Case Study: Overcoming the Headache of the E-Mail Inbox Through Training

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ABSTRACT

How do we overcome the nightmare of the email inbox? This paper details a two-phase research programme to demonstrate the need to give employees training regarding email communication, and conduct both seminar based training and computer-based training. Detailed results show that email training can lead to significant improvements in the way employees use email within the workplace with computer-based training showing a greater improvement. While email is a powerful information system tool, it can be optimised to further maximise its benefits and to make the email inbox more manageable.

INTRODUCTION

Nowadays employees are overwhelmed by the volume of email communication (Levitt, 2004), lose important items (Whittaker and Sidner, 2004), and feel pressured to respond quickly (often within seconds Jackson et al., 2003), among may other concerns. The major research stream in this field is trying to reduce such "email defects" by designing and building improved email systems designed from an understanding of email usage (Rohall et al., 2004). Although such systems aim to improve email communication, could providing simple education to email users provide, at worst, an interim solution to reduce email defects?

The major source of the email issues within an organisation is likely to be the end-user, as he or she creates and receives the email that periodically causes problems. The 'back to education' approach is based on identifying the *major* problems that users face with email and administering training (both seminar and computer-based to determine which has the more enduring effect) to help users to become more effective email communicators. Although the approach sounds simple and has been successfully applied in many other arenas, will it be successful for improving email communication?

To date, there is very little literature on the role of seminar and computer-based training in improving email communication. This paper is a subset of a paper published by Jackson and Culjak's in 2006. It aims to explore organisational email defects and their management by employee email training in seminars or computer-based modes. The research was conducted in two phases. In the first phase, an interpretive case study was conducted within a department to discover how email was used and viewed by employees. The second phase of the research involved an evaluation process that determined the effectiveness of two training approaches (seminar based and a combined approach of computer-based and seminar based training created by Jackson) to reduce the email defects identified from the first phase and improve the way employees use email.

OPTIMISING EMAIL COMMUNICATION

There are several approaches to improving organisational email use for everyday communication. Some authors suggest that organisations need to implement policies on how individuals use email within the workplace (Cushing, 2002; Duane and Finnegan, 2004). For example, Dudman (2005) suggests that organisations have policies on the retention and deletion of email, while Watson (2001) states that organisations should monitor employee email use to ensure that policies are followed.

Some organisations have taken a stand by banning email communication at certain times in an attempt to encourage employees to work without email (Cushing, 2002; Best, 2003; Wray, 2003). While this approach will force employees to communicate without email for one day a week (or, in the case of Phones 4U, stop employees using email for internal communication (Best, 2003)), it does not address the issues associated with ineffective email use, but rather, simply avoids them.

Email education within organisations tends to focus on hardware and software issues without taking into account the requisite communication skills (Hallewell, 2000). Most employees are not taught how to become effective electronic communicators (Nantz and Drexel, 1995). There is a tacit assumption that because employees can read and write, they can use email effectively. However, Hallewell (2000) suggested that employees need training on the 'human side' of email rather than just how to use email. He argued that email training focuses on how to send and receive email messages, without being taught when it is appropriate to do so (Hallewell, 2000). Indeed, even the most educated of employees can lack basic skills for expressing themselves effectively (Davenport, 1997).

Several issues relating to the quality of written email messages have been identified. In order to achieve both fast and understandable communication, elements associated with quality content and format must be considered when writing email messages (Brandenburg et al., 1999). Factors that contribute to the quality of the content of email messages include (Brandenburg et al., 1999):

- Tone, Courtesy, Conciseness, Clarity and Correctness

Factors that contribute to the quality of format include (Brandenburg et al., 1999):

- Personalisation; Paragraph and sentence length and layout

The above quality-oriented factors contribute to well written email messages. Several earlier studies have identified instances in which these factors have not been present, leading to ineffective email use. Frazee (1996) reported that 65% of all email messages fail to give the recipient enough information to act upon. Participants in the Whittaker and Sidner (1996) study commented that some employees failed to take into account the context of their message before they sent it. Participants stated that they would often receive one line replies to messages without knowing the context. Messages of poor written quality are likely to be difficult to read and may take longer to read and understand (Brandenburg et al., 1999). Poorly written emails containing misspelled words and typing errors are also likely to create a negative impression on the reader (Lea and Spears, 1992). The socially detached nature of email also means that individuals may include content they would not normally communicate verbally (Alonzo and Aiken, 2004). Brandenburg et al (1999) suggest that email is often abused because it is easy to use.

