

The Rise of the Telecommuter and the Fall of Community: False Promises

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Introduction

As the number of distance delivered e-learning courses being offered increases, so does the number of academics who are teaching from their home offices—most often referred to as ‘teleworkers’. While research has shown there are benefits of teleworking for both the institution and the employee (Hill, Ferris and Martinson 2003; Ng 2006; Pinsonneault and Boisvert 1996), it also has drawbacks. One drawback to teleworking is that it can create a vulnerable situation for employees, arising from the lack of contact between colleagues and the organization, often resulting in feelings of isolation and a lack of collegial community (Beyth-Marom, Harpaz-Gorodeisky, Bar-Haim and Godder 2006; Cooper and Kurland 2002; Mael and Ashforth 1992; Meyer and Allen 1997; Meyer, Stanley, Herscovitch and Topolnysky 2002). Though, research has shown this problem can be decreased when there is regular contact and collaboration between colleagues, with the most effective contact being activities that revolve around the provision of regular training and continuous support for professional growth (Fouche 2006; Lockwood & Latchem 2004; Schrum and Ohler 2005).

Within our own institution number of full time staff who are choosing to be teleworkers has exceeded 50%. This has created new participation problems to continuous learning opportunities for those who have opted to be teleworkers. The objectives of the study were twofold: (1) to explore what structures and practices can encourage the improvement of e-learning teaching practices and (2) to do so in ways that will overcome many of the participation barriers for academics who are teleworkers.

Methodology

When the aim is to improve university teaching, there are two issues to consider. One issue focuses on good teaching. The other issue focuses on the environment that makes good teaching possible. When institutions do not deal with the second issue (the environment), the first issue (good teaching) has little chance of success. An extensive literature review conducted by Harrison (2002) identified the structures and practices that can encourage the improvement of teaching practices. Based on Harrison’s findings, we developed a survey and piloted by a small number of colleagues. After the revisions were made, the survey was then hosted at Zoomerang[®], which is Internet-based software provided by Market Tools Inc[®]. On average, the survey took ten minutes to complete.

There were six sections in the survey, which were used as the primary measures of interest: delivery methods (eight questions focused on preferred delivery models for teleworking); teaching resources (16 questions on current and proposed services); strategic planning (11 questions on directions for future planning); teaching beliefs (3 questions), workplace satisfaction (6 questions on workplace satisfaction and professional development support); and demographic data (age, sex, teaching experience, workplace location, position classification, program classification, and year of hire).

Results

The survey was sent to 609 staff members who were involved in the design and delivery of course materials (tutors, academic staff, and professionals [educational media development staff]). An additional 22 participants started the survey but discontinued prior to the halfway point and 26 participants reported they were not teleworkers. Their data is not included.

Primary Measures

Delivery Methods. Table 1 displays the results of preferred delivery methods. The first column describes the method and the second column provides a weighted summary of importance as expressed on a 5-point Likert scale where higher numbers indicate higher importance.

Table 1. Preferred Delivery Methods

Delivery Methods	N	M	SD
Q 2: I would access digitally-based teaching resources located on the institution's web space	179	4.39	.816
Q 6: I would attend face-to-face teaching workshops facilitated by invited experts in distance-delivered teaching	179	3.65	1.056
Q 8: I would attend synchronous teaching workshops facilitated by invited experts in distance-delivered teaching using Web-based conferencing tools.	179	3.59	1.037
Q 5: I would attend synchronous teaching workshops facilitated by the institution's academic staff using web-based conferencing tools	179	3.55	1.023
Q 3: I would attend face-to-face teaching workshops facilitated by the institution's academic staff	179	3.53	1.072
Q 7: I would attend online asynchronous teaching workshops facilitated by invited experts in distance-delivered teaching using threaded discussions	179	3.47	1.062
Q 4: I would attend online asynchronous teaching workshops facilitated by the institution's academic staff using threaded discussions	179	3.36	1.079
Q 1: I would access print-based teaching resources housed in the institution's physical space	179	2.83	1.330

