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Murugan Anandarajan

Drexel University, Murugan.anandarajan@drexel.edu

Claire A. Simmers

St. Joseph's University, simmers@sju.edu

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DEVELOPING HUMAN CAPITAL THROUGH PERSONAL WEB USE IN THE WORKPLACE: MAPPING EMPLOYEE PERCEPTIONS

Murugan Anandarajan
Drexel University
Murugan.anandarajan@drexel.edu

Claire A. Simmers
St. Joseph University

ABSTRACT

Personal web usage can be defined as any voluntary act of employees using their company's web access during office hours to surf non-work related websites for non-work purposes. Previous research suggested that personal web usage is a negative force with productivity losses, congested computer resources, security costs, and the potential risk of legal liability. However, using qualitative research we investigated the attitudes of a diverse set of individuals to personal web usage. Our findings suggest that personal web usage in the workplace can be potentially constructive, although we acknowledge the potential for negative uses as well. We suggest an extension of social contract theory to explain these findings.

Keywords: workplace personal web usage; human capital; qualitative research

I. INTRODUCTION

The American Management Association report that more than 50 percent of all workplace related Web activities are personal in nature [Greengard, 2000]. Examples of personal web use (PWU) activities include reading news, making travel arrangements, online purchases, searching for jobs, and doing class work. Personal web use is consistently been seen as a negative force with productivity losses, congested computer resources, security costs, and legal liability risks prominent concerns [Conlin, 2000]. As the business environment becomes increasingly web-enabled, organizations show a growing interest in understanding and managing PWU [McWilliams and Stepanek, 1998, Stewart, 2000, Simmers, 2002].

Personal web use is defined as any voluntary act of employees using their company's web access during office hours to surf non-work related websites for non-work purposes [Lim et al., 2002]. The three views of PWU are:

1. PWU is often assessed as completely negative, with no place in the work place because it can cost organizations large amounts in terms of lost productivity, increased security costs and network overload, and the risks of civil and criminal liability.
2. Another view is that personal use at work is a variation of dysfunctional work behaviors such as stealing, wasting time, and making personal long distance phone calls. These behaviors need to be managed and controlled, primarily through monitoring, policies, and disciplinary actions [Block, 2001, Sunoo, 1996]. In these two views, PWU is often called *cyber slacking*, or *web abuse*.
3. A third view sees several positive aspects to PWU. PWU can be a way to manage an increasingly blended work and personal life. PWU permits accomplishing personal tasks that are displaced as work demands spread out beyond the traditional eight-hour day, five day a week work schedule. PWU could contribute to the continuous learning that all employees are being called to as 21st century "knowledge workers". Finally, PWU "...might foster subconscious problem solving or provide a necessary break from drudgery or intense endeavor..." [Friedman, 2000]. Consequently, PWU might be viewed in the same light as an 'office-toy' such as clay, putty, or foam balls which are shown to decrease work stress and inspire creativity [Terr, 1999].

The widespread prevalence of PWU and the general lack of understanding about it necessitate a systematic examination of the phenomenon. To date, relatively few empirical studies address the issue of PWU in the workplace. The information systems literature emphasizes the corporate benefits of web use [Anandarajan et al., 2000, Lederer et al., 2000, Teo and Lim, 1998], the dark side of web use behavior [Griffiths, 1998, Joinson, 1998, Putnam and Maheu, 2000], identifying the types of web sites accessed [Anandarajan et al., 2000, Teo et al., 1999] and on the time spent on such activity [Armstrong et al., 2000, Korgaonkar and Wolin, 1999, Teo et al., 1999]. We have yet to understand the underlying dimensions of personal web use.

Specifically, the purpose of this study was threefold:

1. to explore employees' perceptions on PWU,
2. to identify underlying dimensions of PWU, and
3. to propose a more comprehensive framework of PWU in the workplace.

We sought to achieve our research goals by using inductive, empirically derived techniques of narrative analysis, in particular content analysis and correspondence analysis, thereby extending current theoretical perspectives.

II. CONCEPTUAL FRAMEWORK

The underlying theoretical foundation is consistent with the theory of reasoned action, which posits that attitudes can influence subsequent behavior both indirectly through influencing intention [Fishbein and Ajzen, 1975] and directly [Bentler and Speckart, 1981]. However we rely on additional theoretical direction to guide our study. Social contract theory suggests that humans evolve ways of dealing with other humans, with groups, and within organizations by establishing commonly accepted rules of conduct [Cosmides and Tooby, 1992]. Two types of social contracts largely defined the work environment in the past.

- The economic contract where wages, fringe benefits, and reasonable working conditions are exchanged for time, skills, and effort. The expectation is that the employee will work the allotted time and will receive the agreed upon benefits. Personal issues will not be handled during working hours as this would be a breach of contract through loss of productivity, putting the organization into possibly illegal situations, and misusing company property. This would suggest a model supporting dysfunctional dimensions of PWU in the workplace.
- The psychological contract commonly accepted in the workplace where a certain amount of allegiance, creativity, and extra effort are exchanged for job security, fair

treatment, rewarding relationships with coworkers, and organizational support [Shore and Tetrick, 1994]. Trust is implicit and the employee works beyond the economic contract limits trusting that the employer will provide additional psychological benefits beyond economic benefits. Thus, psychological contract theory provides a basis for suggesting constructive PWU benefits (increase in productivity, ability to balance work/life, increase in skills, stress reducer). Thus, it is possible to view PWU as one avenue for developing human capital in organizations.

