

InFo
Vol. 11, No. 1
April 2008
pp. 33 - 50

FEATURE

Leadership Styles of Information Technology Administrators in Selected Philippine Adventist Educational Institutions

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***Abstract:** This study investigated the relationship between the Leadership Style of Information Technology (IT) administrators in selected Adventist colleges/universities in the Philippines, and the perception of the consumers about IT services. Significant differences were found in the perceptions of IT services when consumers were grouped by age, number of years in the institution, and level of education completed. Significant differences were found between the faculty, staff and students, with students indicating less favorable perceptions of IT services. Negative correlations were found between the attitude of consumers toward the IT department and the authoritative component of leadership, and a positive correlation was found between a laissez-faire style and attitudes of consumers toward the IT department.*

Information Technology (IT) departments are often perceived as being characterized by a lot of movement, speed, and the sense of never having enough time. But, are there differences between IT departments? Is there a way to differentiate between IT departments that produce better results and those that are always behind schedule? Between the best IT leaders and the mediocre ones? What are the factors that influence people's perceptions of IT services? Does leadership style influence their perception? Are there other factors?

According to Peter Drucker (as cited in "Leadership," n.d.), a leader is "someone who has followers" (para. 5). But this is just one part of leadership. Leadership can be defined as "influencing people--by providing purpose, direction and motivation--while operating to accomplish the mission and improving the organization" (Department of the Army, 1999, pp. 1-4). Good leaders should not only direct and motivate their people, the group should also

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accomplish its purpose in the organization. Additionally, leadership is a process that should help the organization to be “more cohesive and coherent” (Clark, 1997, para. 3).

Leadership cannot be described only in terms of the leader, however; the whole situation needs to be studied, including the group, the organization and the task. Leadership “is a complex interaction of traits, leader behavior, and group, task, and organizational characteristics” (Farris, 1988, p. 13). For this reason, it is better to think of leadership as a process, including the leader, the group, and the task itself within an organization (Clark, 1997).

Jesus defined superior leadership as being a servant leader. He said that “whoever wants to become great among you must be your servant, and whoever wants to be first must be your slave—just as the Son of Man did not come to be served, but to serve, and to give his life as a ransom for many” (Matthew 20:26-28, NIV). Jesus’ leadership was based on principles as love, compassion and serving others.

In an organization, the leaders, and the lives of all the employees should be centered on “certain ‘true north’ principles” (Covey, 2003, p. 18). “The world desperately needs new leadership role models, and Jesus has shown us the way to lead” (Blanchard & Hodges, 2005).

The US Army Leadership approach

The model of the US Army categorizes the leader on a continuum between two opposite positions, from *authoritative* leadership (sometimes called *autocratic*) on the one end, to *laissez-faire* leadership (also called *delegating* or *free reign*) on the other end. Between those extremes another leadership style can be identified: the *democratic* style (Department of the Army, 1999).

Good leaders can choose between the different styles, and apply them to different situations (Howard, 2005). Every leader has what Howard calls a “preferred leadership style” (p. 390), the one with which the leader feels most comfortable, and tends to apply most frequently. However, effective leaders know which style fits better in a given situation. “More successful leaders tend to use a wider range of approaches” (Pennington, 2003, p. 24). “Competent leaders mix elements . . . to match the place, task and people involved” (Department of the Army, 1999, pp. 3-15).

Research on IT and IT Leaders

Glen (2004) suggests that leaders in the IT area should be “able to cope with the chaos and confusion of reality” (p. 37). IT leaders also need good communication skills; “their ability to connect” (Glen, 2004, p. 37) with their

people is crucial to the performance of the team. Some planning abilities, managerial knowledge, and a holistic vision are also important for a successful leader of an IT department (Tagliavini, Moro, Ravarini, & Guimaraes, 2003). Other abilities especially needed for IT leaders include the capacity to learn and to change (Wallington, as cited in Bolton, 1997).