The eight questions were analyzed in a oneway repeated measure Analysis of Variance (ANOVA) and there was a significant effect of delivery method, $F(7,1246) = 42.017$, $p < .01$. Pairwise comparisons were performed among the methods, the least preferred method being “print-based teaching resources housed in the institution's physical space” (Q 1) was significantly different from other methods (with each of Bonferroni adjusted $p < .01$), the most preferred method, “digitally-based teaching resources located on the institution's web space” (Q 2), was significantly different from the other methods (with each of Bonferroni adjusted $p < .001$). The remaining methods were clustered between 3.66 and 3.38 and not significantly different from each other.

A Principal Components Analysis (PCA) with Varimax rotation was completed on the data in order to reduce the items into underlying constructs (Table 2). The resulting structure revealed two factors. The first factor accounted for 44% of the variance and consisted of all the online delivery methods and could be described as *Technology Mediated Delivery*. The second factor accounted for 22% of the variance and consisted of the remaining three items on face-to-face meetings and accessing print materials and best described as *Face-to-face Mediated Delivery*.

Table 2. Rotated component Matrix for Preferred Delivery Methods

Delivery Methods	Factor 1: Technology Mediated Delivery	Factor 2: Face-to-Face Mediated Delivery
Q 7: I would attend online asynchronous teaching workshops facilitated by invited experts in distance-delivered teaching using threaded discussions	.879	
Q 5: I would attend synchronous teaching workshops facilitated by the institution's academic staff using web-based conferencing tools	.876	
Q 4: I would attend online asynchronous teaching workshops facilitated by the institution's academic staff using threaded discussions	.857	
Q 8: I would attend synchronous teaching workshops facilitated by invited experts in distance-delivered teaching using Web-based conferencing tools.	.853	
Q 2: I would access digitally-based teaching resources located on the institution's web space	.508	
Q 3: I would attend face-to-face teaching workshops facilitated by the institution's academic staff		.867
Q 6: I would attend face-to-face teaching workshops facilitated by invited experts in distance-delivered teaching		.864
Q 1: I would access print-based teaching resources housed in the institution's physical space		.704

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Based on the PCA, the questionnaire items associated with each factor were averaged to create an estimate of the two underlying constructs. A paired t-test indicated a statistically significant difference between these two subscales, $t(184) = 4.236, p < .001$. *Technology Mediated Delivery* (M=3.68) was rated higher than *Face-to-Face Mediated Delivery* (M=3.34).

Teaching Resources. Table 3 displays the results of preferred teaching resources. The first column describes the method and the third column provides a weighted summary of importance as expressed by the proportion of respondents who endorsed the resource. Higher proportions indicate higher importance.

The first six items (Q12, Q9, Q7, Q15, Q3, & Q16) were endorsed by approximately half of all respondents and represent a spectrum of issues and resources related to effective

online learning. In particular, the items seem focused on pedagogical goals and related outcomes such as motivating students and effective use of technology. The next four items (Q6, Q4, Q13 & Q8) were endorsed by over a third of the participants and are more focused on online discussion forums, and web logs. The final six items (Q2, Q14, Q11, Q5, Q1, & Q10) were endorsed by less than a third of all respondents and are a mixture of issues and resources.

Table 3. Teaching Resources

Teaching Resources			
<u>Question leader: I would like to see more teaching resources provide on (check all that apply):</u>	N	M	SD
Q 12: How to engage self-paced learners through motivations strategies	187	.54	.500
Q 9: How to conduct different instructional methods in an online classroom (e.g., debates, Webquests, case studies, problem-based learning, invited guest, nominal group technique)	187	.53	.500
Q7: How to deal with difficult students online	187	.52	.501
Q 15: How to use Learning Management Systems (LMS) (e.g., Moodle) to improve learning	187	.52	.501
Q 3: How to assess student contributions in online discussions	187	.48	.501
Q 16: How to effectively use online student assessment tools (e.g., quizzes or exams)	187	.48	.501
Q 6: How to maintain meaningful online discussions	187	.46	.500
Q 4: How to start effective online discussions	187	.45	.499
Q 13: How to effectively use Web logs (Blogs) with my students	187	.43	.497
Q 8: How to deal with difficult students on the phone	187	.40	.490
Q 2: How to moderate text-based asynchronous discussions	187	.34	.474
Q 14: How to effectively use wikis with my students	187	.32	.466
Q 11: How to ensure I am using proper email etiquette with my students	187	.28	.449
Q 5: How to bring closure to online discussions	187	.27	.447