III. RESEARCH METHODS AND RESULTS

Narrative analysis is a widely used tool for producing inductive, but systematically derived results. It enables researchers to use the attitudes of a diverse set of individuals who tell a story in their own words. Data collected in this manner focuses the research on issues that are raised by the participants, without prompting from the researchers. We chose narrative analysis to investigate personal web use in the workplace because we were attempting to elicit people's thoughts and feelings on a sensitive issue and we believed that narratives would yield information not accessible by more traditional methods such as Likert-type response scales [Hoyle et. al., 2002]. Narrative analysis is widely used in medical sciences, social sciences, but less frequently in organizational sciences.

We combined content analysis, the dominant technique for narrative analysis, with correspondence analysis. Content analysis is a process by which desired information from the text is systematically extracted and centers on the frequency with which words or themes appear in texts [Babbie, 1995, Jupp and Norris, 1993, Smith, 2000, Weber, 1990]. Correspondence analysis builds on content analysis by empirically deriving relationships among these words or themes. The technique also provides insights into the similarities and differences in the content and structure of the different texts [Bendixen, 1996, Carley, 1997, Carley and Palmquist, 1992]. The procedures we followed and our results are discussed next.

RESPONDENTS AND PROCEDURES

Our responses were drawn using a "snowballing" data collection method. Such a data collection method is consistent with previous work [Stanton and Weiss, 2000] and increases the variability in our sample, a desirable characteristic for inductive research [Hoyle et. al, 2002]. MBA students in a part-time MBA program from a leading university in the northeastern United States provided the name and email address of three other individuals who used the Web at work.

We asked everyone to respond electronically to the following open-ended question:

"Do you think it's ok for a person to use the Web for non-work purposes during working hours in the workplace."

We felt that an open ended question allowed the respondents to answer in a relatively unconstrained way, and that a broad, single question was sufficient to capture the complexities of the phenomenon [Hoyle et. al., 2002]. This question was the result of a series of pilot tests, in which the wording and clarity were checked.

Since participants typed their responses and sent them electronically, data was gathered verbatim. There was no possibility of transcription errors, thus enhancing credibility [Corcoran and Stewart, 1998]. We also asked for demographic information that included age, gender, education, work experience, and current organizational position.

The high response rate of 89% (481) was attributed to the fact that the participants were either registered in the courses or they were acquainted with the MBA students. Our final sample consisted of 316 responses with complete data (110 responses from the MBA students). The majority of the participants were male (67.3%), educated (88% with a bachelor's degree or above), and young (73% reported being between 18 and 39years old). Work experience

averaged 16 years, ranging from 1.8 years to 30 years. Managers represented 42% of the participants (top level = 8%; middle level = 14%; and lower level = 20%); professionals represented 32%; and administrative support were 11% of the sample.

CODING THE NARRATIVES

The goal of the coding scheme was to capture the major themes and relationships respondents mentioned in their answers. We developed the coding scheme inductively, adding new codes as the respondents mentioned new themes in the different narratives [Haney et al., 1998]. The coding process involved five steps and was done by one of the authors and two doctoral students. The use of investigator triangulation, that is, using multiple coders, decreases coding bias, thus enhancing objectivity [Kuzel, 1992].

The five steps were:

1. Based on a preliminary examination of the text, an "initial list" of codes was created. While coding the data, it was noticed that at the beginning of each narrative the respondents self-categorized themselves regarding their overall perception about personal web use at work. An example of this type of categorization was:

"I do not think it's ok to use the web for personal reasons while at work."

This statement was followed by a description of their attitudes about PWU.

2. Fifty narratives were independently read by the authors and two doctoral students, to develop a list of codes from which 24 themes emerged.

3. These lists were compared, and differences were reconciled, leading to the identification of 19 themes.

4., Ten narratives from the entire sample of 316 were randomly selected and coded — inter-coder agreement was 75% (Kappa statistic = 0.50). Since the Kappa coefficient was lower than the recommended 0.61 [Kvalseth, 1989], further discussion ensued and another ten randomly selected narratives were coded. Inter-coder agreement improved to 90% (Kappa = 0.80).

5. A coding manual was then developed and used to code the 316 narratives individually.

Each narrative was sorted into one of four categories – two categories of respondents who simply expressed approval or disapproval:

*'personal web use at work is okay' (YOK); and
'personal web use at work is not okay' (NOK)*

and two categories with respondent judgments that were qualified:

*'personal web use at work is okay within limits' (OKWL); and
'personal web use at work is okay as long as productivity doesn't suffer' (YOKPS).*

Respondents' answers were then analyzed searching for the 19 themes and dichotomously coding "1" = *theme was mentioned in the text* or "0" = *theme was not mentioned in the text*. Thus narratives could contain more than one theme. The inter-coder agreement was 96% (Kappa statistic=0.89). Following Krippendorff (1980), disagreements on coding were discussed until agreement was reached.