IT workers have been included in the group identified as *knowledge workers* (Drucker, 2001; Malhotra, 2002). Leading knowledge workers is different from leading traditional workers (Maccoby, 2006). Knowledge workers are not easy to manage. In fact, "to a large extent, knowledge workers can manage themselves". According to Davenport (as cited in Maccoby, 2006), "knowledge workers . . . work toward a goal . . . because they believe that it's right" (p. 61). "The most creative groups of knowledge workers," however, "have had exceptional leadership" (Maccoby, 2006, p. 60).

A lot of discussion has been generated because of the myriad approaches to IT management, such as whether or not it is seen as strategic, and therefore should be part of higher administration, or if it is more important that IT should be managed to accomplish the rest of the organization's plans (Ward & Peppard, 2002). A study by EDUCAUSE found that the distance between IT and top leadership makes a difference in effectiveness. Those Chief Information Officers' (CIO) that were part of the institution's highest committees had better interaction with senior management, and more impact on the organization (Katz et al., 2004).

There is little research specifically on leadership in the IT field in higher education. One study that involved more than 2,000 IT professionals (EDUCAUSE, 2003) tried to identify differences between IT departments in higher education. They found that IT leaders in higher education tend to have longer tenure than other IT workers. They generally earn more than in other IT jobs. They also found that "leadership style matters, and higher education's IT leaders have effective leadership styles" (Katz & Salaway, 2004, p. 2). But this study was based only on interviews on the IT leaders and the IT team, without asking the actual consumers their attitudes toward the services given by the IT department, and without considering the actual computer knowledge of the IT consumers who responded to the questions.

Users' Computer Knowledge

One important aspect of most studies relating to technology has to do with how much the respondents know about computers. Responses seem to vary based on how much users know, or how confident they feel about using computers ("Luddites in cyberspace," 2007). And their attitude toward the IT department varies with their IT knowledge (Di Carlo, 2008).

Self-efficacy was originally defined by Bangura (1994) as “people’s belief about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives” (Summary section, para. 1). This concept of self-efficacy can also be applied to the computer field. Computer self-efficacy (CSE) refers to “a judgment of one’s capability to use a computer” (Compeau, 1995, p. 192). Higher levels of CSE mean that the individual is likely to put forth higher effort toward developing a specific skill (Sam, Othman, & Nordin, 2005), as they believe that their effort will yield good results. For this reason, this present study includes a measure on CSE along with measuring perception of leadership style.

Methods

The objective of this descriptive study was to investigate the relationship between leadership style, organizational structure, and selected demographic variables of the IT leaders and the consumers of IT (people in the institutions who use IT), and the perception of the IT consumers regarding the services offered by the IT sector (see Figure 1).

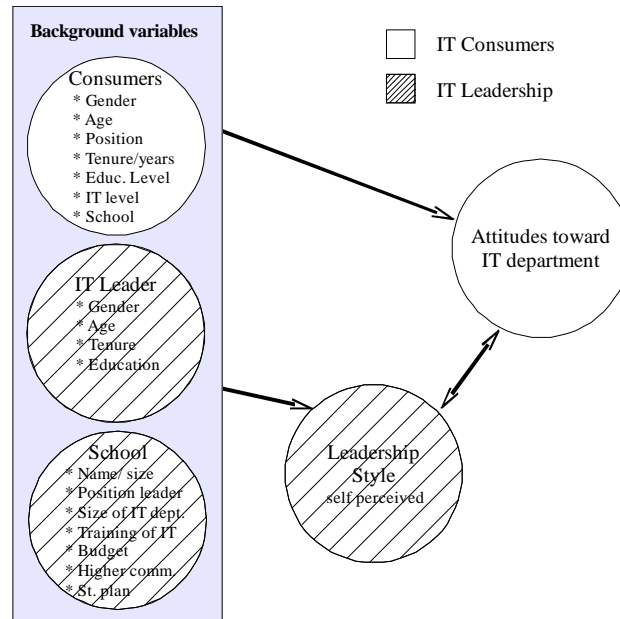


Figure 1. Relationship among background variables, leadership styles and attitudes toward IT department.