Q 1: How to effectively moderate text-based synchronous discussions	187	.26	.438
Q 10: How to ensure I am using proper phone etiquette with my students	187	.21	.407

The 16 questions were analyzed in a oneway repeated measure ANOVA and there was a significant effect of Teaching Resource, $F(15,2790) = 12.968, p < .01$. A PCA with Varimax rotation was completed on the data in order to reduce the items into underlying constructs (Table 4). The resulting structure revealed four factors. The first factor accounted for 32% of the variance and consisted of items that dealt with the effective use of different online technologies (web logs, wikis, instructional techniques, assessment tools, and learning management systems). The second factor accounted for 15% of the variance and consisted of interpersonal skills required for dealing with individuals over the phone or by email. The third factor accounted for 7% of the variance and dealt with the motivation/management of online discussion and self-paced learners. The fourth factor also accounted for 7% of the variance and reflected issues of moderating text-based discussions and assessing student contributions.

Table 4. Rotated Component Matrix for Teaching Resources

Teaching Resources	Factor 1: Effective Technology Use	Factor 2: Inter- personal skills	Factor 3: Manage- ment / Motivation	Factor 4: Moder- ate / Assess
Q 13: How to effectively use Web logs (Blogs) with my students	.790			
Q 14: How to effectively use wikis with my students	.755			
Q 9: How to conduct different instructional methods in an online classroom (e.g., debates, Webquests, case studies, problem-based learning, invited guest, nominal group technique)	.633			
Q 16: How to effectively use online student assessment tools (e.g., quizzes or exams)	.607	.307		
Q 15: How to use Learning Management Systems (LMS) (e.g., Moodle) to improve learning	.582			
Q 10: How to ensure I am using proper phone etiquette with my students		.859		
Q 11: How to ensure I am using proper email etiquette with my students		.833		
Q 8: How to deal with difficult students on the phone		.780		
Q7: How to deal with difficult students online		.536		

Q 4: How to start effective online discussions		.799
Q 6: How to maintain meaningful online discussions		.736
Q 5: How to bring closure to online discussions		.715
Q 12: How to engage self-paced learners through motivations strategies		.532
Q 1: How to effectively moderate text-based synchronous discussions		.836
Q 2: How to moderate text-based asynchronous discussions		.771
Q 3: How to assess student contributions in online discussions	.409	.562

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Based on the PCA, the questionnaire items associated with each factor were averaged to create an estimate of the four underlying constructs: *Effective Technology Use*, *Interpersonal Skills*, *Management/Motivation*, *Moderate/Assess*. The four constructs were analyzed in a oneway repeated measure ANOVA and there was a significant effect of Teaching Resource Construct, $F(3,558) = 5.803$, $p=0.001$. Pairwise comparisons with Bonferroni corrections indicate that the endorsement of resources related to *Effective Technology Use* ($M = .456$) was not different than the resources associated with *Management/Motivation* ($M = .431$) but that both constructs were significantly higher than the resources associated with *Interpersonal Skills* ($M = .350$) and *Moderate/Assess* ($M = .358$).

Instructional/Course Services. Table 5 displays the results of preferred delivery methods. The first column describes the service and the second column provides a weighted summary of importance as expressed on a five-point Likert scale where higher numbers indicate higher importance. As can be seen, the need for Teaching Retreats was rated most important overall, although the absolute magnitude of the rating is generally moderate. The lowest rated service was satisfaction with course development services.

