Do E-skilled Workers have better contextual performance? Evidence from France in 2006

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Abstract

Information and Communication Technologies (ICT) play an important role in the labor market, through reshaping tasks, modifying team works and changing individual capabilities and skills. It's widely known that ICT requires specific skills in order to be used efficiently. E-skills allow those who have them to participate more effectively in the global information economy and society, access opportunities to conduct business or more simply just to engage and transact more efficiently. In the workplace, these skills seem to be crucial variable explaining the difference between workers' performances especially contextual performance.

The paper aims at analyzing the link between "E-skills" and Workers' Performance in France in 2006. In order to do this, we distinguish between two layers of E-skills namely, medium related skills and medium content related skills. At the same time we use the methodology of Coleman and Borman in order to measure the contextual performance. Four variables of contextual performance were identified ( ). Based on the COI (2006) database[2], we aim at verifying empirically the positive impact of having e-skills on the contextual performance. The relationship between "E-skills" and Workers' Performance are examined by using an ordered probit econometric model. The model determines the effect of "E-skills" on the probability to get higher contextual performance by a given worker. Our findings are like the followings:

Key words: ICT, E-skills, contextual performance, Probit model.

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1. Introduction

Information and Communication Technologies (ICT) play an important role in the labor market, through reshaping tasks, modifying team works and changing individual capabilities and skills. It's widely known that ICT requires specific skills in order to be used efficiently. E-skills allow those who have them to participate more effectively in the global information economy and society, access opportunities to conduct business or more simply just to engage and transact more efficiently. In the workplace, these skills seem to be crucial variable explaining the difference between workers' performances. European Union has implemented a strategy towards e-skills in order to keep it economy more competitive and to face shortages in the next years.

During the past 20 years, researchers have made progress in clarifying and extending the performance concept (Campbell, 1990a). Moreover, advances have been made in specifying major predictors and processes associated with individual performance.

Campbell (1990a) proposed a general model of individual differences in performance. In his model, Campbell differentiates performance components (e.g., job specific task proficiency), determinants of job performance components and predictors of these determinants. Campbell describes the performance components as a function of three determinants (1) declarative knowledge, (2) procedural knowledge and skills, and (3) motivation. Declarative knowledge includes knowledge about facts, principles, goals, and the self. It is assumed to be a function of a person's abilities, personality, interests, education, training, experience, and aptitude-treatment interactions. Procedural knowledge and skills include cognitive and psychomotor skills, physical skills, self-management skills, and interpersonal skills. Predictors of procedural knowledge and skills are again abilities, personality, interests, education, training, experience, and aptitude-treatment interactions, and additionally practice. Motivation comprises choice to perform, level of effort, and persistence of effort. Campbell et al. (1996) summarized studies that identified job knowledge and job skills as predictors of individual performance.

Moreover, in recent years, contextual performance has emerged as important aspect of overall job performance. Job performance is no longer considered to consist strictly of performance on a task. Contextual performance which is defined as "behavioral patterns that

support the psychological and social context in which task activities are performed" (Van Scotter et al. 2000) was first identified in the industrial and organizational psychology research world by Borman and Motowidlo (1997). Since that, contextual performance has become an increasingly important research topic. Actual organizations have begun using this concept by both rewarding it and incorporating it into performance appraisals. Examples of contextual performance include persisting with enthusiasm and extra effort as necessary to complete own task activities successfully, volunteering to carry out task activities that are not formally part of own job, helping and cooperating with others, following organizational rules and procedures (Borman and Motowildo, 1997) and various other discretionary behaviors. These behaviors are becoming more and more a requirement on the job (Johnson, 2001).

At present, organizations and work as a whole are undergoing dramatic changes (Cooper & Jackson, 1997; Howard, 1995) which have implications for conceptualizing and understanding performance (Ilgen & Pulakos, 1999).

Furthermore, with the increasing role of technologies in the labor market, the way an individual uses the technology is an important performance component (Hesketh and Neal, 1999). With the increased implementation of well-designed user interfaces of technically highly sophisticated devices, the relevance of specific skills and knowledge needed in previous work systems decreases while other skills and knowledge become more important in the performance process (Wall and Davids, 1992). As a result, job knowledge and job skills, which are the predictors of individual performance (Campbell et al, 1996), are more and more related to technology.