The questionnaire given to IT leaders measured the demographic variables of the IT leaders, self perceptions of their leadership styles, and institutional variables. Leadership style was analyzed measuring the three components of leadership style: authoritative, democratic and laissez-faire (Department of the Army, 1999).

A separate questionnaire measured selected demographic variables of IT consumers, as well as their computer self efficacy (CSE). It also measured their attitude toward the IT services provided in their institution.

Data was collected from eight Seventh-day Adventist colleges and universities in the Philippines. The sample consisted of IT leaders (n = 8), faculty (n = 149), staff (n = 116) and students (n = 403). The Cronbach's alpha value to assess the reliability of the questionnaire that measured CSE was 0.9160. The data was analyzed using the GNU R statistical analysis software.

Findings

The IT leaders in this study were predominantly men (6 men, 2 women). Only one leader was over 40 years old. The majority of them (87.5%) had been in the institution more than five years. Almost all IT leaders in the selected institutions showed a tenure in their jobs higher than the average tenure of IT workers (The tenure of IT workers is between 12 and 24 months according to Bass, as cited in Gaskin, 2000). Half of the leaders held a college diploma, and half a master's degree.

All the IT leaders characterized themselves as having a primarily democratic leadership style. Some said they were authoritative as a second option; and others, laissez-faire as their second option (see Table 1).

The organizational settings in the different schools varied. The schools were of different sizes, from about 300, to more than 3,600 students. The title of the IT leader was different in each school (e.g. MIS Supervisor, Chief technology Officer, IT Center Sysadmin, IT Director). The IT leader reported to different authorities: some to the VP for Finance, and some to academic authorities. One leader reported directly to the president of the institution. The size of the IT office was generally small, with fewer than five employees in the majority of the cases (87.5%). The percentage of budget used on training was small in most cases, accounting for less than 2% of the budget in six (75%) of the institutions. Only two IT leaders were part of the highest institutional committee, and only three answered that they had a published institutional strategic plan for the IT program.

Table 1
Leadership Style of IT Leaders by School

Leader of School	Authoritative		Democratic		Laissez-faire	
	Value *	% **	Value *	% **	Value *	% **
Leader 1	39	33.9	39	33.9	37	32.2
Leader 2	29	29.3	40	40.4	30	30.3
Leader 3	31	31.6	36	36.7	31	31.6
Leader 4	39	33.1	41	34.7	38	32.2
Leader 5	24	24.5	44	44.9	30	30.6
Leader 6	31	25.4	48	39.3	43	35.2
Leader 7	39	30.2	50	38.8	40	31.0
Leader 8	30	29.4	40	39.2	32	31.4

Note. * Value = from 10 points (all 10 answers strongly disagree) to 50 points (all 10 answers strongly agree).** % per leader of each component

Computer Literacy of Consumers

The computer literacy of the consumers of IT services was assessed using a computer self-efficacy (CSE) instrument, filled in by the consumers. The possible score ranged from 30 to 150 points, but in the study no one scored below 45 points. The population was normally distributed (see Figure 2). Faculty and staff scored higher than students on CSE. The CSE score does not include only computer usage, but also computer anxiety and Internet attitude. This can explain why faculty and staff scored higher--that means better skilled to use a computer than students who are younger and generally more comfortable using computers. Older people tend to have higher self efficacy and feel better about their own ability to resolve problems related to computers, and they usually have more experience in their use.