Table 5. Instructional/Course Services

Instructional/Course Services	<i>N</i>	<i>M</i>	<i>SD</i>
Q 2: I would attend teaching retreats	176	3.44	1.120
Q 3: I would use a teaching portfolio development service	176	3.31	1.051
Q 1: I would use peer-to-peer support teaching services	176	3.25	1.023

Q 4: I am satisfied with the existing course development services	176	3.01	.997
Valid N (listwise)	176		

The 4 questions were analyzed in a oneway repeated measure ANOVA and there was a significant effect of Instructional Course Service, $F(3,525) = 6.342, p < .01$. Pairwise comparisons indicated that satisfaction with course development (Q4) was rated significantly lower than teaching retreats (Q2) (Bonferroni adjusted $p = .002$) and teaching portfolios (Q3) is (Bonferroni adjusted $p = .035$).

A PCA with Varimax rotation was completed on the data in order to reduce the items into underlying constructs (Table 6). The resulting structure revealed two factors. The first factor accounted for 43% of the variance and consisted of the first three items services focused on *Teaching Support*. The second factor accounted for an additional 26% of the variance and consisted of a single item focused on *Course Development Satisfaction*.

Table 6. Rotated Component Matrix for Instructional/Course Services

Instructional/Course Services	Factor 1: Teaching Support	Factor 2: Course Development Satisfaction
Q 3: I would use a teaching portfolio development service	.779	
Q 2: I would attend teaching retreats	.761	
Q 1: I would use peer-to-peer support teaching services	.740	
Q 4: I am satisfied with the existing course development services		.984

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization

Based on the PCA, the three questionnaire items associated with the first factor were averaged to create an estimate of the underlying construct, *Teaching Support*. The fourth item was used as a direct estimate of the second factor, *Course Development Satisfaction*. A Paired Samples t test indicated that the construct *Teaching Support* ($M = 3.355$) was rated significantly higher than *Satisfaction with Course Development* ($M = 2.995$), $t(180) = 3.665, p < .001$.

Strategic Planning. Table 7 displays the items that deal with Strategic Planning. The first column describes the service and the second column provides a weighted summary of importance as expressed on a five-point Likert scale where higher numbers indicate higher importance. As can be seen, the need for sustained early training (Q1) and support for innovative teaching explorations (Q11) were the most highly rated items of importance.

The least important strategic items dealt with mandatory courses on threaded discussions (Q4) and mid-course evaluations of instructors (Q7).

Table 7. Strategic Planning

Strategic Planning Question leader: I believe	N	M	SD
Q 1: New teaching staff should be provided with an option for sustained early training in distance-delivered teaching	172	4.25	.641
Q 11: There should be funds available for innovative teaching explorations	172	4.19	.670
Q 10: There should be support services for the scholarship of teaching and learning	172	3.96	.695
Q 9: There should be support services for teaching staff who are applying for university-wide, national, or international teaching awards	172	3.80	.749
Q 6: There should be a university-wide end-of-course evaluation of course design	172	3.79	.998
Q 3: New teaching staff should be provided with an option for sustained early training in effective teaching strategies with asynchronous threaded discussions	172	3.73	.815
Q 2: There should be mandatory course on distance-delivery for teaching effectiveness for new teaching staff	172	3.43	.810
Q 8: There should be a graduate supervision evaluation form	172	3.42	1.108
Q 5: There should be a university-wide end-of-course evaluation of instructors	172	3.42	1.179
Q 4: There should be mandatory courses in effective teaching strategies with asynchronous threaded discussions for new teaching staff	172	3.02	1.105
Q 7: There should be a university-wide mid-course evaluation of instructors	172	2.73	1.021

The 11 questions were analyzed in a oneway repeated measure ANOVA and there was a significant effect of Strategic Planning, $F(10,1710) = 62.194$, $p < .001$. A PCA with Varimax rotation was completed on the data in order to reduce the items into underlying constructs. The resulting structure revealed three factors. The first factor accounted for 34% of the variance and consisted of five items focused on the *Scholarship of Teaching & Learning*. The second factor accounted for an additional 17% of the variance and consisted of the 4 items dealing with *Course/Instructor Evaluation*. The final factor factor accounted for an additional 11% of the variance and consisted primarily of the two items concerned with *Mandatory Training*—though, as Table 9 reveals, this is not a clean factor.

