Chapter 8
Human Resource Management and the Internet: Challenge and/or Threat to Workplace Productivity?

Carolina Feliciana Machado, José Cunha Machado and Maria Clara Sousa

Abstract Throughout the last few years, the Internet has become a common tool at the workplace. Companies, from different activity sectors, were quick to embrace the opportunities and potential given by the Internet and put them to good use to achieve their goals. However, despite having contributed to the efficiency of employees, by allowing them to have immediate access to information on a variety of topics and facilitating communication all over the world, it also contributed to never before encountered concerns to employers. Initial research into the use of the Internet for personal reasons during working hours stated that such use had a negative impact on productivity. The reasoning for such was that employees would be wasting time which could be used to further their work, thus possibly making them unproductive. On the other hand, recent research has shown the Internet to be quite valuable to productivity. Studies have shown that not only is the Internet a priceless tool which aids workers to accomplish their designated tasks, but also when used reasonably, allows those who are working to have moments of relaxation. This contributes to improvements in concentration and ultimately in productivity. Due to this ambiguity and the absence of works on this theme in Portugal, a decision was made to base this study on the impact of the Internet usage on productivity.

8.1 Introduction

Today, we live in a technological world. Everywhere we see the use of new technologies and information technologies (IT). The Internet, a useful tool that allows us to reduce time and space among each other, exists in almost all family

C. F. Machado (✉) · M. C. Sousa
School of Economics and Management, University of Minho, Braga, Portugal
e-mail: carolina@eeg.uminho.pt

J. C. Machado
Social Sciences Institute, University of Minho, Braga, Portugal

houses. Workplace is not an exception. Indeed, many are the authors who, during the last decades, have been studied the impact of the use of the Internet in the workplace [1–15]. The interest in this subject, namely in what concerns IT impact in productivity, date from the 1980s when Robert Solow, Economy Nobel in 1987, introduced the productivity paradox with the sentence "you can see the computer age everywhere but in the productivity statistics" ([16] p. 36). Although important, what Solow tried to say was that it was not possible to affirm, in a convincing way, that technological investments result in organizations productivity improvement. Deriving from this paradox, and in order to obtain a deeper analysis and an explanation of it, some authors such as Brynjolfsson [17], Brynjolfsson and Yang [18], and Triplett [19] have implemented new research.

In what concerns the Internet, the study of its impact in productivity has followed a similar course of that of IT. Seen as an access to the biggest world playground [5], we can found here different points of view about its relevance and impact in work development. Indeed, while some defend that, the simple act of sending an email to a friend, watch YouTube videos or use Facebook to participate in social networks [13, 20, 21] can lead to a decrease in their productivity, as they are spending a useful time to their effective work; others [22, 23] consider that the use of the Internet in the workplace can help to increase productivity once it makes available different resources highly useful to workers in their daily work. More recently, however, Coker [14, 15] has been contributing to this discussion, showing that, when used in a moderate way, the use of the Internet by workers in their workplace can make them more productive that those who do not.

Although important, studies about the Internet impact, and more specific, focusing productivity impact, are scarce, if not, almost inexistent, in Portugal, reason why it seems relevant to try to discover what it is happening about this matter in Portuguese organizations. More specifically, we will look to assess the use and reasons of the Internet use in the workplace; to assess the impact of the Internet use in workers' productivity; and to assess the existence of a relation between the Internet use and the existence of control politics in its use and its implications in productivity.

8.2 Productivity: The Concept

In a market characterized by high levels of competitiveness, productivity must be seen as a way to survive and be competitive. Indeed, in a country like Portugal, whose productivity level is one of the smaller from the European Union, although be identified as one of the countries with a higher mean week working hours schedule, just behind the United Kingdom and Greece, productivity is seen as a challenge to Portuguese society [24].

Many are the researchers who, during the last decades, are trying to define productivity [25–28]. Usually confused with individual performance, output, and production capacity, Pritchard [29] considers that productivity can be perceived as a results measure related to objectives (effectiveness) or from results related to inputs (efficiency). The author defends that productivity is related with these two measures, efficiency (seen as the ratio between outputs over inputs) and effectiveness (concerning the relation between outputs and some standard or expectation), independently of the perspective from which we can define productivity. Indeed, while the economists consider that productivity is related with the change of inputs into outputs; for industrial engineers, productivity is seen as the useful labor ratio (output) divided by the energy used to produce this labor (input); while managers, present a more extensive concept, where productivity is seen as any measure that contributes to the efficiency and effectiveness growth, such as the cross-selling raise, the consumer satisfaction improvement or the absenteeism reduction. About productivity measures, Cunha et al. [24] present some indicators such as profits, clients satisfaction, market share, non-defective products, investment return, employee output, real versus planned output, labor cost by unit produced, among others. For the present study, one of the main relevant measures is the employee output, in other words, the product originated by his work.

