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Monograph: ICT Certifications for Informatics Professionals (published jointly with Novática*)

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Perception of Education and Personal Accreditations by IT Professionals in Spain

María-José García-García and Luis Fernández-Sanz

Over the past ten years, personal accreditation programmes have become an option frequently offered to Information Technology (IT) professionals to improve their career development. Some of these programmes are promoted by vendors, while others have arisen from interest groups, independent associations or different types of institutions. But, when analyzing if this training and accreditation option is perceived as something really useful, it is extremely difficult to get trustable data which does not seem to be influenced by specific interests. In order to collect data directly from IT professionals ATI has promoted a broad survey, centered on the opinion of their members and other professionals, about IT accreditations. This article presents the results from this initiative.

Keywords: IT Certifications, IT Professionals, Survey.

1 Introduction

Qualification for professional activity is not regulated or organized in the same way in the different countries of the world. There are different schemes for professionalism. One of them is direct access to a profession for people who have passed a higher education degree, or another formal level of education, regulated by the corresponding authorities. Other schemes are based on the separation of education and authorization for profession, where holders of a degree have to pass a specific examination, or conditions, to be allowed access to the profession. There are also mixed schemes, not only within a country but even for specific professions within a country etc.

Multinational companies and environments, globalization, and the increasing international mobility of workers have boosted the importance of professional accreditations as a way to evaluate or to qualify workers' skills, especially in a fast evolving technological area like IT. Many initiatives and studies are trying to offer frameworks to coordinate and to promote standardization of the huge number of certification systems and initiatives.

However, what it is more difficult to find is the existence of broad studies focused on the analysis of what professionals really think of these certifications. In many cases, studies are based on the answers of qualified respondents (e.g. association or industry representatives, etc.). To obtain independent evidence it is necessary to capture the perceptions and opinion of IT professionals about this topic using direct interaction with significant numbers of them.

Having identified this need, *Asociación de Técnicos de Informática* (ATI), the Spanish body of CEPIS, in collaboration with the R&D group on IT Employment and Professionalism of *Universidad Europea de Madrid* (UEM), launched a survey to collect the opinions of as many IT professionals as possible. This article presents the results obtained from 129 respondents.

Authors

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2 Survey Description

The survey was designed to be accessed via a website in Spanish: <<http://www.ati.es/novatica/encuesta2007/enqnovati.php>>. It was divided into four sections. The first section collected general anonymous personal and professional data (one being an e-mail address to control possible duplicates and send the final results to). Section two requested opinions about professional accreditations. The third section included a list of professional profiles/positions within the IT field to gather opinions about the minimum and the preferable academic level to be required for appli-

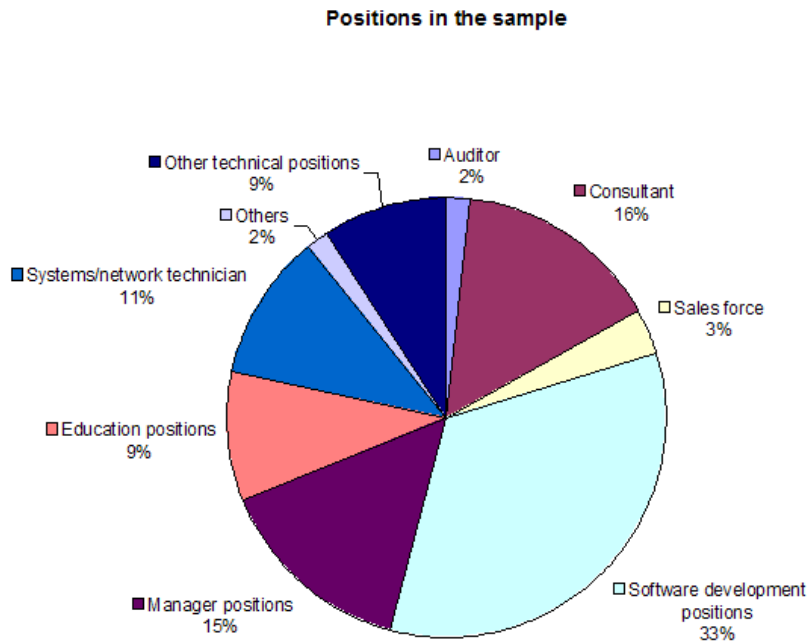


Figure 1: Positions in the Sample.

cants to each position, the institution that promote the best fitted accreditation programme for each position, and the most suitable accreditations in each case. Section four enabled respondents to select between different options to allow them to express their preferences about the different models of accreditation systems. Finally, there was an open text field to collect general opinions about the accreditation programmes and about the survey itself. Total number of questions was 61. Many questions followed a closed scheme

with options (which makes data processing easier) but there were also some open questions as mentioned above.

