

# The Role of (Dis)satisfaction in the Effectiveness of E-Mail usage at Work

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## Abstract

*This paper focuses on e-mail related activities in the workplace, in particular emails that are sent during work hours, and demonstrates the great extent of waste involved in their daily use, not just for private purposes, but also for purposes of work. The survey includes a thorough statistical analysis referring to 15 different service organizations operating in Israel. In the research, influences parameters were reviewed, among which quantity of "net connections", and "existence of organization culture/policy, satisfaction at work and demographic parameters. the research explores interruptions at work, resulting from (dis)satisfaction at work and the extent to, which the e-mail tool contribute to interruptions and diminish our ability to focus on important tasks. The findings show that increasing e-mail usage in the workplace and spending large amounts of time on private emails may be an indicator for dissatisfaction at work, in service organizations. Moreover, it emphasizes the importance of introducing greater control, supervision, training and e-mail boxes separation.*

**Keywords:** *dissatisfaction at work, effects of e-mail at work, service organization, organization culture/policy, efficiency.*

**JEL classification:** E61, J24

## 1. Introduction

E-mails at work undoubtedly serve as a major and essential trigger in the modern world. Seemingly, along with wider use of e-mails at work one should expect higher efficacy resulting from the improvement of communications and business processes in and across organizations. However, this "positive" point of view has led most researchers to ignore negative aspects associated with using e-mails at work. Questioning these "negative" aspects might lead to question the fundamentals of organizational Information Technology perceptions. In opposition to previous researches, this paper adopts a different perspective trying to examine how loss of work hours can result from the (mis)use of e-mails during work hours for personal purposes and needs. In regards to that, how dissatisfaction at work

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may contribute to time waste resulting from e-mail usage at work. Service organizations e-mail usage is expressed through the provision of greatest utility to the organization and the customers, and not all employees are using it during the whole day. The research excluded Internet and Net activities such as Facebook, Twitter and the like, which in most cases are for private purposes.

## 2. Literature review

Undoubtedly, the main part of the literature has focused on the "positive" aspects of using web-based tools. We used the term "positive" because, roughly phrased, most of the research have sought to confirm a positive relation between the use of e-mails and the attribute in question, such that higher e-mails usability is more likely to imply better proficiency and efficiency.

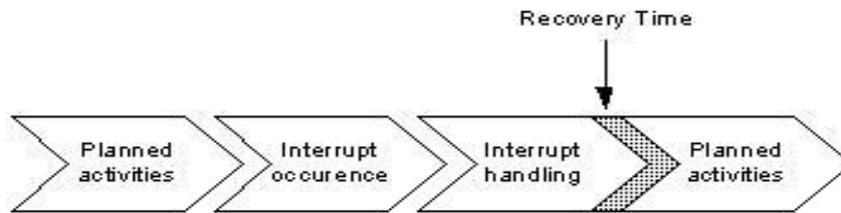
E-mails use is also found to be positively correlated with knowledge and information sharing and business related interactions (Marson & Marson, 2002; Powell, 2003). Others, for instance St-Pierre & Raymond (2004), found that web data had successfully replaced conservative information tools such as papers, while Smith et al., (2005) and Coulson-Thomas, (2005) suggested that the quality of both organizational social relationships and organizational social climate is determined by employees' productivity and that the latter is related to the use of e-mails. Finally, Spithoven (2003) and Kilpatrick (2000) agree that using e-mails improved workers' morale and helped them complete their tasks more quickly and Fallows (2003) argued that most employees referred to e-mails at work as something that helps them work efficiently and fulfill their tasks.

However, only a few researches were found to deal with the current research's main interest, meaning the negative aspects using e-mail at work have on organizational management and business processes conduct. Much of the research have focused on time waste resulting from private and personal e-mails usage during working hours, for instance Websense, (2006) and Arnesen & Weis, (2007). Other negative aspects of e-mails usage considered infrastructure exploitation overload (Ingham, 2003, "cyberloafing" (Zoghbi et al., 2006), and the difficulties for employees to manage their inbox (Dabbish, et al 2005; Kankaanranta, 2005).

Overall, researches agree that although technology has a positive influence on organizational performance and business success mainly by helping employees to simplify their work (Forman et al., 2007), technology also impose direct and indirect costs on organizations because employees spend more working hours on the web regarding non-work related issues (Simmons, 2007). The e-mail communication tool acts the same, and the fact that e-mail messages do have some disruptive effect by interrupting the user was discussed by Jackson, Dawson & Wilson (2003) who illustrated the three phases of interruption in figure 1.