Table 8. Rotated Component Matrix for Strategic Planning.

Strategic Planning	Factor 1: Scholar- ship of Teaching/ Learning	Factor 2: Course/ Instructor Evaluation	Factor 3: Manda- tory Training
Q 10: There should be support services for the scholarship of teaching and learning	.802		
Q 9: There should be support services for teaching staff who are applying for university-wide, national, or international teaching awards	.794		
Q 11: There should be funds available for innovative teaching explorations	.768		
Q 1: New teaching staff should be provided with an option for sustained early straining in distance-delivered teaching	.541		.480
Q 3: New teaching staff should be provided with an option for sustained early training in effective teaching strategies with asynchronous threaded discussions	.461		.376
Q 5: There should be a university-wide end-of-course evaluation of instructors		.837	
Q 6: There should be a university-wide end-of-course evaluation of course design		.791	
Q 7: There should be a university-wide mid-course evaluation of instructors		.717	
Q 8: There should be a graduate supervision evaluation form	.397	.550	
Q 2: There should be mandatory course on distance-delivery for teaching effectiveness for new teaching staff			.847
Q 4: There should be mandatory courses in effective teaching strategies with asynchronous threaded discussions for new teaching staff		.363	.807

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Based on the PCA, the questionnaire items associated with each factor were averaged to create an estimate of the underlying constructs: *Course/Instructor Evaluation*, *Scholarship of Teaching/Learning*, *Mandatory Training*. The 3 constructs were analyzed in a oneway repeated measure ANOVA and there was a significant effect of Strategic Planning Construct, $F(2,366) = 64.732$, $p < .001$. Pairwise comparisons with Bonferroni corrections (adjusted to $p < .001$) indicate that the items associated with the *Scholarship of Teaching/Learning* were rated significantly higher ($M = 3.981$) than the items associated with and *Course/Instructor Evaluation* ($M = 3.326$), and *Mandatory Training* ($M = 3.242$). However there is no statistically significant difference between *Course/Instructor Evaluation* and *Mandatory Training* (Bonferroni adjusted $p = .796$).

Teaching Beliefs. Table 9 displays the items that deal with teaching beliefs. The first column describes the service and the second column provides a weighted summary of importance as expressed on a five-point Likert scale where higher numbers indicate higher importance. As can be seen, the belief in one's own teaching practice as important (Q3) was the most highly rated item of the 3 items in this section and the highest item rated from all sections considered. The 3 questions were analyzed in a oneway repeated measure ANOVA and there was a significant effect of Teaching Belief, $F(2,366) = 48.288, p < .000$). Pairwise comparisons indicated that belief in one's own teaching practice as important (Q3) was rated significantly higher (Bonferroni adjusted $p = .001$) than beliefs about institutional values (Q2) and web based technologies (Q3) and Teaching Portfolios (Q3). The latter two did not differ from each other.

Table 9. Teaching Beliefs

Teaching Beliefs	N	M	SD
Q 3: I consider my own teaching practices to be important	184	4.48	.600
Q 2: I believe that teaching is valued at my institution	184	3.72	.989
Q 1: I believe web-based technologies are essential to successful distance education	184	3.68	1.187
Valid N (listwise)	184		

A PCA with Varimax rotation was completed on the data in order to reduce the items into underlying constructs. The resulting structure revealed a single factor of all items accounting for 44% of the variance.

Workplace Satisfaction. Table 10 displays the items that deal with workplace satisfaction. The first column describes the workplace issue and the second column provides a weighted summary of importance as expressed on a five-point Likert scale where higher numbers indicate higher importance. As can be seen, good working relationships with academic colleagues (Q2) was the most highly rated item of importance. Alternatively, many respondents do not agree that they have opportunities to collaborate on projects with colleagues (Q6).