About employees, we can say that in the present days, they are considered one, if not, the most critical success factor of an organization. They are the only organizational resource that can make the difference, as they are not imitable. Their know-how, their knowledge, is unique, reason why the best and more successful organizations are those who really invest in their human resources. However, manage people in an organization is not easy. On the contrary, manage human resources is seen as one of the most complex functions with which organizations need to deal. This is because organizations want not only efficient collaborators, that make the right things, but also effective, which means they need to do the right things in the right way. Only by this process is possible to obtain a better collaborators performance, compatible with a productivity improvement.

At this point it is important to say that independently of these concerns, it is difficult to obtain a regular good performance. Some factors such as low knowledge, absence of motivation, physical and intellectual limitations, personal and familiar problems, weak leadership, weak levels of organizational communication, bad working environment, among others, contribute, frequently, to the low levels of organizational productivity, requiring a more effective intervention from management in order to obtain the intended productivity levels. Conscious of this reality and based in Armstrong and Baron (2005) research, Goodhew et al. [30] present some overcome measures of this problem of bad performance, namely first of all, it is necessary to identify, agree, and understand the reason of the low-performance existence; identify and decide about the way how to overcome this situation, such as implement training programs conducting to a better performance, and control this performance giving the necessary feedback. Based on these steps,

and according its own objectives and internal organization, organizations have a good support to overcome the bad performance levels of their collaborators. Looking to human resource management politics and practices, we can point here that, in parallel with training programs, having an effective management in what concerns recruitment and selection, performance appraisal and feedback, flexible work schedules, effective compensations, management by objectives, work reorganization, among others, are good intervention programs looking a better individual performance ([24] based on Guzzo et al. 1985). The introduction of new technologies, well combined with the human component in a context of participative organizational changes, is also an interesting intervention program considered by these authors. Without the existence of a unique "receipt," it is necessary that each organization takes into account its own characteristics and main aims, and never forget that in these processes, the participation and collaboration of organizational collaborators is crucial to the success of these programs.

Overcoming this individual (micro) perspective and looking now to the organizational (macro) perspective, Cunha et al. [24] consider that the organization performance can be established through the realization of its objectives (rational approach), the resource acquisition (systems/resources approach), the human resources management (internal processes approach), the stakeholders interests (stakeholders approach), as well as the creation of a consistent and articulated management model (contrasting values approach).

Between these two perspectives (micro and macro), we can find the productivity paradox (first generated by Robert Solow, in 1987, as focused earlier). The introduction of new technologies, namely communication and IT, is a reality that had introduced several changes in almost everybody's way of life. Considering is massive existence, we could expect that the growing organizational automation will conduct to a work productivity increase. However, this is not a linear conclusion. Indeed, and taking into account that the relation between the existence of new technologies and productivity does not mean an increase in this last one, the productivity paradox begins having power, originating the development of multiples researches. Subjacent to this paradox, Brynjolfsson and Yang [18] established to central questions: (1) Why organizations invest highly in IT without the correspondent productivity increase; and (2) If IT contribute to productivity, why is so difficult to measure this contribution? Taking in mind this paradox, and in order to better understand the relation between these two factors, Rei [31] implemented an analysis in which is possible to see a synthesis of some of the studies showing the relation between IT and productivity (Table 8.1).

Looking to this table, we can see that productivity paradox starts to be put in question. Indeed, since 1991, many are the studies that contribute to show that investments in IT contribute, in some way, to increase productivity. At the same time, IT introduction in organizations also helps to obtain more organizational flexibility, increasing the work resources efficiency. Besides, through the development of Internet transactions, such as business to business transactions, organizational efficiency could also increase through network externalities.

Table 8.1 Some results about IT—productivity research

Research	Sample	Results
Loveman 1988	60 business units	IT investments did not increase output
Strassman 1990	*Computerworld* inquiry to 38 companies	None correlation between IT and profits or productivity
Harris and Katz 1991	Insurance industry	Weak positive relation between IT expense ratios and diverse performance ratios
Dewan and Kraemer 1994	12 Asia–Pacific countries, 1984–1990	IT investments positively correlated with PIB and productivity increase
Greenan and Mairesse 1996		There are a positive relation between company organization and the percentage of workers that use computer in the work
Dewan and Kraemer 1998, 2000	36 countries	IT capital positively correlated with work productivity in developed countries, but without significance in countries in development
Melville 2001	31 industries in the USA, 1965–1991	IT return is positive to the USA as an all. Benefits from IT increase with time
Gilchrist et al. 2001	Fortune panel of 1,000 companies in the USA, 1987–1993	Productivity is higher in production companies than in user companies
Bresnahan et al. 2002	Data panel of 331 companies in the USA	IT hardware capital has a meaningful positive impact in productivity
Zwick 2003	9,000–14,000 German branches, 1997–2000	IT investments increase substantially the German branch medium productivity

Adapted from Rei [31], pp. 131–132

8.3 Internet and Productivity

8.3.1 The Internet Use During Work Hours

During the last years, many are the changes that our society is facing, deeply influenced by technological development, which contributes not only to a more efficient tasks development, but also to an instantaneous information change, all over the world.