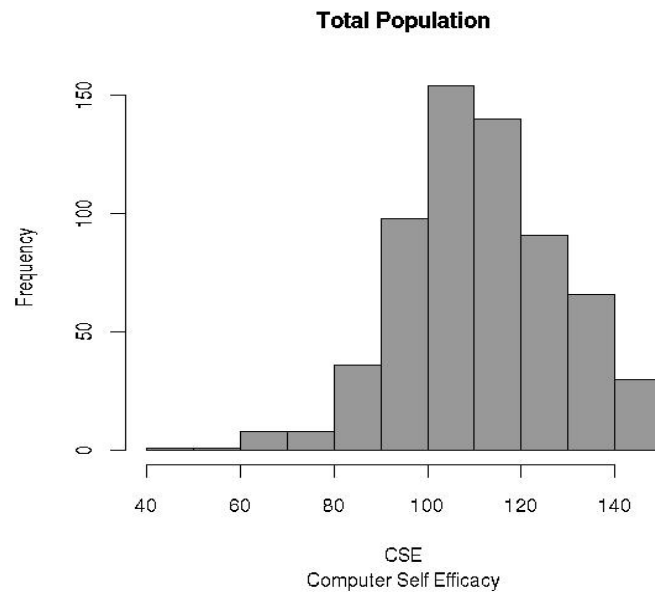


Figure 2. Distribution of IT consumers according to computer self-efficacy score.

The whole population was split into five groups (see Figure 3), to fit the Rogers model of diffusion of innovations (Rogers, 1995), obtaining CSE scores for each level. Then different samples of the consumers of IT were selected, and classified in for the different levels of Rogers' model according to their CSE score. In different schools, the different sectors were found to be of different sizes (laggards, late majority, early majority, early adopters and innovators).

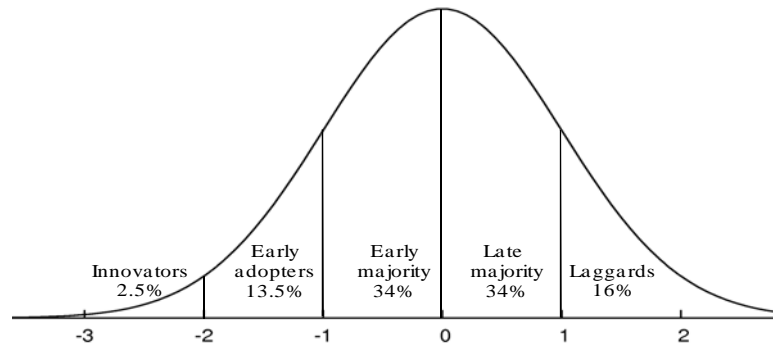


Figure 3. Everett Rogers' diffusion of innovations.

When divided by position, faculty and staff were found to have higher percentage of innovators and early adopters than the students (see Table 2). This suggests that faculty and staff feel more confident about using technology, or that they have earlier access to new computer innovations, or at least more experience using computers and technology.

Table 2
Innovation Level by Position

Level	Faculty		Staff		Student	
Innovators	8	5.7%	4	3.8%	5	1.3%
Early adopters	27	19.1%	26	23.8%	36	9.3%
Early majority	49	34.8%	39	37.1%	135	34.9%
Late majority	46	32.6%	25	3.8%	140	36.2%
Laggards	11	7.8%	11	10.5%	71	18.3%
Total	141	100.0%	105	100.0%	387	100.0%

Table 3 shows the distribution of CSE, divided according to age range, using the diffusion of innovations categories. The highest percentage of
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innovators was found in the 31-40 age range (6.9%), but CSE decreased on both sides of this age range (6.0% for ages 41-50, 2.0% for ages 21-30). The highest percentage of laggards was found with the age group of more than 50 years old (20.5%), and the second highest percentage was in the age group of 20 years old or less (18.6%, mostly students). The age group from 21-30 years old was found to have the highest combined percentage of innovators, early adopters and early majority (65.7%--according to Rogers, this should be 50%). This seems to indicate that the age group 21-30 years old has better computer skills as indicated by the CSE score.

Consumer Attitudes

The attitude of the different groups of consumers was studied, taking into account their demographic characteristics. Attitude was measured using ten statements with a Likert-type scale from strongly agree to strongly disagree. Significant differences were found when consumers were grouped according to age (see Table 4) with better attitudes (higher scores) for those from 41-50 years old. It is important to note that this age group from 41-50 was not the one with the highest CSE, which seems to show that higher computer skill is not necessarily related to better attitudes toward the IT department.

