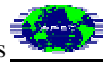


**THE IMPACT OF INFORMATION TECHNOLOGY ON CAREER
STRATEGIES AND CAREER DEVELOPMENT ACTIVITIES OF
YOUNG KNOWLEDGE WORKERS**

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ABSTRACT

The aim of this paper is to measure the impact of information technologies (IT) on the career strategies and career development activities of young knowledge workers in technology-driven organizations. These activities as reported by Burke, Divinagracia and Mamo (1998) include orientation, career development program, technical training, management development, certification program, advanced management program, coaching from peers, key project assignments, mentoring, sponsoring, networking, and career pathing.

Information was obtained from young knowledge workers at the Los Banos Science Community (LBSC) in the Philippines. The LBSC is host to numerous food, engineering, and biological-related technology-driven organizations.

The young knowledge workers, who served as respondents in this study, are highly educated and are satisfied with the progress that they are achieving in their careers and jobs. Most of them anticipate an upward movement in the managerial hierarchy of their respective organizations because of their performance and merits. The respondents gave a high rating on the usefulness of the career development activities that they participated in. They likewise perceive a higher level of usefulness in the career development activities that they will participate in the future. These include, among others, increased participation in management development and its related programs; and networking.

In the next five years, the career strategies of the young knowledge workers are aimed at obtaining a broad-based work experience in their present work environment; and using a network of contacts inside and outside their respective organizations to obtain useful information. The engagement of these future career strategies are driven by the strategies that the young knowledge workers have pursued within the past year, and the information technologies that are currently employing in their jobs.

The information technologies, career development activities, and career strategies of the young knowledge workers are intertwined with their work environment and movement in their organizations. In preparation for their upward movement, the respondents' career strategies were aimed at acquiring broad-based work experience and the pursuit of management development-related career development activities. With lesser dependence on immediate subordinates in their work stations, the future career strategies of the young knowledge workers will also be directed at using a network of contacts within and outside the organization, and the application of internal and external networking in their career development activities. The envisioned increased usage of information technologies that are related to networking are essential and necessary to enable the young knowledge workers to cope up with their growing work-related and home-related tasks.



BACKGROUND AND RELEVANCE OF THE STUDY

The rapid change in information technology during the past decade is a major force in reshaping the practice of human resource management in the SMEs and other organizations of the future. Information technology and advances in telecommunications have given birth to the future workplace- the virtual enterprise. Using technology, Schellenburg (1994) and Geber (1995) had mentioned that virtual project teams of individuals having the best brains could be formed regardless of geographic location. Greiner and Metes (1995) further stated that virtual work tasks are designed around "electronic information access rather than sequential flow." This means that virtual operations will be characterized by parallel work that is performed by dispersed human resources. People in the virtual workplace will see their work develop and evolve, and contribute to it as appropriate. Moreover, Handy (1997) had characterized the enterprises of the future as "boxes of contracts." Drucker (1997) further described them as networks of lean organizations with shared goals but no long-term relationships.

As the organizations of the future become flatter with hierarchical structures replaced by ad-hoc teams, traditional career paths will disappear. Thus, the challenge is to provide career development programs that will generate meaningful work experiences for the employee (Hendrick, 1989); in a problem-solving environment (Miller, 1997), and a comprehensive orientation program that can speed up organizational culture learning where "teamwork and partnership are the dominant modalities" (Smith & Kelly, 1997).

The aim of this paper is to measure the impact of information technologies (IT) on the career strategies and career development activities of young knowledge workers in technology-driven organizations. These activities as reported by Burke, Divinagracia and Mamo (1998) include orientation, career development program, technical training, management development, certification program, advanced management program, coaching from peers, key project assignments, mentoring, sponsoring, networking, and career pathing.

RESEARCH METHOD

Information was obtained from young knowledge workers at the Los Banos Science Community (LBSC) in the Philippines. The LBSC is host to numerous food, engineering, and biological-related technology-driven organizations.