Computers, and more exactly the Internet, are good examples of this technological development, as they allow people approach, which ones can establish faster and efficient contacts with any world region. The way people work, nowadays, is deeply influenced by computers; however, and according to Mastrangelo et al. [11], computers also lead people to avoid and sabotage the work. These authors refer, in their research, that according to a study implemented by FBI and the Computers Insurance Institute, 91 % of the participants identified an abuse in the privilege of access to the Internet in the work place, including a not suitable use of the email and pornography download. Indeed, the not suitable use of the Internet during the work hours is problematic as it can lead to some productivity

losses. Time that workers spend seeing pornography, speaking with friends and family, play games, buy things by the Internet, among others, can lead to a lost and not productive time [32]. Lim [20] argues that reporting in media corroborates the concerning and expensive tendency of the Internet bad use by workers in the workplace, showing that a study developed by SurfWatch concluded that when workers use the Internet in work hours, it may occur one billion dollars costs.

These results show that although all company benefits given by Internet, these companies also need to lead with its challenges, namely in what concerns the abuse in its use by workers, reason why it is important to understand what we mean by "workplace abuse in the Internet use." Young [33] spoke in the "Internet vice," while Davis [34] used the expression "problematic use of the Internet." These different definitions lead researchers to study the behaviors of diverse individual psychological approaches less expected in the present work environment [35]. For instance, Mahatanankoon [36] considers that one person can use the Internet excessively in order to escape to psychological and emotional problems.

In what concerns the "Internet vice," Brenner (1997 cited by Mahatanankoon [36]) considers that an Internet addicted shows a bigger tolerance to the Internet use, withdrawal difficulties, and an Internet desire when compared with the normal Internet users. Griffiths [37], on the other hand, considers that even if Internet can be a vice, as it make up for other problems in the person life, this vice symptom only occur in a small number of people. Stanton [38] highlights that workers profile that use Internet frequently is not the same to the Internet addicted, as they could be happier and more productive. Definitions as cyberloafing [21] or personal use of the Web [39] give a better idea of the not productive standards that occur in the workplace due to the Internet [36]. Cyberloafing exists when a worker, in a volunteer way, uses his organization Internet access during work hours for personal reasons, including receive and send emails not related with the job [21]. About the personnel use of the Web, it is also the worker volunteer use of the organization Web, during work hours, in order to "surf" in Web sites not related with the work by reasons not related with the work too [39]. Mahatanankoon [36], however, has the opinion that there are some activities not related with the work that are not characterized as cyberloafing or personnel use of the Web, but only, as not productive, illegal, or highly devious.

In what concerns devious behaviors, Mastrangelo et al. [11] consider that when workers are paid in order to be productive, but they are not having a productive behavior, they digress from the work rules. These rules can also be violated when workers, without authorization, use the employer resources, materials, or installations, for reasons not related with the job, finishing in an organizational inefficiency. For these authors, although the existence of workers devious behaviors models, they do not consider the unique aspects of computers bad use, because with personnel computers, workers can have these behaviors directly from their desk, being unnoticed by friends near them. In order to create specific hypothesis to the organizational digress through work computers, Mastrangelo et al. [11] create the ABCD model, which analyzes the **A**ccess to computers/Internet, the **B**reaks from work, the organizational **C**limate, and individual **D**ifferences.

8.3.2 The Internet Use During Work Hours: The Positive Side

Although the Internet excessively use can lead to a productivity decrease, if limited, it can improve the worker capabilities to do his job [14, 15, 22, 23, 40].

To Litan and Rivlin [22], Internet has the potential to increase productivity in different, but with mutually reinforcement, ways, namely (1) decreasing, in a significant dimension, the cost of different transactions needed to produce and distribute goods and services; (2) increasing management efficiency, as it allows a more effective resource management as well as an easier communication within the organization and with clients and partners; (3) increasing competition, making prices more transparent and increasing markets to buyers and sellers, leading to a costs reduction.

Anandarajan et al. [40] refer that Internet allows the workers and organizations to have more flexibility, as work is not tie to time, place, and information availability limitations. Team members do not need to be all together in the same place; apprenticeship can occur in organization; and Internet can be a phone list, a consultation book, a register book, and an encyclopedia.