Starting from these considerations our article try to contribute to this line of research. We want to explore the link between technologies (ICT) and performance of workers in the French context. In other words, do workers who better master technology (e-skilled individuals) perform best at work? Are e-skills becoming more important in the performance process" (Wall and Davids, 1992)? Our main hypothesis is that differences in contextual performance between individuals can be explained by individual differences in level of e-skills.

Our article is structured like the followings. Section one discusses the research background and reviews the literature. Section two presents the data base, the variables and the econometric model. Section three discusses the results and provides some theoretical explanations. Finally, section four concludes.

2. Research background

Organizations need highly performing individuals in order to meet their goals, to deliver the products and services they specialized in, and finally to achieve competitive advantage. Accomplishing tasks and performing at a high level can be a source of satisfaction for workers, with feelings of mastery and pride (Sonnentag, & Frese, 2002). Although there might be exceptions, high performers get promoted more easily within an organization and generally have better career opportunities than low performers (VanScotter, Motowidlo, & Cross, 2000).

In order to conceptualize performance one has to differentiate between an action (i.e., behavioral) aspect and an outcome aspect of performance (Campbell, 1990a; Campbell, McCloy, Oppler, & Sager, 1993; Kanfer, 1990; Roe, 1999). The behavioral aspect refers to what an individual do in the work situation. It encompasses behaviors such as assembling parts of a car engine, selling personal computers, teaching basic reading skills to elementary school children, or performing heart surgery. Not every behavior is subsumed under the performance concept, but only behavior that are relevant for the organizational goals: "Performance is what the organization hires one to do, and do well" (Campbell et al., 1993, p. 40). The outcome aspect refers to the consequence or result of the individual's behavior. The above-described behaviors may result in outcomes such as numbers of engines assembled, pupils' reading proficiency, sales figures, or number of successful heart operations. In many situations, the behavioral and outcome aspects are related empirically, but they do not overlap completely. In this paper, we follow the suggestion of Campbell et al. (1993) and refer to the behavioral aspect when we speak about performance.

Viswesvaran (1993) provides an excellent comprehensive review of historical developments in the conceptualization of job performance. Early conceptualizations (e.g., Brogden & Taylor, 1950) focused largely on the economic value of individual behaviors to the organization. With the emergence of the literature on expectancy theory, many researchers began to focus on measures that reflected the effort expenditure and productivity of workers (Viswesvaran, 1993). In the 1970s and 1980s research on pro-social and organizational citizenship behaviors proliferated (e.g., Bateman & Organ, 1983; Smith, Organ, & Near, 1983). This resulted in the introduction of a variety of criterion measures such as teamwork

and altruism. More recently, the impact of counterproductive behavior in the workplace has been studied extensively (e.g., Collins, 1996; Ones, Viswesvaran, & Schmidt, 1993).

Campbell (1990a; Campbell et al., 1993) provided one of the first large scale attempts to integrate the numerous dimensions of performance into a comprehensive model. According to Campbell, the latent structure of job performance can be modeled using the following eight general factors: (1) job-specific task proficiency, (2) non-job-specific task proficiency, (3) written and oral communication, (4) demonstrating effort, (5) maintaining personal discipline, (6) facilitating peer and team performance, (7) supervision/leadership, and (8) management/administration. According to Campbell (1990a) and Campbell et al. (1993), these eight factors represent the highest-order factors that can be useful for describing performance in every job in the occupational domain, although some factors may not be relevant for all jobs. While this model represents one of the most comprehensive models of the latent structure of job performance currently available, it has rarely been empirically tested. In fact, Campbell et al. (1993, p. 49) admit that direct evidence in support of the model is sparse. They call for future construct validation efforts to test the adequacy of the eight-factor model.

