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Vendor and Professional Certification: Where is it Headed?

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ABSTRACT

Trade journals and magazines define three categories of computer certification: "professional," industry," and "vendor." The purpose of this study was to compare Information Systems (IS) professionals' value of professional and vendor certification types in relation to technical and management positions in IS. It appears that IS professionals value both certification types equally when not considering job position. Findings suggest technical and managerial IS professionals value the two types of certifications differently when job position is considered. Future research is warranted to determine why the respondents considered these two certifications differently for both technical (programmers and analysts) and managerial positions.

INTRODUCTION

With the emergence of new computer technology, certification programs have become prevalent in the Information Technology (IT) profession. There appears to be three major categories of computer certification: professional, industrial, and vendor. Professional certification means the confirmation by an organization or profession that a person has the knowledge and experience necessary to work in that profession (Long and Kishchuk, 1997). An example is the designation of Certified Computer Professional (CCP), awarded by the Institute of Certified Computer Professionals (ICCP). Topics covered in the CCP are: human and organization. framework, systems concepts, data and information, systems development, technology, and associated disciplines. Renewal of the CCP requires 120 continuing education hours every three years. Such an increase in education increases computer usage (Igbaria, M and Zinatelli, N and Cavaye, A., 1998).

The second category is vendor certification. Certifications of technical skills are vendor-specific (Filipeczak, 1995; McGrath, 1998). Examples are Novell's CNE, Microsoft's MSCE, and Cisco's CCNA. Some of the topics covered are: technical procedures, administration of the system, and the management of users. Renewal of these certifications generally is required when

a new version of the product comes out. Certificate holders must pass an upgrade exam every two or three years.

A third category is industry certification. This is a generic certification for computer trade/technical skills that is sponsored by a not-for-profit organization. Examples are the A+ and i-Net+ certifications from the Computing Technology Industry Association (CompTIA). These certifications focus on generic skills for hardware/operating systems. No specific vendor is stressed. This category was not considered for this study because it is similar to the technical skills found in vendor certifications.

The attitude of clients and employers is the major piece of information that is missing for a rational decision on certification (Long and Kishchuk, 1997). It is the clients who will increase the demand for evaluation in general, and it is the employers who will decide how much preference they will give to someone with the designation (Long and Kishchuk, 1997). Past literature from industry has focused on the value for vendor certification. However, such literature is primarily opinions.

A preliminary study, using 29 respondents from industry, showed vendor certifications were valued strongly for technical positions, and both certifications were valued equally, when a specific job position, such as a technical IT position or a managerial position, was not considered (White, 2002). This limited pilot survey by the authors indicated that there was potential for some interesting findings related to the two types of certifications, since there was no evidence in the literature of any prior empirical research in this area.

The purpose of this study is to compare technical and managerial IS professionals' value of these two certification types in relation to technical and management positions. Four questions this paper will answer are:

- (1) Do IS professionals value each type of certification, professional and vendor, equally when not considering job position?
- (2) Do IS professionals value all certification types equally when hiring IS managers versus IS technicians (programmers and analysts)?
- (3) Do IS professionals value each type of certification equally when hiring IS technicians (programmers and analysts)?
- (4) Do IS professionals value professional and vendor certifications equally when hiring IS managers?

The decision to hire an applicant with a certification is generally made by managers with input from the technical staff. For this reason, the technical and managerial professionals surveyed are considered as employers in this paper.

BACKGROUND

The literature has provided numerous opinions from recognized experts in the field of IT, as to the value of both vendor and professional certification, but no previous empirical research has been done.

Vendor certifications provide employers a way to assess a person's technical ability. That is usually the most important qualification when hiring technical staff (Connolly and Yager, 2001). Vendor certification helps employers target these qualified people for mission-critical projects (McGrath, 1998).

Vendor certification became popular in the mid- to late-1990's. The emphasis in the trade magazines, such as Network World, InfoWorld, and ComputerWorld, has been with vendor certification. The focus has been on technical skills and knowledge. (Connolly and Yager, 2000; Haber, 1994; Filipeczak, 1995; Vitiello, 1998; Kile, 1994; Cole-Gomolski and Nash, 1999). What about other skills and knowledge, such as teamwork, communication, and business? Knowledge and skills related to systems development and interpersonal communication have been perceived as essential, regardless of job classification (Doke and Williams, 1999). A single manufacturer's certification means that the certified individual is only proficient in that manufacturer's products. Such certification tells little or nothing about that individual's other skills or lack of them (Kile, 1994).

Many certification programs do not offer the option of a business background, which is something that should be taught at a basic level in a certification program (Alexander, 1997). The only valid industry-standard certification for network technical skills is one that is administered by an independent organization without direct vendor intervention. The existing training and certification programs offered by several industry manufacturers are too limited and biased to address the breadth of real-world problems associated with today's heterogeneous network environments (Kile, 1994). The need to have an independent organization to certify technical skills, as well as other skills needed in the profession, can be satisfied by professional certification from an independent organization.

