first of all to create indexes which express the level of workers’ ‘required’ competences, beginning with the activities they effectively perform; secondly, to examine their distribution throughout all the various economic activities, and then their distribution within the economic sectors; finally, we shall see if there is a connection between the level of these competences and the organisational features of the workplace.

3.1. Measuring the ‘required’ competences and the construction of indexes

The measurement of ‘required’ competencies is based on a group of 44 organisational behaviours measured on a frequency scale from 1 to 8, from practically always to very rarely, with 0 standing

² The working conditions index was devised by totalling the score of the two questions and dividing by two, to get an average score indicating the working conditions. The acceptable level of Cronbach's alpha (0.57), for only two items confirmed the legitimacy of this operation. It should be noted that the question on variety at work was inverted to give coherence to the direction, from positive to negative on the scale of both questions.

for 'not applicable to my job' (Table 1 Annex). Interviewees were asked to estimate how often they effectively finished organisational tasks.

When processing the data, the ordinal scale of 44 items was inverted and transformed into a cardinal scale from 0 not applicable in my job to 7 practically always.

The 44 organisational behaviours, so transformed, were subjected to a principal component analysis to identify their underlying structure, and ten components were obtained. Here is a brief description of these ten components, between parentheses Cronbach's α :

1. **Reading, understanding texts and writing:** reading and writing modules, long documents, using a computer (0.87);
2. **Reliability:** being reliable in one's work, respecting deadlines, working carefully even for long periods, with technical competence (0.80);
3. **Influencing and taking care of others:** persuading, influencing and instructing co-workers, planning work for others, making decisions (0.83);
4. **Problem solving:** Checking, diagnosing and being reliable in the solution of problems and the fulfilment of tasks (0.85);
5. **Client communication:** knowledge of the product, selling a product or service, looking after customers, dealing with and interacting with people (0.76);
6. **Planning one's own work and time:** planning activities, organising one's own time in order to get work moving, thinking ahead (0.80);
7. **Teamwork:** working in a group, listening to colleagues (0.77);
8. **Manual dexterity and physical stamina:** manual skills and physical strength (0.77);
9. **Number skills:** Ability to carry out mathematical operations using decimals, percentages, and skill in using advanced mathematical and statistical procedures (0.80);
10. **Work autonomy:** Dealing with problems independently, without suggestions, advice or supervision (0.61).

In other works, componential coefficients have been used as indexes of expressed competencies (Ashton *et al.* 1999 Della Rocca and Passarelli 2007, Passarelli 2007). Here, however, we have preferred to use an additive index to make the interpretation of the results clearer and easier to read. To calculate the indexes we have grouped the variables in the way implied by the Principal Components Analysis. Cronbach's α ³, shown in brackets after each competence, confirms the

³ **Cronbach's alpha** describes the internal coherence of a grouping of items. High levels of the alpha mean that the subjects examined are expressing a coherent attitude in each item belonging to each dimension. Examining the internal coherence of each subtest allows one to study and determine the factorial structure in detail and also to understand and define the validity of the results of the scale. The researchers, in the applicability of this technique to the likert scales,

appropriateness of what we are measuring and the legitimacy of the operation. For each group an additive index was then calculated, which is scaled to lie between 1 and 7, with 1 not applicable to my job or rarely and 7 practically always, just as for the original scale of the single behaviours. Thus at point 4, for example, we use the label “about half of the time”, at the point 5 “often”, etc... If a person has value of 5 in the group “reliability”, in effect what it means is that the score of that person averaged across questions in that group is 5. Notice that in this stage we combined 0 and 1, not applicable to my job and rarely, because from the viewpoint of the competencies expressed by the worker, a task carried out only occasionally, or that is not part of his job, has a very similar meaning. We were also in this way able to obtain an odd-numbered scale with a mean value.

