Being a computer scientist: motivations and representations

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ABSTRACT: This article presents the results of the assessment of high-school students' answers that showed desire for higher education in the area of Informatics. The aim was to see high-school students' choice considering further studies and career options, but also for highlighting the representations they have regarding future career opportunities available.
KEYWORDS: computer scientist, career, labour market, information

Introduction

In Romania, in recent years, there has been a need for a partnership, an interaction between schools and universities on one hand and the environment (economic, administrative, and cultural) on the other hand. This need is based on the necessity of a teaching system that is connected to the demand for qualification felt within our society, but also adequately considering the required professions on the labor market.

1. Objectives of the diagnosis

In order to study high-school students' options for further education or choosing a profession, and also for highlighting the representations they have regarding available opportunities for a future career, we made a sociological study in Timis county, in 25 high-schools, which were selected in order to ensure the the principle of representativeness of the selected group in relation to the characteristics of "the educational profile". The area of the investigation was the high-school population in Timis county. The studied group was compiled of 1,200 high-school students in 12th grade, which is representative for the studied population, with a maximum error margin of ÷ 3%, and with a trustworthiness threshold of 95%. This article presents the results of the analysis for a quota sample of the students who expressed their desire to pursue higher education in the area of Informatics.

The study was designed to answer certain questions, which have also become the objectives of the diagnosis:

- *What are the informing means of students regarding their future careers and profession of choice?*
- *How spread is school orientation, but also the social and professional one in high-schools?*
- *What are students' representations regarding school orientation efficiency?*
- *Which are the criteria for assessing career success?*
- *What are the reasons why students desire to be computer scientists?*
- *What perspectives for the future are there, related to the labor market?*
- *What are the main characteristics of the ideal work place?*
- *What is the perception regarding the criteria of employment in graduates' mind?*

2. Results of the research

Most of those who desire to specialize in the area of Informatics and attend a faculty focused on this profile consider themselves well informed regarding this particular profession/job (54.6%). Almost a third of the students involved in the study (34.3%) do not consider themselves neither informed nor uninformed in this area and those who believe themselves to be uninformed are only 2.4%.

The means of information that have been consulted regarding this particular career are mainly websites with job offers and requests (49%),

followed by websites with information about careers (33.3%) and specialized newspapers / magazines (21.3%). Other sources are the following: company presentations at job fairs (19.9%), television (19.2%), blogs of different personalities in the field (15.3%), printed career guides (8%) and the radio (5.4%). In conclusion, we can say that the sources students use in order to acquire information regarding the profession of computer scientist are mainly the most modern ones (internet, blogs), whereas traditional methods are quite low on the suggested scale (printed career guides and the radio).

Career consulting is mostly done before making an important decision (48.8%), monthly (27%), and daily (13%). Therefore, we can say that this informing is not constant or continuous for more than half of the respondents, but the others manifest a consistent desire for documentation.

It can be noticed that young people tend to highly value material satisfaction, as almost half of the respondents consider it as the main criteria in order to be able to claim a successful career (34.7% - consider that your profession only needs to provide enough money for a quiet life and 15.3% - believe you should get an excellent financial situation out of the profession). The financial criteria is followed by that of professional satisfaction, where 29.2% of the future computer scientists wish for a profession they will enjoy and will make everyday life pleasant and then, they also desire national / international recognition in this area of expertise (18.1%). (See Figure 1)

