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RELATIONSHIP BETWEEN TELECOMMUTING AND RECRUITMENT AND RETENTION OF IT STAFF

By

ERNEST W. BREWER* P. J. SNODGRASS**

ABSTRACT

This study examined telecommuting relative to recruitment and retention of information technology (IT) staff in institutions of higher education. Participants were 102 human resources, administrators from colleges and universities in 11 southern states. Data were gathered via a survey, instrument was developed by the researchers and were analyzed using descriptive statistics, t-tests, Spearman's Rho and chi-square analysis. Only 12 participants were from institutions that had a formal telecommuting program. Results indicated that existence of a telecommuting program was not significantly related to recruitment and retention of IT staff. While budget cuts at an institution, it had a significant negative effect on recruiting; but budget cuts had no significant effect on perceived success of retention. Results from this study highlights the need for future research on this topic.

INTRODUCTION

The impact of technology has created high demand for qualified information technology (IT) professionals. Consequently, the competition to recruit and retain IT staff in institutions of higher education can be fierce. With frequently limited funds and additional self-imposed obstacles, colleges and universities are at a disadvantage in such competition. Therefore, higher education institutions must seek to implement innovative methods to recruit and retain IT staff.

Research has indicated that offering a telecommuting program can bring an organization numerous advantages, including increased ability to recruit and retain staff (Ahmadi, Helms, & Ross, 2000; Cole-Gomolski, 1998; Davenport & Pearlson, 1998; Deeprose, 1999; Ellison, 1999; Fister, 1999; Ford & Butts, 1991; Gainey, Kelley, & Hill, 1999; Khalifa & Davidson, 2000; Khalifa & Etezadi, 1997; Mariani, 2000; McCune, 1998; Pearlson & Saunders, 2001; Pratt, 1997; Schilling, 1999; Schwartz, 1997; Solomon, 2000; Spillman & Markham, 1997; Wilde, 2000). However, most previous research has taken place in a corporate setting. The purpose of this study was to explore the relationship between telecommuting and recruitment and retention of IT staff in higher education.

1. Information Technology Staffing in the United States

In 1999 report, the Bureau of Labor Statistics (BLS) reported that the five fastest growing occupations were all computer-related. As the demand for IT staff has risen, so has the cost of hiring IT staff. As reported by Mateyaschuk (1999), a survey of 21,000 IT workers revealed that pay for some IT skills had increased by twice the national average. Hecker (1999) also reported an increase in the median salary for IT jobs.

The ability to recruit and retain IT staff is a critical problem in institutions of higher education. An acute shortage of qualified IT staff has made it difficult for educators to apply technology in higher education (Skinner & Cartwright, 1998). Green (2000) reported that IT staffing issues affect all aspects of higher education from user support to the integration of instructional technology.

A survey conducted by the Computing Research Association and reported by Freeman and Aspray (1999) stated that education has been slow to respond to changes in the workforce. This is due, in part to complex decision-making processes in higher education. Although a deliberative process may be more democratic, it prohibits quick responses to change and is viewed widely as an operating style weakness. The given inherent shortage of IT workers, fierce competition among corporations for highly skilled IT staff, budget cut-backs at many higher education institutions, and historically slower than average response time to changes in the workforce

at colleges and universities, the realization of how serious the IT staff shortage at academic institutions in the United States is not difficult to comprehend.

Higher education institutions have made efforts to recruit and retain IT staff. For example, Olsen (2000) reported that the University System of Georgia has implemented a new compensation plan for IT staff. Called the "80/20" plan, it includes such progressive benefits as allowing IT staff to work at other university system locations for up to 20% of the work week. Designed to recruit and retain IT staff, this plan also includes competitive salaries (in comparison with the local market), salary bonuses, and tuition fee waivers for IT-based programs and classes. Likewise, in 1996, the California State University system-wide office implemented a compensation program for IT workers. Their plan includes new job classifications, a new job design model, and a new model for matching IT skills to performance and pay (Giunta, 1997).

