Dealing with the threat posed by IT certification culture to higher education, in Argentina

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Abstract - **Among the several challenges that globalization poses to computer science, engineering, and technology higher education, the trend toward replacing academic degrees with information technology certificates seems to be one of the most threatening. We present the first results of a study that is planned to diagnose how deep this new trend is rooted in Argentina.**

Index Terms – competency-based learning models, globalization, information technology certificates, job market.

INTRODUCTION

In 2000, Clifford Adelman described what he called a "parallel postsecondary universe: the certification system in Information Technology" [1]. He read help-wanted ads in *The Washington Post* over the course of a year and his research showed a universe outside the college realm, filled with students who are studying through courses designed by technology companies and industry groups. He states that "the IT guild has brought competency-based education and performance assessment to a status they have never enjoyed within traditional higher education." In a subsequent study, the same author identified and characterized six major certifying authorities: Microsoft, Cisco, SAP, Sun Microsystems, Oracle and Novell [2]. Vorhees argues in [3] that "[t]his new paradigm will ultimately redefine the roles of faculty, institutions, and accreditors."

Is this also an issue in Argentina? With this question in mind we began a 22 weeks-long content analysis of IT job ads that appeared in the Sunday "Technology Employment" classified section of the two most widespread newspapers in Argentina, *La Nación* and *Clarín*.

MATERIALS AND METHODS

For 22 weeks, all IT job ads that appeared in the Sunday "Technology Employment" classified section of the newspapers *La Nación* and *Clarín* were collected.

Each ad was counted only once in a week regardless of in how many newspapers it appeared, and each job description counted once: if the ad said they were looking for "programmers" (or, i.e., "five programmers") then it counted as one, but if there were several job descriptions in the same ad, then each job description was counted separately.

Job descriptions were separated into two categories: those that asked for higher education degrees (or at least university students), and those where only skills were mentioned. It

should be noted that, while in *The Washington Post* there are specific entries to characterize a job (Company Name, Job Title, Job Status, Industry, Job Function, Job Division, Education, Pay Range, Job Location, Qualifications) [4], the ads that were collected have not a predefined format, and thus the content of the ads may vary from very descriptive to lacking of details. For each job description, the skills required were recorded.

RESULTS

During the 22 weeks that lasted the observation, 518 job descriptions were published: 245 (47.30%) asked for either higher education degrees or advanced college students, and 273 (52.70%) did not mention any degree at all (they asked only for skills).

An aggregation of the skills most sought can be found in Table I. Certifications appear in shaded rows.

Skills related to the technological mainstream (Relational Data Base Programming, Web programming, Java / J2EE, and particular Operating Systems) appear as the most sought.

When certifications are considered, SAP appears to be the most sought (with 7% of the ads looking for SAP consultants). In this case, 64% of the ads don't ask for a degree.

There are a few Microsoft Certified (MCSA / MCSE / MCDBA) and Cisco Certified (CCNA / CCNP / CCDA / CCIP / CCDP) ads, with no significative difference between ads in the two columns. And there are a few PMI/PMP ads, addressed only to professionals.

What is really intriguing with respect to certifications is the absence of any educational level mentioned in some of such job descriptions, except when PMI/PMP is considered. But this fact leads to different conclusions when the different certifications are taken into account:

- SAP offers applications and services for business software solutions. In an ad published by a SAP partner, they called for "recently graduated accountants and IT professionals" to enter as trainees. In that sense, SAP certification can be seen as lifelong education for professionals, and thus it does not compete with formal education. This also explains why these jobs don't ask for professionals: it is tacitly understood that SAP consultants already have at least a bachelor's degree.
- MCSE/MCSA candidates should have 12 months of experience working with a desktop operating system, a network operating system, and an existing network infrastructure (see [5]). Therefore, this certification is

essentially intended to complement an existing working experience, disregarding of degrees.