DATA ANALYSIS

The data analysis consisted of three stages:

1. a content analysis,

2. a correspondence analysis with categories and themes, and
3. a correspondence analysis with supplementary variables.

In the content analysis stage, each theme mentioned either explicitly or implicitly by the respondents was counted. If a respondent mentioned a theme more than once we counted it as a single mention. This conservative counting rule meant that the total number of mentions in all of the narratives serves as a rough indicator of the relative salience of a theme.

RESULTS

Content Analysis

Table 1 details the coding scheme, showing the four categories, 19 themes, frequencies (f) and codes. Frequencies in the categories without qualifications,

Yes, PWU is ok (YOK) and No, PWU is not ok (NOK) are almost the same, 65 and 61 respectively. The categories which express qualifications, Yes, personal access is ok if it doesn't impact productivity (YOKPS) and OK only within limits. (OKWL) are also almost equal with 98 and 92 respondents respectively.

Table 1. Categories, Definitions and Theme Frequencies

Categories	Definitions	f
YOK	Yes, PWU is ok	65
YOKPS	Yes, personal access is ok if doesn't impact productivity	98
OKWL	Ok only within limits, e.g., before working hours	92
NOK	No, PWU is not ok	61
Themes		
BT	Business tool	31
BW	Bandwidth issues with personal access	16
DOO	Like doodling or taking a break	44
JTYPE	Personal access depends on type of job	34
LEG	Legal issues with personal access	72
LIMA	Company should allow limited personal access	21
POSFE	Positive feelings for organization	31
PRI	Privacy issues with personal access	21
PROEFFY	Leads to productivity and efficiency	44
REX	Relaxing	35
RS	Personal usage part of required skill sets	17
SCON	Soft controls to limit personal access	25
SHP	Should have a policy	97
TCON	Technology based controls to limit personal access	28
WCULT	This is the work culture	34
YMON	Yes, it's ok to monitor personal access	58
NMON	It's not ok to monitor personal access	7
CRT	Personal usage leads to creativity	10
LPEFFY	Personal access leads to loss of productivity & efficiency	27

The five most frequently mentioned themes were:

- “Should have policy” (SHP), 97;
- “Can lead to legal issues” (LEG), 72;
- “Monitoring to limit personal access” (YMON), 58;
- “Like doodling or taking a break” (DOO), 44;
- “Leads to productivity and efficiency” (PROEFFY), 44.

Then we created a frequency cross-tabulation of the four categories by the 19 themes, shown in Table 2. This table formed the basis for the correspondence analysis which was the second stage of our data analysis.

Table 2. Cross-tabulation Between the Categories and Themes

Themes	YOK	OKWL	NOK	YOKPS	Total
BT	10	4	4	13	31
BW	3	5	4	4	16
DOO	15	14	4	11	44
JTYPE	11	7	3	13	34
LEG	13	22	12	25	72
LIMA	2	8	5	6	21
POSFE	9	6	2	14	31
PRI	4	5	5	7	21
PROEFFY	18	8	2	16	44
REX	12	9	2	12	35
RS	6	4	1	6	17
SCON	7	5	2	11	25
SHP	16	29	23	29	97
TCON	4	10	2	12	28
WCULT	9	10	3	12	34
YMON	6	22	9	21	58
NMON	3	1	1	2	7
CRT	4	2	1	3	10
LPEFFY	1	8	10	8	27
	153	179	95	225	652

In the second stage of our data analysis we used SPSS version10 to run a correspondence analysis (CA). The primary goal of this exploratory multivariate statistical technique was to transform each row and each column in the cross tabulation in Table 2 into a theme cloud of points with separate points on a map (i.e., the point map). As opposed to traditional hypothesis testing designed to verify *a priori* hypotheses about relationships among variables, CA is used to identify systematic relationships among variables when there are incomplete *a priori* expectations as to the nature of those relationships.

Correspondence Analysis with Categories and Themes: The results indicate that there was a significant dependency between the themes and categories ($\chi^2 = 77.38$; $df = 54$; $p < 0.05$). A screen plot indicated that a two-dimensional solution was the most suitable, with the first and second principal axes accounting for 76% and 15% of the inertia respectively.

Table 3 provides the dimensions and their correspondence to the categories and themes. The first two numeric columns show the coordinates of the categories and themes of the dimensions. The next two columns provide the contribution to the inertia of the dimensions. The themes.

