

The Influence of IT Certifications in Engineering

Valeria Paola Gonzalez Duenez
Associate Professor
Department of Software Engineering
Universidad Autonoma De Nuevo Leon
Nuevo Leon, Mexico

Pedro Fabian Carrola Medina
Assistant Professor
Department of Software Engineering
Universidad Autonoma De Nuevo Leon
Nuevo Leon, Mexico

Abstract— Globalization and the emergence of new knowledge based economies have meant that education is incorporating new features that can increase the competitiveness of individuals. United Nations Educational, Scientific and Cultural Organization (UNESCO) seeks to tailor education to the needs of today's world increasing competitiveness and productivity of individuals globally. Higher Education (HE) should address the quality significantly in the training of future professionals develop skills that allow them to function productively taking into account their abilities, interests, possibilities, etc. Currently Information Technology (IT) companies require highly trained professionals with adaptable attitude to working environment with the initial experience that provide certifications on different platforms and / or software tools.

Keywords—Engineering, IT certifications, competencies

I. INTRODUCTION

In recent years around the world there has been a growing demand for professionals who have IT certifications and competitive. These certifications are a particularly remarkable phenomenon of development and evaluation of employability skills across all sectors of activity [1]. Today more than ever society demands professionals with IT certifications and excellent abilities, skills and job skills needed to improve productivity in industry and facilitate its growth [2].

The IT professional certifications have become valued by employers and workers as a means of proving certain skills levels, especially internationally. These certifications learned the absence of frames of reference to facilitate the recognition of professional skills to transnational mobility [1].

II. REVIEW OF LITERATURE

The introduction of certifications in the field of labor market was attempted in the 70s, when the American Centro Interamericano para el Desarrollo del Conocimiento en la Formación Profesional/International Labour Organization (CINTERFOR/ILO) launched a regional program for discussion of a certification methodology between national vocational training institutions where only it was possible to form some specialists. At the beginning of the 80s turned to place the issue where neither reached impact and was forgotten until recently, now businesses are breaking national borders and increased trade between regions and countries have a strong impact on domestic economic policies of each country [3].

You can find different types of certifications, ranging themselves in each country, which usually are the first, second

and third. First part certification is granted directly by the training institution, where in the evaluation process has involved the company. In the second part certification also involved the educational establishment that issues and grant the certificate, a second part which is usually a public authority in education, who in turn gives the power to grant the certificate to the educational establishment. The third part certification is when the certificate is borne by an independent specialized agency of the institutions involved in the training and independent of the way the person built his skills [4].

The IT certifications are related to the skills, knowledge and experiences represent an ideal way to show society who are the professionals who have knowledge, skills and experience in the performance of their profession or specialty, in order to improve their professional, assist in their professional environment and work organization [5][6].

Cinterfor (1975) cited by Alexim (2001) defines professional certification as the process tends to formally recognize occupational qualifications of workers, regardless of how they were acquired [3].

Employers find it useful to have IT certified staff, in part, it is extremely important that universities can prepare students to achieve them. Eight out of ten HR managers verify IT certificates of candidates for a job and 86% of hiring managers indicate IT certifications have a high or medium priority in the process of evaluating candidates [7]. Likewise, 91% of hiring managers believes that certifications are part of their hiring criteria [8]. The 64% of them consider that certifications are very useful or extremely useful in validating the skills and experience of the candidates [7].

Over time the attitude definitions have changed, initially it thought that the attitude was understood cognitive and affective factors, however other definitions later emerged where the behavioral factor was also associated. Thurstone [9] attitude associated with thought and feelings. Meanwhile Allport [10] included the behavioral part in defining the attitude as learning that predisposes to think, feel and act in a certain way.

It is important to know perceived value of IT certifications students, graduates and employers giving option in college areas of opportunity detected in the training of professionals allowing a better employment in enterprises. Employers, technology providers and recruitment agencies use professional as criteria for hiring IT professionals [11] or technical certifications.

Employers like them to have even more professionals who are certified by an external certification with global value that guarantees the knowledge gained solidly. Today more than

ever certified with appropriate IT skills and in addition to this there are needs in the industry to improve productivity and strengthen human resources in companies people are needed [2]. However, the value that has been given to IT certifications by some students and graduates of universities seem to have to tie it with what employers demand.

In the Institutions of Higher Education seeks that students and graduates are inserted occupationally in business and is important to know the perceived value they have for IT certifications students. In the present study the perceived value of IT certifications from the attitudes of students, graduates and employers is studied; deriving some questions, including what students about certifications in the IT? What employers about it think? The IT certifications allow students to compete in a globalized environment? among other reviewers.

Therefore, the objective of the research is to determine the relationship between IT certifications and the influence of technology providers to quality in vocational training; specifically it studies the point of view of students of STI educational program. This educational program is educational offerings related to IT by the Universidad Autonoma de Nuevo Leon (UANL) and we decided to evaluate it to be a program recently (since August 2009) as well as being designed under the competency model UANL.

The independent variables studied in the research contemplated attitude at work and technology providers. Defining them below:

Attitude at work (ATW): Is the attitude in the work environment required to undertake a process of certification in IT tools [12].

Technology providers (TPR): These are the technology providers explaining knowledge about them on time, duration, cost and application site examinations and/or certification tests [13].

The dependent variable is called quality in vocational training. According to Gonzalez [13] is defined as a professional performance based on the productivity of individuals in the work area aimed at achieving objectives identified by innovation. These are the three dimensions that will measure quality in training professionals.

HYPOTHESIS

Therefore, the following hypotheses are proposed:

-The Attitude at work is related to quality in the training of professionals specifically students educational program Engineer Software Technology.