A description of the survey is presented below. As the survey was focused on IT professionals in Spain it used some terms which are specific of the Spanish IT labour market. In general, respondents were presented with drop-down menu lists to chose answers from e.g. in the activity sector the respondent could choose one of the 16 items obtained by simplifying and adapting the Spanish government

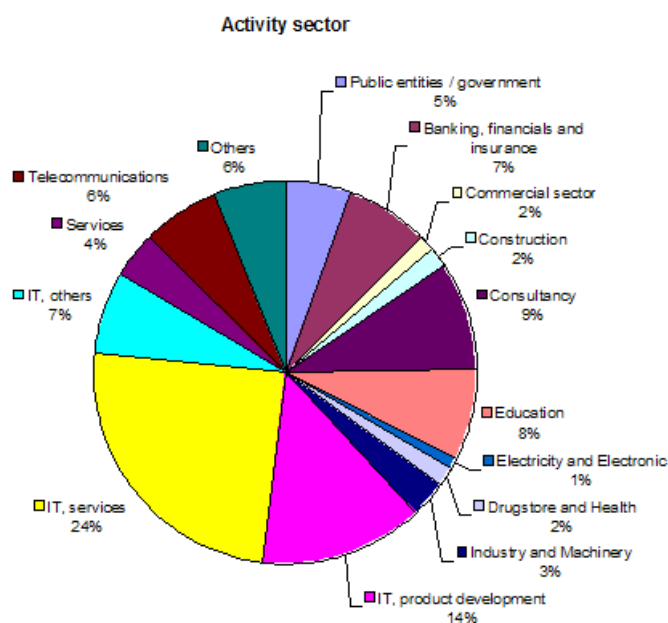


Figure 2: Activity Sector.

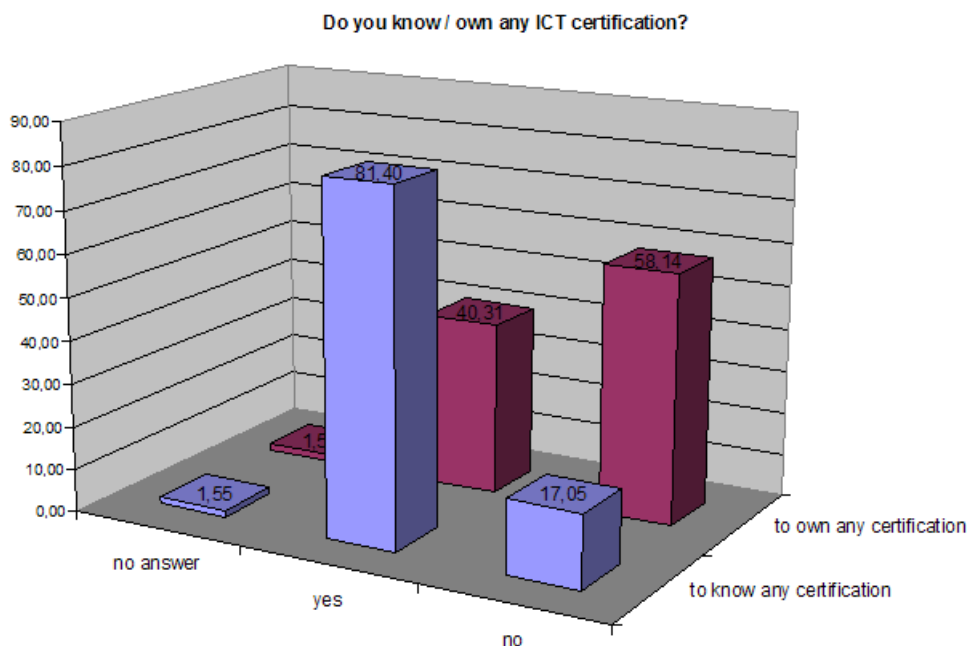


Figure 3: Do you Know / Own any ICT Certification?

official classification of economic activities [1]. The final list was based on very general sector descriptions like banking, financials and insurance, tourism, etc. The IT sector was divided into three areas: product development, services and other activities.