An example of such an organization is the ICCP. The ICCP grants the CCP designation. The CCP certification process requires real-world experience and has continuing education requirements (Plas, 1998). Along with IS technical knowledge, the CCP covers business environment, general management, project management, interpersonal communication, organizational values, financial management/analysis, management science, auditing, and statistics (Linkletter, 2000). The advantage of an ICCP certification is that it avoids the inevitable obsolescence of a product-specific certification (Vitiello, 1998).

Although institute officials claim that the CCP is the capstone certification, it is not widely required by IS hiring managers. Recruiters say, "It has just never gained favor" (Vitiello, 1998). Jim Webber, president of Omicron, said there is a negative feeling about those generic

programs, and a positive feeling about specific, skill-based, validated technology skills (Vitiello, 1998).

Both IS managers and non-managers agree that non-technical skills are more important than technical skills for higher professional advancement (Khan and Kukalis, 1990). Senior IS managers believe that human factors and managerial knowledge, skills, and abilities have importance, and will continue to increase in importance for all IS professionals, particularly for project managers (Cheney, P. et al., 1990).

The purpose of this study is to provide empirical data that show how technical and managerial IS professionals value these two categories of certification in relation to technical and managerial positions. "Value" is defined as the degree of influence these certifications have on hiring. No empirical research in this area was found in the literature.

Four hypotheses to be tested are:

Null Hypothesis #1: IS professionals value each type of certification, professional and vendor, equally when not considering job position.

Null Hypothesis #2: IS professionals value all certification types equally when hiring IS managers and IS technicians.

Null Hypothesis #3: IS professionals value vendor and professional certifications equally when hiring IS technicians.

Null Hypothesis #4: IS professionals value professional and vendor certifications equally when hiring IS managers.

METHODOLOGY

An e-mail letter, describing the study and the web site questionnaire, was sent to IS professionals and managers of companies selected from the membership of the Association of Information Technology Professionals (AITP). The method of selection involved using the first 1,000 members of an address-sorted list. The first address field was used as the sorting key. The e-mail directed the respondent to a survey web site. Two questions asked at the web site were:

Question #1) How much value or weight do you give the following certifications in hiring Computer Information Systems **technical personnel** (programmers and analysts)?

Question #2) How much value or weight do you give the following certifications in hiring Computer Information Systems **managers**?

For each question, the respondent indicated a value of 1 to 7 (1 was low, 4 was fair, and 7 was high) for Professional Certification (e.g., CCP, awarded by the ICCP) and Vendor Certification (e.g., Novell, Cisco, Microsoft, Sun, etc.)

Demographic data were collected, including the number of employees the respondent supervised, the number of years in information technology for the respondent, position of the respondent, and the type of organization. The demographic data showed the characteristics and the diversity of the respondents. Obtaining demographic data also opens the door to future questions: Do manager's value certifications differ from technicians? Does the number of years in IT have an influence?

Descriptive statistics were then performed on the certification value scales, for both professional and vendor certification, and for each type of job position, using SPSS software. The statistics used were mean, standard deviation, skewness, skewness' standard error, kurtosis, and kurtosis' standard error on the value scale data. An ANOVA and Tukey HSD multiple comparisons were performed on the two certification value scales of each question.

RESULTS

DESCRIPTIVE STATISTICS

Usable responses for this study were received from 186 computer professionals and managers. Demographics indicated that the average number of employees supervised was 14.20. Seventy-five percent of the respondents supervised fewer than 10 employees. The average for number of years in Information Technology was 21.74.

Table 1 shows consulting as the largest response (22.6%) for organization types. However, 26.3% of the respondents reported to be "other" organization type. The most frequent responses were consulting, manufacturing, financial, and government.

Table 2 shows the respondents were 41% computer professionals and 59% in management. Technical positions varied evenly, with fewer than 10% each. Overall, 41% of the respondents were IT managers. The demographic data of Table 1 and Table 2 suggest the respondents were a sample of a generalized IT population.

Table 1. Business Organization Type of Respondents, N = 186

	Frequency	Percent
Manufacturing	31	16.7
Distribution	2	1.1
Transportation	4	2.2
Communications	8	4.3
Financial	21	11.3
Consulting	42	22.6
Retail	5	2.7
Health	3	1.6
Government	21	11.3
Other	49	26.3

Table 2. Position of Respondents, N = 186

	Frequency	Percent
Technical (41%)		
Programmer	10	5.4
Programmer/Analyst	11	5.9
Junior Analyst	2	1.1
Senior	13	7.0
Software Engineer	4	2.2
Project Leader	16	8.6
Network Tech/Adm	11	5.9
Other technical	9	4.8
Management (59%)		
IT Management	77	41.4
Network Manager	3	1.6
Corporate Manager	12	6.5
Corporate Administrator	2	1.1
Other management	16	8.6

Table 3, Table 4, and Table 5 show the descriptive statistics for IS professionals' value of the two certification types and two position types. The value scale was 1 to 7, with 1 being low, 4 being fair, and 7 being high. Table 4 represents a summarization of the mean scores for technical and managerial job positions as related to both vendor and professional certification. The highest response for technical positions was for vendor certification, with a mean of 4.39. This value was above "fair" and significantly skewed to the "high" end. Table 4 also shows that the highest response for management positions was for professional certification, with a mean score of 3.94.