Pre-tested questionnaires adopted from the research work of Burke, Divinagracia, and Mamo (1998) were used. Quota sampling was used to determine the technology-driven organizations selected for the study. Thereafter, a set of selection criteria was applied to generate the list of respondents interviewed from the sampled organizations.

The measures for career and job success were adopted from measurement scales developed by Quinn and Shepard (1974), Burke (1991), Greenhaus et.al. (1990), and Lodahl and Kejner (1965). The measures for participation in career development

activities were adopted from those formulated by Greenhaus et. al. (1990) and Burke and McKeen (1994). The rest of the measures were adopted from Burke, Divinagracia, and Mamo (1998).

RESULTS AND DISCUSSION

Demographic Characteristics of the Respondents

The demographic characteristics of the respondents are shown in Table 1. Out of the targeted 120 respondents, there were 42 young knowledge workers (or a response rate of about 33%) who participated in this study. More than half of them was below 37 years old. The respondents were predominately female, married, and had completed college.

More than half of them were earning less than P15,000.00 per month (US\$400), have children but without household help. These respondents do not have a professional designation, and worked more than 40 hours on a 5-day week without the benefit of having an immediate subordinate.

The respondents were mostly occupying middle management level positions. About half of them expect to move up the organizational ladder.

Levels of Career and Job Satisfaction

Table 2 shows that the respondents have expressed a favorable level of satisfaction with the success that they had achieved in their career; and the progress that they had made in meeting overall career goals as well as goals for advancement.

The respondents somewhat expect to advance as far as their abilities permit. They perceive that promotion in their respective organizations is based on merit and achievement.

They are also, to a certain extent, personally involved in their work. Although the respondents had occasionally thought of leaving their jobs, they are still willing to stay with their present employers even if they will be given the opportunity to go to any job that they wanted.

Career Strategies

The respondents tend to engage the following career strategies (Table 3) more frequently in their respective organizations within the past year:

1. worked harder when they knew that their superiors would see the results;
2. obtained a broad-based work experience in the organization; and
3. used a network of contacts within and outside the organization to obtain useful information

Although their career strategies are not expected to change significantly in the future, the respondents will increasingly engage the second strategy over the first one.



Career Development Activities

Tables 4a and 4b show that the respondents mostly participated in the following career development activities: technical training; key project assignments; mentoring; career development programs, orientation; and coaching from peers. The respondents found these career development activities useful in helping them achieve their career goals.

The following career development activities were also rated useful: management development; career pathing; external networking; and internal networking. The respondents, relative to the former activities, did not as popularly participate in these activities.

In the future, more respondents are expected to participate in the following career development activities, management development; certification program; advance management program; career pathing; external networking; internal networking; and sponsoring.

Use of Information Technologies

Within the past year, the respondents in their work frequently used information technologies such as the Internet, the personal computer, and the telephone. The electronic pager was least utilized (Table 5a).

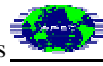
In the next five years (Table 5b), the respondents expressed higher levels of utilization of each of the different information technologies are available in their respective organizations. Other than the Internet and the telephone, the respondents perceive a significant increase in the usage of personal computers that are linked through a network (e.g. Intranet) from among themselves; and their partner organizations and clients.

Relationship of Information Technology Utilization, Career Strategies, and Career Development Activities

Stepwise regression was applied to determine the possible relationship among current and future information technology utilization, career strategies, and career development activities.

Results showed (Table 6) that there is a highly significant positive relationship between current career strategies (as a dependent variable); and the usefulness of the career development activities that the respondents participated in (as a predictor variable). This means that the usefulness of such activities to the young knowledge workers would tend to positively influence their frequency of engaging a particular set of career strategies.

Moreover, a highly significant relationship was also observed with the career strategies that will be pursued in the future (as a dependent variable), and the career strategies currently pursued as well as the information technologies presently utilized by



the respondents in their work environment (as predictor variables). This relationship implies the likely impact of information technologies on future career strategies.