Another example of a reference list used is for the professional profile or position of the respondent which is based on 21 different descriptions including data base administrator, analyst-programmer, sales force, data processing/IT

director, etc. [2]. A final option "other" with a blank field to be filled in, was also included as up to more than 140 different positions had been identified in RENTIC studies which analyze more than 3000 IT job offers in Spain [3]. Specific information was collected about which are the most recommendable certifications for 9 positions which were selected from the list of positions in the RENTIC studies: programmer, analyst-programmer, analyst, project leader, systems technician, systems director, data base administra-

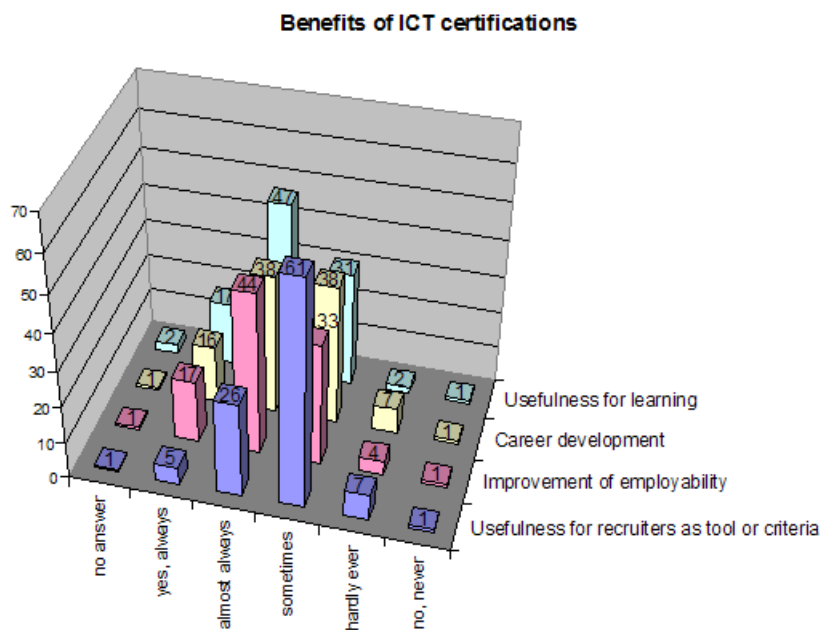


Figure 4: Benefits of ICT Certifications.

Know certification	Mentioned
ITIL	40
MICROSOFT	35
CISCO	28
CCNA	25
ORACLE	21
MCSE	19
CISA	15
CMMi	14
SUN	12
CCNP	12

Table 1. Most Mentioned Certifications.

Certification	Mentioned
CCNA	8
ITIL	8
ITIL FOUNDATIONS	7
CISA	6
MCSE	5
MCP	4
CISM	3
CMMi	3
PMP	3
ECDL	2

Table 3. Most Frequently Declared Certifications.

Entity	Total mentions
MICROSOFT	78
CISCO	65
ITIL (ICMB)	40
ISACA	25
PMI	22
ORACLE	21
SUN	18
SEI	14
LPI	13
SAP	7

Table 2: Best Known Certifying Entities.

Entity	Mentioned
ITIL (ICMB)	17
MICROSOFT	15
CISCO	9
ISACA	9
PMI	5
ORACLE	3
SAP	3
SEI	3
ECDL Foundation	2

Table 4: Aggregated Results per Certifying Entities.

tor, network administrator and consultant. Finally, regarding the reference list for IT certifications, we selected the 20 best known and most frequent ones in Spain.

3 Results from the Survey

Results presented here are based on responses collected from April 10th to May 21st 2007. Some responses were discarded for various reasons (duplicates related to the some e-mail address or those empty ones only with identification data) so the final number of people in the sample was 129.

3.1 Identification (Personal and Professional) Data

In this first section details of a responder's activity sector and position held were requested. Most frequent area of position held in the sample was software development (project leader, analyst, software engineer, etc.) with a total of 33%; followed by consultancy (16%) and managers (15%) as seen in Figure 1. For specific positions consultant was the most frequent given (16%) followed by project leaders and analyst programmer (12% each) and systems/network technicians (11%).