Cox [23] considers that Internet offers a lot of resources that can help workers to carry out their job responsibilities, including research functions, local networks, and other tools. Many organizations have adopted social networks, encouraging, actively, their workers to use Internet in such matters related with their work, namely marketing, recruitment, communication with clients and information share between workers and industry contacts.

More recently, Coker [14, 15] concludes that workers who use Internet, as leisure, in the work place, in the maximum of 20 % of the time they spend in the organization, are 9 % more productive when compared to those that do not use it. Based on Zijlstra, Roe, Leonora and Kredite (1999), Coker ([15], p. 114) considers that "Having a break during work hours enables office workers to restore attentional resources." By this reason, he introduced the new concept of WILB when he says ([15], p. 114) that "In recent times, the Internet has made possible an additional type of break for office workers, Workplace Internet Leisure Browsing (WILB)," which he define as "the act of using the company Internet for personal reasons during work hours, which might include watching YouTube movies, engaging in social media sites such as Facebook, or doing any other activity that might be construed as personal Internet use outside of organizationally set tasks." We have here the idea that the existence of short breaks during the workday will have a positive impact on the worker productivity, much better than less and longer breaks. It lead us to consider that a "Moderate amount of WILB may be construed as an enjoyable volitional activity, much like visiting a café for a coffee with friends after work or talking a walk, although less effortful, requiring just a few clicks of the mouse" ([14], p. 241). Introducing a more participative and

autonomous work environment contributes to conclude "that freedom to surf at work fosters a sense of autonomy, which research suggest may have a positive effect on workplace loyalty and willingness to perform" ([14], p. 241).

8.3.3 Reasons to the Internet Personal Use in Workplace

The Internet use in the workplace is not limited to professional role. Garrett and Danziger [13] refer that many researchers see the Internet personal use in workplace as a worker expression of unhappiness. To the authors, this unhappiness can be effective in explaining more disapproval ways of computer abuse, such as data destruction or peer worker harassment, but put in question its power in explaining the Internet not productive use, like sending personal emails during the work hours. They also add that research about the motivation to the Internet personal use in workplace usually deals with this activity as a devious behavior used in order to reduce the negative affect related to the work. Cyberloafing (defined above and also known as cyberslacking) [20], the organization data robbery or destruction, and the colleagues harassment by email [13, 36], are possible answers to these negative affect.

Research focuses its attention in the Internet use as an abuse in the work place [5, 21, 32]. However, Garrett and Danziger [13], although agree that the more extreme way of a devious computers use identified in the literature could be an aggressive answer to work provocations, put in question that this could be the main motivation to the greatest personal use of the Internet during the work hours. On contrary, they suggest that many people, who use the Internet to personnel reasons, are not take revenge to their employers, not even damage, intentionally, their organization. Instead of this, they suggest that many workers are answering to the capabilities offered by technology potential.

As the Internet use became a routine task in the everyday life, it could exists the tendency to its use whenever individuals think that it is useful whether in their work development or to matters not related with the job, during work hours [35].

Commitment with the organization is another factor that can have a relevant impact in the Internet personal use in the workplace [13]. To an individual, with a high level of commitment, tasks not related with the job reduce productivity, are incompatible with auto-image and can prejudice the workplace status. In other words, it will be less probable that more job-committed workers use the Internet for personal reasons.

In sum, looking to the factors that can lead to the Internet personal use in the workplace, we conclude that the unhappiness with the work, the stress, and the perceived work injustice [13], the expected Internet work usefulness [13, 41], and the computers routine use [13, 35, 41, 42] are positively correlated with the Internet personnel use; while commitment with the organization and the organization restrictions in computers use are negatively correlated [13]. In what

concerns this last item, the authors defend that restrictions established by employers, about the Internet use during work hours, promote the worker self-regulation, leading to an Internet use reduction.

8.3.4 The Internet Personal Use Control in the Workplace

In the present days, where the Internet use by organizations and its domain by workers are an added value, to know-how to use it without abuse appears as a delicate task. "Research suggests that blocking or controlling Internet access in the workplace is viewed by many employees as a restraint impinging on their sense of control. Specifically, several studies have reported that although participants were aware that WILBing was wrong, they did not agree that it was devious behavior" ([14], p. 239). Following with this author point of view, we can reinforce that ([14], p. 239)

> The incongruence between employers' and employees' views on the acceptance of WILB creates a conflict of interest in the workplace. While workers believe they should be allowed to WILB, management believes they should not be allowed. Efforts by employers to control employees' misuse of the Internet in these conditions result in resentment and feelings of being over-controlled.