Lessons Learned

The young knowledge workers, who served as respondents in this study, are highly educated and are satisfied with the progress that they are achieving in their careers and jobs. Most of them anticipate an upward movement in the managerial hierarchy of their respective organizations because of their performance and merits.

In the performance of their tasks, most of the young knowledge workers either have a very limited number of immediate subordinates or none at all. They worked more than 40 hours in a 5-day workweek while attending to the needs of their families and growing children sans nannies and household help.

The respondents gave a high rating on the usefulness of the career development activities that they participated in. They likewise perceive a higher level of usefulness in the career development activities that they will participate in the future. These include, among others, increased participation in management development and its related programs; and networking.

In the next five years, the career strategies of the young knowledge workers are aimed at obtaining a broad-based work experience in their present work environment; and using a network of contacts inside and outside their respective organizations to obtain useful information. The engagement of these future career strategies are driven by the strategies that the young knowledge workers have pursued within the past year, and the information technologies that are currently employing in their jobs.

The information technologies, career development activities, and career strategies of the young knowledge workers are intertwined with their work environment and movement in their organizations. These are illustrated by the following:

1. In preparation for their upward movement, their career strategies are aimed at acquiring broad-based work experience and the pursuit of management development-related career development activities.
2. With lesser dependence on immediate subordinates in their work stations, the future career strategies of the young knowledge workers will also be directed at using a network of contacts within and outside the organization, and the application of internal and external networking in their career development activities.
3. The envisioned increased usage of information technologies that are related to networking are essential and necessary to enable the young knowledge workers to cope up with their growing work-related and home-related tasks.



REFERENCES

- Burke, R., L.A. Divinagracia and E. Mamo. 1998. "Training & Development Activities and Career Success Among Filipino Managerial Women," *Career Development International* (3/6):260-265.
- Burke, R. 1991. "Early Work and Career Experiences of Female and Male Managers and Professionals: Reasons for Optimism?," *Canadian Journal of Administrative Sciences*.
- Burke, R. and C.A. McKeen. 1994. "Training and Development Activities and Career Success of Managerial and Professional Women," *Journal of Management Development* (13):69-79.
- Drucker, P. 1997. "Toward the New Organization," In *the Organization of the Future*, edited by Hesselbein, Goldsmith and Beckhart. New York: Jossey-Bass. pp. 1-8.
- Geber, B. 1995. "The Virtual Teams," *Training* (April):36-40.
- Greenhaus, J.H., S. Parasuraman, and W. Wormley. 1990. "Organizational Experiences and Career Success of Black and White Managers," *Academy of Management Journal* (33):64-86.
- Handy, C. 1997. "Unimagined Futures," In *the Organization of the Future*, edited by Hesselbein, Goldsmith and Beckhart. New York: Jossey-Bass. pp. 377-383.
- Hendrick, D.W. 1989. *Industrial Management Journal* (Aug-Sept):9-12.
- Lodahl, T. and M. Kejner. 1965. "The Definition and Measurement of Job Involvement," *Journal of Applied Psychology* (49):24-33.
- Miller, D. 1997. "The Future Organization: A Chameleon in All Its Glory," In *the Organization of the Future*, edited by Hesselbein, Goldsmith and Beckhart. New York: Jossey-Bass. pp. 119-126.
- Quinn, R.P. and L.J. Shepard. 1974. *The 1972-73 Quality of Employment Survey*. Institute for Social Research, University of Michigan, Ann Arbor, Michigan.
- Schellenberg, R. 1994. "Telecommuting At BC Systems," Paper read at Telecommute '94, October 26, San Francisco.
- Smith, A.F. and T. Kelly. 1997. In *the Organization of the Future*, edited by Hesselbein, Goldsmith and Beckhart. New York: Jossey-Bass. pp. 199-212.