Both positions had similar values for professional certification, with technical positions at 3.84 and managerial positions at 3.94. Kurtosis suggests that managerial positions, with either certification type, appear to have a significantly flat distribution. Thus, the value of any certification for a management position varies greatly.

Table 3. Descriptive Statistics for Job Position and Certification Types

	N	Mean		Std.	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
TECH_VENDOR	186	4.39	.12	1.59	-.565	.178	-.133	.355
TECH_PROF	186	3.84	.12	1.64	-.206	.178	-.658	.355
MANAG_VENDOR	186	3.35	.12	1.60	.067	.178	-.805	.355
MANAG_PROF	186	3.94	.14	1.90	-.016	.178	-.997	.355
Valid N	186							

Table 4. Means for Job Position versus Certification Type

	Technical	Management
Vendor	4.39	3.35
Professional	3.84	3.94

Table 5. Descriptive Statistics for the Four Categories

	N	Mean		Std.	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
TECHNICAL	372	4.115	.085	1.636	-.376	.126	-.501	.252
MANAGEMENT	372	3.645	.092	1.781	.097	.126	-.852	.252
VENDOR	372	3.871	.087	1.675	-.216	.126	-.746	.252
PROFESSIONAL	372	3.889	.092	1.776	-.079	.126	-.826	.252
Valid N	372							

In Table 5, technical positions again had the highest response, 4.115, for certification in general. It is skewed to the “high” end. Management positions were valued less with a score of 3.645. The values for vendor or professional certification, without regard to job position, appear to be similar, 3.871 and 3.889, respectively. Both certifications are valued a little less than “fair,” and kurtosis indicates both certifications have flat distributions.

INFERENCE STATISTICS

An ANOVA Between-Subjects Effects was performed on the data. The analysis shows whether there is a difference between the different certifications and positions. The ANOVA also shows whether there is any interaction between “certifications” and “positions.” Table 6 shows significance ($p < .000$) for position. Additionally, Table 6 shows that there is a significant interaction between position and certifications.

Table 6. ANOVA for Position Type and Certificate Type

Tests of Between-Subjects Effects

Dependent Variable: VALUE

Source	Type III of Squares	df	Mean	F	Sig.
Corrected	99.94 ^a	3	33.31	11.67	.000
Intercept	11202.64	1	11202.64	3924.40	.000
POSITION	41.16	1	41.16	14.42	.000
CERTIFICATION	.066	1	.066	.023	.879
POSITION * CERT	58.71	1	58.71	20.56	.000
Error	2112.41	740	2.855		
Total	13415.00	744			
Corrected	2212.35	743			

a. R Squared = .045 (Adjusted R Squared = .041)

There is a difference between the position types without regard to type of certification. Thus, IS professionals value certifications differently when considering technical and management positions.

There is an interaction between position and certification. Thus, IS professionals value vendor and professional certifications differently when considering technical positions versus management positions.

There appears to be no significant difference between certification types ($p < .879$). Both vendor and professional certifications appear to have equal value to IS professionals when positions are not considered.

Since there was a statistical significance with the interaction of position and certification ($df = 1, F = 20.56, p < .000$), a Tukey HSD of Multiple Comparisons was performed on the data. Table 7 shows there are significances between all comparisons, except for professional certifications, between technical and management positions ($p < .954$). Tukey HSD Homogeneous Subsets in Table 8 confirms this finding. This suggests that professional certifications have equal value for both technical and managerial positions.

Table 7. Tukey HSD Multiple Comparisons

Multiple

Dependent Variable:

Tukey

(I)	(J)	Mea Differenc (I-J)	Std.	Sig.	95% Confidence	
					Lower	Upper
Tech_Vendo	Tech_Pro	.54 *	.18	.010	.093	.99
	Management_Ven	1.03 *	.18	.000	.58	1.48
	Management_P	.45 *	.18	.049	.0015	.90
Tech_Pro	Tech_Vendo	-.54 *	.18	.010	-.99	-.093
	Management_Ven	.49 *	.18	.027	.039	.94
	Management_P	-.091	.18	.954	-.54	.36
Management_Ven	Tech_Vendo	-1.03 *	.18	.000	-1.48	-.58
	Tech_Pro	-.49 *	.18	.027	-.94	-.039
	Management_P	-.58 *	.18	.005	-1.03	-.13
Management_P	Tech_Vendo	-.45 *	.18	.049	-.90	-.00152
	Tech_Pro	.091	.18	.954	-.36	.54
	Management_Ven	.58 *	.18	.005	.13	1.03

Based on observed

*. The mean difference is significant at the .05

For management positions, the value means for vendor certification and for professional certification were 3.35 and 3.94, respectively. However, when vendor certification is considered,

professional certification is valued more than vendor certification in hiring for management positions (Tukey HSD, $p < .005$).