Further researches show that performance is a multi-dimensional concept. Borman and Motowidlo (1993) distinguish between task and contextual performance. Task performance refers to an individual's proficiency with which he or she performs activities that contribute to the organization's 'technical core'. This contribution can be both direct (e.g., in the case of production workers), and indirect (e.g., in the case of managers or staff personnel). Contextual performance refers to activities which do not contribute to the technical core but which support the organizational, social, and psychological environment in which organizational goals are pursued. Drawing from the literature on organizational citizenship behavior (Barnard, 1938; Smith et al., 1983), pro-social organizational behavior (Brief & Motowidlo, 1986; Organ, 1988), and findings from Campbell's 1990b, Borman and Motowidlo (1993) described the structure of contextual performance (Viswesvaran, 1993). Within this framework, contextual performance is defined as behaviors that support the broad organizational, social, and psychological environment of the organization in contrast to behaviors that support the organization's technical core (Borman & Motowidlo, 1993). Contextual performance is further distinguished from task performance in that it is typically more discretionary as opposed to role prescribed. Borman & Motowidlo (1993) describe five categories of contextual performance as follows: (1) volunteering to carry out task activities

that are not formally part of the job, (2) persisting with extra enthusiasm when necessary, (3) helping and cooperating with others, (4) following organizational rules and procedures, and (5) endorsing, supporting, and defending organizational objectives.

Coleman, and Borman (2000) identify 27 behaviors of contextual performance. they involve several models on the organizational citizenship behaviors (Graham, 1986; Organ, 1988; 1990; Smith et al., 1983), pro-social organizational behavior (Brief and Motowidlo, 1986) and initial works on contextual performance (Motowidlo and Van Scotter, 1994; Borman and Motowidlo, 1993, 1997)

The authors proposed a three-dimension model of citizenship performance. Behavioral dimensions are: Interpersonal citizenship performance, Organizational citizenship performance and Job/task citizenship performance. The first dimension consist on helping others by offering suggestions, teaching them useful knowledge or skills, directly performing some of their tasks, and providing emotional support for their personal problems. Cooperation with others by accepting suggestions, informing them of events they should know about, and putting team objectives ahead of personal interests. At the same time, it may be also refers to showing consideration, courtesy, and tact in relations with others as well as motivating and showing confidence in them. The second dimension, organizational support, is to representing the organization favorably by defending and promoting it, as well as expressing satisfaction and showing loyalty by staying with the organization despite temporary hardships. To supporting the organization's mission and objectives, complying with organizational rules and procedures, and suggesting improvements. The third dimension, conscientious initiative, consists on persisting with extra effort despite difficult conditions, taking the initiative to do all that is necessary to accomplish objectives even if not normally a part of own duties, and finding additional productive work to perform when own duties are completed and developing own knowledge and skills by taking advantage of opportunities within the organization and outside the organization using own time and resources.

Taking this discussion into account we want to highlights these two hypotheses:

Hypothesis 1: Do individuals which better master technology (e-skilled individuals) perform best at work?

Hypothesis 2: Are there statistically significant differences among the levels of e-skills of employees on the components of contextual performance?

In order to answer these questions, we will first introduce our variables, before examining the considered model.

3. A framework for Measuring Contextual Performance

3.1.Database

In our paper, we use the French C.O.I survey conducted in 2006. The Organizational Change and ICT use (C.O.I. in French) survey is intended to identify the organizational changes and ICT changes that have characterized corporate life in the last three years and their impact on economic performance in terms of employment and job content. The C.O.I. is a matched employer / worker survey device, enhanced by outside information. We consider of sample of 14 369 workers. The French Institute of Statistics (INSEE) conducted the survey.

3.2.Dependent variables

3.2.1. Contextual Performance constructs and measures

In order to measure employees' contextual performance, we have considered four dependent variables based on the discussion of the last section:

HOME = 1 if the employee brings work home, 0 otherwise (Putting forth extra effort on own job).

UNION= 1 if the employee is a membership of a union, 0 otherwise (Engaging in behavior that benefits individuals in the organization).

MEETING= 1 if the employee participates in meeting, 0 otherwise (Engaging responsibly in meetings and group activities).

REQUEST_TRAINING= 1 if the employee have formulated a training request, 0 otherwise (Engaging in self-development to improve one's own effectiveness).