Table 3. Dimensions and Their Correspondence to the Categories and Themes

	Coordinates		Contributions %		Squared cosines		Total
	F ₁	F ₂	F ₁	F ₂	F ₁	F ₂	
Categories							
YOK	0.425	0.117	46.390	17.908	0.904	0.069	0.973
OKWL	-0.173	-0.147	9.028	32.901	0.475	0.342	0.817
NOK	-0.518	0.229	42.848	42.406	0.836	0.164	1.000
YOKPS	0.068	-0.060	1.734	6.786	0.182	0.140	0.322
Themes							
BT	0.252	0.175	3.318	8.052	0.497	0.239	0.736
BW	-0.288	0.137	2.235	2.568	0.719	0.163	0.882
DOO	0.197	-0.006	2.872	0.015	0.381	0.000	0.381
JTYPE	0.271	0.038	4.206	0.423	0.949	0.019	0.968
LEG	-0.129	-0.046	2.025	1.319	0.880	0.113	0.993
LIMA	-0.429	-0.054	6.493	0.528	0.953	0.015	0.969
POSFE	0.288	-0.048	4.318	0.619	0.719	0.020	0.739
PRI	-0.202	0.164	1.445	4.813	0.567	0.373	0.941
PROEFFY	0.474	0.075	16.658	2.085	0.975	0.024	0.999
REX	0.313	-0.037	5.783	0.397	0.937	0.013	0.950
RS	0.340	-0.005	3.296	0.004	0.984	0.000	0.984
SCON	0.240	-0.033	2.430	0.231	0.682	0.013	0.695
SHP	-0.279	0.089	12.707	5.501	0.902	0.091	0.993
TCON	-0.030	-0.334	0.043	26.634	0.008	0.941	0.949
WCULT	0.131	-0.097	0.986	2.706	0.614	0.333	0.947
YMON	-0.257	-0.221	6.442	24.036	0.575	0.424	1.000
NMON	0.340	0.335	1.358	6.685	0.494	0.480	0.974
CRT	0.343	0.168	1.984	2.403	0.752	0.180	0.932
LPEFFY	-0.687	0.208	21.400	4.982	0.904	0.083	0.987

The first two numeric columns show the coordinates of the categories and themes of the dimensions. The next two columns provide the contribution to the inertia of the dimensions. The final two columns provide the squared cosine, which is the sum of the squared correlation of a row or column. The final column indicates the total squared cosine values of the two dimensions and is a measure of the quality of the representation of each point in the coordinate space [Greenacre, 1984]. As can be seen from all categories and themes except for "like doodling or taking a break" (0.381) are well represented by the two dimensions.

Figure 1 illustrates the spatial association of the theme and category clouds of points, as defined by the two principal axes. The plots were merged into one joint display through a canonical normalization procedure. This allowed the proper interpretation of distances between any row items and the distance between column items as well as the distance among row and column items [Greenacre, 1984]. The axes were interpreted by way of the contribution that each point made towards the total inertia. In this study there were 19 perceptual themes, and any contribution and any contribution greater than 5.26% (i.e., 100%/19) would indicate a significance greater than what would be expected in the case of a purely random distribution of themes over the axes [Greenacre, 1984].

Dimension 1 (76%): On the positive side of this dimension we found two categories of responses:

Yes, PWU is ok (YOK) and Yes, personal access is ok if it doesn't impact productivity (YOKPS).