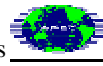


Table 1.
Demographic Characteristics

	N	%
Age		
20-23	1	2.38
24-27	8	14.28
28-31	8	14.29
32-36	9	21.43
37-40	20	47.62
Gender		
Female	24	57.14
Male	18	42.86
Marital Status		
Single, never married	12	28.57
Married	30	71.43
Education		
College undergraduate	2	4.76
Completed college	18	42.86
Some master's	4	9.52
Completed master's	9	21.43
Some doctorate	7	16.67
Completed doctorate	2	4.75
Monthly Gross Income (PhP)		
Below 10,000	5	11.90
10,000-14,999	22	52.38
15,000-19,999	11	26.19
20,000-24,999	2	4.75
35,000 and over	2	4.75
Children		
No	16	38.10
Yes	26	61.90
Household Help		
No	27	64.29
Yes	15	35.71

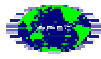


Table 1 (continuation).
Demographic Characteristics

	N	%
Professional Designation		
No	32	76.19
Yes	10	23.81
Hours Worked per Week		
36 to 40	11	26.19
41 to 45	14	33.33
46 to 50	7	16.67
51 to 55	3	7.14
56 to 60	3	7.14
More than 60	4	9.52
Immediate Subordinates		
More than 10	1	2.38
7 to 9	0	0
4 to 6	4	9.52
1 to 3	15	35.71
None	22	52.38
Current Level in the Organization		
Senior Management level	1	2.38
Middle Management level	20	47.62
Lower Management level	14	33.33
Lowest Management level	7	16.67
Perceived Level in the Organization in the Next Five Years		
Senior Management level	12	28.57
Middle Management level	21	50.00
Lower Management level	7	18.67
Lowest Management level	2	4.76

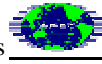


Table 2
Indicators of Career and Job Satisfaction

	Average Rating
Career Satisfaction	3.76
Career Prospects	3.52
Job Involvement	3.72
Job Satisfaction	3.23
Intention to Quit	2.21

The average response represents the respondents' agreement/disagreement with statements that measure the level of career and job satisfaction. A value of 5 would mean, among others, that the respondent strongly agrees with the statement that he/she is satisfied with his/her career/ job success. An extreme value of 1 would mean that he/she strongly disagrees with the statement on being able to attain career/ job success. The reverse would apply for the last measure, "Intention to Quit."



Table 3a
Career Strategies Engaged Within the Past Year

	Average Rating
Career Strategy 1 Worked harder when you knew your superiors would see the results.	3.14
Career Strategy 2 Used a network of contacts within the organization to obtain useful information.	2.89
Career Strategy 3 Obtained a broad-based work experience within the organization.	2.91
Career Strategy 4 Used a network of contacts outside the organization to obtain useful information.	2.73
Career Strategy 5 Made your boss aware of the assignments you want.	2.18
Career Strategy 6 Sought career guidance from experienced persons within the organization.	2.38
Career Strategy 7 Sought career guidance from experienced persons outside the organization.	2.17

A value of 4 would mean “Always” (100% of the time); a value of 3 would be associated with “Frequent” (71% to 99% of the time); the value of 2 with “Occasional”(45% to 70% of the time); and the value of 1 to “Never” (less than 45% of the time)

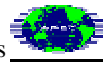


Table 3b
Career Strategies That Will Be Engaged in the Next 5 Years

	Average Rating
Career Strategy 1 Worked harder when you knew your superiors would see the results.	3.20
Career Strategy 2 Used a network of contacts within the organization to obtain useful information.	3.10
Career Strategy 3 Obtained a broad-based work experience within the organization.	3.34
Career Strategy 4 Used a network of contacts outside the organization to obtain useful information.	3.11
Career Strategy 5 Made your boss aware of the assignments you want.	2.79
Career Strategy 6 Sought career guidance from experienced persons within the organization.	2.78
Career Strategy 7 Sought career guidance from experienced persons outside the organization.	2.42

A value of 4 would mean “Always” (100% of the time); a value of 3 would be associated with “Frequent” (71% to 99% of the time); the value of 2 with “Occasional”(45% to 70% of the time); and the value of 1 to “Never” (less than 45% of the time)