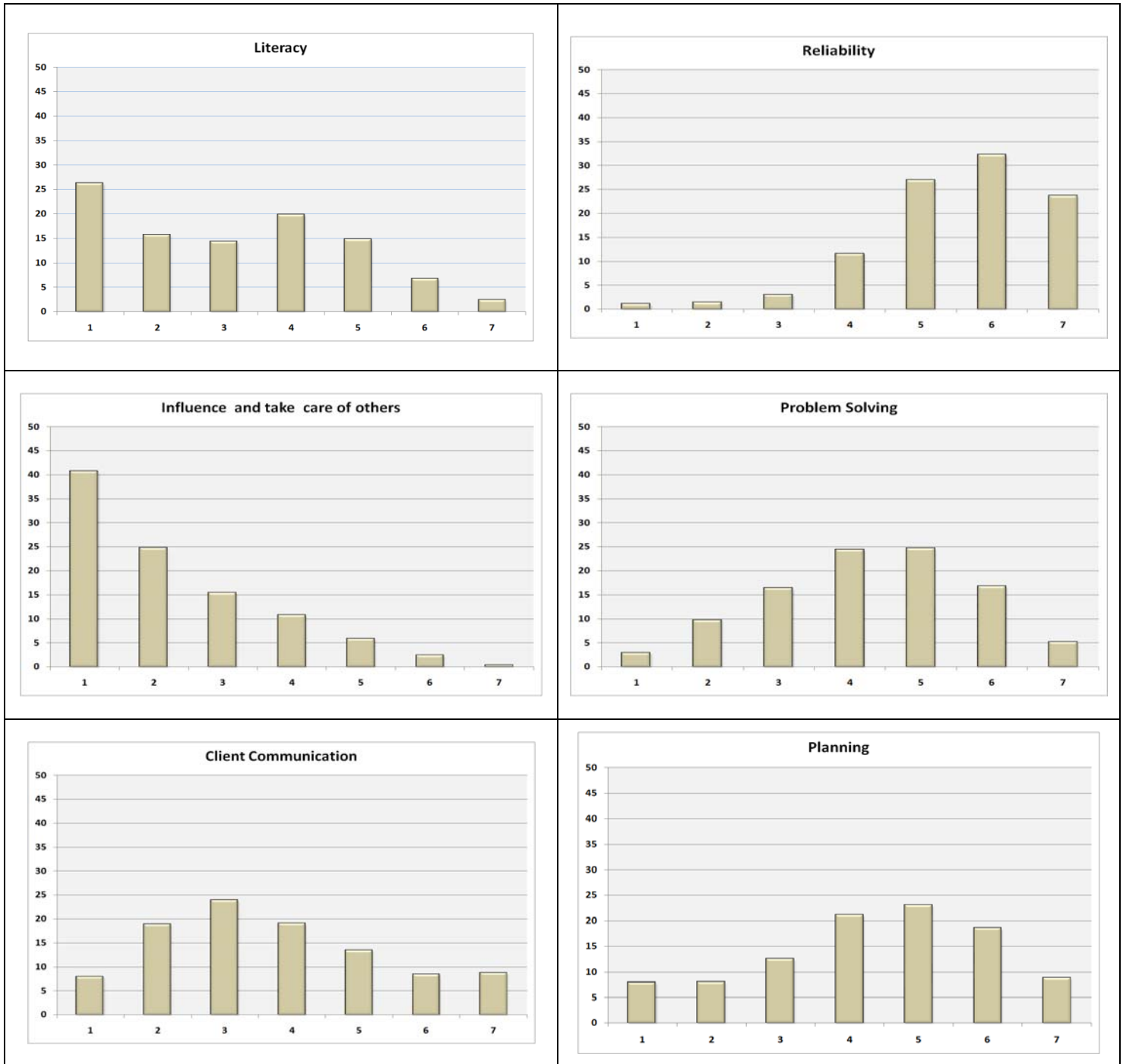
3.2. *The distribution of ‘required’ competencies*