Regarding the activity sector respondents worked in, Figure 2 shows percentages: most frequent one was IT services, covering product development, etc. (45%), consultancy (9%) and education (8%). Those marking the option "Others" were asked to enter the sector name, and it is worth noting that 5% of them wrote "public entities/government" (not originally included in the list).

From the questions relating to company size and characteristics:

- Big organizations (above 250 employees, using a standard definition in Spain) comprised 57% of total, 27% for companies between 10 and 250 workers, and 16% for small companies.

- 56% were involved in domestic activities, 42% international, with 2% giving No Answer.

Of population data provided by respondents:

- Respondents had an average age of 39.7 years.
- Type of positions: mainly employees (81%), company owners (9%), self-employees (6%), IT students (1%) and entrepreneurs (1%) with 2% giving No Answer.

- 47% of the sample did not have any role in recruit-

Benefits of ICT certifications for different aspects of career development

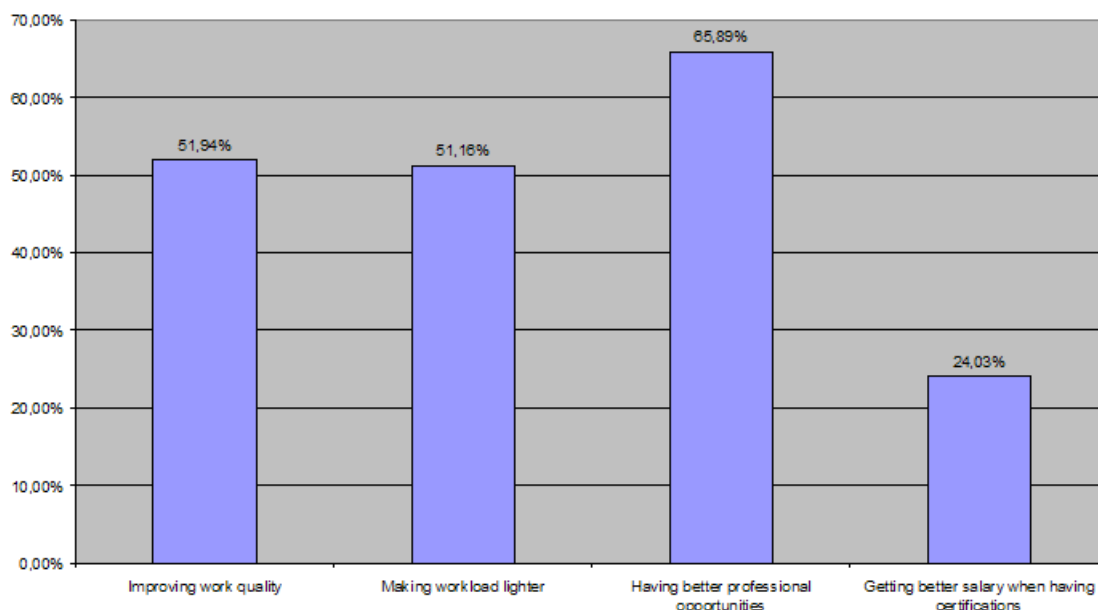


Figure 5: Benefits of ICT Certifications for Different Aspects of Career Development.

ing; the rest (52%) was divided into two groups: those who make proposals or evaluate applicants (34%) and the others (18%) who make decisions on hiring staff.

Figure 3 shows that 81% of the sample were aware of IT certifications, but only 40% had at least one. It is worth noting that 17% did not know anything (even to mention one of them) about IT certifications and accreditations. Responders were also asked to enter up to 8 certifications they knew about and the ones he/she already had. There were two free format text

fields. Results were really varied, resulting in the data being interpreted as perceptions (in the case of known certifications) and as a characteristic of the simple of population (in the second case: owned certifications).

- Mean number of known certifications is 3.6.
- In some cases, answers did not include certifications or certifying entities but IT positions or professional profiles (database administrator, systems administrator, functional analyst, project manager, etc.).