Table 3
Innovation Level by Age Range

Level \ Age	<20		21-30		31-40		41-50		>50		Total
Innovators	4	1.4%	3	2.0%	6	6.9%	4	6.0%	0	0.0%	17
Early adopters	30	10.5%	25	16.7%	18	20.7%	12	17.9%	5	11.4%	90
Early majority	97	34.0%	58	38.7%	29	33.3%	22	32.8%	16	36.4%	222
Late majority	101	35.4%	45	30.0%	28	32.2%	23	34.3%	14	31.8%	211
Laggards	53	18.6%	19	12.7%	6	6.9%	6	9.0%	9	20.5%	93
Total	285	100%	150	100%	87	100%	67	100%	44	100%	633

Table 4
Attitude of Consumers Grouped by Age

Variable	<i>n</i>	Mean	<i>SD</i>	<i>F</i> ratio	<i>P</i> value
Age				5.08	< .001
<= 20 years	285	30.82 ^a	5.95		
21-30 years	149	31.74 ^a	5.71		
31-40 years	87	32.52	6.16		
41-50 years	67	34.22 ^b	6.42		
> 50 years	44	31.30	5.08		

Note. Tukey's honestly significant difference comparison ($p < .05$): b is significantly different from a.

The attitude of the consumers also varied significantly with position (see Table 5). The scores of faculty and staff were similar, but students had significantly more negative attitudes toward the IT department.

Significant differences were found when attitude was compared with the years of service/study at the institution, with the ones who had stayed between 11 and 20 years having a better attitude toward the IT department than those having less than six years of service (see Table 6). Faculty and staff (that composed most of this population) seemed to be more understanding and have a better attitude toward the IT department.

Significant differences were also found when consumers were grouped according to educational level, with those that held only high school diploma having significantly less positive attitudes than those holding college or masters degree (see Table 6).

Attitude toward the IT department was different when consumers were grouped according to CSE, with laggards scoring significantly lower than all the other groups (see Table 6). This seems to show that consumers with lower IT skills tend to have a worse attitude toward the IT department, perhaps because they do not understand the technology or because they do not have too much interaction with it. In any case, their opinion falls within the neutral to negative range.

Table 5
Attitude of Consumers Grouped by Position

Variable	<i>n</i>	Mean*	SD	<i>F</i> ratio	Sig. value
Position				9.37	< .001
Faculty	141	32.39 ^a	6.45		
Staff	105	33.50 ^a	5.76		
Student	387	30.89 ^b	5.75		

Note. Means in the same column that do not share superscripts differ at $p < .05$ in the Tukey's honestly significant difference comparison.

Table 6
Attitude of Consumers toward the IT department

Variable	<i>n</i>	Mean *	SD	<i>F</i> ratio	Sig. value
Service/Study years				4.23	.002
<= 1 year	190	31.47 ^a	5.72		
>1-5 years	261	30.88 ^a	6.05		
6-10 years	62	32.47	6.14		
11-20 years	59	34.22 ^b	5.89		
>20 years	57	31.93	5.90		
Formal education				8.95	< .001
High school	241	30.13 ^d	6.02		
College	287	32.47 ^e	5.46		
Master	88	33.05 ^e	6.84		
Doctorate	17	32.35	5.43		

(table continues)

Table 6 (continued)
Attitude of Consumers toward the IT department

Variable	<i>n</i>	Mean *	SD	<i>F</i> ratio	Sig. value
CSE				9.55	< .001
1. laggards	94	28.69 ^g	5.21		
2. late majority	212	31.27 ^h	5.12		
3. early adopters	89	32.27 ^h	7.46		
4. innovators	17	33.88 ^h	6.57		
5. early majority	221	32.87 ⁱ	5.94		

Note. Tukey's honestly significant difference comparisons ($p < .05$): mean b sig. diff. from a; mean d sig. diff. than e; mean g sig. diff. from h and i mean h sig. diff. from i.