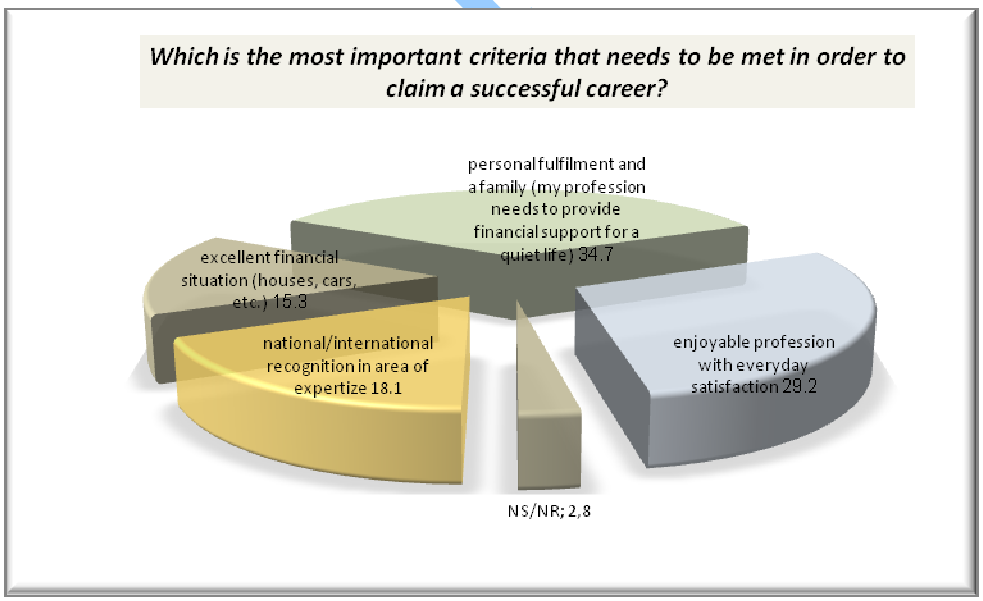

Figure 1

Regarding the counseling high-school students received in choosing this profession, we can conclude, just as it was expected and considering the answers for one of the previous items, that it was minimal and considered unimportant. 44.4% made the choice on their own, and 43.1% consider they were helped by their families in choosing their future career. These are followed by those who talked to friends / school-mates (26.4%), whereas teachers were guides for only 18.1 % of high-school students. Those who are specialized in school orientation and profession guidance (offices, companies, those responsible in schools) are the last ones mentioned by students regarding the contribution they had in directing them towards a choice for a professional career.

Only 36.1% of high-school students in Timis county mentioned that in their schools they are provided with the service of counseling in choosing a profession, whereas 40.3% say there are no such functions in their schools. 25.6% of students do not know if there are professional orientation services provided in their schools. However, an important percentage of those who benefited from an operation like this in their schools – 56.3% – believe such a professional orientation service is quite useful for our education system. More than 70% of the students who study in schools that do not provide such a counseling function, also believe that it would be useful to have one.

The main reasons why graduate high-school students wish to profess in the Informatics area are represented by the skills they have in the particular field (55.6%) and the passion for the profession (52.8 %). (See Figure 2)

Another reason mentioned is that of material advantages involved in practicing this particular profession; it is well known that those who are able to get a job in the IT field have good wages. Almost a third of those who would like to work in this profession graduated from a high-school with a similar profile, so this compatibility is the reason for their orientation towards this field (31.9%). We can also notice a similar desire, for those who believe would have a chance of professing in this area after graduation (30.6%). Parents' encouragement, family tradition, the role-model of a friend – seem to be minor influencing factors in choosing a future career, particularly from the motivation perspective.

The future students of the Informatics profile are quite optimistic regarding their chances to profess in their own field of expertise after graduating University. The perception of the chance to find a job after finishing their studies is very good (86.1% consider they have high and very high chances to achieve this).

Related to a future job, there are a few necessary characteristics it should have. Thus, 27.5% of high-school students who showed interest in pursuing higher education in Informatics, believe that "*chances of promotion at the work place*" must be the most important benefit in the

future job. On the other hand, an important characteristic for 24.6% of them is *the opportunity of earning high wages*. Other features of the position they will eventually hold are: *interesting tasks* – for 15.9% of them, *safety / steadiness* – for 15.9%, *schedule flexibility* – for 11.6%, etc. (See Figure 3).