Much of the recent literature that focuses on improving email use within organisations looks at the development of new software tools that are embedded within or replace existing email applications. These tools are designed primarily to aid the user in managing their mailbox, by providing additional functions such as search facilities, enhanced user interfaces and the ability to track conversations. While these tools may be aiding users to manage their email on the recipient side, they do not help users to write effective emails, nor cover the most appropriate methods to do this. Missing from the literature on e-mail management are solutions and theories based on employee email training. One of the key questions in this emerging stream that needs to be determined is the effectiveness of both computer-based and traditional seminar based training in enabling employees to write more effective emails and reduce the problems often associated with email communication.

For the training of employees in effective email communication, many training methods are available and the method selected depends on a number of different factors. Such factors include the organisation size and set-up, the nature of the organisation and its trade/business, and the systems and processes that are used.

Seminar based training (SBT) refers to traditional classroom training, taught by one trained in the skills required. Computer-Based Training (CBT) (also known as computer aided instruction and computer assisted learning) is the use of the computer for training and instruction, and is commonly used for acquiring skills in the use of computer packages or acquiring specific knowledge (Whalley, 1998). Henke (1996) stated in 1996 that computer-based training was a fast growing field. Even earlier, Filipczak noted that 43 percent of all U.S. organisations with more than 100 employees were using CBT as part of their training programmes (Filipczak, 1993). However, around the same time Russ-Eft, stated that only 40 percent of companies surveyed used CBT (Russ-Eft, 1994). Considering that this statistic was noted more than ten years ago, 40% is quite a high figure.

While the use of CBT has been documented and discussed, what is lacking from the literature is evidence of whether computer-based training has more enduring effects compared to seminar based training, and whether computer-based training is more effective for training employees in the use of email.

METHOD

The research seeks to improve workplace communications by investigating the way email communication is used and exploring the role of employee training in managing the issues identified. The research adopts an interpretivist approach, as the research takes place within an organisational environment, and although the research conducted was both qualitative and quantitative the research focuses on capturing information within a social environment in an organisation, rather than a laboratory (Walsham, 1995). Two stage research involved a the Professional Development (PD) Department at Loughborough University. Professional Development is a central support unit within Loughborough University that offers staff and students services to help develop their full potential. The PD department consists of 23 staff.

The first phase of the study highlighted problem areas with the way email is used within organisations. The problem areas (email defects) relate to the inefficient and ineffective uses of email within an organisation. They pertain to all aspects of email use, including the quantity and quality of emails generated within organisations, as well as the configuration of the email application itself. In order to identify the potential problem areas with email use a web-hosted internal survey was conducted and a questionnaire was developed. This method was selected because the ability to distribute the questionnaires to a wide geographical area was vital due to a number of employees being based at different locations throughout the United Kingdom. Several open-ended questions were used to capture how many emails were received by employees and how employees categorised the importance and relevance of each email. A series of closed attitudinal questions were used to gauge how email was used and how the employees viewed organisational email use. Each questionnaire was live for a period of two weeks. Sixteen responses were received from PD, giving a response rate 70%.

The second stage determined the effectiveness of both seminar-based and a combined seminar/computer-based training approach to reducing email deficiencies as will be described below. The research aims to establish which training approach is the most effective at reducing email defects and if certain defects are more receptive to the training than others. The long term impact of the two training approaches were analysed, to determine if any improvements in email use could be sustained. Further details help explain the evaluation approach used, below.

Computer-Based Software Development

The software was designed to work with Microsoft Outlook as it recognised as the defacto corporate email standard. The computer-based email training application has been built so that it flags potential defects within an email by parsing each email and highlighting the defects to the sender before the email is sent. The software can identify certain defects within the recipient field, the subject line, message body and with attachments, providing the user with the opportunity to change the email before it is sent. Details of the parsing algorithm used are published elsewhere (Jackson et al., 2005).

If an email has been previously parsed and still contained deficiencies when the user tries to resend the message, the potential defects will still be shown to the user in the 'Mail Report' window. Any remaining potential defects will be shown to the user regardless of the number of times that a user has edited the message. The user also has the option to ignore the defects identified by the software and to send the email once it has been parsed. It was important that the user had full control over sending an email as this gave them confidence in using the system and being able to override it. If the real time trainer did not identify any potential defects within an email, then the email would be sent to the users outbox, ready to be sent to the server.