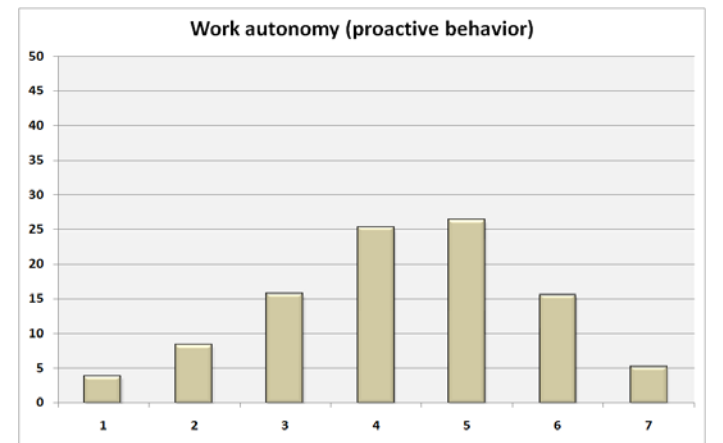
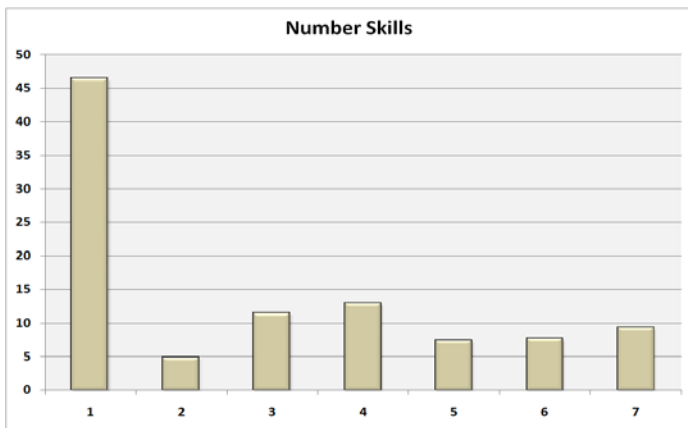
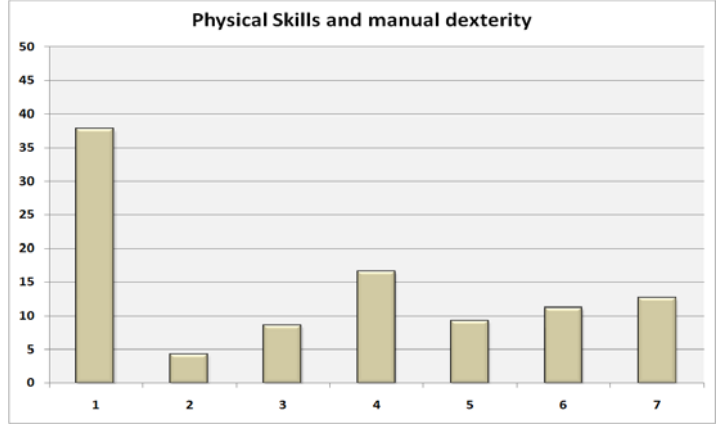
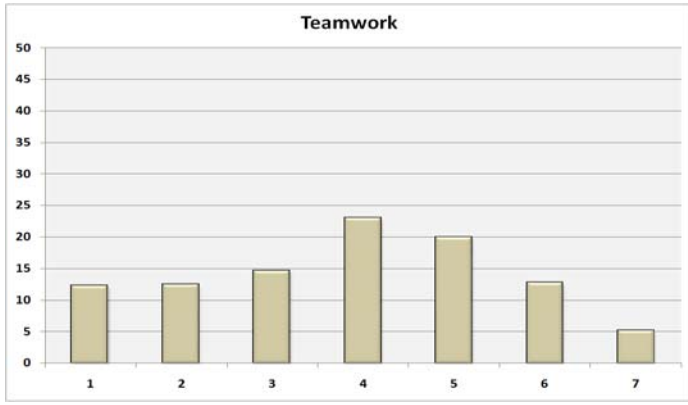
The first question our analysis seeks to answer is which are the most common competencies, or the most prevalent, among workers in the Italian manufacturing and service industries. In figure 1 we show the histograms of the relative frequencies of the 10 competences; for each competence we can see the frequency with which it is used. To give some examples, ‘reading, understanding texts and writing’ is not applicable or rarely required in the job for around 25% of workers, while it is requested in practice by about 2%; ‘reliability’ is not applicable or rarely required in the job for only 1% of workers, while it is requested practically always for 23%.

