The Social Environment as a Determinant for the Impact of the Big Five Personality Factors and the Group’s Performance

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ABSTRACT

The composition of a team usually is done by having in mind the personality factors, supposing that these factors are important for the working climate and performance of the group. Starting from this hypothesis, the authors investigate the influence of the personality factors on the team achievements in a practicum of computer science students. The correlations by itself were very weak. But by partitioning the data, it results that the social environment in which the tasks are performed is a decisive factor for the importance and the influence of the team personality factors on the group’s performance. If the social environment exposes the team to situations in which the corresponding personal factors are important, then a significant correlation between these factors and the achievement is observed.

Keywords: Performance, Personality Factors, Quasi-Experiment, Social Environment, Team Building

1. INTRODUCTION

The impact the personality factors in the working environment is supposed to be important (Bostrom & Kaiser, 1981; Karn & Cowling, 2006; Rutherfoord, 2001; Wynekoop & Walz, 2000; Zuser & Grechenig, 2003). Many companies adopt practices that require personality test in the process of personal selection, converting Big Five test in a norm for many HH.RR departments (Moore, 1991; Peslak, 2006; Teague, 1998; Walle & Hannay, 2009).

Usually it is suggested that the influence of these factors is straightforward and group achievements are dependent in some well defined way by the personality factors within the team (Acuña, Gómez, Juristo, 2009; Capretz, 2003; Rutherfoord, 2001). To investigate...
the impact of the personality factors and their impact on software development (Acuña et al., 2009), also we designed a quasi-experiment, that explained in details in section 3. The experiment investigates this impact on the group achievements in a practicum of computer science students. We based this short communication on personality test (Costa & McCrae, 1992) on students of computer science.

Normally, it is supposed that characteristics as conscientiousness, neuroticism and extraversion are among the most important for the good integration in a working group and that these characteristics have a universal impact on the functioning of the group (Acuña et al., 2009; Salleh, Mendes, Grundy, & Burch, 2010a; 2010b; Salleh, Mendes, & Grundy, 2011). However, a person in a working environment is subject to interaction with its superiors and with the company environment in general, not only with the members of the group (Borovits, Ellis, & Yeheskel, 1990). Little is known about the interaction between the social environment and the team personality factors and of the group’s performance.

This paper is organized as follows: In section 2 we present the related works. In section 3 we explain in details the pseudo-experimental setting and methods and we represent the main results, with brief discussion concerning the methods and the results in section 4. Finally, in section 5, we draw some conclusions and trace some possible future directions in the last section.

2. RELATED WORK

Recently there are increasing number of investigations that focus on studying the composition of the team and therefore the personality of the team members. However, not all analyze the effectiveness of the work done by the team. Peslak (2006) in their investigation presents an experimental study of descriptive and correlation study to assess the impact of personality on the team processes, the success of the project and, finally, the diversity of personalities within the team. The results indicate that personality is not related on team processes and does influence project success, while the diversity of personalities within the team does not affect the success of the project.

The controlled experiment developed by Sfetsos, Stamelos, Angelis and Deligiannis (2009) was designed to investigate the peer programming from the perspective of the composition of the personalities of the developers and how they affect the efficiency of the pair. The results show that pairs with heterogeneous personalities have better communication, effectiveness and viability of collaboration. The empirical study of Walle and Hannay (2009) investigates the nature of the collaborative programming in pairs, and the effects of personality on the collaboration of programming in pairs. Their findings indicate that personality affects collaboration and personality variability increases the intensity of communication and collaboration. Finally, Acuña et al. (2009) analyze the relationships between personality and product quality through a quasi-experiment. They found that the teams exhibit a significant positive correlation between the extraversion personality factor and software product quality. As we previously mentioned, this was a quasi-experiment that allows studying correlations but not causality. This empirical work inspired the quasi-experiment presented in this paper performed in order to study the statistically significant correlations between team personality factors-group performances.

3. DESCRIPTION OF THE QUASI-EXPERIMENT

3.1. Setting

The study was performed during the practicum of information science students in two Spanish universities in Madrid area. These are two universities are: UAM and UPM.

In the first university, UAM, in the second year of studies there were 105 students distributed in two groups. There were two teachers,
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