The four dependent variables of our model are discrete and binary. We will use thus the probit model.

3.3.Independent variables

3.3.1. E-skills measures

We will now focus on the measures of e-skills based on Steyeart (2002), Van Dijk (2005), and Van Deursen and Van Dijk (2010) e-skills conceptualization.

While Steyeart (2002) and Van Dijk (2005) introduced digital skills as a three general types of skill, Van Deursen and Van Dijk (2010) divide these skills on four types.

Steyeart (2002) distinguished between instrumental skills as the operational manipulation of technology, structural skills as the structure in which information is contained and strategic skills as the basic readiness to pro-actively look for information, information-based decision-making and scanning of the environment for relevant information.

Van Dijk (2005) changed Steyeart's definition to distinguish between operational skills as the skills to operate computer and network hardware and software. Information skills as the skills to search, select, and process information in computer and network sources. In a further specification of information skills he proposes to divide these skills into formal information skills (the ability to understand and to handle the formal characteristics of a computer and a computer network such as file structures, menu structures, and hyperlinks) and substantial information skills (the ability to find, select, process, and evaluate information in specific sources of computers and networks according to specific questions and needs). And Strategic skills as the capacities to use these sources as the means for specific goals and for the general goal of improving one's position in society.

Van Deursen and Van Dijk (2010) instead of considering formal information skills and substantial information skills as subcategories of information skills, they introduced them as two separate categories. While formal skills strongly relate to the characteristics of digital technology, information skills together with strategic skills, relate to the content provided by the medium. They distinguish between operational skills as the skills to operate digital media; Formal skills as the skills to handle the structures of digital media; Information skills as the

skills to locate information in digital media and Strategic skills as the skills to employ the information contained in digital media towards personal and professional development.

In this framework, as operational skills and formal skills relate to the characteristics of digital technology and information and strategic skills relate to the content provided by the medium, we elaborate and change the definition above to distinguish between two types of e-skills namely medium related skills as the skills to operate and to handle the structure of digital media and medium content related skills as the skills to locate and to employ information contained in digital media. The first category contains two sub-categories; operational skills and formal skills. The second one contains information and strategic skills.

Table 1: E-skills variables

E-skills		Measures
Medium related skills (the skills to operate and to handle the structure of digital media)	Operational skills (The skills to operate computer and network hardware and software.)	LAPTOP = 1 if the worker uses a laptop for professional purposes, 0 otherwise. ORDEXT= 2 if the worker uses *Often* of computer Outside the firm for professional purposes, = 1 if the worker uses *sometimes* of computer Outside the firm for professional purposes, 0 otherwise. ORDEXTAC= 1 if the worker accesses to the information system for professional purposes outside the firm, 0 otherwise. Home_ICT= 1 if the worker uses computer and Internet at home for professional purposes, 0 otherwise.
	Formal skills (The ability to understand and to handle the formal characteristics of a computer and a computer network.)	
Medium content related skills (the skills to locate and to employ information contained in digital media)	Information skills (The ability to find, select, process and evaluate information in specific sources of computers and networks according to specific questions and needs).	ACCBASE=1 if the worker consults a database of the firm, 0 otherwise. ACCFORM= 1 if the worker fills an online application for leave or other administrative forms, 0 otherwise. INTERNET =1 if the worker uses Internet for professional purposes, 0 otherwise. INTRANET = 1 if the worker uses Intranet for professional purposes, 0 otherwise. ACCPART=1 if the worker works collaboratively online, 0 otherwise. ENTER= 1 if the worker enters information on computer or feeds databases, 0 otherwise.
	Strategic skills (The capacities to use these sources at the means for specific goals and for the general goal of improving one's position in society).	

Table 2: Rotated Component Matrix

	Factor 1	Factor 2
Internet	**0.703**	,323
Home-ICT	,181	**,695**
Laptop	,226	**,773**
Enter	**,716**	,072
Accform	**,706**	,256
Ordextac	,185	**,810**
Accbase	**,837**	,242
Ordext	,214	**,877**
Intranet	**,856**	,192
Accpart	**,843**	,212

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Table 3: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,896
Bartlett's Test of Sphericity	Approx. Chi-Square	77643,414
	df	45
	Sig.	,000

An exploratory factor analysis was conducted on 10 items using a principle component analysis with a varimax rotation and an Eigenvalue of 1 as the cut-off point and an absolute value of a factor loading that is greater than 0.5.