-The Technology providers are related to quality in the training of professionals specifically students of the educational program of Engineering in Software Technology.

III. DATA COLLECTION AND STATISTICAL ANALYSIS

This is a correlational and explanatory research. The research project consists of phases. In this first phase the validity of the instrument is performed and the linear regression model is applied to explain the model with the selected sample. For exploratory sampling a measuring instrument containing a total of 40 items previously validated by Cronbach's alpha index was designed. The measuring instrument designed is applied to students.

The universe is made up of the total of students of the educational program of Engineering in Software Technology. Educational program that currently has the enrollment of approximately 1300 students, but only will make an exploratory sampling for this research, in order not to skew the data for purposes of the results. The sample includes 129 students of the educational program of Engineering in Software Technology. Handling and data analysis were worked using SPSS software.

A total of 40 items, of which 13 items corresponding to the variable Attitude at work (ATW) plus 9 items correspond to the Technology providers variable (TPR) were included in the instrument. Also for the dependent variable 18 items were included. We propose the following Likert scale (1-5): 1-Strongly Agree, 2-Agree, 3- Neutral, 4-Disagree, 5-Strongly Disagree.

The methodology of this research is to study the perceptions of students, graduates and employers about IT certifications, putting together innovative experiences in the workplace, however only includes the analysis of the perception of students. The methodology to follow in the development of research is quantitative.

The methods and techniques used are: analysis of theoretical sources related to research, in order to clarify the background; justification of the study and prospective analysis. Construct and survey validation (by experts validity) applicable to students to inquire about the status of development of IT certifications at this phase. In addition correlational analysis by the regression model are included to test the significance between the independent variables and the dependent variable.

IV. DISCUSSION

A. RELIABILITY OF INSTRUMENTS

For instrument reliability analysis applied to students, 129 cases were analyzed to measure the rate of Cronbach's Alpha obtaining the following results (see Table 1):

TABLE 1. CRONBACH'S ALPHA INDEX, N=129

Variable	Cronbach's alpha
ATW	0.785
TPR	0.826
QTP	0.923

Source: Prepared by the authors

Reliability analysis of the items analyzed for each of the variables and dimensions indicated Cronbach's alpha values acceptable for research to be greater than 0.7, where according to Sampieri, Fernandez Collado & Bautista [14] are considered acceptable for the instrument students.

B. REGRESSION MODEL

To test the hypothesis of this investigation the independent variables (ATW and TPR) and dependent QTP were weighted. The multiple regression model allowing to estimate the relationship between the constructs and the significance of the hypothesis of this research obtaining the following results (see Table 2, Table 3 and Table 4).

TABLE 2. SUMMARY MODEL, N=129

Model	R	Square R	Adjusted Square R	Standard error of estimate
1	.977 ^a	.955	.909	1.06507

a. Predictors: (Constant), ATW, TPR

Source: Prepared by the authors

The Squared R coefficient obtained from model was 0.955 which allows us to explain according to the literature review.

TABLA 3. ANOVA^a

Model	Suma de cuadrados	gl	Root mean square	F	Sig.	
1	Regression	47.731	2	23.866	21.039	.045 ^b
	Residue	2.269	2	1.134		
	Total	50.000	4			

a. Dependent variable: QTP

b. Predictors: (Constant), TPR, ATW

Source: Prepared by the authors

TABLE 4. COEFFICIENTS^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Standard error	Beta			
1	(Constant)	-1.407	1.277		-1.102	.385
	ATW	2.042	.338	.913	6.034	.026
	TPR	.194	.109	.271	1.789	.215

a. Dependent variable: QTP

Source: Prepared by the authors

Taking into account the assumptions made in the investigation which stated that the attitude at work is related to quality training professionals specifically to students of the educational program of Engineering in Software Technology, this was supported (b = .913; p<0.05).

The hypothesis states that technology providers are related to quality training professionals specifically students of the educational program of Engineering in Software Technology was not supported. It is convenient to make an analysis to justify why the second hypothesis found no support in the evidence of this research. Whereas was taken perception of students there may be variation from the opinions of the employers themselves. However, it will be possible to check after the next phase in the investigation.

Within the limitations of the research it's important to highlight that includes only the opinion of students of the educational program of Engineering in Software Technology, which is recommended to validate the instrument and study again the assumptions made by determining its validity for engineers of other disciplines in order to generalize the results and ensure quality training of engineering students able to face a globalized environment as society demands today.

One of the recommendations and future short term goal of this research is to include more variables in the later phases of this investigation in order to complete the study.

V. CONCLUSIONS

In the above results it is perceived that students know the basics concepts of what constitutes an IT certification, however students do not know what the certificates are provided in careers and mostly valued certifications and higher wages in companies. Also students not think as an added value to have IT certifications.

According to the results obtained, a proposal to the institution is made with the aim of making at least one semester intervention with students from 7th. Semester to provide them with the necessary information regarding the IT certification process, for example, difference between them, the better valued by local companies, contemplating the universities abroad, by costs, certification validity, etc. It is important to go detecting attitudes of students to a certification process that allows them to get a job directly related to their profession and then apply the instrument performing the corresponding analysis.

On the other hand, certainly most students demonstrated their interest in the subject of their choice. Mentioned some of them as Oracle Database, Cisco CCNA and Information Security; which they are directly related to the lines of generation and application of knowledge of their profession.

The implications of the research are to benefit the training of IT engineers and their relevance in a global environment that enables them to be evaluated with respect to international benchmarks and that in turn allows them to obtain employment commensurate with their training. In addition to the HE allows them to make value judgments regarding the training of professionals and the timely detection of susceptible improve in order to enhance the quality of education in Mexico areas.

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