To gain a clearer idea as to which are the most common competences among workers in the Italian manufacturing and service industries, we thought of applying an *index of diffusion*, i.e. the percentage of workers interviewed who have a competence index above average (at least often) (see Figure 1 and Graph 4). The most widespread competence, as Graph 4 shows, is ‘reliability’; around 83% of interviewed workers declared that their job required this competence with an above-average frequency; 50% of workers declared that their job needed, with an above-average frequency, ‘planning one’s own work and time’. Right at the other end of the scale, we have ‘influencing and taking care of others’ which only 8% of workers declared was required in their job with an above-average frequency, followed by ‘reading and writing’ (23.9%) and ‘number skills’ (24.4%).

agree to adopt the value of $\alpha=.60$ as a barely acceptable level of internal coherence and the appropriateness of results.

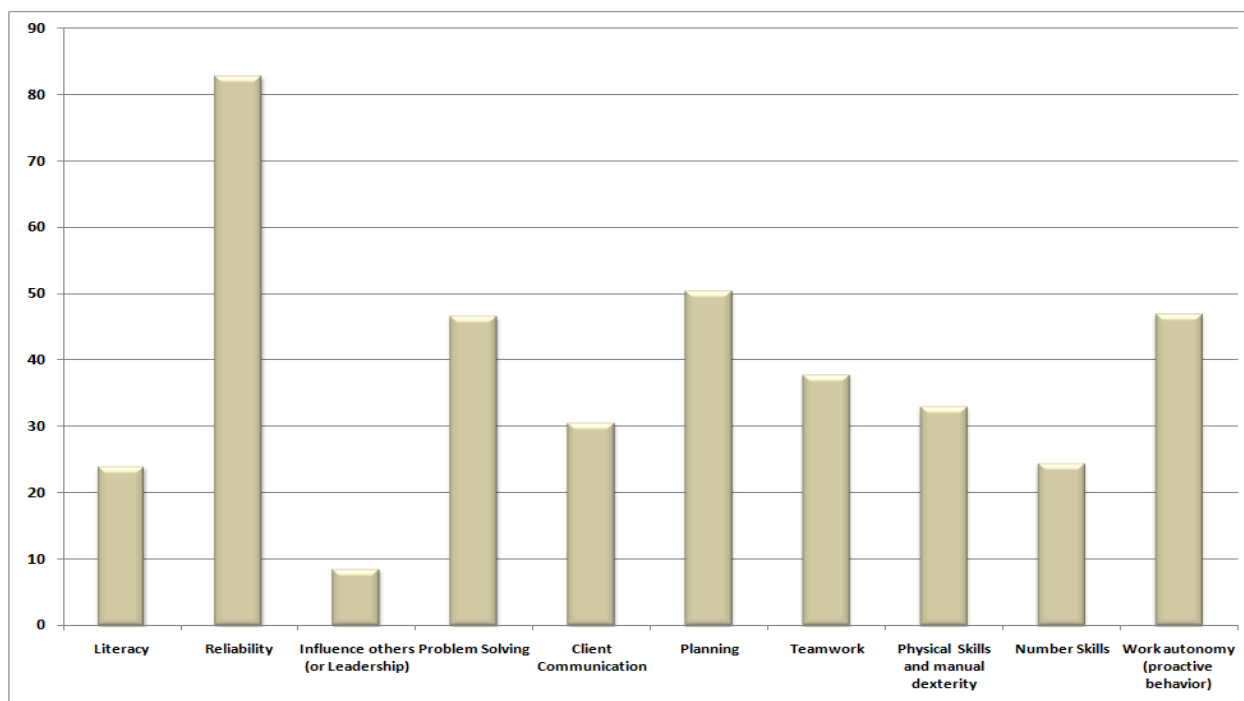
Figure 1 – Distribution of competence index across all jobs