Table 4a.
Indicators of Participation In Career Development Activities
and Level of Usefulness

Career Development Activity	Number Participating		Usefulness	
	No.	%	Ave.	SD
ORIENTATION: Program to brief new employees on rules and regulations; policies; procedures; and benefits.	27	64.29	4.73	0.45
CAREER DEVELOPMENT PROGRAM: Classes and/or seminars to help develop a greater awareness of interests; values and career goals; develop career decision-making skills and learn about different career opportunities.	28	61.90	4.68	0.47
TECHNICAL TRAINING: Programs designed to teach specific job-related information and skills (e.g. programming, budgeting, operations research, etc.)	32	76.19	4.90	0.40
MANAGEMENT DEVELOPMENT: Programs designed to teach broad management skills such as supervision and coaching; management decision-making; strategic policy making.	12	28.57	4.63	0.52
CERTIFICATION PROGRAM: Formal certification program in which the employee participates with the company's financial support.	11	26.19	2.21	0.67
ADVANCE MANAGEMENT PROGRAM: Summer or year-long program in management training and development typically conducted at a graduate or professional school.	8	19.06	3.35	0.52

A value of 5 under the column of “Usefulness” would mean that the career development activity was “Extremely Useful”; a value of 4 would mean that the activity was only “Somewhat Useful”; 3 was “Neither Useful or Useless”; 2 was “Somewhat Useless”; and 1 was “Extremely Useless”.

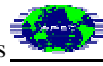


Table 4a (Continuation).
Indicators of Participation In Career Development Activities
and Level of Usefulness

Career Development Activity	Number Participating		Usefulness	
	No.	%	Ave.	SD
COACHING FROM PEERS: Formal or informal process of day-to-day coaching and counseling by one or more of your peers on how to improve your job performance and how to get along in the organization.	26	61.90	4.23	0.88
KEY PROJECT ASSIGNMENTS: Formal or informal process in which you were selected to carry out or assist in carrying out a specific project, typically involving work on a project team, task force or ad hoc committee.	31	73.81	4.64	0.49
MENTOR: A relationship with a more experienced colleague in order to provide you with increased opportunities for advancement, corporate visibility, guidance and advice, and ‘running interference.’	29	89.05	4.74	0.48
SPONSOR: A relationship with an individual of higher status or greater influence in the organization that provides you with ‘favored status’, special treatment or increased power and influence.	11	26.19	2.01	0.77
INTERNAL NETWORKING: An informal set of contacts and channels of communication inside the organization used to obtain information or advice relevant to your job performance and career goals.	22	52.38	4.51	0.50
EXTERNAL NETWORKING: An informal set of contacts and channels of communication outside the organization used to obtain information or advice relevant to your job performance and career goals.	22	52.38	4.60	0.51
CAREER PATHING: A process of providing or transferring you to a different job in the organization to provide you with needed skills, experience and exposure.	16	38.10	4.60	0.51

A value of 5 under the column of “Usefulness” would mean that the career development activity was “Extremely Useful”; a value of 4 would mean that the activity was only “Somewhat Useful”; 3 was “Neither Useful or Useless”; 2 was “Somewhat Useless”; and 1 was “Extremely Useless”.



Table 4b.
Indicators of Future Participation In Career Development Activities
and Perceived Level of Usefulness

Career Development Activity	Number Participating		Usefulness	
	No.	%	Ave.	SD
ORIENTATION: Program to brief new employees on rules and regulations; policies; procedures; and benefits.	31	73.81	4.78	0.46
CAREER DEVELOPMENT PROGRAM: Classes and/or seminars to help develop a greater awareness of interests; values and career goals; develop career decision-making skills and learn about different career opportunities.	32	76.19	4.72	1.93
TECHNICAL TRAINING: Programs designed to teach specific job-related information and skills (e.g. programming, budgeting, operations research, etc.)	34	80.95	4.84	1.99
MANAGEMENT DEVELOPMENT: Programs designed to teach broad management skills such as supervision and coaching; management decision-making; strategic policy making.	32	76.19	4.76	1.70
CERTIFICATION PROGRAM: Formal certification program in which the employee participates with the company's financial support.	27	64.29	4.74	1.87
ADVANCE MANAGEMENT PROGRAM: Summer or year-long program in management training and development typically conducted at a graduate or professional school.	26	61.90	4.77	1.71