Developing the Seminar Based Email Training Programme

The SBT summarised the common problems with email use that can exist within the workplace. Training was tailored for PD by focusing on the problems highlighted from the questionnaire results together with examples from other research. It was important to highlight the common problems with email communication in order to enable participants to understand the magnitude of some of the issues.

The training programme identified defects that individual employees can help reduce, by improving the way they use email. Employees were given training on how to manage their inbox, including the use of folders and filters. Defects that related to the configuration of an organisations email system would also be brought to the attention of management in a report covering the questionnaire results.

The main section of the training focused on areas of email use that individual employees could improve. This included asking employees to consider whether it is necessary to send an email, or whether another medium such as such as the telephone would be more appropriate. The employees were also asked to consider to whom they were sending their email message, and whether all recipients needed to be copied in (cc-ed). The participants were given advice on how to write effective subject lines and emails that contain clear concise messages. The training also covered other aspects of email best practice, such as managing the inbox. This was considered important, as it will enable participants to better manage and prioritise their incoming email.

Measuring Improvement

Both SBT and CBT were conducted using sender and recipient pairs in order to measure the effectiveness of both SBT and CBT. The senders had an established email communication relationship with their recipients, in that they made regular contact with each other via email. Steps consisted of:

1. Once the sender / recipient pairs were established, the recipients would receive training on how to evaluate the emails they receive from their pair(s).
2. The recipients evaluated up to 20 emails that they received from their paired sender(s) over a specified timeframe.
3. After the senders' email had been evaluated, the senders would then receive SBT on the best practices of email, even if they were going to use CBT.
4. Once the senders had received training the recipients were asked to evaluate up to a further 20 emails they received from their paired sender over a specified timeframe.

The recipients were asked to mark each email against a set of nine criterions derived from the email defects identified in the questionnaires. The difference in the scores before and after the sender received training would indicate the success or failure of the training. The recipients would be asked to date and evaluate the emails that they received after the senders had their training. This would enable the author to determine if any improvement could be sustained, or if the effect of the training was limited.

To determine the effectiveness of the SBT, the scores both before and after training were averaged for each sender / recipient pair. The average for all participating pairs was calculated to determine the overall effect of the training for each of the criterion. The t-test statistic was used to determine the significance of the SBT at reducing each of the defects represented by each criterion. The results indicate which aspects of email use are most receptive to SBT.

RESULTS

Following SBT the t-test analysis shows that four out of the nine criteria showed significant initial improvements. The four significant improvements were:

- Better written emails that were easier to read. (at the 90% level)
- Better written emails that were more concise and to the point (significant at the 95% level)
- Better use of the subject line which made it easier to assess the importance of the message (significant at the 90% level)

- Better use of the subject line which made it easier to know what the message is about (significant at the 95% level)

The t-test analysis also showed a significant (at the 90% level) initial improvement in the PD senders' ability to choose the most effective communication medium for a message as shown by table 1.

The initial effect of the SBT can diminish over time. The results showed that seven of the criteria had higher average overall scores after one month than during the first two weeks after the SBT, indicating a reduction of the impact of the SBT across these criteria. The only criteria where the effect of the SBT did not diminish after four weeks was the senders' ability to specify clear deadlines and the senders' ability to write subject lines that enabled the recipient to gauge the importance of the message.

Table 1. Mean effect of SBT on how emails were evaluated within PD

Criterion	Before Training	After Training Weeks 3&4	Diff	Significance from (2 tailed) t test
The suitability of email as the communication medium	1.55	1.18	-0.38	0.057
The email is easy to read	1.56	1.46	-0.10	0.696
The email is straight to the point	1.59	1.29	-0.30	0.184
The relevance of the message to me	1.60	1.71	+0.11	0.741
If it is an actionable email:				
It tells me what is expected of me	1.83	1.65	-0.19	0.341
It states when action is required	2.36	1.87	-0.49	0.221
The subject line contains sufficient detail for:				
Me to assess the importance of the message	2.26	1.70	-0.56	0.006
Me to understand what the message is about	2.08	1.65	-0.43	0.073
Approx how long did it take to read and understand this message? (Seconds)	49.92	47.78	-2.14	0.491