Relationship between leadership style and attitude toward IT department

Multiple correlation was computed at $R^2 = 0.038$, showing a significant ($p < .05$) linear correlation between the components of the leadership style, and the attitude of the consumers. This indicates that 3.8% of the variance in attitude of the consumers is accounted for by the leadership style of IT leader. Significant β coefficients indicate a fairly strong negative influence (-0.29) of authoritarian style and a weaker positive influence of the laissez-faire component (0.20) of consumers toward the IT department (see Table 7). Additional research should be done to see if the introduction of additional variables or a broader study might produce higher predictive values for the model.

Table 7
*Coefficients in the Multiple Regression Linear Model for Relationship
 Between Leadership Style and Attitude of Clients*

Variable	B	β	t value	p values
(Intercept)	40.28		14.42	< .001
Authoritative	-0.34	-.29	-4.68	< .001
Democratic	-0.17	-.12	-1.96	.051
Laissez-faire	0.28	.20	2.55	.010

Conclusions

Some recommendations for the institutions involved in this study are as follows: training in leadership can be beneficial for the IT leader and the institution. Inclusion of the IT leader in higher education matters and on the president's higher committees was found to increase the attitude of the IT consumers, and is something that is recommended to the selected institutions as a way of increasing both attitudes and effectiveness. Since it was found that higher computer self efficacy (CSE) was related with better attitude toward the IT department, training in computer literacy is something that needs to be addressed in all the institutions.

In the selected institutions no common organizational structure or direction was found regarding how the IT setting is organized, who the department depends from, allocation of budget for IT and budget used for IT training, or for the inclusion of the IT leader in the highest institutional committees (for a discussion on this last point, see EDUCAUSE, 2006; Katz et al., 2004; Ward & Peppard, 2002). Given the complex and diverse nature of the IT departments in this study, it is recommended that the Southern Asia-Pacific Division (the organization that is over the institutions) organize periodic training sessions and meetings leveraging shared experiences and common knowledge within and across these institutions, in order to facilitate the discussion of these and other similar issues.

Even though it was found that there is a relationship between leadership style and attitude of the client, the present study has a low predictive value (only 3.8%). In order to increase this, a larger sample needs to be drawn, including

more institutions, and improving the instruments. The self perception of leadership style instrument, for example, could be supported by an instrument to see the leadership style as perceived by the employees of the IT leader, and also the faculty and staff of the institution. Further studies could also be conducted on leadership style of IT leaders and the perception of the consumers in the whole SSD, including other countries, or even in different parts of the world.

In conclusion, there was little predictive value expected from a sample of only eight institutional IT directors. Because of the complexity of the concept of leadership and of the IT field, the predictive validity may always remain low. The opportunity to compare IT administrative structures across institutions, and to begin looking at user satisfaction and how this varies with the age and ability of the users has opened up a whole new set of questions begging for answers. Is there an ideal administrative structure for an IT department? Are some structures more effective? Do some structures produce better user satisfaction? Or is this more related to leadership, funding, or age and ability? These preliminary results tell us much, but there is still much more to learn.