Taking into account these different perspectives, the organizations reaction to the personnel computers use is not the same to all of them. Indeed, changing from organization to organization, while some recognize and tolerate this use, others, fearing the impact that it could have in workers' productivity [1], have been developing computers use policies with different restriction degrees [11]. Organizations have been looking to reduce the Internet abuse occurrence developing some policies, since Internet use policies to controlling and filter tools as preventive policies [36]. Instead of forbidden the Internet use, many organizations established that the more efficient strategy consists in finding a way of how to control and regulate the online activities developed by workers [23].

According to Young and Case [8], considering that the Internet use abuse has been identified as a deep problem, possible to seriously affect the organizations productivity, organizations have developed some strategies in order to face this problem. First of all, employers begin using policies about the Internet use which give some directives about the conduct that is, or not, allowed in what concerns the Internet. Besides giving some directions about the right behavior, these policies also describe how to deal with rape. Secondly, organizations have been using electronic control software in order to dissuade potential abuses and guarantee the existent policies. Finally, it is important to promote the management development as well as training programs able to train supervisors in what concerns the workers Internet abuse helping the earlier prevention and detection.

The performance control allows managers to continuously and directly follow their workers tasks, which can have a significant impact in productivity [43].

However, the control of the Internet use can put important queries in what concerns the workers privacy [1]. In Young [44] view, managers ought to establish how to effectively control the workers Internet use, maintaining their productivity and moral. According to Wen and Lin [1], to exist a correct Internet use, organizations more than restrict to the Internet control and blockage need to establish policies to the Internet use as well as directives to a successful Internet access.

Kimberly Young [45] presents an Internet management model where the **policies of the Internet use** appear as the main item that managers need to take into account, followed by **training** saw as the way of how to communicate these policies to the workers, specially the last which arrive the organization. Once the policies are effectively communicated, employers ought to control the workers Internet use, in order to **apply** the policies of the Internet use. Finally, instead of dismiss, organizations can opt for the workers **rehabilitation**. In sum, to Young [45], the development of Internet use policies, workers training, the Internet use control, and to rehabilitate abuse incidents are the ways that organizations have in order to protect from problems introduced by the abuse in the Internet use.

8.3.5 Internet and the Workplace Changes

The use of the Internet has changed the way how we live and work. It has changed the work content and context, at the same time that the frontier between personal and professional life get nearer.

Individuals and organizations were deeply influenced by the highly use of the Internet. From the individual side, the ability to be continuously "on" tends to join personnel with professional life. To balance work and private life becomes complicated as work seems never has an end [40]. In what concerns organizations, they need to face some challenges, namely related with productivity decline, virus spread, and security [2].

The Internet introduction in the workplace has changed deeply the way how people work. Once upon a time, workers realized their job and left the hanging work on the secretary, beginning with their personal life. Nowadays, it does not exist a clear barrier between these two realities, as workers transport their work to home at the same time they transport personal matters to their job. Rewards are many, namely flexibility at work, autonomy, higher work ability, ability to work in a global environment, as well as access to great information amount. However, the challenges placed by the superimposition of personal and professional lives are also very numerous, by example, stress, work excess, organizational loss of control, and information and noise proliferation [40]. According to these authors, Internet has, also, changed work environment, business environment, and competing environment in a cycle of interdependent relations. The Internet became a catalyst to new business models, strategies, and organizational structures. It has introduced new factors that have affected the competitive scenario, new rivalries, new competitors, and new types of pressure [9].

Business changes, cause by the Internet use, demand changes in the psychological contract [40]. In the psychological contract established in the pre-Internet period, the employer was the person who take care and the supplier. The worker carried out his job, previously defined, being rewarded by his performance. It exists a job security and certainty. Psychological contract had a transactional component focused, mainly, in tangible rewards; and a relational component involving socioemotional elements, such as trust, equity, and commitment [40]. However, due to the observed changes, where the Internet use is a relevant item to take into account, it has been developed a new psychological contract, based in short-term jobs, worker responsibility in his career development, commitment in the job instead of the employer, and the hierarchy importance reduction [40]. Finally, and according to these authors, changes observed in the workplace can be divided into types: worrying and promising. Looking to the first one, it is related with the devious use or the addicted behavior in what concerns the Internet use. The promising changes are related with the knowledge management, apprenticeship, virtual teams, and career support.

8.4 Methodological Questions

8.4.1 Data Collection and Sample

Facing a quantitative study, our data were obtained through the inquiry by questionnaire. This inquiry by questionnaire resulted from the literature review and the Endicott Work Productivity Scale (kindly available by Jean Endicott, who gave permission to use it). The questionnaire was divided into four sections: in the first one, personal information, such as age, gender, schooling level, activity sector, and some job characteristics, are presented; the second section looks to measure workers' productivity; the third section is focused in the Internet use by workers; and finally, in fourth section, questions look to identify the existence of some type of control in the use of the Internet in the workplace.