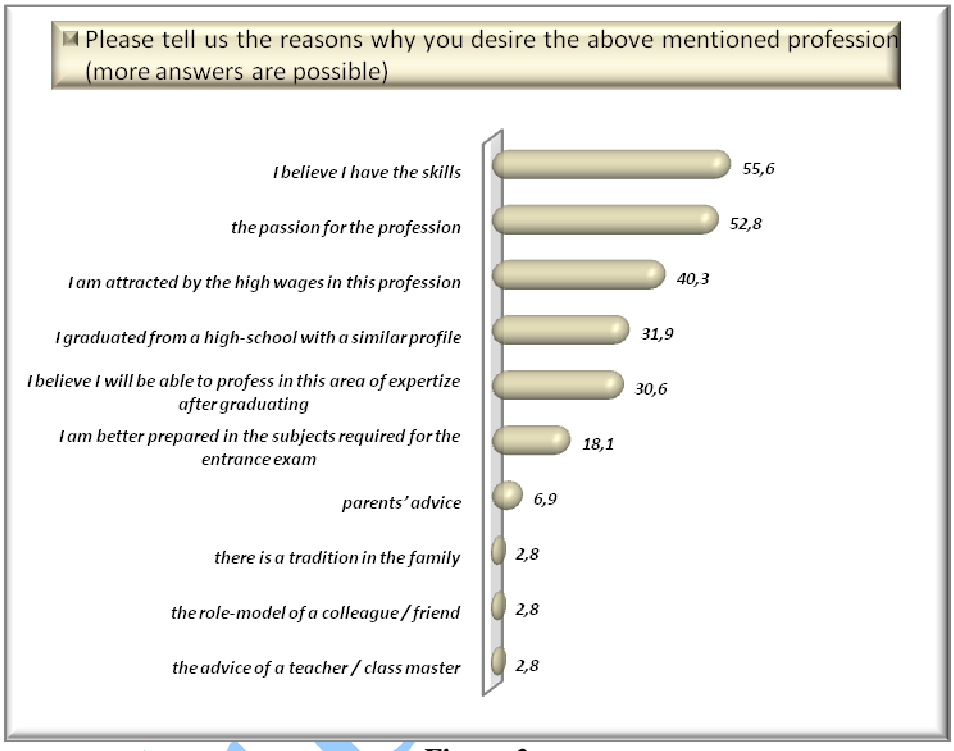

Figure 2

These future advantages of a future work place could be obtained, in the opinion of 48.6% of the respondents in a private company with foreign capital (or at least mixt capital), 20.8% think it could happen in a private company with Romanian capital, whereas only 15.3% of the future computer scientists think they could be satisfied in a governmental institution.

However, more than two thirds of the student respondents (68.1%) who desire to study the area of Informatics, intend to find a position in this specialty while they are still at University, which reconfirms the favorable perception they have regarding their future job. 30.6% of the future Informatics college students are of a different opinion – they want to only concentrate on their studies, without having to work during college years.

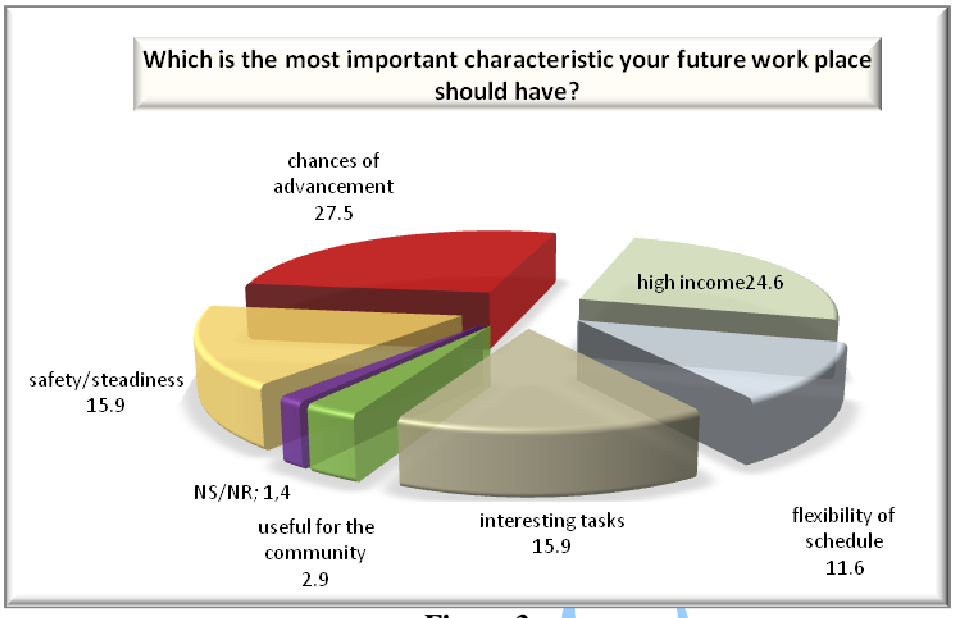

Figure 3

Most of those questioned seem to agree that in order to get the desired job, there are a few important aspects: *previous experience in the area* (29.9%), *the results of the employment test / interview* (29.4%) and of a lesser importance are *the marks obtained in their studies* (16.8%). However, quite a high percentage of the interviewed high-school students (17.9%) still have the perception that *the relationships and acquaintances you have* continue to be an anchor that can help one's career.