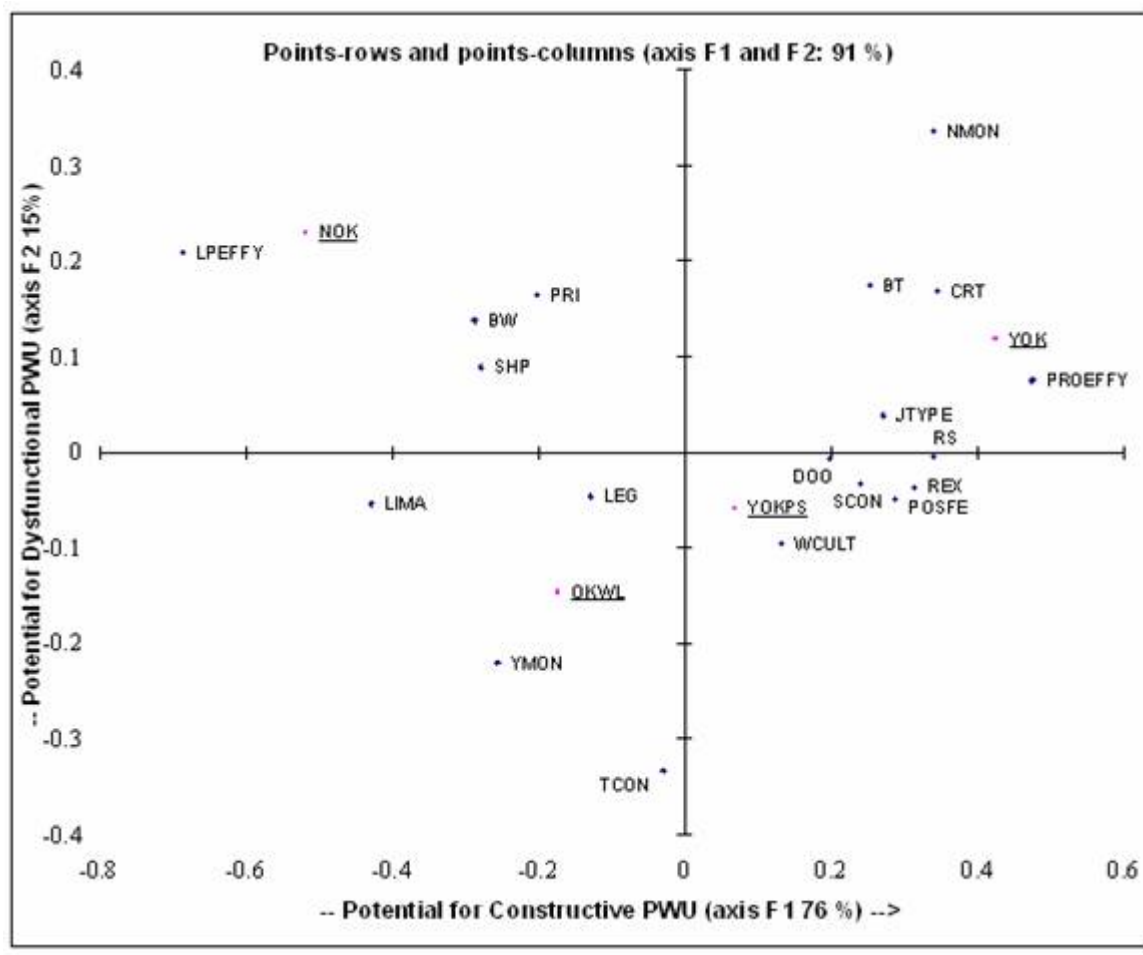


Figure 1. Themes and Dimensions

On the negative side we find

No, PWU is not ok (NOK) and OK only within limits. (OKWL)

The contributions indicate that the categories that impact the most in determining the orientation of this dimension were YOK, with 46.3% of the inertia, anchoring the positive end and NOK with 42.8% of the inertia, anchoring the negative end.

For interpretation of this dimension we turn to the coordinates and contributions of the perceptual themes. The contribution to inertia of the perceptual themes indicates that the first principal axis is determined by two themes with positive coordinates:

leads to productivity (PROEFFY), 16.6%; and relaxing (REX), 5.7%;

and four themes with negative coordinates:

loss of productivity and efficiency (LPEFFY), 21.4%; should have policies (SHP), 12.7%; yes, monitoring is ok (YMON), 6.4%; and company should allow within limits (LIMA), 6.4%.

Based on these themes, we interpret these findings as a distinction between high and low potential for constructive personal web use and label this dimension "*Potential for constructive personal web use.*"

Dimension 2 (15%): Categories NOK 42.4% and YOK 17.9% have high positive scores on the contributions to inertia. OKWL 32.9% and YOKPS 6.7% were on the negative side of this dimension. The second principal axis was determined by the following themes:

business tool (BT), 8.0%;
no, it's not okay to monitor (NMON), 6.6%;
loss of productivity and efficiency (LPEFFY), 5.9%; and
should have policies (SHP), 5.5%

All of these themes had positive co-ordinates.

Technical controls (TCON), 26.6%; and
Yes, monitoring is ok (YMON), 24%

were the themes with negative co-ordinates. Based on the largest positive and negative co-ordinates, the second dimension was labeled "*Potential for dysfunctional personal web use.*"

In the third stage, we did a correspondence analysis where the supplementary variables of age, gender, education, experience, and current organizational position, were projected into the theme/category space developed in stage 2. Since these variables were projected after the construction of the factorial axes in the new axes set, these supplementary points had a position in the full space, but did not affect the positioning of the theme points.

Correspondence Analysis with Supplementary Variables: Of the supplementary variables only current organizational position had a cosine that was high enough to warrant its inclusion in the two-dimensional solution [Greenacre, 1984]. Figure 2 shows attitudes of the potential dysfunctional or constructive nature of PWU vary by organizational position. Top-level managers' attitudes group together in the middle of the map, indicating they perceived personal web use in the workplace as moderately dysfunctional as well as moderately constructive. Middle-level managers' responses are positioned in the lower right quadrant, seeing PWU as potentially more constructive and potentially less dysfunctional. Lower-level managers' comments are clustered in the upper right quadrant, perceiving PWU's potential for both dysfunctional and constructive use as high. Professionals report that PWU's potential for abuse, is moderate coupled with higher constructive potential. The comments of respondents with administrative positions are in the lower left quadrant, viewing PWU as having moderate dysfunctional potential with low constructive potential.

IV. DISCUSSION

Our goal was to research the issue of personal web use empirically in the workplace by mapping this concept from the vantage point of employee perceptions. Based on current social contract theory, we believed that personal web use in the workplace was a complex issue, with the potential for both dysfunctional and constructive behaviors. This interest in both the potential for positive and negative consequences of personal web use was a departure from previous work on personal web use that focused almost exclusively on the negative effects [Joinson, 1998, Griffiths, 1998, Putnam and Maheu, 2000] or that posited that personal web use was just another way of wasting time at work [Block, 2001]. We contribute to the literature by using qualitative methodology in contrast to survey data and regression analyses, building on the work of Klein and Meyers (1999).