The inquiry by questionnaire focused the Portuguese active population. Within this, and using a convenient sample, we have obtained a sample of 158 valid questionnaires.

8.4.2 Personal Information

The sample is formed, basically, by women (59.5 %) and by young people with age under 35 years old (65.9 %), with, at least, the frequency of a university course (62.6 %), working in companies and institutions from public sector (75.3 %). In its great majority, they work with other people (94.3 %), on account of someone else (88.6 %) and has a chief or a hierarchical superior. It is also

important to say that 69.6 % has supervision functions and 42.4 % contact with clients or sellers. Only 11.4 % are workers on one's own account.

In the sample, we only register gender differences in what concerns the schooling level, where are registered a superior number of women with schooling at the university degree level (50.0 %) and a lower number with basic-level schooling (15.6 %), as well as in others supervision in the workplace, where women make the difference in this job characteristic (79.8 % against 54.7 % of men) (Table 8.2).

Table 8.2 Personal information by gender (%)

Personal information	Female (n = 94)	Male (n = 64)	Total (n = 158)
Gender	59.5	40.5	
Age			
18–25	14.9	14.1	14.6
26–35	55.3	45.3	51.3
36–45	19.1	20.3	19.6
46–55	9.6	12.5	10.8
56 and more	1.1	7.8	3.8
Schooling			
9° or less	4.3	15.6	8.9
10°–12°	29.8	26.6	28.5
Frequence of a university course	10.6	18.8	13.9
University degree	50.0	28.1	41.1
Master/PhD	5.3	10.9	7.6
Activity sector			
Public	27.7	20.3	24.7
Private	72.3	79.7	75.3
Job characteristics			
I have colleagues with who I need to work	93.6	95.3	94.3
I work on account of someone else	91.5	84.4	88.6
I have a chief/supervisor	89.4	85.9	88.0
I supervise other colleagues	79.8	54.7	69.6
I contact with clients/sellers	46.8	35.9	42.4
I work on one's own account	8.5	15.6	11.4

8.5 Some Results

8.5.1 The Internet Use in the Workplace

The Internet use in the workplace is, in its large majority, daily (87.3 %), although 56.3 % accept to access it many times during the day. However, there are only 7 % those that do not use the Internet in the labor environment, while 5.7 % use it with less frequency (weekly or monthly).

Table 8.3 The use of the Internet in the workplace by frequency (%)

The use of the Internet in the workplace	Many times during the day ($n = 89$)	Daily ($n = 49$)	Less than once in the day ($n = 9$)	Total ($n = 147$)
How frequent do you use the Internet?				
(Never: $n = 11$; 7.0 %)	56.3	31.0	5.7	
What is the duration, in average, of each session?				
Until 1 h	68.5	71.4	100.0	71.4
Between 1 and 3 h	15.7	14.3	–	14.3
More than 3 h	15.7	14.3	–	14.3
What is the percentage for leisure?				
Until 5 %	58.4	69.4	77.8	63.3
Between 5 and 20 %	28.1	16.3	–	22.4
More than 20 %	13.5	14.3	22.2	14.3

In average, the duration of each daily session does not surpass 1 h (71.4 %), being the time spending online, in its majority, to activities related with the developed work. Distinguishing the time spend online between work and leisure, we can observe that 63.3 % do not use more than 5 % of the time to leisure, while only 14.3 % declare more than 20 % of the time to leisure (Table 8.3).

In order to assess about the applications which are used more frequently in the Internet and the main reasons to use them, we asked, in our inquiry that among a group of seven applications and twelve reasons workers identify, in each case, and by order of importance, the five more used.

Once analyzed the results, we verify that the most used applications in the workplace are, basically, and considering only the two most used applications, the e-mail access (93.9 %) and browsers use (88.5 %), although e-mail access is the main used application for 75 % of the cases. In a second level, also appear as applications used in the workplace social networks (48.0 %), chats (41.2 %), forums and blogs (both with 40.5 %), although chosen mainly in third, fourth, and fifth place. After e-mail and browsers, appear in third place the chats, although in the set of these three positions social networks are more mentioned. Finally, the use of games is residual as it is pointed out, at the best of possibilities, in the fifth position only by 5.4 % of the cases (Fig. 8.1).