Another one of our objectives was represented by determining information sources regarding the types of studies high-school students would like to pursue. As we expected, as far as our population goes (those who wish to graduate in higher education Informatics) – about 70% of them say that the *Internet* is their main source of information (Figure 2). It is obvious that these high-school students can use a computer and this way of acquiring information is the most forthcoming for them. Therefore, information by this particular source is one of the main features of the generation – if we analyze this item at the level of all high-school students, from the perspective of the numerous options they have for higher education, not only for those who would like to study Informatics, this method represents the most available way to be informed, but it is so, also, for most of the others (within the studied group there are 62% of high-school students for whom the main source of information regarding their future profession of choice is by *surfing the Internet*).

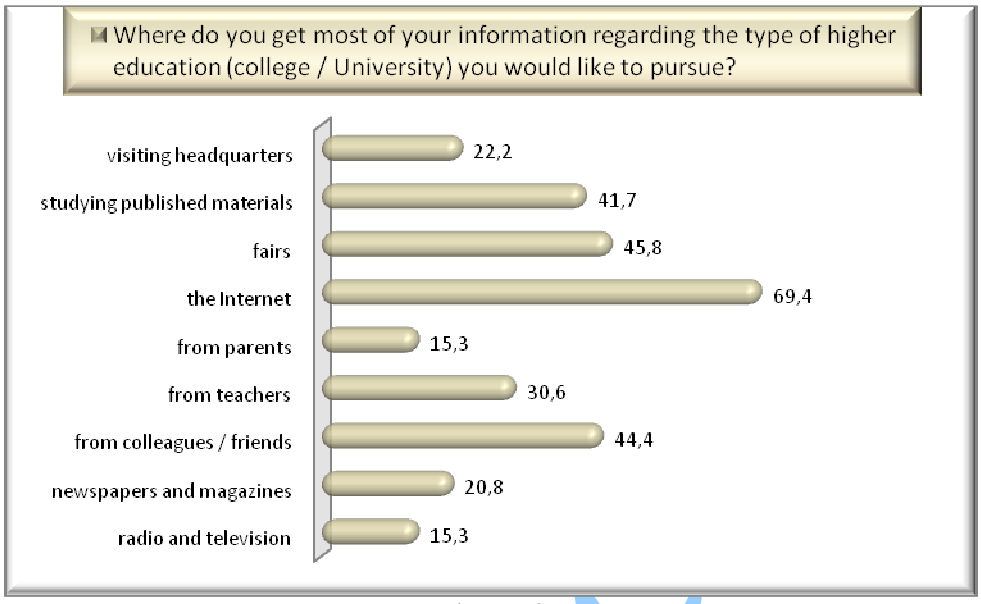

Figure 4

High-school students who manifest their intention in going to University and studying Informatics have the following advantages: *they know an internationally used foreign language* (91.1% claim they know well and very well a foreign language) and of course, the most obvious of advantages – *skills in using a computer* – 97.1% of those questioned claim they possess these. The fact is that the computer and Internet surfing represent for these students ordinary attributes (for the question: "How often have you used the Internet lately?" – the answer of 80.9% of the respondents was *daily,* 10.3% answered *almost daily*, and the rest said *a few times a week*). (Figure 4).

Conclusions

Being a computer scientist is quite an attractive job for high-school students, both professionally and also for the wages it brings. Therefore, there are complex motivations for those who want to pursue higher education in Informatics, both inherent reasons that are related to the passion for the profession, but also extrinsic ones, related to earnings' satisfaction. On the other hand, the last few years demonstrated a constant demand for such specialists on the labor market. Most of those who wish to specialize in the

area of Informatics and pursue higher education in this domain of activity consider themselves as being well informed regarding the job / profession, fact that increases the appeal for the field.

The Internet is the main source of information regarding career choice, as we initially expected, considering the investigated population and their ability to use the computer.

In regard to the counseling they received in choosing the profession of a computer scientist, this is minimal and considered unimportant. Almost half of the respondents make their own career decisions, and a large majority of them consider they have been helped by their families in their career choice. Although at the level of educational institutions there are some professional orientation offices, these are not sufficient in numbers and young people do not have the reflexes to consider them and to ask for their advice.

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