Minimum educational level for each position

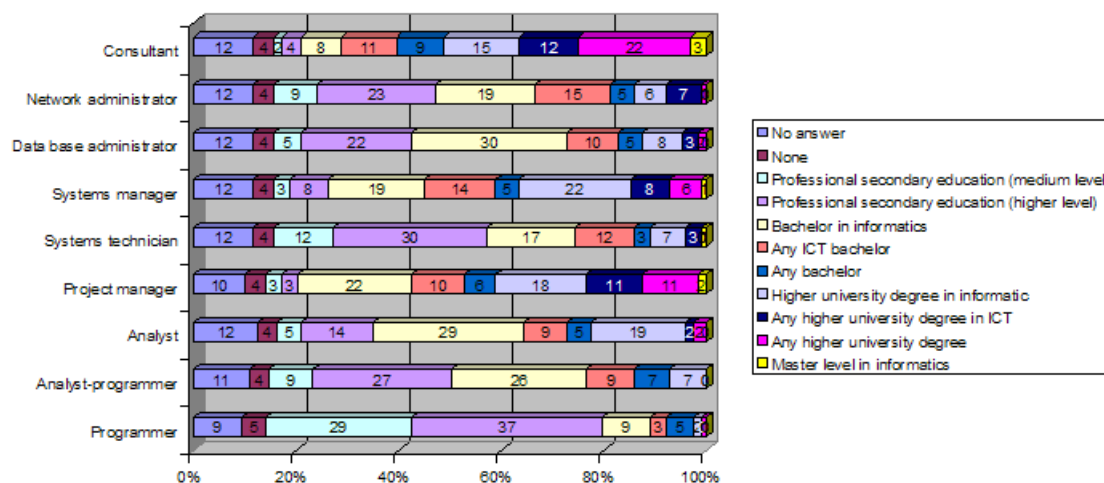


Figure 6: Minimum Educational Level for each Position.

Recommendable educational level for each position

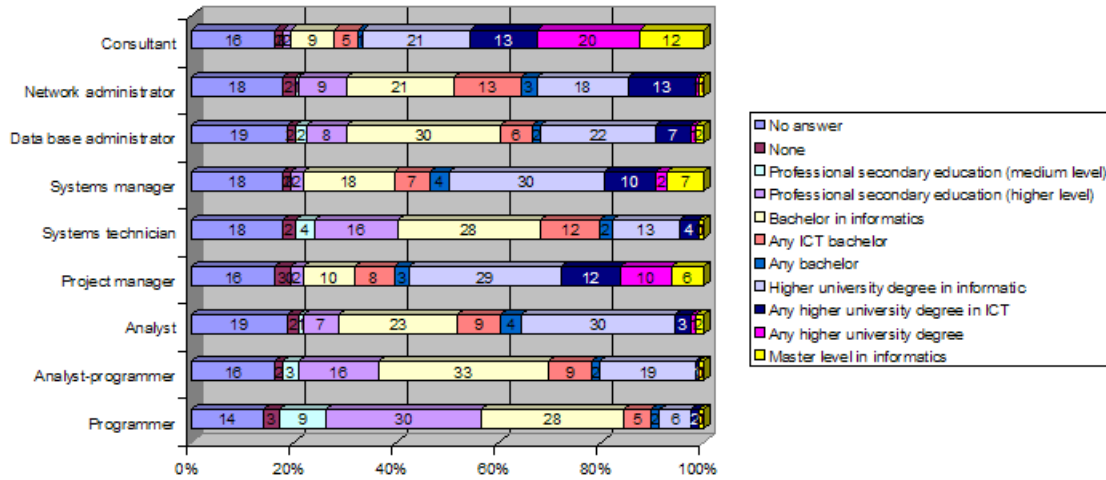


Figure 7: Recommendable Educational Level for each Position.

Another group of IT professionals mentioned different degrees (bachelor, master or informatics engineer) or technological areas (networking, programming languages, consultancy and communications).

Total number of items was 419: the most frequent ones are shown in Table 1.

Given the fact that answers included not only specific certifications but also certifying entities, we present aggregated results per entity in Table 2.

Regarding certifications owned, the total number of answers was 95, and the mean number per person (from those

who entered information in this field) was 1.9. In several cases, people entered something although they had previously declared they did not have any certification. In general, the reason is what was entered did not correspond to certifications or certifying entities (e.g., MBA or informatics engineering). Results for certifications are shown in Table 3 and for certifying entities in Table 4.