*1 = rarely or not used, 2 = few times, 3 = Sometimes, 4 = about half of the time, 5= Often, 6 = almost always, 7 = always

Graph 4 – Percentage of jobs where the competence index is above average (at least often)



*The diffusion index indicates the percentage of employees who has a competence index 'above average' (that is, at least often)

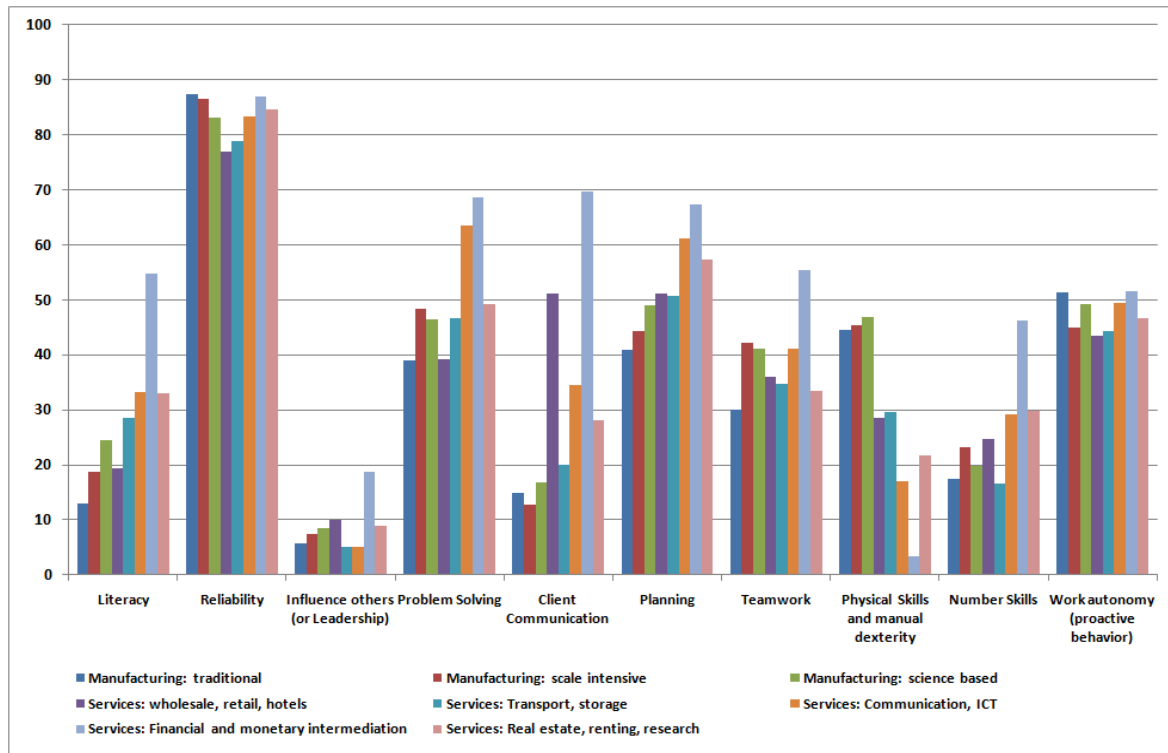
This kind of analysis, however, tells us little of how these competencies are distributed by economic sector, occupational roles. In other words, if there are competencies which characterise certain roles or economic sectors.

Let us first of all begin with the economic sector. It should be noted that there are two competencies, 'reliability' and 'work autonomy' which have similar diffusion percentages in all economic sectors, apart from minor differences. On the other hand, the competencies which more than any others characterise certain sectors are 'reading, understanding texts and writing', 'problem solving', 'client communication', 'number skills' and 'manual dexterity and physical skills'. The first four competences are particularly required in the advanced service sector (monetary and financial intermediation and communications/ICT), even with important percentage differences if we consider the average of all the workers, while 'manual dexterity and physical skills', as one would expect, is a feature mainly of the manufacturing sector.