Table 2. Mean effect of CBT on how emails were evaluated within PD

Criterion	Before Training	After Training (4 weeks)	Diff	Significance from (2 tailed) t test
The suitability of email as the communication medium	1.34	1.05	-0.29	0.157
The email is easy to read	1.48	1.15	-0.33	0.081
The email is straight to the point	1.30	1.10	-0.20	0.101
The relevance of the message to me	1.48	1.35	-0.13	0.525
If it is an actionable email:				
It tells me what is expected of me	2.05	1.00	-1.05	0.034
It states when action is required	2.40	1.30	-1.10	0.028
The subject line contains sufficient detail for:				
Me to assess the importance of the message	1.79	1.93	+0.15	0.660
Me to understand what the message is about	1.81	1.63	-0.18	0.067
Approx how long did it take to read and understand this message? (Seconds)	43.49	27.00	-16.49	0.102

Table 3. Average for SBT and CBT within PD four weeks after training

Criterion	4 weeks after SBT Training	4 weeks after combined training	Difference
The suitability of email as the communication medium	1.18	1.05	0.13
The email is easy to read	1.46	1.15	0.31
The email is straight to the point	1.29	1.10	0.19
The relevance of the message to me	1.71	1.35	0.36
If it is an actionable email:			
It tells me what is expected of me	1.65	1.00	0.65
It states when action is required	1.87	1.30	0.57
The subject line contains sufficient detail for:			
Me to assess the importance of the message	1.70	1.93	(0.23)
Me to understand what the message is about	1.65	1.63	0.02
Approx how long did it take to read and understand this message? (Seconds)	47.78	27.00	20.78

The initial impact of the combined training (SBT and CBT) resulted in improvements across eight of the nine evaluation criterions as shown by table 2. The only criterion not to show an initial overall improvement was the senders' ability to write emails that are easy to read, despite this criterion showing significant initial improvements for the SBT at PD. Only one of the criteria showed a significant (at the 90% level) initial improvement. This was in the senders' ability to write effective subject lines that enable the recipient to know what the message is about.

Six of these initial improvements in CBT had been sustained or had shown further improvement. The only criteria where the overall initial impact of the training had diminished were in the senders' ability to choose the most suitable communication medium and their ability to write effective subject lines that convey the importance of the message and enable the recipient to know what the message is about.

The t-test analysis showed that four of the nine evaluation criterions showed significant improvements four weeks later for the CBT. The four significant improvements were:

- Better written emails that were easier to read (significant at the 90% level)
- Better written actionable emails that state what action is required of the recipient (significant at the 95% level)
- Better written actionable emails that clearly state any when action is required (significant at the 95% level)
- Better use of the subject line, which made it easier to know what the message is about (significant at the 90% level)

The significant finding from this research is that when comparing the impact of the combined training approach with a single SBT approach, the results from the PD study suggest that the impact of the combined approach is more sustainable than the SBT on its own as shown by Table 3.

CONCLUSION

While existing studies identified a number of problems with email use, this project sought to research the specific email problems within the PD organisation with the intention of reducing the highlighted defects. While the generalisability of this research is impossible due to the study being of one organisation, in the UK context, the findings are indicative, and suggest that there are many deficiencies with the way email is used within today's organisations. Such defects relate to both the written quality and quantity of email received and the ineffective configuration of an organisations email systems and can increase the amount of time spent dealing with email and can lead to tasks being carried out incorrectly or not at all. Several important implications arise from the study, as outlined below.

First, the study has added to current theory on email management in organisations by providing numerous insights relating to email defects in companies, and their management by various types of training. Second, the findings demonstrate that SBT can improve employee use of email, although the initial impact of the training can diminish over time. The results highlight that the impact of SBT can vary on the specific areas of email use that are improved, with some criteria showing greater improvement than others. However interestingly, the combined training approach (seminar based and computer-based training) did produce improvements that were sustained. Further research is needed to better understand this finding.

Second, the findings from this paper may help similar organisations to PD to become more effective in managing their email communication systems. It is recommended that organisations examine their current email communication policies and develop a "snapshot" of how their employees use email. Such information will provide an organisation with a useful foundation from which to build their training in order to increase their employee effectiveness by email education. If an organisation decides to deploy an email training programme, it is recommended that it not only focus on the sender side of how to write more effective emails, but also on the recipient side, for example training can be given on how a recipient can manage their inbox. It is also recommended that any training programme aimed at improving email use should also take into account other communication media used within the organisation, so that the effectiveness of communication in general can be improved.