3.2 Opinion About IT Certifications

One of the objectives of the survey was the evaluation of perceived credibility of IT certifications, so one question

Certifying entities for each area

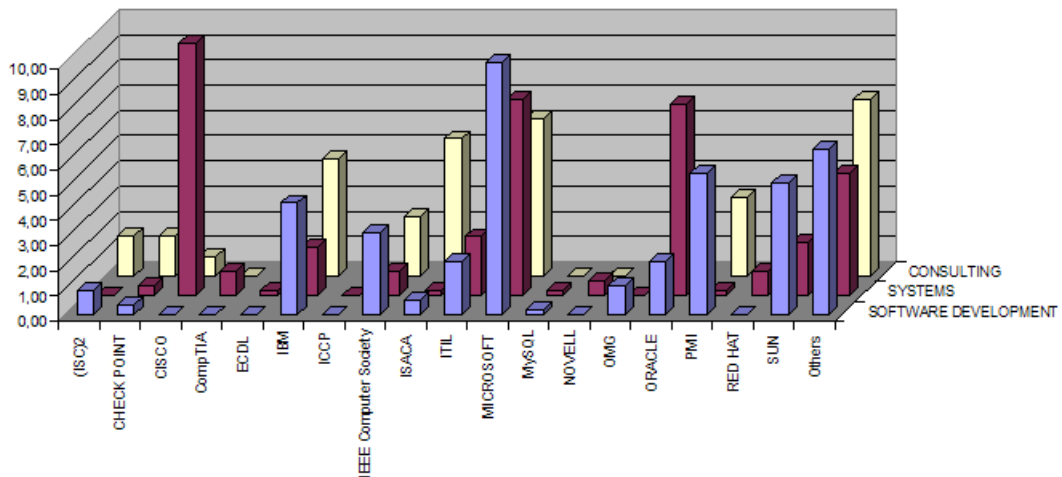


Figure 8: Certifying Entities for each Area.

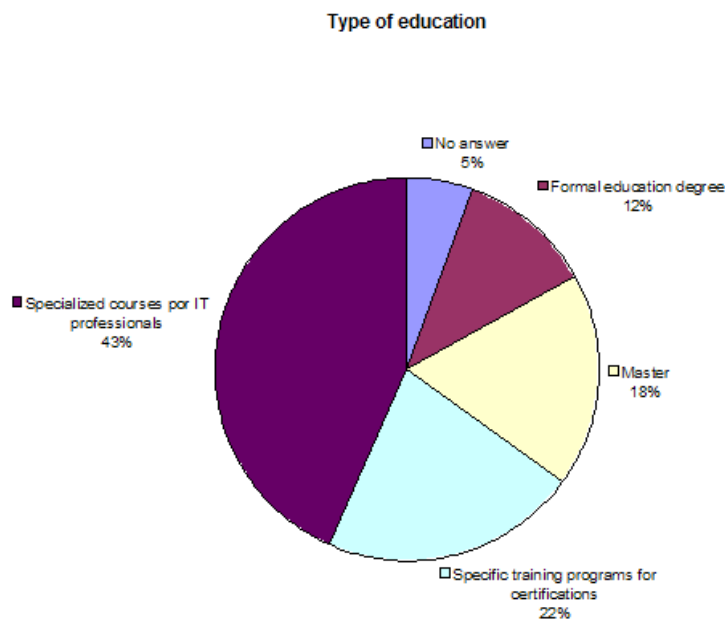


Figure 9: Type of Education.

about the perception of usefulness of knowledge gained through certifications was included. Results were the following: only 3% chose totally useless, while 29% chose totally useful, and 64% partially useful. Perception of the design of exams to gain certification was considered totally trustable to guarantee knowledge and skill of candidates by 18% of respondents, while 59% thought that only a part of the declared target level of knowledge is guaranteed (a 7% thought they do not guarantee anything and 16% did not answer).

Another topic analyzed was the perception of benefits of IT certifications for different aspects of employment and career development:

- Usefulness for learning.
- Improvement of employability (more probable to be selected in recruitment processes).
- Career development (promotion, salary, professional growth, etc.).
- Usefulness for recruiters as tool or criteria.

Results in this area are shown in Figure 4. It shows clearly that there is a general positive perception of certifications as being beneficial for employment and career development because a majority chose "always" or "almost always" for the three first questions. However, for the fourth question, the option "sometimes" was the one which ap-

Position	Minimum educational level	Recommendable level
Programmer	Professional secondary education (higher level)	Professional secondary education (higher level)
Analyst-programmer	Professional secondary education (higher level)	Bachelor in informatics
Analyst	Bachelor in informatics	Higher university degree in informatics
Project manager	Bachelor in informatics	Higher university degree in informatics
Systems technician	Professional secondary education (higher level)	Bachelor in informatics
Systems manager	Higher university degree in informatics	Higher university degree in informatics
Data base administrator	Bachelor in informatics	Bachelor in informatics
Network administrator	Professional secondary education (higher level)	Bachelor in informatics
Consultant	Any higher university degree	Higher university degree in informatics

Table 5: Educational Level for each Position.

