

# Optimising the Email Communication Environment

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*This research shows that by understanding email communication it is possible to optimise networks to increase communication efficiency with benefit to employee productivity. It identifies tangible costs associated with email and details how those costs can be reduced through optimising the email habitat.*

## 1. INTRODUCTION

Email communication is becoming a burden for many employees and the way we handle email is far from efficient (Kimble et al, 1998; Jackson et al, 2003). This research builds on the existing work into the electronic habitat and reinventing email applications to enhance email communication (Ducheneaut & Bellotti, 2001; Rohall et al 2004). This mini-paper reports on the two research studies into email communication of employees within a large UK Plc, and identifies ways the organisation can provide a better communication environment for its employees.

The first phase of the study involved developing a questionnaire to capture employees' views on how email was used within the organisation. As the study was aimed at all email users at the organisation (2,850 employees) a questionnaire was constructed, as it would have been impractical due to time restrictions to undertake a one-to-one interview approach. The questionnaire developed by the authors was securely hosted on the Internet, which made capturing the data easier than if a paper based questionnaire had been used. The authors, not based at the organisation, hosted the questionnaire, to ensure that the data would not be manipulated prior to analysis and to give the employees added security that their individual responses would not be disclosed to the management at the organisation. The questionnaire asked employees to specify how many emails they received on average each day and what proportions of these were irrelevant or unnecessary. Employees also answered questions that related to how they viewed email use within the organisation. These questions were designed to highlight any inefficiencies or defects in the way that email is used

The second phase of the study involved taking the data captured from the questionnaire (875 responses) and creating an email defects training programme specific to the large UK Plc. To assess

to what extent, if any, the training programme had on the organisation, a sender recipient experiment was undertaken. Both sender and recipient groups (11 employees and 20 employees respectively in each group) received different training on the best practice of email use for this experiment. The sender training went into more detail to explain email defects. This was also more interactive than the recipient training as the senders were shown examples of poorly written emails and they were also asked to pick out the defects, whereas the recipients were simply told where the defects were. The training for the senders was more comprehensive than that of the recipients as only the senders were marked, whereas the recipients just needed to be aware of the email defects and be able to complete the evaluation sheet. The recipients were asked to mark up to 20 emails that they received from the sender before and after the sender had received training on the best practice of email use. The recipients marked each email against a set of criteria, giving a score depending on how well the email met each criterion. The scores both before and after the training were averaged for each sender / recipient pair. The chosen pairs for the experiment were based on high volume email senders with a recipient that was likely to receive a high number of sender's emails during the two-week monitoring process (two weeks before and after training).

## **2. QUESTIONNAIRE ANALYSIS**

From the questionnaire results, the average number of emails received each day by an employee was 23. On average 41% of the emails received were for information purposes, and on average employees believe that they are copied in unnecessarily on 16% of the emails they receive. Employees believe on average that 13% of the emails they receive are irrelevant or untargeted. This indicates that employees spend a considerable amount of time reading emails that are not helping them do their job. It is not known what proportions of these emails came from outside the organisation. If these unproductive emails were all from internal sources then the company may have to introduce guidelines on how employees can better target their emails.

When asked if the emails they receive are easy to read, 45% of respondents gave a positive answer, while 10% gave a negative response and 45% were neutral. Only 33% of respondents indicated that the emails they receive were straight to the point. These results indicate that many of the emails received within the organisation are not easy to understand or to the point, and are more likely to take longer to read and process.

Only 46% of employees said that the actionable emails they receive state what action is expected of them. This could indicate that some actions may not be completed as expected or on time because the recipient is unsure of what action is required, or unaware of any deadline.

The majority of additional comments made on the questionnaire mentioned how email was being used too much instead of other forms of communication. This is enforced by some 56% of respondents agreeing when asked if email is too often used when face-to-face communication or the phone should be used instead.

The other significant comments made were regarding the way that employees receive untargeted email. Many complained about the over use of the 'reply-to-all' function, or the inaccuracy of mailing lists. This would again increase network traffic and increase the time employees spend reading irrelevant or untargeted emails.

### **3. TRAINING ANALYSIS**

Overall there has been an improvement in the quality of emails received by the recipients in this experiment as a result of email training for the senders (as shown in Table 1). The last criterion in the table is measured in seconds and shows that emails take less time to read and understand as a result of the training.

The t-test values in Table 1 show that the training has been significantly successful at the 95% level at improving an employee's ability to write emails that are easy to read and that are straight to the point. The results also show that the training has been significant at the 99% level at improving the way that an employee uses the subject line to convey information about the content and the urgency of an email. The results in row two and three of Table 1 show the email training had a significant impact on improving the senders' ability to write clearer emails that are straight to the point. After training there was an increase in the number of easy to read emails received and is expected that through the deployment of email training throughout the whole of the organisation this figure is likely to increase.