A value of 5 under the column of "Usefulness" would mean that the career development activity was "Extremely Useful"; a value of 4 would mean that the activity was only "Somewhat Useful"; 3 was "Neither Useful or Useless"; 2 was "Somewhat Useless"; and 1 was "Extremely Useless".

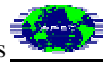


Table 4b (Continuation).
Indicators of Future Participation In Career Development Activities
and Perceived Level of Usefulness

Career Development Activity	Number Participating		Usefulness	
	No.	%	Ave.	SD
COACHING FROM PEERS: Formal or informal process of day-to-day coaching and counseling by one or more of your peers on how to improve your job performance and how to get along in the organization.	28	66.67	4.54	1.41
KEY PROJECT ASSIGNMENTS: Formal or informal process in which you were selected to carry out or assist in carrying out a specific project, typically involving work on a project team, task force or ad hoc committee.	33	78.57	4.80	1.76
MENTOR: A relationship with a more experienced colleague in order to provide you with increased opportunities for advancement, corporate visibility, guidance and advice, and ‘running interference.’	31	73.81	4.80	1.76
SPONSOR: A relationship with an individual of higher status or greater influence in the organization that provides you with ‘favored status’, special treatment or increased power and influence.	21	50.00	3.92	2.51
INTERNAL NETWORKING: An informal set of contacts and channels of communication inside the organization used to obtain information or advice relevant to your job performance and career goals.	35	83.33	4.63	1.20
EXTERNAL NETWORKING: An informal set of contacts and channels of communication outside the organization used to obtain information or advice relevant to your job performance and career goals.	33	78.57	4.62	2.07
CAREER PATHING: A process of providing or transferring you to a different job in the organization to provide you with needed skills, experience and exposure.	28	66.67	4.52	2.01

A value of 5 under the column of “Usefulness” would mean that the career development activity was “Extremely Useful”; a value of 4 would mean that the activity was only “Somewhat Useful”; 3 was “Neither Useful or Useless”; 2 was “Somewhat Useless”; and 1 was “Extremely Useless”.



Table 5a
Use of Information Technologies in Work/ Profession
Within the Past Year

	Average Rating
Telephone with NDD/IDD features	2.88
Mobile phone or cellular phone	2.20
Personal computer with no local area network	2.96
Personal computer with a local area network	2.54
Internet and/or electronic mail	3.04
Fax Machine	2.41
Pager	1.12

A value of 4 would mean “Always” (100% of the time); a value of 3 would be associated with “Frequent” (71% to 99% of the time); the value of 2 with “Occasional”(45% to 70% of the time); and the value of 1 to “Never” (less than 45% of the time)

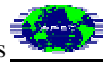


Table 5b.
Expected Future Use of Information Technologies
In Work/ Profession

	Average Rating
Telephone with NDD/IDD features	3.32
Mobile phone or cellular phone	2.74
Personal computer with no local area network	2.94
Personal computer with a local area network	3.47
Internet and/or electronic mail	3.55
Fax Machine	3.03
Pager	2.04

A value of 4 would mean “Always” (100% of the time); a value of 3 would be associated with “Frequent” (71% to 99% of the time); the value of 2 with “Occasional”(45% to 70% of the time); and the value of 1 to “Never” (less than 45% of the time)

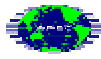


Table 6
Stepwise Regression

Dependent Variables	R²	Prob_F	Prob_T
Career Strategies Pursued	0.40	0.0003	
Usefulness of the Career Development Activities			0.003
Career Strategies to be Pursued	0.37	0.0032	
Career Strategies Pursued			0.029
Information Technologies Utilized			0.040