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New tools to help in the recruitment process

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Abstract

The recruitment process is demanding, especially when there are many good candidates. Failure in this process can be expensive. Typically interviews and different psychological tests are used to help in the selection. The problem is that interviews and tests are costly. Here a new, partly automated approach is presented. The new approach was tested in the Tenure Track process at the Tampere University of Technology. The new approach consisted of two parts. Firstly, the candidates used the on-line Evolute Helix application [1]. They responded to 237 claims and gave their degree of agreement with each claim. This part produced data measuring commitment. Secondly, the gathered data, i.e. profiles of commitment, were analyzed to find clusters of similar candidates. These clusters were checked against the desired profile. These two parts were automated. The test data were based on the Tenure Track process at the Tampere University of Technology. Recruitment to universities nowadays largely follows the same principles as the normal recruitment process in companies and other organizations. Universities have started to play a global game in their recruitment and try to find the best possible candidates internationally for their universities. In this case example we show how an organizational commitment application that has been developed could help the recruitment process, in which 55 candidates were applying for two tenure track positions. The application used, Evolute Helix, was useful in the recruitment process and helped in the interviews as well as the selection of applicants for the shortlist. The shortlist consisted of six candidates, who were finally interviewed. The two winners were selected from among these candidates. Commitment can reveal many personal characteristics and also the future aspirations and motivations of applicants. The tested application can also be used afterwards, as the tenure track of the chosen person continues in the university. Automatic preprocessing is a great aid when sifting out desired candidates from multiple applicants.

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1. Background

The recruitment process is a demanding task. Typically, there are a lot of candidates and many good candidates. Failure in this process is expensive. There are not many parameters to control the recruitment process. Typically, one uses the design of the advertisements, interviews and different psychological tests in the selection process. The problem is that interviews and tests are time-consuming and expensive. The manual processing of applications is also expensive. The applications are scanned through and summaries are produced to make comparisons easier.

There are commercial software systems to take care of recruiting and staffing processes, like Zoho, Financial Force Human Capital Management, Artist, Tribe HR, but these programs only deal with the documentation of applications. Better tools are needed. Psychometric tests in job interviews are not new. The first modern personality test was the Woodworth Personal Data Sheet, which was first used in 1919 by the United States Army [9]. It was designed to help screen out recruits who might be susceptible to shell shock. The techniques were then developed further [6]. Attempts to profile people have also been made for a long time. Criminal profiling is a process now known in the Federal Bureau of Investigation (FBI) as criminal investigative analysis. Profilers, or criminal investigative analysts, are trained and experienced law enforcement officers who study every behavioral aspect and detail of an unsolved violent crime scene in which a certain amount of psychopathology has been left at the scene [7,8]. The term profiling is defined by the Merriam-Webster dictionary [5] as "the act or process of learning information about someone based on what is already known" or "the act or practice of regarding particular people as more likely to commit crimes because of their appearance, race, etc." or more generally as "the act or process of extrapolating information about a person based on known traits or tendencies <consumer *profiling*>; *specifically*: the act of suspecting or targeting a person on the basis of observed characteristics or behavior <racial *profiling*>".

In computer science, profiling has a slightly different meaning [2]. Data collection, preparation and mining all belong to the phase in which the profile is under construction. Profiling also refers to the application of profiles, meaning the usage of profiles for the identification of individual persons, or categorization of groups. There is a feedback loop between the construction and the application of profiles. The interpretation of profiles can lead to the iterative fine-tuning of specific previous steps in the profiling process. The application of profiles to people whose data were not used to construct the profile is based on data matching, which provides new data that allow for further adjustments. The process of profiling is both dynamic and adaptive.

The hypothesis of this work is to find out if it is possible to use new techniques to improve the recruitment process.

2. The techniques used

We used the Artist software system to gather and document the applications. First, summaries of all the applicants were collected. Finally, a board consisting of six professors went through all the applicants, concentrated on the shortlist and made the decisions.

It was quite a hard task to consider 55 applications in a way that was fair to all 55. The applications consisted of a list of publications, curriculum vitae, research plan, and motivation letter. To make the comparison easier we decided to use a two-stage approach. The first stage comprised a commitment test based on Helix software [1]. If somebody considered this test unsuitable, it was a personal choice and the applicant was rejected. The idea was to create a profile measuring the commitment of each applicant. Commitment is a very important feature and we were looking for candidates that were willing to commit to our organisation. An example of a hypothetical profile can be seen in Figure 1. There were a large number of claims, 237. Based on the applicants' degree of agreement and the reliability, the claims were visualised. After all the applicants had answered, it was possible to calculate a mean profile and the variation. Knowledge of the variation used together with the profile of the applicant characterised the applicant very well. Another illustration of a profile was a star diagram [3]; see Figure 2, which was extremely useful when comparing two candidates. This piece of information together with the list of publications, curriculum vitae, research plan, and motivation letter made it possible to draw up a shortlist.