The three phases of interruption including the recovery time in the above research showed that e-mail messages do have some disruptive effect. Findings have shown out, that e-mail inbox was checked for incoming e-mails every five minutes by the majority of employees. They responded to those arrived e-mails

within six seconds, and a recovery time between finishing reading these incoming e-mail and returning to the previous work's task existed. At later stage, Jackson, Dawson, & Smith (2006) have rechecked the recovery time with similar results.



**Figure 1: The three phases of interruption**

Source: Jackson, T.W., Dawson, R.J. & Wilson, D., 2003

Employee satisfaction has become a major organizational objective, and many researches were written about job satisfaction factors at work, but still there is no universal definition of job satisfaction. Herzberg's (1968) theory defined employee satisfaction as two dimension factors: "hygiene" and "motivation". Hygiene issues, such as salary and supervision, increase employees' dissatisfaction in work environment. Motivators, such as recognition and achievement, make workers more productive, creative and committed. Incentive motivates employees in the workplace to work resulting in job satisfaction, and the 'motivators' increase employee job satisfaction, which further increases their efficiency.

However, a different attitude was presented by Liccione (2007) who said that although Herzberg (1968) asserted that external factors such as compensation only have the effect of preventing individuals from becoming dissatisfied with their jobs, compensation as a primary motivator therefore represents only a marginal strategy for increasing job satisfaction. Interestingly, new approach was presented by Garrett & Danziger (2008) in whom they argue that the lack of job satisfaction, factors have no significant contribution to any increase on web surfing or personal e-mail usage. However, factors are expected to shape the outcome of personal use, such as general positive perception of the web usage, routine computer-base activities, commitment to work, and restrictions policy. They are considered as strong satisfaction predictors.

Conversely, Garrett & Danziger (2008) found that about 4/5 of those workers do engage in personal Internet (not e-mail) usage at work which are not resulting mainly from disaffection factors. As stated by Zelikovich, 2001 and 2007, not only that large e-mail volume required more attention from the organization administrators, such as technicians and IT managers, causing larger costs, but it also implicitly imposed administration costs on employees because of the need to handle so much information. In this perspective, e-mail volume overload have produced larger overheads costs.

Satisfied employees tend to be productive, who positively affect productivity, and dissatisfaction among employees negatively affects company bottom line. Although for the most part technology was believed to enhance productivity and efficiency, there are more and more evidences that web based applications, and as shown by Zelikovich (2007) e-mails in particularly, might harm these important business objectives. In the long term, efficiency depends on finding new ways to create new things, which requires a combination of technology and processes of change in organizations.

Thus, conversely to previous researches, this research adopts a different perspective focusing on examining the loss of work hours resulting from the (mis)use of e-mails during work hours for personal purposes and needs. Satisfied employees tend to be productive, who positively affect productivity, and dissatisfaction among employees negatively affects company bottom line. Although for the most part technology was believed to enhance productivity and efficiency, there are more and more evidences that web based applications, and as shown by Zelikovich (2007) e-mails in particularly, might harm these important business objectives. In the long term, efficiency depends on finding new ways to create new things, which requires a combination of technology and processes of change in organizations.

### **3. Rational**

Not much research investigated, explored or examined e-mail usage as an unproductive means of communication that might decrease organization efficiency, productivity and capability. In literature, no relations were found between policy, organizational culture and e-mail usage, in which organization was trying to minimize risks by creating policy and culture atmosphere. Satisfaction at work was widely discussed from almost all possible aspects of job satisfaction factors, but still there is no one universal definition and no relation were found regarding e-mail usage.

Undoubtedly, most articles engage with demographic parameters, which hold meaningful value components of e-mail usage, although they have changed over time and hold conversely effects, among them age, gender education level, organization type, subordinates, and position at work. E-mail usage increased the number of tasks that employees perform, and as consequence, control over those tasks. It is associated with the design of jobs and is an extension of job enlargement. That wonderful communication working too, has changed job definition, enriched organizational development and behavior, mainly improving work processes, so they are more satisfying for employees.