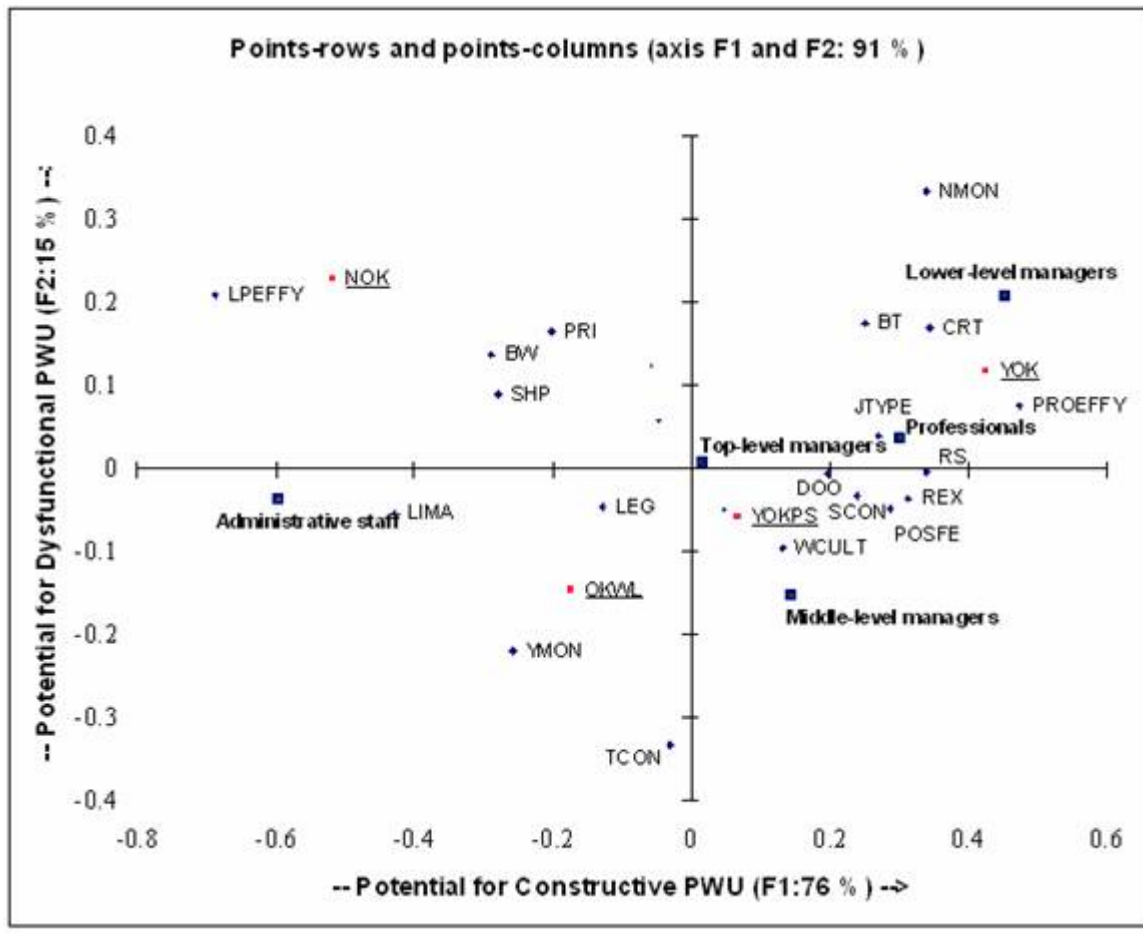


Figure 2. Themes, Dimensions, and Organizational Positions

THE FRAMEWORK

Our study produces a more comprehensive framework of personal web use at work, viewing it as one avenue for human capital development. We identify 19 themes and four categories using responses to the question,

“Do you think it’s ok for a person to use the Web for non-work purposes during working hours in the workplace?”

Through correspondence analysis, we identify systematic relationships between the themes, with a two-dimensional solution fitting the data best. We named the first dimension as *potential for constructive web use* and the second as *potential for dysfunctional personal web use*.

EFFECT OF EMPLOYEE POSITION

We carry our study to an additional step by overlaying employee position onto the first two analyses, and we discover that job positions are uniquely placed. Top-level managers’ attitudes group together in the middle of the map, falling in-between the two clusters, perceiving both moderate dysfunctional and constructive potential. This finding may be indicative of the propensity of top managers to look at issues from multiple perspectives, reflecting their need to consider multiple stakeholders, both internal and external to the organization. Middle managers are in the lower right quadrant perceiving higher constructive potential and lower dysfunctional potential. Professionals see moderate potential for abuse, with higher constructive potential. The

proximity of these two groups is consistent with their interpersonal focus and their intermediary's role between top and lower management. They mix in rationalizations such as personal web use at work is okay to do their jobs better, and address the increasing spillover of work into non-work time. Lower-level managers are in the upper right quadrant, representing the highest potential for both dysfunctional and constructive use. Perhaps this group feels the strongest needs to escape the pressures of managing and to build skill sets for upward mobility. The respondents with administrative positions perceive moderate dysfunctional potential with low constructive potential, a result consistent with their focus on efficiency and transactions.