Private industry has answered the IT staff shortage with aggressive recruitment strategies, including bonuses for employees who provide hiring leads, signing bonuses, and stock options. Other enticements that are less monetary in nature include telecommuting, flexible work hours, day care centers, and on-site health clubs (United States Department of Commerce, 1998). In general, private corporations that began aggressive recruiting and retention programs for IT staff several years ago have a decided advantage over academic institutions. Academic institutions must devise creative and aggressive strategies and incentives to recruit and retain valuable IT staff.

2. Telecommuting Programs and Recruiting and Retention of Information Technology Staff in the United States

Telecommuting can be a useful tool, particularly in the IT profession. Several articles have reported that telecommuting has been specifically helpful in recruiting (Aldoaijy, 1999; Dash, 1999; Olsen, 2000; Ouellette, 1998). Closely related to recruiting is retention. Offering telecommuting also has been cited many times in the literature as an effective retention tool, particularly for IT staff (Deck, 1999; Linkins, 1999; Olsen).

One of the many reasons why telecommuting is attractive in IT positions is that those jobs tend to lend themselves well to the telecommuting situation. Because an IT staff person spends a large portion of the day interacting with a computer, the location of that interaction decreases in importance. Belanger (1999) conducted a study with 168 employees in a technology firm and found the largest group of workers who were telecommuting held IT staff positions. Additionally, because IT workers are more conversant with technology, it is easier for them to navigate the information technology highway and connect to central computing services than it is for other personnel (Ruppel, 1995).

3. Purpose of Study

The purpose of this study was to explore telecommuting in institutions of higher education relative to recruitment and retention of IT staff. Three research questions guided the study which are as follows:

- What is the relationship between the perceived level of success in recruiting and retaining IT staff in the last 3 years and the existence of an adopted telecommuting program?
- What is the relationship between the perceived level of success in recruiting and retaining IT staff in the last 3 years and whether or not the institution has had budget cuts in the last 3 years?
- What is the relationship between the perceived level of success in recruiting and retaining IT staff in the last 3 years and the perceived success of the adopted telecommuting program?

4. Methodology

The research design employed for this study was descriptive. According to Issac and Michael (1995), the purpose of descriptive research is "to describe systematically the facts and characteristics of a given population or area of interest, factually and accurately" (p. 50 Gay and Airasian (2003) offered further definitions of descriptive research, one of which was survey research. They defined survey research as an attempt to collect data from members of a population in order to

determine the current status of that population with respect to one or more variables (p. 258).

4.1 Population and Sample

The population for this study were members of the College and University Professional Association for Human Resources (CUPA-HR) from 11 southern states. Founded 50 years ago, CUPA-HR is an international organization interested in the advancement of human resources in higher education (College and University Personnel Association, 2001). Membership in the states chosen for this study is totally 347. From those 347 members, a random sample of 181 was drawn. According to Gay and Airasian (2003), 181 is an appropriate sample size for a population of 347.

4.2 Instrumentation

A review of literature revealed that three instruments had been used on a limited basis to examine telecommuting on the organizational level. Those instruments were designed by Bernardino (1996), Goldberg (1993), and Ruppel (1995). Drawing on these instruments, particularly Bernardino's survey, the researchers developed the Higher Education Personnel Administrator QuestionnaireTelecommuting Programs, which was used in this study. The questionnaire measured responses on a five-point Likert-type scale: 5 (*strongly agree*), 4 (*agree*), 3 (*undecided*), 2 (*disagree*), and 1 (*strongly disagree*).

A pilot group of persons who were similar to the target population tested the questionnaire. Feedback from the pilot group was incorporated into the final version of the questionnaire that was sent to study participants.

4.3 Data Collection and Analysis

The medium of distribution for the questionnaire was the World Wide Web. In most cases, study participants were contacted via an email with the universal resource locator (URL) of the questionnaire in the body of the message. Participants for whom an email address could not be found were contacted through the postal service. Following the initial contact, the researchers sent three follow-up notifications to non-respondents. Responses were analyzed using descriptive statistics, *t*-tests, Spearman's Rho, and chi-square analysis.