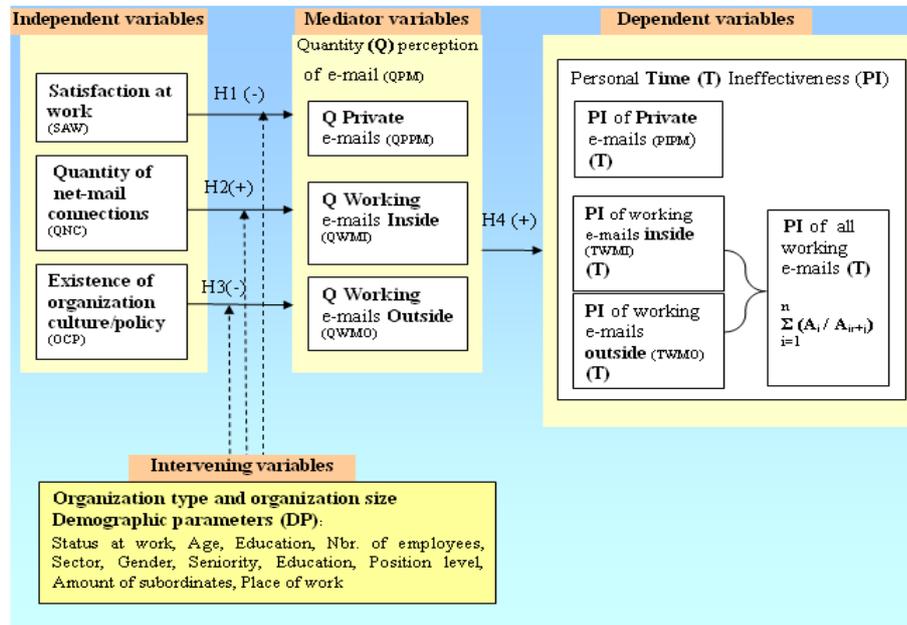
High levels of performance and satisfaction should result from a match between the growing needs of an individual and the motivating characteristics of the job being performed. A work challenge is one of the satisfaction factors that repeated it in most researches.

Employees may fill less satisfied in their position due to lack of challenge, repetitive procedures, or an over-controlled authority structure. When employees are bored, unmotivated, unchallenged, or unappreciated, they are more likely to use

their private e-mails to eliminate their boredom, which indicates they are less satisfied with their jobs.

During the period of this research, the researcher did not encounter any researches referring to the relation between job satisfaction and e-mail usage. Thus, conversely to previous researches, this research adopts a different perspective focusing on examining the loss of work hours resulting from the (mis)use of e-mails during work hours for personal purposes and needs.

#### 4. The Research Model and characteristics



**Figure 2: Research Model**

Q= Quantity; T= Time spent perception; PI= Personal time ineffectiveness

$A_{ir,j}$  = Action type taken for time (T) period: “delay/ignorance” marked by “ir” index/category and “j” marked for “immediate reaction”.

$A_i / A_{ir+j}$  = the ratio between  $A_i$  and  $A_{ir+j}$  expresses the ratio of wasted time in each one of the categories.

Figure 2 shows the structure of the model which has three parameters that might affect the Personal Time Ineffectiveness. The main parameter is Employee satisfaction, which aims at checking whether low satisfaction will elevate the amount of wasted time due to use of private e-mails, and will eventually lead to inefficiency (H1). Quantity net-mail and organizational culture were investigated as well (H2-H3).

In total, the perceived amount of e-mails will be translated to depended variable, personal time ineffectiveness (PI), through a calculated index, which will examine the final assumption (H4).

#### 4.1 Leading Hypotheses

H1: Correlation exists between Satisfaction at Work (SAW) and Quantity perception of Mail (QPM) – controlled by H1.1-H1.3 sub hypotheses

H2: Correlation exists between Quantity Net-mail connections (QNC) and Quantity perception of Mail (QPM) – controlled by H2.1-H2.3 sub hypotheses

H3: Correlation exists between Existence of Organization Culture/Policy (OCP) and QPM) – controlled by H3.1-H3.3 sub hypotheses

H4: Positive correlation exists between Quantity perception of Mail (QPM) and Personal Time Ineffectiveness (PI). The more is the existence of quantity, the less is the personal time ineffectiveness.

#### 4.2 The Sample

15 different service-organizations located and operating in Israel were chosen from diverse service organizations, among them: Banks, Airline, Cellular company, Health, Municipal, and government ministry service organizations, most of which with more than 500 employees. The final questionnaire was distributed and 213 questionnaires were completed and were suitable for research processing according to demographic criteria dictated by the researcher including the administrative rank, seniority, gender, and education.

