

Code Review and Personality: The Impact of MBTI Type

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1 Introduction

Too often when considering dependable computing, the human equation is not taken into account. In order to build dependable systems, it is necessary to examine all of the aspects of software creation, not least of which are the various people involved in the creation of the software. Large variations in programming ability and performance have been observed [1]. In order to examine some of these variations, a pseudo-experiment following a correlational design was carried out. It was decided to examine just one aspect of software development, in this case code-review. The reasoning for this was that as different tasks within software development require different skills [2], it stands to reason that some people would be better at some of these tasks than others. It is also much easier to control for extraneous variables in an experimental situation when measuring a subsection of programming as compared to attempting to measure the rather amorphous notion of ‘programming ability’ as a whole. For example, the overall quality of a piece of code will not only depend on the code-review ability of the programmer, but also on their design skills, coding ability etc. An individual could design an excellent program, which when finally produced is of poor quality due to the number of bugs it contains.

As there is little research explaining the variations in ability, it was theorized that some measure of personality would shed some light on these differences. The *Myers Briggs Type Indicator* (MBTI) [3] measures four bipolar factors, these being; a person’s tendency towards extroversion or introversion; whether they internalise information through direct observation or by considering the implications and possibilities of the information around them; whether they make decisions based on a logical approach or by attempting to consider the feelings of those around them; and whether they prefer to live their lives in a scheduled and organized way, or whether they prefer to be more spontaneous and adaptable.

2 Methodology and Results

A group of 64 undergraduate computing science students from the University of Newcastle Upon Tyne (UK) were recruited in order to complete an MBTI questionnaire and a code-review task. Four pages of Java code were presented to the

students. This code contained a number of bugs which had been inserted following thorough review and testing. Prizes were awarded to the students with the highest performance in order to motivate them towards performing well on the task and all students who participated were given course credit. Performance was indicated by the number of bugs found in the time allowed.

Of particular interest were the Sensing/iNtuition and Thinking/Feeling scales. As can be seen from Table 1, by examining the performance on the code-review task according to these two scales, some statistically significant differences were found.

Table 1. Mean code-review score by SN/TF types.

	F	T
N	8.71	9.10
S	4.27	6.62

As can be observed, there were noticeable differences between the groups, with NT (iNtuitive Thinking) participants performing more than twice as well as SF (Sensing Feeling) participants. A *t-test* (which examines differences between means) comparing NTs with non-NTs returned a statistically significant result, meaning that NTs were significantly better than the other personality combinations at code-review.

4 Conclusions

These results showed that NTs perform better than other MBTI types at this code-review task. NTs tend to gain their insights by considering the interactions between factors and about possibilities rather than by simply observing concrete facts ([3], page 35). They also make their judgements by the process of logical thought. This combination of characteristics would seem to stand them in good stead for this code-review task. It seems, therefore that there is value in further examining personality types in conjunction with performance on the various tasks associated with software development. Further research should be carried out in order to examine if people of different personlity types are better at different tasks allowing for a greater choice when assigning employees to specific jobs. To this end, work is being carried out which is concerned with personality and code comprehension, as part of the Ph.D. of one of the authors.

References

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