We used the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Chi-square test of sphericity. Table 3 summarized the results of KMO, which is 0.896 and the significant value of Bartlett's test in less than 0.05, which means there was a good correlation.

Factor1

It consists of 6 items that are “using Internet”, “using “Intranet”, “consulting a database”, “filling on line an application”, and “working collaboratively online “and” entering information on computer or feeding databases. This factor is named Medium Content Related Skills.

Factor2

It consists of 4 items, which are “using a laptop”, ““using often a computer outside the firm”, “and having access to information system outside the firm “and” using computer and Internet at home”. This factor is named Medium Related Skills.

3.3.2. Control variables

Table 4: Control variables

Seniority	= Number of years in this firms
Seniority post	= Number of years in the current position
Primary degree	= 1 if the worker has a primary level of education, 0 otherwise.
Secondary degree	= 1 if the worker has a secondary level of education, 0 otherwise.
High-degree 1	= 1 if the worker has an under graduate study degree, 0 otherwise.
High-degree 2	= 1 if the worker has a higher diploma graduate, 0 otherwise.
High-degree 3	= 1 if the worker has a higher degree of high school or engineering school or business school, 0 otherwise.
Manager	= 1 if the worker is a manager, 0 otherwise.
Ass-prof	=1 if the worker is an associate professional, 0 otherwise.
Employee	= 1 if the worker is an employee, 0 otherwise.
Executive	= 1 if the worker is an executive, 0 otherwise.
Public	= 1 if the worker is in a public firm, 0 otherwise.
Territorial	= 1 if the worker is in a territorial, 0 otherwise.
Firm	= 1 if the worker is in a private firm, 0 otherwise.
Age-computer	= The age at which the worker learned to use a computer.
ICT-training	= 1 if the worker has made computer training, 0 otherwise.
ICT-duration	= Detailed daily duration of computer use to professional purposes.

4. Results and discussion

4.1.Descriptive statistics

Table 5: Descriptive statistics

Age (mean (SD))	40 (10)
Seniority (mean (SD))	12.7 (10)
Post seniority (mean (SD))	8 (7.6)
ICT-duration (mean (SD))	3.16 (3)
Gender (%)	
Men	63
Women	37
Professional category (%)	
Manager	16
Ass-prof	2
Employee	19
Executive	40
ICT training (%)	
Yes	37
No	63
Qualification (%)	
Primary degree	5
Secondary degree	61
High-degree1	24
High-degree2	5
High-degree3	5

4.2.Results

Table 6: Results

	HOME	UNION	MEETING	Request-training
Gender	0.034	0.127*	-0.077	0.011
Age	-0.004	0.009	0.003	-0.011***
Seniority	-0.005	0.016***	-0.002	0.002
Post seniority	-0.014***	0.006	-0.006**	-0.001
Secondary degree	-0.09	-0.068	-0.018	0.433***
High-degree1	-0.172	-0.068	-0.098	0.517***
High-degree2	-0.292	-0.406	-0.186	0.63***
High-degree3	-0.095	-0.138	-0.044	0.359**
Manager	1.817***	-0.12	1.19***	0.151
Ass-prof	1.103***	-0.147	0.604***	-0.059
Employee	0.352***	0.096	-0.022	-0.044
Firm	0.0047	-0.84***	-0.202	-0.288
Territorial	-0.175*	0.074	0.196**	-0.074
Age-computer	-0.004***	0.001	-0.004***	-0.001
ICT-training	0.058	0.017	0.369***	0.017
ICT-duration	0.013	0.031**	0.034***	-0.012
Medium Content Related Skills	0.036	0.072*	-0.005	0.375***
Medium Related Skills	-0.009	-0.11**	0.043	0.183***
Pseudo R^2	0.2439	0.0738	0.1521	0.1054
Observations	14369	14369	14369	14369