Table 8. Tukey HSD Homogeneous Subsets for Value

GROUP	N	Subset		
		1	2	3
Management Vendor	186	3.35		
Tech Professional	186		3.84	
Management Prof	186		3.94	
Tech Vendor	186			4.39
Sig.		1.000	.954	1.000

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = 2.855.

- a. Uses Harmonic Mean Sample Size = 186.000.
- b. Alpha = .05.

SUMMARY OF FINDINGS

Null Hypothesis #1: IS professionals value each type of certification, professional and vendor, equally when not considering job position. This hypothesis was not rejected ($df = 1$, $F = .023$, $p < .879$). Thus, it is concluded that both certification types are of equal value when not considering hiring for a specific job position.

Null Hypothesis #2: IS professionals value all certification types equally when hiring IS managers and IS technicians. This was rejected at the .05 level of significance ($df = 1$, $F = 14.42$, $p < .000$). It is concluded that certification types are valued differently when hiring for IS managerial positions versus IS technical positions.

Null Hypothesis #3: IS professionals value professional and vendor certifications equally when hiring for IS technical positions. This was rejected at the .05 level of significance (Tukey HSD, $p < .01$). Since the value mean for vendor certification was 4.39 and for professional certification was 3.84, it is concluded that vendor certification is valued more than professional certification in hiring for technical positions.

Null Hypothesis #4: IS professionals value professional and vendor certifications equally when hiring IS managers. This was rejected at the .05 level of significance (Tukey HSD, $p < .005$). Since the value mean for vendor certification was 3.35 and for professional certification was 3.94, it is concluded that professional certification is valued more than vendor certification in hiring for management positions.

CONCLUSIONS

“Certification can only be meaningful when used in the appropriate context. Certifications, when used and understood in context, do indeed offer value” (Rothke, 2000). When a diverse group of IS professionals from AITP was surveyed in this study, it was

interesting to note that vendor certification had a greater value over professional certification when pertaining to the technical positions of programmers and analysts. This is consistent with the literature. Filipczak (1995) indicated that vendor-specific training does have more momentum than the ICCP's professional certification. The emphasis in the trade magazines, such as *Network World*, *InfoWorld*, and *ComputerWorld*, has been with vendor certification (Connolly and Yager, 2000; Haber, 1994; Filipczak, 1995; Vitiello, 1998; Kile, 1994; Cole-Gomolski and Nash, 1999). Thus, for technical positions, the emphasis is on knowledge of the vendor's product, i.e., knowing how to use it.

On the other hand, management positions involve experience and an in-depth understanding of managerial concepts and practices, i.e., knowing the "why," and then making an appropriate decision. Information systems management knowledge about business and top management confidence with computer personnel are considered critical success factors for a business (Teo and Ang, 1999). Skills needed for an information management organization are technical, conceptual, and social/management (Heckman, 1998). Professional certification addresses these two critical success factors and required skills.

This study showed that professional certification has a greater value over vendor certification, when pertaining to or hiring for managerial positions. This is contrary to the opinions expressed in the literature (Vitiello, 1998; Filipczak, 1995). Such opinions may be the result of the commercialization and visibility of the vendor product. Hence, vendor certification is more visible.

Eggert (2001) indicated that employers, including IT professionals, should place a real value on the possession of a professional certificate. It is important that employers and customers or clients know that a person has the necessary skills, and is involved in a continuing education program to keep those skills current. Based on this study, IS professionals do value professional certification and vendor certification roughly equally when not considering a specific job position. Khan and Kukalis (1990) indicated both IS managers and non-managers agree that non-technical skills are more important than technical skills for professional advancement.

Based on the survey results, it is recommended that for technical positions, the focus should be on both vendor certification and professional certification. This would provide technical employees with the needed background, and at the same time, provide the opportunity for understanding the overall role of IT in the organization, thereby increasing their chances for advancement into a managerial position. It is concluded that for management positions, the focus should be on professional certification. Technical knowledge is less critical in a managerial position. Hence, there is less need for vendor certification.

Future empirical research is warranted to determine why the respondents considered these two certifications differently for both technical (programmers and analysts) and managerial positions. Such research is lacking in the literature.

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