A DEFINITION OF PERSONAL WEB USE IN THE WORKPLACE

Based on our results, we were able to construct a definition of personal web use in the workplace that is grounded in empirical analysis. We suggest the following definition:

"voluntary on-line web behaviors during working time using any of the organization's resources for activities outside current customary job/work requirements."

We limited the definition to "on-line behaviors" to separate it from other behaviors such as listening to music or playing games already downloaded. We broaden the time to "working time" to allow for work done off-premises and/or outside of the normal 9 to 5 office hours. Surfing suggests aimless access, but much of personal web use involves specific destinations or purposes such as travel arrangements or personal web sites, so we deleted the word "surfing". We also wanted to indicate the use not only of the company's network and servers but also the use of computers, and employees time hence the wording: "organization's resources." Finally, we wanted to indicate that the personal web use was outside of current customary job/work requirements, suggesting a potential for learning not associated with existing job/work requirements.

THE SOCIAL CONTRACT

Our study should prove useful in extending the social contract theory to the 21st century work environment. As one respondent stated:

"In the corporate world, there is no longer such a thing as "the 40 hour work week," nor do people work from "9 to 5." Today, people are required to work all sorts of different shifts. The average work day is probably closer to 9 or 10 hours, depending on your position with the company. That being said, I think it is wise for a corporation to allow its employees to use the Internet for their personal uses. It gives the employee some time to themselves, where they can just "veg-out" for a few minutes or actually do something constructive, like online banking."

Thus, the concepts of the psychological contracts and jobs as we know them may no longer be valid [Bridge, 1995]. Lim, Teo, and Loo [Lim et al., 2002] report individuals rationalize that they are entitled to spend time on the web on personal issues while at work as a form of informal compensation. This view is consistent with our findings; a respondent succinctly states:

"I am salaried and very often required to work long hours, have working lunches (not taking a client out socially but listening to vendors sell their financial products, go to out of town meetings and seminars that take up an entire weekend, etc. If I happen to have a free hour on a Tuesday morning or two hours on an occasional afternoon and I choose to use the Internet, my computer or work on my MBA online, then I truly believe it is ok, because my company is getting back many more hours of my time. My schedule would be considered flexible. Yes I probably should do it at home, but the fact is I might have to stay for four more hours due to some other work commitment and I can't very well drive home and back (2 hours) to spend the two hours on the Internet."

In the 21st Century work environment, the emphasis on a knowledge workforce is increasing [Boisot, 1999, Brynjolfsson, 1993, Johannessen et al., 2001]. The web can be used to expand the total knowledge base – the tacit, the explicit, the internal and the external for both the individual and the organization [Dewett and Jones, 2001, Johannessen et al., 2001, Powell and Dent-Micallef, 1997]. One of our respondents concisely describes this constructive dimension of PWU:

“I think that it is all right to use the web for non-work purposes during work hours. I use the web at work as a source of information to keep me up to date with current events. Through the web, I can follow the latest business news as well as world events. I believe that by staying on top of current business news that I become a better-informed knowledge worker.”

Hence, we posit that the existing organizational control mechanisms may need to be expanded to include social exchanges in an Internet-connected work environment. These controls should include a cyber-contract component, which would describe the exchange mechanisms in a web-connected work place. The control mechanisms should be based on standards, which are negotiated, openly communicated, and flexible, to adjust for continuous work, learning, and change. Such mechanisms would thus support the preeminence of human capital in the workplace [Pfeffer and Viega, 1999].

Organizations simply have not had enough experience with this type of exchange process to know what is dysfunctional and what is constructive behavior and how best to manage it for the mutual benefit of individual and organization. The more abstract the entities involvement and the more abstract the work environment, the fewer effective mechanisms organizations can use for control of social exchanges [Allen, 1999]. The dangers of the undesirable dysfunctional outcomes of PWU such as loss of intellectual property, sexual harassment, and security risks are real and led to organizations controlling PWU. We suggest, based on our study, that too much freedom can be dysfunctional; that is, it leads to *cyber-slacking*. However, there is also a danger that too much control of personal web use can be a danger by stifling creativity, learning, and positive job feelings, leading to what we term *cyber-silencing*. We suggest that a middle ground is evolving between unrestricted access and too many restrictions - what we called *cyber-stimulating*. In this zone the aim is to stimulate learning, leading to a productive use of the web in the workplace while isolating dysfunctional and threatening use.

From our work, we suggest an expanded model of personal web use in the workplace (Figure 3). In this model, we posited that personal web use in the work place has both dysfunctional and constructive outcomes, with organizational position as a moderating influence.