*** 1% statistical significance
** 5% statistical significance
* 10% statistical significance

4.3.Discussion

1 – Putting forth extra effort on own job by taking the work at home

In the first model there is no relationship between e-skills and "taking the work at home". This result is instructive. On the one hand, as opposed to a widely accepted view, it shows that people who accumulate more digital skills are not necessarily those who take work at home. This seems being more related to individual profiles. The professional and private life separation is not an e-skill related decision. On the other hand, the variable "taking the work at home" does not specify the form of this work. Moreover, we don't know if such work has a digital component (e-working, or tele-working). In fact, taking work at home seems being related to an overload of work that led some workers, particularly managers, to reduce their workload by taking some work at home. Finally, new labor trends concerning modularity could be also an explanation to this fact. Indeed, workers are productive over the office hours' work. Therefore, taking work at home is parts of a modularity strategy by which employees prefer working at their own pace when they are efficient. This strategy is widespread among executives whose performance depends on the rate of the work accomplishment and do not on the variable "work in situ".

The control variables allow us to corroborate our results. Indeed, we note that, for all workers' categories (executives, intermediate occupation and employees), the general trend is to bring more work at home. This could be explained, as we saw earlier, by the non-separation between private and professional life, as well as by the modularity of work. The results concerning "seniority in the current position" show that the more the worker is senior, the less he takes work at home. This could be explained by the employee speed of doing tasks due to the level of expertise acquired over time. Indeed, learning effects could increase efficiency. Finally, the worker age, when learning how to use a computer, seems to have a negative effect on taking work at home. Indeed, the more worker is aged when he learn how to use a computer, the less he takes work at home. This could be explained by the fact that more the worker is aged during the first stage of digital learning, more he will spend time to this learning by allocating a part of his leisure time. He would devote more time to use computer and to try to develop this use rather than taking an overload of work at home.

2 – Engaging responsibly in meetings and group activities

We note that the e-skills accumulation has no effect on workers' participation in meetings. Indeed, whatever the e-skills of employees are, the firms' meetings involvement is whether faithful and therefore unrelated to the e-skills, whether voluntary and the decision is based on the workers interest for the subjects of the meetings. Thus, inclusion in the corporate life in France in 2006 has no relationship with the e-skills level. However, the lack of relationship contrasts with the results achieved by some control variables. Moreover, the daily duration of professional computer use impact the meetings involvement. This could be interpreted whether as disconnection moments, whether as indicators of knowledge of the business life and therefore the inclusion in meetings. Another explanation consists on asserting that there is a correlation between the firm and the average duration of the computer use. The more people have responsibilities, the more they spend time using computers. We also conclude that people who have done computer training and the age by which they have learned to use a computer have an impact on the probability of participating in meetings. The explanations given for the other variables appear to be also valid for these variables. Thus, some aspects related to computer literacy affect workers' insertion in meetings while our two factors are not identified.

The worker's seniority in the current job has a negative effect on the probability of meetings participation. This could be explained by the fact that the older the worker is, the more he has knowledge in his field of work and the less he has interest in participating in meetings which purpose is to accumulate knowledge about the firm. It could also be explained by the tiredness of the elders who are not motivated to join group activities. Another explanation is the increasing involvement of more aged workers in the social activities outside the workplace (extra work). The effort is further postponed on young employees.

Our estimates also show that managers and intermediate occupations have more probability than workers to participate in meetings. Managers, considered as leaders, tend to participate in meetings to lead and coordinate tasks. The requirements of formalization of meetings, representation between different categories and the work nature could provide some other answers.