Table 10. Workplace Satisfaction

Workplace Satisfaction	N	M	SD
Q 2: I have good working relationships with academic colleagues	185	4.11	.758
Q 1: My primary workplace is an effective working environment	185	4.09	.810

Q 3: I have good working relationships with non-academic colleagues	185	4.08	.751
Q 5: I am provided with the necessary advice for professional growth	185	3.16	1.126
Q 6: I am provided with the necessary resources for professional growth	185	3.14	1.151
Q 4: I have good opportunities to collaborate on projects with my colleagues	185	3.09	1.162

The 6 questions were analyzed in a oneway repeated measure ANOVA and there was a significant effect of Workplace Satisfaction, $F(2,366) = 48.288, p < .000$. Pairwise comparisons revealed that an effective working environment (Q1) and good working relationships with academic (Q2) and non-academic colleagues (Q3) clustered into one group and were rated significantly higher (all Bonferroni adjusted $p < .01$) than the items forming a separate group consisting of opportunities for collegial collaboration (Q4) and professional growth advice (Q5) and professional growth resources (Q6) clustered into another group.

A PCA with Varimax rotation was completed on the data in order to reduce the items into underlying constructs. The resulting structure revealed a single factor of all items accounting for 52% of the variance.

Discussion

These findings are encouraging on a number of fronts. The most striking and positive finding is that the majority of respondents strongly believe in the importance of their own teaching practices and they have good relationships with colleagues. The desire to develop teaching skills is an essential foundation to improving teaching practices. In regard to how the learning activities should be delivered, the results of the survey indicate the preferred delivery methods include both digitally-based web-spaces and face-to-face workshops facilitated by invited experts (outside of the institution). The survey comments also indicate the desire to participate in face-to-face workshops is based on the assumption that time and travel to attend would be paid for by the institution.

In regard to areas of teaching skill development, the survey data indicate that the following are high priorities: how to motivate self-paced learners, how to use different instructional methods in an online classroom, how to deal with difficult students, and how to use course management systems to improve learning. In regard to structures needed, the data indicate new teaching staff should be provided with an option for sustained early straining in distance-delivered teaching, there should be funds available for innovative teaching explorations, there should be support services for the scholarship of teaching and learning, and there should be support services for teaching staff who are applying for university-wide, national, or international teaching awards. There is also an indication that there is a perceived need for better advice and resources for overall professional growth.

The results of this study also support the belief that if new technologies are to be adopted, they need to be introduced with consideration of the implications for improving teaching

and learning. The data collected in the survey support assertions made by Kirkwood and Price (2006) (see also Laurillard 2002) that one of the main problems resulting in resistance to the use of technologies by developers and instructors is a focus on technologies rather than a focus on understanding the nature of learning and teaching and how such issues impact on the effective use of technologies: "Often it is not the technology that is failing, but the actual teaching and pedagogical approach" (p. 8). The responses on *Teaching Resources*, for example, reveal that the technologically related questions (i.e., moderating text-based synchronous/asynchronous, use of wikis) ranked significantly lower than Teaching Resources dealing with pedagogical approaches (i.e., instructional methods, motivational strategies, dealing with difficult students). Hence, while technologies can facilitate a movement toward exploring new ways of teaching and learning in distance delivery it must be led by effective pedagogical underpinnings.

The comments in this study also raised additional concerns about time, technology support, mentoring, and course evaluations. Most of the comments, however, revolved around feelings of isolation arising from teleworking and the importance of collegial social interactions. Literature cited at the beginning of this paper indicates that continuing learning opportunities is an option that can reduce feelings of isolation and provide social interaction while at the same time help improve e-learning teaching practices. According to Kinuthia (2005), the success of a faculty development program is influenced by a shared vision, responsiveness to faculty needs, involvement of faculty in planning and program development, and clearly defining and communicating policies, goals, and objectives (Kinuthia 2005). This area in particular warrants further investigation.

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