REFERENCES

Alonzo, M. and Aiken, M. (2004)."Flaming in electronic communication."Decision Support Systems 36(3): 205-213

Best, J. (2003). “Phones 4U bans staff from email.” ZD Net UK at URL: http://news.zdnet.co.uk/communications/0,39020336,39116502,00.htm (viewed 24/04/05)

Brandenburg, M., Wasson, L. E. and Woodall, K. L. (1999). “An examination of e-mail use among fortune 500 companies.” Academy of Managerial Communications Journal 3(2): 75 - 90

Cushing, K. (2002). Should we ban email? Computer Weekly

Davenport, T. H. (1997). Information Ecology, Oxford University Press, New York

Dudman, J. (2005). “Make e-mail work for you.” ComputerWeekly.com at URL: http://www.computerweekly.com/Articles/2005/05/03/209692/Makee-mail-workforyou.htm (viewed 16/06/05)

Duane, A. and Finnegan, P. (2004). Managing email usage: A cross case analysis of experiences with electronic monitoring and control. Sixth International Conference on Electronic Commerce

Frazee, V. (1996). “Is email doing more harm than good?” Personnel Journal 23

Filipczak, B. (1995). “Learning Styles Escape the Classroom! Panic in the City.” Training 32(3): 46.

Hallewell, B. (2000). “Softening the organisational impact of email.” Training Journal(November 2000): 32-34.

Henke, H. (1996). Learning Theory: Applying Kolb’s Learning Style Inventory with Computer Based Training. at URL: http://sage.sdsu.edu/compswiki/uploads/CompsWiki/learningtheory.pdf (viewed 02/11/2005)

Jackson, T. W. and Culjak, G. (2006). “ Can Seminar and Computer-Based Training Improve the Effectiveness of Electronic Mail Communication within the Workplace?” 17th Australisian Conference on Information.

Jackson, T.W., Burgess, A. and Edwards, J., ‘’Optimising the Email Communication Environment’’, IRMA, IRMA, San Diego, California, USA, May 2005, pp. 819-820

Jackson, T. W., Dawson, R. and Wilson, D. (2001). “The Cost of Email Interruption.” Journal of Systems and Information Technology 5(1): 81 - 92.

Jackson, T.W., R. Dawson, and D. Wilson, “Understanding Email Interaction Increases Organizational Productivity,” *Communications of the ACM,* August 2003, pp. 80-84

Lea, M. and Spears, R. (1992). “Paralanguage and social perception in computer-mediated communication.” Journal of Organizational Computing 2(3-4): 321-341.

Levitt, M., “Email Usage Forecast and Analysis, 2000-2005,” IDC Report # W23011, September 2000.

Nantz, K. S. and Drexel, C. L. (1995). “Incorporating electronic mail into the business communication course.” Business Communication Quarterly 58: 45 - 51.

Rohall, Steven L., Gruen, Dan., Moody, Paul., Wattenberg, Martin., Stern, Mia., Kerr, Bernard., Stachel, Bob., Kushal, Dave., Armes, Robert., Wilcox, Eric., ReMail: a reinvented email prototype, Extended abstracts of the 2004 conference on Human factors and computing systems, April 24-29, 2004, Vienna, Austria

Russ-Eft, D. (1994). “Computer-based training, computer-assisted instruction, electronic performance support systems, and déjà vu.” Human Resource Development Quarterly 5(3): 207-213.

Spamhaus. (2005). Increasing Spam Threat from Proxy. at URL: http://www.spamhaus.org/news.lasso?article=156 (viewed 23/04/05)

Walsham, G. (1995) The Emergence of Interpretivism in IS Research, *Information Systems Research*, 6(4), 376-394.

Watson, G. (2001). “E-mail surveillance in the UK workplace - a management consulting case study.” Aslib Proceedings 54(1): 23 - 40.

Whalley, R. M. (1998). “Towards realising the full benefit of computer aided learning.” Industrial and Commercial Training 30(2): 53-62.

Whittaker, S. and Sidner, C. L. (1996). Email Overload: Exploring Information Management of Email. CHI Conference Proceedings, Vancouver, BC Canada.

Wray, R. (2003). “Phones4U boss says staff must face up to work without email.” Guardian Unlimited Online at URL: http://www.guardian.co.uk/online/news/0,12597,1045417,00.html (viewed 24/04/05)