### 5. Findings

The first hypothesis, assuming that correlation exists between Satisfaction at Work (SAW) and Quantity perception of Mail (QPM) was controlled by three sub hypotheses. The result by sub hypotheses shows as follows:

- **H1.1: Correlation exists between satisfaction at work (SAW) and quantity of private e-mails**

The research indicates significant negative correlation ( $r=-0.402$ ,  $p<0.001$ ) between satisfaction at work (SAW) and the amount of private e-mails handled (QPPM). However, there is also a *significant correlation between the number of private mails and the time the employee spends on them* ( $p<0.001$ ,  $r= 0.418$ ). It means that, the pattern of the link with the number of private e-mails also applies to the time, and there is a direct negative correlation between SAW and the number of private e-mails, and not only through the mediating variable of the time spent engaging with private e-mails.

SAW has a significant negative effect over QPPM ( $\beta=-0.390$ ,  $p<.001$ ) which means that *more satisfied employees handle less private e-mails at work*. The analysis also suggests that QPPM is higher as workers are more professed ( $\beta=0.22$ ,  $p<0.05$ ) and that it is lessening with age ( $\beta=-0.139$ ,  $p<0.05$ ).

The main important conclusion is that as employees satisfaction at the work place is rising, the quantity of private e-mails they attend is declining, and

vice versa. This conclusion can also be interpreted backwards, that an increase in private e-mail being attended by an employee might suggest a decrease of this employee's satisfaction. Alternatively, this suggests a positive relation between employees' dissatisfaction and private e-mail quantity. According to these results hypothesis 1.1 is confirmed.

- **H 1.2: Correlations exist between satisfaction at work (SAW) and the quantity of working e-mails inside organization (QWMI)**

In fact, regression analysis cannot confirm a significant relation between SAW and QWMI ( $\beta=.074$ ,  $p>.10$ ), and moreover it suggests that QWMI is higher for larger organizations ( $\beta=.260$ ,  $p<.001$ ) and for more professed workers ( $\beta=.211$ ,  $p<.05$ ) and that it is declining with age ( $\beta=-.254$ ,  $p<.001$ ).

However, this is statistically significant only in regards to two dimensions of satisfaction at work. Specifically, as employees feel satisfied with the manner of using their skills and capabilities and with their salaries and feel they are properly rewarded, they tend to take care of more internal originated e-mails at work. This suggests that *the more the employees are satisfied at work they will make more effort in action inside e-mail and will increase the quantity*. This leads to higher duration of time related to working e-mails handling, and effected by the impacts of satisfaction at work. According to these results hypothesis 1.2 can partly be confirmed.

- **H 1.3: Correlations exist between satisfaction of work (SAW) and quantity of working e-mails outside (QWMO)**

The examination of satisfaction at work opposite the duration of time dedicated to external-organizational working e-mails sources and the amount of e-mails, points out *positive correlation between the amount of external e-mails at work and the time the employee spends on them* ( $p<0.001$ ,  $r= 0.391$ ). Only one item regarding satisfaction is significant, which means that the more the employee is satisfied with the use of his skills at work thus he takes care of more external-organizational work with e-mails ( $r=0.249$ ,  $p<0.001$ ).

The duration of time (T) in which the employee goes over e-mails originated from external-organizational source at his workplace, was found to be positive correlated with the variable "satisfaction at work" (SAW) ( $r=0.301$ ,  $p<0.001$ ). The amount of e-mails and the duration of time for to handle e-mails originated from external-organizational source, after neutralization of time duration in handling those e-mails, decreased the impact of most items, and therefore is a mediating variable.

Results of the regression for prediction of the e-mail usage, of which are originated outside the organization, according to the level of satisfaction at work, after subtracting the impact of the intervening variables (demographic, and organizational), yielded similar results. *Satisfaction predicts the duration in using the e-mails originated outside the organization*. That correlation was found to be ( $\beta=0.282$ ,  $p<0.001$ ).

Examination of satisfaction at work opposite the duration of time dedicated to external-organizational source working e-mails and the amount of e-mails, points out positive correlation between the amount of external e-mails at work, and only one item regarding satisfaction. When employee feels satisfy with the manner he uses his skills, capabilities, and with his salary, and feels rewarded, he takes care of more external e-mails at work. This suggests that *the more the employees are satisfied at work they will make more effort in action outside e-mail and will increase the quantity*. Duration of time related to working e-mails handling, is affected by the impacts of satisfaction at work. According to these results hypothesis 1.3 can partly be confirmed.