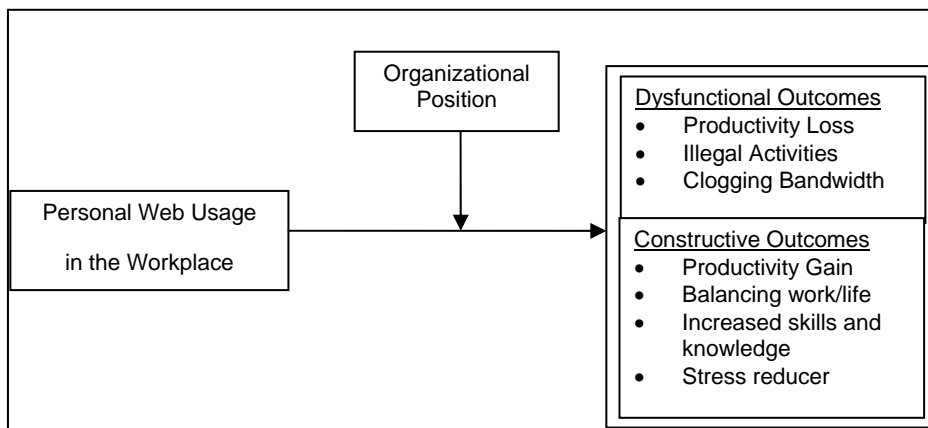


Figure 3. Personal Web Use in the Workplace Model

The contributions of our work are limited by several factors.

1. Despite steps taken to control coding bias, the interpretation and coding of the responses is subjective in nature.
2. The study is limited in its generalizability because of the use of convenience sampling rather than random sampling.
3. A methodological limitation is the arch effect in the correspondence analysis. This limit is a typical artifact in an ordination diagram, in which the second axis is an arched function¹ of the first axis. Future studies should attempt to use a de-trended technique such as detrended canonical correspondence analysis.

V. FUTURE RESEARCH

Research should continue on the construct of personal web use to delineate specific behaviors, perhaps using multi-dimensional scaling, to confirm our concept maps empirically, particularly the two dimensional solution of both constructive and dysfunctional roles of PWU. Models of PWU with antecedents and outcomes need to be developed and tested. These models might include individual, group, and organizational variables. The extension of the social contract theory and the model of PWU need to be studied empirically for verification and modification. Human resource issues (such as promotion, discipline, and career path) that can be linked to this model are also important. The work on job position and profiles are promising lines of inquiry.

The following extensions deserve study:

1. Can the individual profiles we identified be extended to profiles of organizations?
2. The implications of PWU for organizational strategy
3. Whether cyber-stimulating moderates the effects of strategy on organizational outcomes such as innovation, learning, or performance.
4. The influence of national culture on PWU.

We hope that our study will bring attention to the interplay between freedom and control in the web-connected workplace. It is our intention that our work serves as a catalyst for additional theoretical and empirical research into PWU in the workplace and how beneficial and detrimental dimensions interact dynamically in defining our 21st century workplaces.

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¹ The arch effect is a distortion or artifact in an ordination diagram, such as correspondence analysis, in which the second axis is an arched function of the first axis. It is caused by the unimodal distribution of species along gradients.

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LIST OF ACRONYMS

BT	Business tool
BW	Bandwidth issues with personal access
CRT	Personal usage leads to creativity
DOO	Like doodling or taking a break
JTYPE	Personal access depends on type of job
LEG	Legal issues with personal access
LIMA	Company should allow limited personal access
LPEFFY	Personal access leads to loss of productivity & efficiency
NMON	It's not ok to monitor personal access
NOK	No, PWU is not ok
OKWL	Ok only within limits, e.g., before working hours
POSFE	Positive feelings for organization
PRI	Privacy issues with personal access
PROEFFY	Leads to productivity and efficiency
PWU	Personal Web usage
REX	Relaxing
RS	Personal usage part of required skill sets
SCON	Soft controls to limit personal access
SHP	Should have a policy
TCON	Technology based controls to limit personal access
WCULT	This is the work culture
YMON	Yes, it's ok to monitor personal access
YOK	Yes, PWU is ok
YOKPS	Yes, personal access is ok if doesn't impact productivity

ABOUT THE AUTHORS

Murugan Anandarajan is Associate Professor and a distinguished research fellow in the Department of Management at Drexel University. His current research interests include Artificial Intelligence-based classification and Internet use. His research appears in journals such as *Communications of the ACM*, *Computers and Operations Research*, *Decision Sciences*, *Information and Management*, *Journal of Management Information Systems*, *Journal of International Business Studies*, and *Omega-International Journal of Management Science* among others. He co-edited two books on personal web use.

Claire A. Simmers received her Ph.D. from Drexel University, in Strategic Management. She is an Associate Professor in the Management Department in the Erivan K. Haub School of Business at Saint Joseph's University. She teaches courses at the undergraduate, MBA and Executive level in Business Policy, Global Business Strategy, International Management, Leadership, Competitive Analysis and Managerial Skills. Her research interests are in political and behavioral influences in strategic decision-making, work/life issues, and the socio-technical interface in the digital workplace, focusing on the Internet. Her work is published in *Behaviour and Information Technology*, *The Journal of Business and Economics Studies*, *Communications of the ACM*, *Journal of Information Technology, Theory and Application* and the *Journal of Organizational Behavior*. She co-edited two books with Murugan Anandarajan, She is a member of the Academy of Management and the Strategic Management Society.

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