References

- Bangura, A. (1994). *Self efficacy*. Retrieved from <http://www.des.emory.edu/mfp/BanEncy.html>
- Blanchard, K. & Hodges, P. (2005). *Lead like Jesus*. TN: Thomas Nelson.
- Bolton, B. (1997). More than ever, IS needs leaders. *Computerworld Leadership Series*, 31(20), 2-11. Retrieved from ABI/INFORM Global database.
- Buchanan, L. (2007). In praise of selflessness: Why the best leaders are servants. *Inc. Magazine* 29(5). Retrieved from ABI/INFORM Global database.
- Clark, D. (1997). *Concepts of leadership*. Retrieved May 23, 2006 from <http://www.nwlink.com/~donclark/leader/leadcon.html>
- Compeau, D. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS quarterly* 19(2), 189-211.
- Computer literacy. (2007). In *Oxford pocket dictionary*. Retrieved January 10, 2007 from <http://www.encyclopedia.com/doc/1O999-computerliterate.html>
- Covey, S. (2003). *Principle-centered leadership*. New York: Free Press.
- Department of the Army (1999). *Army leadership*. Retrieved from https://atiam.train.army.mil/soldierPortal/atia/adlsc/view/public/9502-1/fm/22-1_00/fm22_100.pdf
- Di Carlo, L. (2008). The 5 users from hell. *Computerworld*, 42(6), 30-31. Retrieved from ABI/INFORM Global database.
- Drucker, P. (2001). *The essential Drucker*. New York: HarperCollins.
- EDUCAUSE. (2003). IT leadership in higher education survey questionnaire. *EDUCAUSE Center for Applied Research*. Retrieved from http://www.educause.edu/ir/library/pdf/ecar_so/ers/ERS0401/esi0401.pdf
- EDUCAUSE. (2006). EDUCAUSE core data service fiscal year 2006 report. IT organization, staffing and planning. Retrieved from <http://www.educause.edu/ir/library/pdf/pub8004c.pdf>
- Farris, G. (1988). Technical leadership: Much discussed but little understood. *Research Technology Management*, 31(2), 12-16. Retrieved from ABI/INFORM Global database.
- Gaskin, J. (2000). Train workers to retain them. *Inter@ctive week* 7(27), 94. Retrieved from Academic Search Premier database.

- Glen, P. (2004). Selecting new IT leaders. *Computerworld* 38(14), 37. Retrieved from Academic Search Premier database.
- Greenleaf, R. (2005). *Who is the servant leader?* Retrieved September 27, 2007 from <http://www.executivewomen.org/pdf/GIN118%207rgrnlfwho.pdf>
- Howard, W. C. (2005). Leadership: Four styles. *Education*, 126(2), 384-391. Retrieved from Academic Search Premier database.
- Katz, R., Kvavik, R., Penrod, J., Pirani, J., Nelson, M., & Salaway, G. (2004). *Information technology leadership in higher education: The condition of the community*. Volume 1, 2004 . Educause Center for Applied Research. Retrieved March 24, 2008 from <http://www.educause.edu/ir/library/pdf/ers0401/rs/ers0401w.pdf>
- Katz, R., & Salaway, G. (2004). Information technology leadership in higher education: The condition of the community. Key findings. *EDUCAUSE Center for Applied Research*. Retrieved from http://www.educause.edu/ir/library/pdf/ecar_so/ers/ERS0401/ekf0401.pdf
- Kippenberger, T. (2002). *Leadership Styles*. London: Capstone Publishing.
- Leadership. (n.d.). Our definition of leadership. *Christian Leadership World*. Retrieved May 17, 2006 from <http://www.teal.org.uk/Leadership/definition.htm>
- Luddites in cyberspace Tech.view. (2007). *Economist.com/Global Agenda*,1. Retrieved from ABI/INFORM Global database.
- Maccoby, M. (2006). Is there a best way to lead scientists and engineers? *Research Technology Management*, 49(1), 60-61. Retrieved from ABI/INFORM Global database. doi: 971601291
- Malhotra, Y. (2002). *Knowledge roles: The CKO and beyond*. Retrieved May 21, 2006 from Knowledge Management Network: <http://www.kmnetwork.com/CBK/WorkingKnowledge6.pdf>
- Pennington, J. (2003). Further lessons in leadership. *Management in Education*, 17(2), 24-28. Retrieved from Academic Search Premier.
- Rogers, E. (1995). *Diffusion of innovations*. NY: The Free Press.
- Sam, H., Othman, A., & Nordin, Z. (2005). Computer self-efficacy, computer anxiety, and attitudes toward the internet: A study among undergraduates in Unimas. *Educational Technology & Society*, 8(4), 205-219.

- Tagliavini, M., Moro, J., Ravarini, A., & Guimaraes, T. (2003). Shaping CIO's competencies and activities to improve company performance: An empirical study. *European Conference on Information Systems (ECIS) 2003*. Available from <http://csrc.lse.ac.uk/asp/aspecis/20030127.pdf>
- Ward, J., & Peppard, J. (2002). *Strategic planning for information systems*. New York: John Wiley & Sons.

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