TABLE I
SKILLS SOUGHT

Skills	Total job ads	Higher Ed mentioned	Only Skills mentioned
Relational Databases (MySQL / SQL Server / PostgreSQL / Oracle / PL/SQL / DB2)	128	64	64
	24,71%	26,12%	23,44%
Web dev. (JSP / ASP / XML /PHP /servlets / javascript)	94	38	56
	18.15%	15.51%	20.51%
JAVA / J2EE	76	39	37
	14.67%	15.92%	13.55%
OS (Win / Linux/ Unix / AS400)	59	29	30
	11.39%	11.84%	10.99%
VB	46	20	26
	8.88%	8.16%	9.52%
RUP/UML / AOO / DOO	42	27	15
	8.11%	11.02%	5.49%
SAP	36	13	23
	6.95%	5.31%	8.42%
DB admin	26	14	12
	5.02%	5.71%	4.40%
C#	23	7	16
	4.44%	2.86%	5.86%
C++	20	10	10
	3.86%	4.08%	3.66%
.net	19	10	9
	3.67%	4.08%	3.30%
MCSA/MCSE/MCDBA	13	6	7
	2.51%	2.45%	2.56%
Oracle Developer	13	7	6
	2.51%	2.86%	2.20%
ABAP	11	3	8
	2.12%	1.22%	2.93%
CCNA/CCNP/CCDA/CCIP/CCDP	10	5	5
	1.93%	2.04%	1.83%
ERPs	7	6	1
	1.35%	2.45%	0.37%
PMI/PMP	4	4	
	0.77%	1.63%	0.00%
TOTAL ADS	518	245	273
	100%	47.30%	52.70%

- In the Cisco certification process description no prior experience or degree is mentioned: it copies the medieval guilds. People in that process first become apprentices (called "Associates"), then become "Professionals", and finally they become masters (called "Experts") (see [6]).
- In order to become a PMI/PMP candidate, one has to demonstrate the appropriate education and/or professional experience in project management (see [7]). This certification does not compete with formal education.

TACIT REQUIREMENTS

Is it really indifferent, when only skills are mentioned, whether the job applicant has or has not a degree? Some interviews were conducted in order to clarify this issue.

We interviewed the manager of a company that appeared in the ads as looking for Java developers without asking for any degree. We asked him whether they really did not care about the education of the candidates. The answer was that they only hired people with a bachelor's degree or who were at college. In fact, he added, there are tacit demands in the ads.

In a recent press interview [8], the quality assurance manager of the Argentine office of a multinational firm that has recently been certified as CMM 5 said that they promote the certification of their engineers and developers. Depending on what they are working in, they should be certified by Microsoft (.NET), Oracle (databases), or SUN (Java). We also interviewed this manager, and asked him what kind of people they were recruiting. He explained that they were looking either for graduates from or advanced students in IT programs, but afterwards they encourage their employees to get an industry certification, supported by the firm.

CONCLUSIONS

It seems that certifications do not appear as a threat to the Argentine formal educational programs, but more in-deep investigation (specially under the form of interviews) are necessary to clarify the confusion generated by tacit requirements in the job descriptions.

Also, universities can take advantage of the opportunities that arise from the promotion of lifelong education through certification, eventually engaging in alliances with the certificating industry. Adelman states (see [1]) that "[s]ome higher education institutions have been active participants in the certification programs, with models of collaboration ranging from linking 'challenge examinations' to credits, incorporating multiple certifications into bachelor's degrees, and awarding their own certifications based on curricular packages purchased from for-profit developers." Not all these options will please all institutions, but in each case some of them may be considered.

REFERENCES

[1] Adelman, C., *A Parallel Postsecondary Universe: The Certification System in Information Technology*. Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement, 2000.

[2] Adelman, C. The Medieval Guild in Cyberclothes: International Dimensions of Industry Certification in Information Technology. *Tertiary Education and Management*, **7** (3), 2001, 277-292.

[3] Voorhees, R.A. Competency-based learning models: A necessary future. In R.A Voorhees (Ed.), *Measuring what matters: Competency-based learning models in higher education: New directions for institutional research, 110*, 2001, 5-13.

[4] http://www.washingtonpost.com/wl/jobs/home.

[5] http://www.microsoft.com/learning/mcp/mcsa/requirements.asp.

[6] http://www.cisco.com/web/learning/le3/learning_certification_overview.html.

[7] http://www.pmi.org/info/PDC_CertificationsOverview.asp.

[8] http://www.calidaddelsoftware.com/modules.php?name=News&file=article&sid=69.