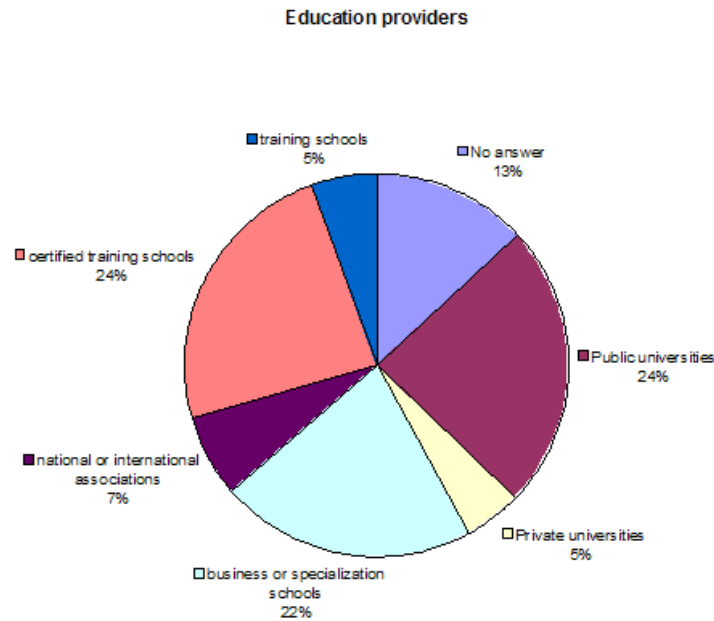


Figure 10: Education Providers.

peared in most of the answers indicating that there is not a clear perception of it. Figure 5 shows the differences between the idea of getting better salary when having certifications (24%) and the possibility of having better professional opportunities (66%).

3.3 Positions, Formal Education Degrees and Certifications

In the third section the objective was the evaluation of certifications and other formal qualifications as minimum requirements for different positions. The questions were restricted to 9 selected positions as described in Section 2. In the case of formal educational degrees the list included:

- Professional secondary education (medium level).
- Professional secondary education (higher level).
- Bachelor in informatics.
- Any IT bachelor.
- Any bachelor.
- Higher university degree in informatics.
- Any higher university degree in IT.
- Any higher university degree.
- Master level in informatics.

Figures 6 and 7 present data on minimum and recommendable educational levels for each position. Table 5 shows most frequent results for each position.

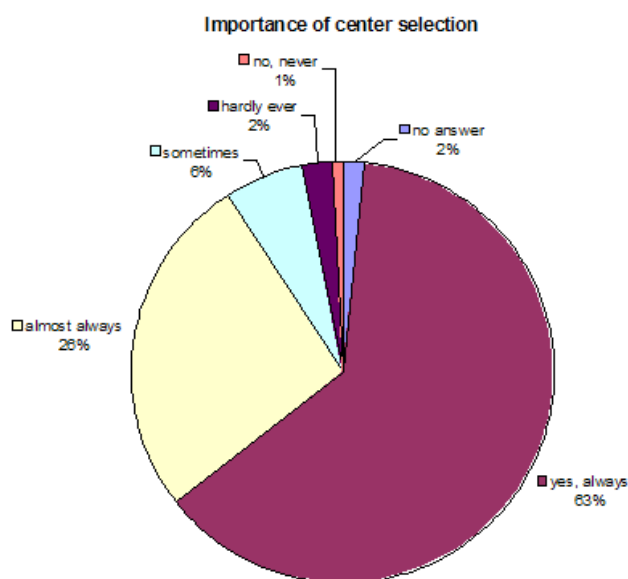


Figure 11: Importance of Center Selection.