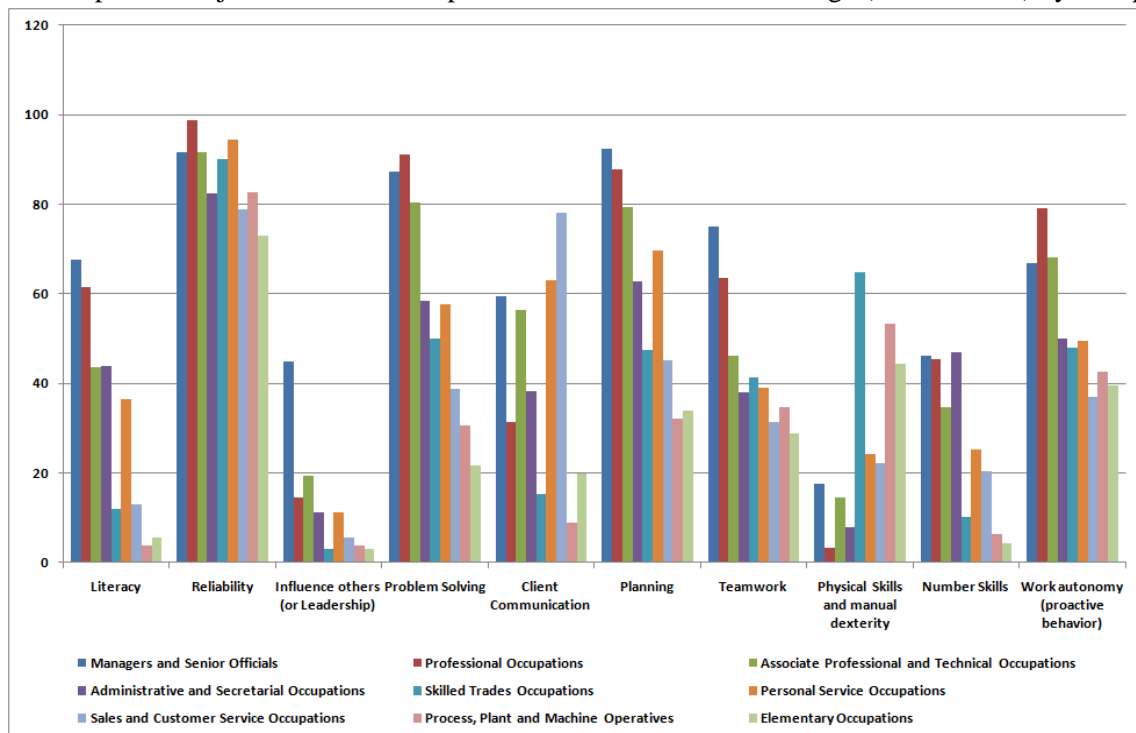
As for occupational roles, as expected, we find a direct, more or less strong, correlation between the diffusion of competencies and level in the hierarchy, except for 'manual dexterity and physical skills' where there is an inverse relationship. The percentage difference in the use of the competencies – taking as our basis the average of all workers – between the higher and lower levels of the hierarchy is considerable in some cases, such as 'problem solving' or 'organisational skills' where the percentage is 40% or over. These differences are much less in the case of reliability and work autonomy, which shows there is less connection between these competencies and hierarchical level compared to others. It is interesting to note, however, that there are some competencies that are a major feature of certain occupational roles; for example, client communication is of particular importance to sales and customer service occupations, and manual dexterity and physical skills are

important for the process, plant and machine operatives and elementary occupations, and the cognitive skills (literacy and number skills) predominate in managerial and professional roles.

Graph 5 - Proportion of jobs where the competence index is above the average (at least often) by economic sectors



Graph 6 - Proportion of jobs where the competence index is above the average (at least often) by occupations



3.3. Key competencies and the organisational context

In the previous paragraph we saw how the analysis of the 44 organisational behaviours by means of Principal Components Analysis generated a group of ten competencies. In this paragraph, however, we start from the opposite position and, on the basis of certain social science studies – in economics, sociology and psychology – we identify a group of organisational behaviours that are fundamental for the worker competencies regarded as essential for performance: problem solving, communication, professional relations and teamwork (Appelbaum et al 2000; Appelbaum 2002, Ashton 1999, Leoni 2006). The organisational behaviours, arranged on the basis of these competencies, were processed using the Principal Components Analysis to reveal their underlying structure. In the case of problem solving and teamwork, only one component emerged, while there were two for communication and professional relations (clients and colleagues) (Table 2 Annex). Once the underlying structure of the behaviours was established, we constructed additive indicators, using the same methods as before for the other competencies. Here we limit the analysis of these particular competences to the relation between their development and the organisational context.