Of course the two applications most used in the workplace—e-mails and browsers—are directly associated with the two main reasons to the Internet use—change e-mails and make search. Looking again, and only, to the two main reasons, change e-mails and make search are pointed out by 81.1 and 78.4 %, respectively, although with a light superiority to the e-mails change as the first option (45.3 % against 38.5 %). In a second level, gain a distinction as reasons to the Internet use to read newspapers online (59.5 %), contact with friends (46.6 %), and to pay personal bills (41.9 %), although selected mainly in third, fourth, and fifth place. To see social Web sites of friends and shopping take up sixth and
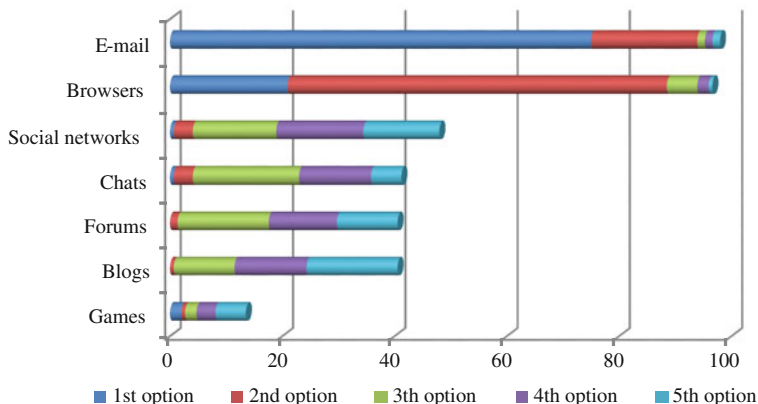
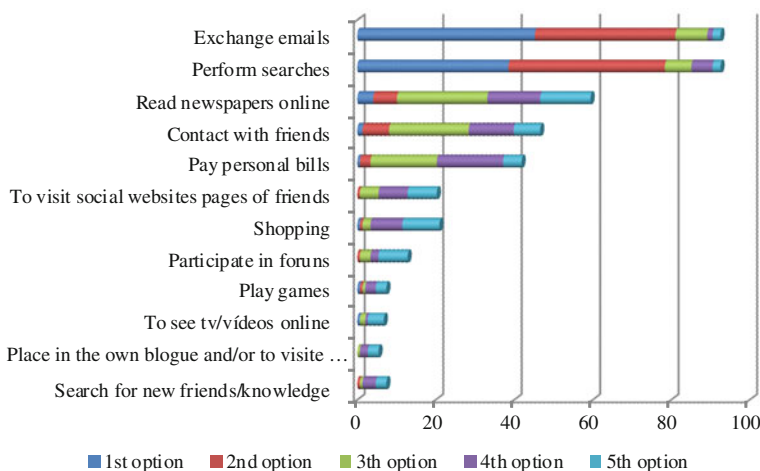**Fig. 8.1** Applications more used in the Internet (%)

Fig. 8.2 Main reasons to the Internet use (%)

seventh place with around 20 % of the answers pointed out these reasons. Finally, appear the remaining reasons with percentages quite residual and referred, mainly, as fifth option (Fig. 8.2).

8.5.2 Monitorization of the Internet Use

Controlling the Internet use in workplace is a practice in 64.3 % of the companies. Although companies use in majority specific software to control (62.1 %), even so we can see 32.6 % of the companies where control depends on the definition of internal policies (Table 8.4).

Table 8.4 Monitorization of Internet by frequency (%)

Internet use in workplace	Many times during the day	Daily	Less than once in the day	Total
Your company controls the Internet use?	($n = 89$)	($n = 49$)	($n = 9$)	($n = 147$)
Yes	65.2	65.3	55.6	64.6
No	34.8	34.7	44.4	35.4
In what way?	($n = 58$)	($n = 32$)	($n = 5$)	($n = 95$)
Specific software	65.5	56.3	60.0	62.1
Internal policies	31.0	34.4	40.0	32.6
Another	3.4	9.4	–	3.4

8.5.3 Productivity Assessment

Work productivity was measured on the Endicott Work Productivity Scale (EWPS), a 25-item scale which was designed to assess attitudes and behaviors that affect work performance and efficiency. Each item was rated on a 5-point scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = almost always). The instrument evaluates worker performance in attendance, work quality, performance capacity, and social/mental, physical, and emotional personal factors. Summed scores range between 25 (best possible score; high work productivity) to 125 (worst possible score; low work productivity).

Among the inquiries productivity scores change between a minimum of 25 (best possible score; high work productivity) and a maximum of 94, registering a mean value of 44.1 (standard deviation = 11.2) and significant degree of skewness and kurtosis, due to the existence of three outliers. Eliminated these outliers, productivity scores change between a minimum of 25 and a maximum of 68, with a mean value of 43.3 (standard deviation = 9.6) and without skewness neither kurtosis (Table 8.5).