3 - Engaging in behavior that benefits individuals in the organization by being member or supporting a union of workers

E-skills accumulation has mixed results on the employees' union membership in France in 2006. Indeed, while "Medium related Skills" admit a negative effect on the probability of attending a trade union movement, we see that the "Related Content Medium Skills" have a positive effect on the probability of being a sympathizer union. Although digital skills alone cannot explain the membership of unions, the ability to contribute to digital content and to understand the Internet digital content facilitates the adhesion. Thus, workers might be part of a trend of understanding of wage relations, firms' dynamics, trade on workers' rights... on Internet which could then influence the decision to enroll in a trade union movement. In other words, the digital content improves the informational quality of workers which tend to make the leap to trade unionism. This is true only if the skills were not only instrumental and related to containers. Indeed, the e-skills accumulation has no direct effect on raising awareness about the labor movement and therefore on their accession. Instead this investment could encourage the opposite movement (our results)! No theoretical explanation could be provided except a constraint of time. One could possibly argue that this provides information about the nature of the workers (computer scientist free spirit and low-unionized).

Regarding the control variables, we find that the classical results are verified. On the one hand, according to the general sense, women have less probability to join a trade union of workers than men. Similarly, we verify that the more the employee is ancient the more he participates in a trade union to defend his gains. We also note that the worker who works in a private firm participates less than an employee who works in a public one in a union trade.

Another result is obtained and admits links with detailed daily duration of computer professional use. We found that the more the individual uses the computer daily in a professional way more he has probability to join a union. This relationship between the use of computers and union does not accept an explanation yet.

4 - Engaging in self-development to improve one's own effectiveness by formulating a demand of training

The e-skills accumulation, the medium related one and the content medium related one, increases the probability to make a request for training. This result is very interesting for several reasons. On the one hand, the accumulation of digital skills records the employee in a path of continuous improvement since it is more likely to request training. On the other hand, this result extends the theory of Skill Biased Technological Change that concern the fact that ICTs are the technologies that benefit to the most competent. Indeed, employees which have e-skills increase their skills by training and improve their levels, which further widens the productivity gap with the other employees. Thus, our econometric result confirms this hypothesis in the French context in 2006. This result raises economic and managerial questions because training seems to benefit to the more formed.

Concerning the control variables, they corroborate in part our findings of Skill biased Technological Change. Indeed, employees with a high school, upper or high school diploma, have more probability to demand more training than those without a degree or diploma of primary school. The most qualified employees and consequently the most qualified tend to improve their skills and increase their future income. This increases the knowledge, skills and wages inequalities among employees. The thesis of Skill Biased Technological Change is verified in our study.

There are also some classical results concerning older workers. They have less probability to formulate a demand for training than the other colleagues. Their level of proficiency and knowledge explains this result. It can also be explained by weariness to training and learning.

5. Conclusion

The aim of this paper was to study the relationship between contextual performance and e-skills. We show that differences in contextual performance between employees could be explained by individual differences of the e-skills levels. Our article demonstrates that the way an individual uses the technology is an important performance component.

Our article shows contrasted results.

In the first model there is no relationship between e-skills and “taking the work at home”. People who accumulate more digital skills are not necessarily those who take work at home. “taking the work at home” does not specify the form of this work. We don’t know if such work has a digital component (e-working, or teleworking). New labor trends concerning modularity could be a better explanation to this fact.

In the second model, e-skills accumulation has no effect on workers’ participation in meetings”. Inclusion in the corporate life in France in 2006 has no relationship with the e-skills level. However, the lack of relationship contrasts with the results achieved by some control variables. The daily duration of professional computer use impact the meetings involvement. We note also that people who have done computer training and the age by which they have learned to use a computer have an impact on the probability of participating in meetings.

The third model shows that e-skills accumulation has mixed results on the employees’ union membership in France in 2006. Indeed, while "Medium Related Skills" admit a negative effect on the probability of attending a Trade Union movement, we see that the "Related Content Medium Skills" have a positive effect on the probability of being a sympathizer union.

The forth model shows that e-skills accumulation, the medium related one and the content medium related one, increases the probability to make a request for training. This result extends the theory of Skill Biased Technological Change that concern the fact that ICTs are the technologies that benefit to the most competent

In order to have deeper analysis we need to examine whether these results are sensitive to the firms and sector environment. In fact, the survey is a matched survey between employees and firms. We have just used the employee’s component without considering the firms’ one. Sectoral differences and also some specific dimensions like the size of the firms may play a role. Firms may have differences in their incentives and this fact may lead differences in the contextual performances of the employees. We need to control for these dimensions in the next papers.

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