Telecommuting program	*N*	Mean	Standard deviation	Std. error mean
Retention				
Non-adopters	88	3.69	0.95	.10
Adopters	8	3.63	1.19	.42
Recruiting				
Non-adopters	88	3.73	0.87	.09
Adopters	8	3.38	1.41	.50

Table 1. Means of Telecommuting-Recruiting and Retention Rates and Existence of Telecommuting Program

5. Findings

Out of a sample size of 181, there were 105 responses. After deleting three responses, as there were duplicate entries in the database, there were 102 valid responses. Only 12 respondents reported being at an institution that had adopted telecommuting.

5.1 Recruiting and Retaining IT Staff and Adoption of Telecommuting

The first research question examined the relationship between the perceived level of success in recruiting and retaining IT staff in the last 3 years and the existence of an adopted telecommuting program. For non-adopters, the average means for level of perceived success of recruiting and retention was 3.7 for recruiting and 3.6 for retention. For adopters, the means were 3.4 for recruiting and 3.6 for retention success. Data are presented in Table 1.

A *t*-test was used to analyze differences in the perceived success of recruiting and retention of IT staff between the groups. Adopters had more variability in the data; therefore, equal variances were not assumed. For the retention success test, the values were $t = .190$, $df = 94$ ($p = .850$). For the recruiting test, the values were $t = .696$, $df = 7.491$ ($p = .508$). Neither test detected significance difference. Data are presented in Table 2.

5.2 Recruiting and Retaining IT Staff and Budget Cuts

The study also examined the relationship between the perceived level of success in recruiting and retaining IT staff in the last 3 years and whether or not the institution has had budget cuts in the last 3 years. Respondents who had experienced budget cuts in the last 3 years were slightly less positive about the success of recruiting and retaining IT staff (means of 3.45 and 3.48) than were those

	Levene's test for equality of variances		Equality of means t-test		
	F	Sig.	t	df	Sig. (2-tailed)
Retention					
Equal variances assumed	1.078	.302	.190	94	.850
Equal variances not assumed			.158	7.838	.879
Recruiting					
Equal variances assumed	4.820	.031	1.038	94	.302
Equal variances not assumed			.696	7.491	.508

* $p < .05$

Table 2. Recruiting and Retention Between Adopters and Non-Adopters

who had not experienced budget cuts (means of 3.89 and 3.85). Data are reported in Table 3.

A *t*-test was run to compare the two groups (budget cuts and no budget cuts) to determine if a budget cut was significant. Both groups showed unequal variances for retention and recruiting perception of success. Data from the *t*-test revealed $t = 2.292$, $df = 75.832$, and $p = .025$ for recruiting $t = 1.876$, $df = 79.926$, and $p = .064$ for retention. While budget cuts had a significant negative effect on recruiting, budget cuts had no significant effect on perceived success of retention. Data are reported in Table 4.

5.3 Recruiting and Retaining IT Staff and Success of Telecommuting

The Spearman's Rho test for correlation was used to analyze data relative to the relationship between the perceived level of success in recruiting and retaining IT staff in the last 3 years and the perceived success of the adopted telecommuting program because of the small sample size ($n = 10$) and because the data were not normally distributed. The correlation coefficient between perceived retention success and existence of a telecommuting program was .362 ($p = .304$); for recruiting, the correlation coefficient was .533 ($p = .113$).

Budget cuts	n	Mean	Standard deviation	Std. Error mean
Retention				
No	54	3.85	0.88	.12
Yes	42	3.48	1.04	.16
Recruiting				
No	54	3.89	0.79	.11
Yes	42	3.45	1.02	.16

Table 3. Means of Recruiting and Retention and Budgets Cuts

	Levene's test for equality of variances		Equality of means t-test		
	F	Sig.	T	df	Sig. (2-tailed)
Retention					
Equal variances assumed	4.824	.031	1.917	94	.058
Equal variances not assumed			1.876	79.926	.064
Recruiting					
Equal variances assumed	8.494	.004	2.364	94	.020
Equal variances not assumed			2.292	75.832	.025

*$p<.05$

Table 4. Recruiting and Retention and Budget Cuts

The results did not indicate significance.