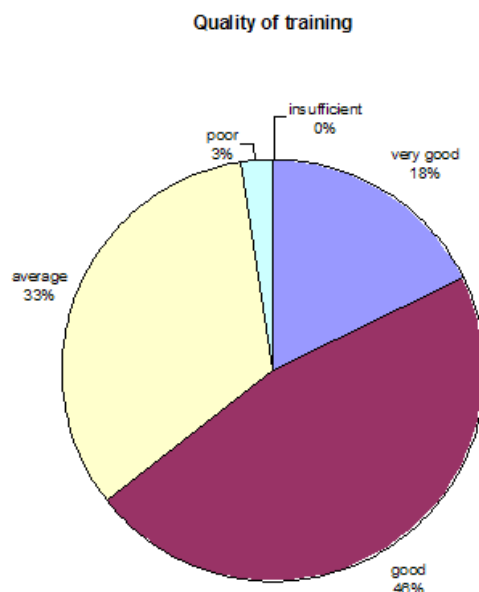


Figure 12: Quality of Training.

There was little information submitted about certifying entities for each position. For software development positions (programmer, analyst and analyst-programmer) 42.8% entered a recommendable certifying entity, while for the systems area the percentage was 43.4%, and lower for consultancy.

Figure 8 shows data related to the total number of people in the sample. Most frequent entities for software development are Microsoft (10%), PMI (6%) and Sun (5%); for the systems area Cisco (12%), Microsoft (8%) and Oracle (8%); and for consultancy Microsoft (6.2%), ISACA (5.4%) and IBM (4.6%).

3.4 Preferences among Different Certification Systems

The fourth and final section was aimed at analyzing respondent's preferences of IT professionals when choosing an educational programme, and opinions of the quality of those programmes. 80% of respondents selected a combination of formal educational programme and certifications as the best choice (12% only formal educational programme, 5% only certifications and 3% did not answer).

Figure 9 presents the information on type of education chosen under his/her current circumstances: specific training programmes for certifications came second after specialized courses for IT professionals. Medium number of hours (40-150 hr) was the best for 41% of the sample although 33% of people declared long (>150hr) programmes as preferable, while 19% wanted to follow short programmes (<40hr). Preferred contents were technical ones (48%), almost the same for management or MBA (47%).

19% of respondents thought that online education is the best while 33% preferred classical courses, and 42% choose blended learning.

While the influence of price was not homogeneous: 23%

considered low hour rates as priority, for 32% the price would not matter if the quality is attractive, and 38% would follow a programme if it was free or funded by an other method (e.g. funded by his/her company). The timetable for certification was also important because 11% would follow programmes if integrated in work hours, 33% only in non-working hours and 48% considered a mixed timetable as the best one.

Finally, Figure 10 reveals preferences referred to education providers: most frequent are public universities, certified training schools and business or specialization schools. Up to 75% of respondents preferred open courses, while 16% wanted to follow in-company programmes. Regarding centres, Figure 11 shows that they are very important when selecting a training programme, while Figure 12 shows the positive opinion (62% respondents for this question) about the quality of training.

4 Conclusions

We consider this survey was a good tool for checking perceptions and opinions about IT certifications. The authors are not aware of any previous studies addressing this topic. In general, certifications are well known although they are not so frequently included in the education of IT professionals. Maybe the reason is that they are considered useful mainly for acquiring knowledge and for career development, but not for an automatic rise of salary. It is not strange that vendor certifications are better known than others, although the sample of IT professionals involved in the survey consider that a combination of formal educational programmes (university or professional secondary education) and certification gives the best results. Additionally, many respondents preferred specialized courses rather than programmes designed to pass certification examinations. The survey indicated that the ideal profile for a training programme has

the following characteristics:

- Classical or blended learning
- More than 40 hours
- Organized by public universities, certified training schools and business or specialization schools

In general, respondents thought that university degrees (more specifically those ones directly related to informatics) are recommendable for all positions except that of programmer. No certification at all seems to be good enough for any of the positions.

Some respondents noted that many companies are demanding professional certifications when selecting workers, and that they are even more important for certain positions than a university degree (which is not always recognized in other countries). Other respondents demanded more regulation or official recognition to give greater prestige to IT certifications, while others considered it necessary to reach a minimum level of education, or work experience, to apply for certifications (something which is now included in certain cases).

The wide range of positions and activity sectors of the samples suggest that conclusions could be meaningful enough as an overview of the perceptions of IT professionals. Even more, as more than a 50% of the sample were in charge of selection and recruitment of IT professional, it is assumed that their opinion is not only important as an expression of a their personal ideas, but also as a general trend in this topic.

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