In the following tables, we set out the relationship between the level of the ‘key’ competencies and the human resources management practices which we previously identified. Table 4 shows there is a level of ‘key’ competencies that is higher in the organisational contexts where the worker is encouraged to participate in the improvement of the production process by means of quality circles. This appears to be the case in different situations, both in the manufacturing sector, which is less innovative than the service sector as far as organisational models are concerned, and also in the lower levels of the occupational hierarchy. What is true for quality circles is also the case for other human resources practices (see Tables 5-9). Table 9 shows situations where these policies are adopted in pools. These policies obviously complement one another, and when all five are in use, we find the highest level of competencies.

Table 4 – Participation in quality circles

	Problem solving	Communication and professional relationships: colleagues	Teamwork
all			
<i>Yes</i>	4.8	2.9	4.9
<i>No</i>	3.9	2.2	3.6
Manufacturing Sector			
<i>Yes</i>	4.9	2.6	5.0
<i>No</i>	3.8	2.0	3.6
Occupation: Process, Plant and Machine Operatives			
<i>Yes</i>	4.8	2.6	5.8
<i>No</i>	3.2	1.6	3.4
Manufacturing Sector; Occupation: Process, Plant and Machine Operatives			
<i>Yes</i>	4.8	2.4	5.9
<i>No</i>	3.2	1.6	3.6

Table 5 - Suggestions in the last 12 months

	Problem solving	Communication and professional relationships: : colleagues	Teamwork
All			
<i>No</i>	3.3	1.7	2.9
<i>Yes, once</i>	3.8	2.1	3.5
<i>Yes, more than once</i>	4.5	2.7	4.3
Occupation: Process, Plant and Machine Operatives			
<i>No</i>	3.1	1.5	3.1
<i>Yes, once</i>	3.4	1.8	3.5
<i>Yes, more than once</i>	3.6	1.9	4.3
Occupation: Administrative and Secretarial Occupations			
<i>No</i>	3.9	2.0	2.7
<i>Yes, once</i>	4.1	2.4	3.1
<i>Yes, more than once</i>	4.9	2.9	4.2

Table 6 – Appraisal of work performance

	Problem solving	Communication and professional relationships: : colleagues	Teamwork
<i>No</i>	3.9	2.1	3.5
<i>Yes</i>	4.5	2.9	4.5

Table 7 – Information meetings with managers

	Problem solving	Communication and professional relationships: : colleagues	Teamwork
<i>Yes</i>	4.5	2.7	4.2
<i>No</i>	3.6	1.9	3.3
How often			
<i>< 3 times a year</i>	4.1	2.3	3.7
<i>> 3 times a year</i>	4.7	2.9	4.4

Table 8 - Teamwork

	Problem solving	Communication and professional relationships: : colleagues	Teamwork
<i>No</i>	3.9	2.1	2.8
<i>Yes</i>	4.2	2.5	4.9
Occupation: Process, Plant and Machine Operatives			
<i>No</i>	3.2	1.5	2.7
<i>Yes</i>	3.5	1.8	4.6
Occupation: Administrative and Secretarial Occupations			
<i>No</i>	4.3	2.3	2.8
<i>Yes</i>	4.8	3.0	5.0

Table 9 – Diffusion of Human Resource Policies and level of key competences*

Average level of key competencies operatives + administrative e secretarial occupations		
	Manufacturing Sectors	Service Sectors
<i>None</i>	2.7	3.4
<i>1 practice</i>	2.8	3.0
<i>3 practices</i>	3.8	3.7
<i>All 5 practices</i>	4.2	4.1

*In this case we calculated an overall number of key competences divided by three to obtain an average score for the three competences

Conclusions

The aim of this work was twofold, to widen the knowledge of distribution of skills among Italian employees in the manufacturing and services sectors and the relation between skills level and organisational context. The most interesting findings regard relationship between skills level and organisational context, so we focus our conclusions on this aspect.