5.4 Post Hoc Data Analysis

In post hoc analysis, the present study indicated significance between type of institution and the occurrence of budget cuts in the last 3 years. A chi-square was executed to analyze the data. Significance was found between type of institution (public or private) and budget cuts ($p < .001$). Additional results were chi-square = 12.242 and $df = 1$. Data reported in Table 5 show the percentage of budget cuts by institution type. Whereas 58.1% of public institutions reported budget cuts, only 22.5% of private institutions reported budget cuts.

Discussion

It was not surprising that this study found that recruiting was negatively impacted by budget cuts, but retention was not. Budget cuts impact specific areas of an

	Budget cuts		
	No	Yes	Total
Private			
Count	31	9	40
% within type of institution	77.5%	22.5%	100.0%
% within budget cuts	54.4%	20.0%	39.2%
Adjusted residual	3.5	-3.5	
Public			
Count	26	36	62
% within type of institution	41.9%	58.1%	100.0%
% within budget cuts	45.6%	80.0%	60.8%
Adjusted residual	-3.5	3.5	
Total			
Count	57	45	102
% within type of institution	55.9%	44.1%	100.0%
% within budget cuts	100.0%	100.0%	100.0%

Table 5. Budget Cuts by Institution Type

organization. Recruiting, travel and training functions are the easiest and most common targets of cutbacks. Nearly one half of the reporting institutions had experienced budget cuts in the last 3 years. Post hoc analysis also revealed that a majority (58.1%) of public institutions had experienced budget cuts in the last 3 years.

Attempts to implement a new and somewhat unproven program could face a great deal of resistance, especially in a lean budget environment. The literature provided some insight into the frustration of universities with IT implementation (Davidow, 1996; Green, 2000; Green & Gilbert, 1995; Kolbulnicky, 1999). Since the current trend for universities is to see increasing amounts of a lean budget devoted to new technology, they could be reluctant to implement a program that is going to cost even more when they will not be able to easily determine its return on the investment.

Data analysis did not reveal a relationship (impact) between recruiting and retention success and the existence of a telecommuting program. This suggests that even though the groups tend to agree that they have been slightly successful in recruiting and retaining IT staff in the last 3 years, it is not strongly related to the existence of a telecommuting program. Only 2 of Goldberg's (1993) 54 respondents indicated that the telecommuting program had been used for recruitment or retention purposes (p. 217). Obviously, other factors are contributing to the success of recruitment and retention.

Literature reviewed for this study (Aldoaijy, 1999; Cole-Gomolski, 1998; Dash, 1999; Dash, 2000; Giunta, 1997; Linkins, 1999; Mateyaschuk, 1999; Olsen, 2000; York, 1999) revealed several factors impacting recruiting and retention, particularly of IT staff. They generally included quality of work life, opportunities to learn and advance, and work on interesting projects.

Success of the telecommuting programs was not shown to have a statistically significant impact on IT employees recruiting and retention rates. This was somewhat unexpected. However, it is not known what other benefits are currently offered by employers to make them more attractive to employees and potential employees. The literature revealed other perks being used in private industry to attract IT employees, including child day care, liberal vacation policies, and on-site health clubs.

Institutions of higher education certainly lag behind private industry in the adoption of telecommuting programs. Only 12 of 102 indicated that they had a formal policy in place. This finding was expected as it was supported in the review of literature and more specifically in Goldberg's (1993) study. Goldberg further stated that in many cases in his study, formal telecommuting had been approached only because of state or local government initiatives. Additionally, Goldberg stated that the unwieldiness of many university administrative processes makes changes difficult and reasoned that lack of competition was a disincentive to change. Complex decision-making processes, bureaucratic organizations, and diffusion of authority are found in higher education and could create an environment in which adoption of new programs would be difficult to implement, particularly university-wide.

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