Impact of Education and Experience Level on the Effectiveness of Exploratory Testing: An Industrial Case Study

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- New Research Study on Exploratory Testing-

**Goal of the proposed study:**

The research study aims to investigate the potential correlation between individuals’ preferred learning styles and the effectiveness of each style in the context of Exploratory Testing. The utilized learning styles through the research will be the ones of the VARK model, namely: visual, aural, read/write and kinesthetic. VARK is a widely recognized model that categorizes individuals into different learning styles based on their preferences for acquiring and processing information. By examining this potential relationship, we seek to gain insights into how different learning styles influence the outcomes and performance of individuals involved in exploratory testing activities. Exploratory testing involves a dynamic and context-driven approach, where testers actively learn about the system under test while simultaneously designing and executing test cases.

**Research questions:**

ET's effectiveness is assessed from two perspectives. First, we look at test efficiency in terms of time taken and the number of detected failures. Secondly, we assess the significance of the detected failures by considering their criticality. As a result, we developed the following study questions:

1. Is there a correlation between individuals' preferred learning styles and their effectiveness in exploratory testing?
2. How does the preferred learning style of an individual impact the test efficiency in Exploratory Testing in terms of time taken and the number of detected failures?
3. How does the preferred learning style of an individual impact the number of critical failures detected?

**Methodology:**

A group of test subjects that is composed of at least three subjects per learning style could be employed for observing potential style-specific testing techniques. The learning style of each subject is determined using a standard VARK test. Participants will engage in exploratory testing activities that are being run on the same product or software application specifically designed for the study. Following each exploratory testing session, metrics will be generated for each individual and the results will be bundled together with metrics of other individuals with the same learning style.

**Metrics:**

1. Number of failures detected.
2. Session length (necessary time to find the bugs).
3. Number of executed tests.
4. Number of critical failures detected.

We aim to assess the efficacy of Exploratory Testing (ET) by examining two primary aspects. Firstly, we evaluate the test efficiency by analyzing the effort invested in testing activities and the number of failures identified. Secondly, we assess the significance of the detected failures by considering their criticality. With these considerations in mind, we have formulated the following research questions to guide our investigation.

The findings

The goal of the study is to discover if there exists a correlation between the learning styles preferred by a person and the effectiveness of each style in Exploratory Testing.

VARK is a widely recognized model that categorizes individuals into different learning styles based on their preferences for acquiring and processing information. The VARK model identifies four main learning styles: Visual (V), Aural (A), Read/Write (R), Kinesthetic (K). The impact of these learning styles in what concerns their efficiency in exploratory testing are going to be analyzed inthrough this research paper.

The objective of this study is to examine the potential association between an individual's preferred learning style and the effectiveness of that style in the practice of exploratory testing. Exploratory testing involves a dynamic and context-driven approach, where testers actively learn about the system under test while simultaneously designing and executing test cases. By understanding the interplay between learning styles and exploratory testing, we can tailor educational strategies to maximize the benefits for learners and enhance their testing capabilities.

This research study aims to explore the potential correlation between individuals' preferred learning styles and the effectiveness of each style in the context of exploratory testing. By investigating this relationship, we seek to gain insights into how different learning styles influence the outcomes and performance of individuals engaged in exploratory testing activities. The findings from this study can provide valuable guidance for designing personalized and effective training programs in the field of software testing.