The work showed a correlation among development of the competencies and workers participation and involvement in the work process. In particular, we choose five practice which characterise high performance workplace: quality circles, information meeting, suggestions, appraisal of work performance, teamwork. All of them showed a direct correlation to the level of skills, except teamwork. The correlation was also confirmed in the manufacturing sectors and in the low level of occupational hierarchy.

It should be pointed out, however, that several cross-national survey highlight that the workers involved in this practices is small percentage of all workers, as the case of quality circle. A cross-national survey conclude the innovative workplace organizations appear to be more common in the Scandinavian countries, the UK, Ireland, the Netherlands, Austria, and Luxembourg if compared to the Southern European countries, Belgium, France, and Germany; the lowest dissemination of HPWOs is observed in the Southern European countries of Greece, Portugal, Spain, and Italy. These rankings largely confirm those reported by the OECD (1999) (Bauer, 2004). Benjamin Coriat (2002), analyzing the data on the diffusion of employees participation and organizational change at European level, reaches more or less the conclusion the HPWO's in Italy are only the 3 percent of the enterprises.

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Appendix

Table 1 – Organisational Behaviours

1. Paying close attention to detail
2. Dealing with people
3. Analyzing complex problems in depth
4. Writing long documents such as long reports, manuals, articles or books
5. Working hard, even without a supervisor
6. Working out the cause of problems or faults
7. Organising your own time
8. Working with a team of people
9. Being sure that things are correct (regarding own work and someone else)
10. Spotting problem or faults (regarding own work and someone else)
11. Helping the other member of the team
12. Knowledge of how your organization works
13. How to use or operate tools/equipment/machinery
14. Physical stamina
15. Working without suggestion or advices
16. Specialist knowledge or understanding
17. Checking things to ensure that there are no errors (regarding own work and someone else)
18. Persuading or influencing others
19. Dealing with problems independently or with autonomy
20. Writing written information such as form notices or signs
21. being reliable in one's work
22. respecting work deadlines
23. Making decisions
24. Making speeches or presentations
25. Using a PC or other types of computerised equipment
26. Thinking ahead
27. Planning your own activities
28. Counseling, advising or caring others
29. Planning the activities of others
30. Selling a product or service
31. Knowledge of particular products or services
32. Carry on things, notwithstanding they get more complicate and difficult
33. Thinking of solutions of problems or faults
34. Reading short documents such as short reports, letters or memos
35. Reading long documents such as reports, manuals, articles or books
36. Listening carefully to colleagues
37. Calculations using decimals, percentages or fractions numbers
38. Skill or accuracy in using hands or fingers
39. Physical strength
40. Reading written information such as forms, notices or signs
41. Calculations using more advanced mathematical or statistical procedures
42. Making strategic decision for the future of the organisation
43. Instructing, training or teaching people individually or in group
44. Counseling, advising or caring for customers or clients

Table 2 – Composition of the components of ‘key’ competencies*

**In red, the Cronbach's alpha*

Problem solving	(.799)
Thinking about solutions	0.836
Solving problems or defects (which can affect one’s work or that of others)	0.810
Analysing in detail complex problems	0.762
Finding errors (in one’s own work and that of others)	0.751

	Towards clients (.755)	Towards colleagues(.725)
Communication and/or professional relations		
Selling a product or a service	0.851	0.078
Advising and taking care of clients	0.800	0.252
Instructing, training or teaching others, individually or in groups.	-0.048	0.883
Offering advice, consultation for others’ benefit	0.424	0.683
Convincing or influencing others	0.450	0.621
Speaking effectively or making presentations in public	0.427	0.440

Teamwork	(.797)
Joining in the work of a group	0.854
Helping other members of the team	0.878