Criterion	Before Training	After Training	Difference	Significance from (2 tailed) t test
The message would have been better suited to a telephone call, or another medium.	1.49	1.40	-0.10	0.438
The email is easy to read	1.63	1.39	-0.24	0.022
The email is straight to the point	1.58	1.36	-0.22	0.023
The email is totally irrelevant to me	1.69	1.50	-0.19	0.138
If it is an actionable email:				
It tells me what is expected of me	1.80	1.73	-0.13	0.623
It states when action is required	2.61	2.12	-0.48	0.320
The subject line contains sufficient detail for:				
Me to assess the importance of the message	2.89	2.19	-0.70	0.003
Me to understand what the message is about	2.17	1.49	-0.65	0.005
Approx how long did it take to read and understand this message? (Seconds)	76.21	65.67	-10.54	0.285

Table1 – The overall Mean effect of training

#### 4. THE COST OF EMAIL

To determine what financial savings the training can have on the organisation, the cost of reading email has to be determined. Using the data obtained from the study it can be determine how much time employees spend reading email. On average employees receive 23 emails per day and it takes approximately 76 seconds to read each message. Employees therefore spend on average 29 minutes per day reading email. However this value only indicates how much time employees spend actually reading email, it does not take into account the interruptive nature of email. Research undertaken by Jackson et al (2003) found that the amount of time it takes employees to recover from an email interrupt, and to return to their work at the same rate at which they left it, was on average 64 seconds. Assuming an average salary of £16,640 (amounts given in UK pounds) per annum and an assumed overhead of a further £16,640 per year then the total cost per day of reading email for an organisation can be calculated using Formula 1 (assuming each email is read and each email has an interrupt recovery time):

$$\text{Cost of reading email} = (t_1 + t_2) * w * n$$

Formula 1

Where  $t_1$  is the time taken to read all messages received (minutes)

$t_2$  is the total interrupt recovery time (minutes)

w is the average employee wage per minute

n is the number of employees within the organisation.

The cost per employee is £3,440 per annum. The daily cost of reading email for this organisation with 2850 email users is £40,848 and the cost per year over £9.8million (based on 48 weeks a year).

The results from the sender recipient experiment showed that the organisation as a whole could save £3,071 per day and almost £737,000 per year on time spent reading email as a result of the training. This is an 8% saving on the total cost of reading email and equates to £259 per employee per annum. The full savings of the training are detailed in Table 2.

Some 13% of the email received by employees is regarded as irrelevant or untargeted and employees believe that they are copied in unnecessarily on 16% of the email they receive. This shows that on average 29% of the email that an employee receives is of no value to them. Assuming that all these emails are read, this organisation could reduce the time that employees spend reading email by 29%. This would save the organisation almost £12,000 per day and over £2.8million per year. The saving per employee per year would be £998. These values assume that the employees have not received email training.

The number of interruptions is related to the duration in which the email application checks for new mail. When the email application is set to check for new mail every 5 minutes, employees could spend 24 minutes recovering from interrupts. Jackson et al (2003) suggest that it is possible for employees to become more efficient if they change the duration in which their email application checks for new email. The time saved as a result of increasing the duration of checking for new email from 5 to 45 minutes is 13.16 minutes per day by each email user. This would mean a saving of approximately £10,000 per day for an organisation with 2850 employees. This equates to a total saving of £2.4 million per year for the organisation, or £842 per employee per year.

No. of email received per day	Employees received training	Remove cc'd / unnecessary email	Application check for new mail (mins)	cost (£) per Employee	Saving (£) per Employee	Saving (%) per Employee
23	No	No	5	3,440	-	-
23	No	No	45	2,598	842	24%
23	No	Yes	5	2,442	998	29%
23	No	Yes	45	1,845	1,595	46%
23	Yes	No	5	3,181	259	8%
23	Yes	No	45	2,339	1,101	32%
23	Yes	Yes	5	2,259	1,181	34%
23	Yes	Yes	45	1,661	1,779	52%

Table 2 – The organisational cost of reading email per employee per year

## 5. CONCLUSION

Organisation can save up to £1,181 per year for each user of email by reducing the unnecessary and irrelevant email and by using email training, as shown by Table 2. Organisations can reduce the cost associated with reading email by over half by using all three methods used in this research. This is a saving (for the company in this research study) of £1,779 per year for each employee and over £5million per year for the whole organisation. Overall, the findings in the paper give an indication to how an organisation can become more effective, by reducing the cost associated with email use through simple email training.

## 6. BIBLIOGRAPHY

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