As a first foundation of the research model, hypothesis 1 argues that e-mail, as a quantifiable performance measure, can be associated with employees' emotions and intangible state of mind. The main objectives behind work satisfaction research were identifying factors that can help improve overall organizational performance and efficiency, and as such this research is yet another validation of this rational, particularly in regards to assumptions 1.2 and 1.3. Never the less, there are two more conclusions arising from hypothesis 1. The first conclusion is that e-mail can be a quantifiable performance measure. What arises from the current research is that it can be a quantifiable indicator for satisfaction, which was not yet discussed. Thus, the second conclusion from hypothesis 1 is that e-mail can serve as a stressor. However, Hypothesis 1, and particularly hypothesis 1.1, provides a first documentation of the positive correlation between dissatisfaction at work and private e-mails traffic and quantity.

- **H4: Correlation between quantity of private e-mail and personal time ineffectiveness (PI)**

Table 1 show that the mean of total working e-mails per day is 53.76 with a standard deviation of 37 e-mails, which is quite wide. A deviation with asymmetric right distribution indicates that it should be based on time spent data and not on the amount of used mails in the subjective answers.

In order to examine hypothesis (H4), some calculations were needed, and the results of the mediator and depended variables  $Q_i$  which is the average amount of received/sent for one employee is describes in **Table 1** as follow:

**Table 1: The average amount of received/sent emails for one employee/daily**

	N	Mean	STD
Amount of <b>Private</b> e-mails ( $Q_1$ )	213	45.26	23.842
Amount of <b>Working-In</b> e-mails ( $Q_2$ )	213	30.94	21.850
Amount of <b>Working-Out</b> e-mails ( $Q_3$ )	213	23.29	20.524
Total Work ( <b>In+Out</b> ) e-mails ( $Q_2+Q_3$ )	213	53.76	36.665

During an average working day, approximately 45% of all e-mails handled an average employee are for private purposes. Accordingly, the results of the mediator and depended variables  $T_i$  are describes in table 2 as follow:

**Table 2: The results of the mediator and depended variables  $T_i$**

N=213 Valid N (listwise) 212	Mean		Std. Deviation
		Std. Error	
1. Time spend on "Private" e-mails ( $t_1$ )	127.89	4.852	70.816
2. Average time spend for "Private" e-mails for a working hour.	5.84	.338	4.935
3. Time spend on "Working-In" e-mails ( $t_2$ )	108.31	4.452	64.982
4. Average time spend for "Working-In" e-mails- for a working hour	9.45	.608	8.881
5. Time spend on "Working-Out" e-mails ( $t_3$ )	71.13	4.032	58.846
6. Average time spend for "Working-Out" e-mails-for a working hour	6.83	.514	7.503
11. Average Time Waste for a working <u>day</u> ( $t_{ac}$ )	50.943	2.5876	37.7643

Both negative and positive aspects regarding the amount of total e-mails either send or received might suggest that the relation between e-mail quantity and employee efficiency is parabolic, meaning efficiency increases as e-mail quantity increases to an optimum after which employees' efficiency decreases. These results confirm hypothesis 4.

## 6. Conclusions

The research examined the implications of the e-mail from the production point of view, satisfaction at work, organization culture and addresses quantity in the address book.

Spending large amounts of time on private e-mails may be an indicator for dissatisfaction at work in service organizations in most advanced countries. It was concluded that satisfaction at work results less e-mails quantity in all aspects (private and working e-mails). When employer finds out that there is escalation in e-mails amount, mainly the private, it might imply on dissatisfaction at work. It is opposite when it is about amounts of e-mails related to work, where there is precisely decrease in the amount. Furthermore, possible benefits can be obtained by identifying dissatisfied employees, since dissatisfied employees spent most of their working time in receiving and sending e-mails (private and working-related).

One might assume that there is a diverse and distraction from required work e-mails to private e-mails in order to increase satisfaction at work. The employee does overtime in order to cope with the work he did not finish due to handling private e-mails. The employees are more likely to do so if they have

resolved their personal issues via email during the workday. Allowing employees to use email can build trust and a greater commitment by the employee to the employer, and most probably will increase satisfaction. Writing usage guidelines without participation of the employees was proved inefficient.

In view of the above, this research belongs to the latter approach. It is aiming at examining an array of disordered behaviors related to using e-mail in the workplace which are result of dissatisfaction at work, unclear policy of usage, or lack of awareness regarding the existence of monitoring systems and the effect of network connection, which are reflected through the e-mail address book at work and at home.

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