Table 8.5 Measures of work productivity

Measures	Statistic ($n = 158$)	Statistic[a] ($n = 155$)
Mean	44.1	43.3
Standard deviation	11.2	9.6
Minimum	25.0	25.0
Maximum	94.0	68.0
Percentile 25	36.0	36.0
Percentile 75	50.0	50.0
Skewness (statistic/std. error)	6.1	1.5
Kurtosis (statistic/std. error)	8.4	−1.2

[a] without outliers

8.5.4 Assess the Existence of Differences Between Personal Characteristics and Productivity

Table 8.6 shows the results obtained from the comparison of the productivity levels as a result of gender, age, qualifications, and the activity sector. Mean comparison test (Student's t test) proves that neither of the differences are significant (Sig. > 0.05).

Table 8.6 Independent samples t test between productivity and personal information

Statistics of productivity	N	Mean	Standard deviation	T test	
				t	Sig.
Gender					
Female	91	43.4	9.9	0.132	0.895
Male	64	43.2	9.1		
Age					
Until 35 years	104	43.2	9.5	−0.058	0.954
More than 35 years	51	43.3	9.8		
Qualifications					
Until 12° years	58	42.5	9.6	−0.803	0.423
More than 12° Years	97	43.8	9.5		
Activity sector					
Public	38	42.9	10.2	−0.302	0.763
Private	117	43.4	9.4		

8.5.5 Assess the Existence of a Relation Between the Internet Use and the Existence of Controlling Policies

Table 8.7 shows the results from the analysis of the association among the frequency of use, the mean duration of each session and the percentage of time used to leisure and the use of control in the Internet use by companies. The independence test of chi square proves that only in what concerns the mean duration of each session the test result is significant (Sig. = 0.005). In companies where Internet control exists, we find a superior percentage of mean uses inferior to one hour (76.8 % against 61.5 % when it does not exist control). On the other hand, when it does not exist control, we find a high percentage of cases where the mean duration is between 1 and 3 h (26.8 % against 7.4 % when control exists).

Table 8.7 Association test between control and the Internet use

Your company controls the Internet use?	Yes ($n = 95$)	No ($n = 52$)	Chi square Test	
			Value	Sig.
How frequent do you use the Internet?				
Many times during the day	61.1	59.6	0.35	0.841
Daily	33.7	32.7		
Less than once in the day	5.3	7.7		
What is the duration (mean) of each session?				
Until 1 h	76.8	61.5	10.5	0.005
Between 1 and 3 h	7.4	26.9		
More than 3 h	15.8	11.5		
What is the percentage to leisure?				
Until 5 %	67.4	55.8	2.32	0.313
Between 5 and 20 %	21.1	25.0		
More than 20 %	11.6	19.2		

8.6 Assess the Existence of Differences Between the Internet Use and Productivity

Table 8.8 shows the results obtained from the comparison of the productivity levels as a result of the frequency of use, the mean duration of each session and the percentage of time used to leisure. Mean comparison test one-way ANOVA proves that only in what concerns the percentage of time used to leisure, the result of the test is significant (Sig. = 0.005). Workers whose time spend in the Internet is due to work activities, in other words, whose percentage of time used to leisure does not surpass 5 %, are those with lower scores corresponding to higher productivity levels.

Table 8.8 One-way ANOVA between productivity and the Internet use

Statistics of productivity	N	Mean	Standard deviation	One-way ANOVA	
				F	Sig.
How many times do you use the Internet?					
Many times during the day	89	44.1	9.8	0.523	0.667
Daily	46	42.0	10.0		
Less than once a day	9	43.2	7.2		
Never	11	42.2	7.3		
What is the duration (mean) of each session?					
Until 1 h	105	43.2	9.8	0.117	0.890
Between 1 and 3 h	20	43.5	9.0		
More than 3 h	19	43.4	9.7		
What is the percentage to leisure?					
Until 5 %	91	41.4	9.1	5.40	0.005
Between 5 and 20 %	33	47.2	10.4		
More than 20 %	20	45.9	9.4		

8.7 Some Final Remarks

Data analysis allows us to conclude that the use of the Internet, for personal reasons, during work hours, does not have a direct impact in workers' productivity. Indeed, there are workers who have never used the Internet and are less productive than others who use it in a considerable percentage of their working time. The justification that seems to be more consistent is that we believe that workers only use the Internet by leisure when they really can do this, as they know these actions are not going to interfere in their work performance. When they have finished their work and/or the work is in well progress, they use the different applications that Internet make available to their personal interests.

Nowadays, in the present work market, it does not exist clear borders between personal and professional field. So, in the same way that it is very frequent to finish some work tasks at home, workers also begin to deal with some personal matters, through the Internet, when they are in their workplace, without presenting a reduction in their productivity levels.

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