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JISBD 2017 (La Laguna)

Ruiz, F. (Ed.), Actas de las XXII Jornadas de Ingeniería del Software y Bases de Datos (JISBD 2017). La Laguna (Tenerife), septiembre de 2017.

Las XX Jornadas de Ingeniería del Software y Bases de Datos (JISBD 2015) se han celebrado en La Laguna del 19 al 21 de julio de 2017, como parte de las Jornadas SISTEDES.

El programa de JISBD 2017 se ha organizado en torno a sesiones temáticas o *tracks*. A continuación se detalla el contenido de las actas:

- Preliminares
- Comités
- Conferencia invitada: Dr. Don Gotterbarn
- Tutoriales
- Salón de la Fama
- Track ASV – Arquitecturas Software y Variabilidad
- Track GD – Gestión de Datos
- Track ISDM – Ingeniería del Software Dirigida por Modelos
- Track ISGB – Ingeniería del Software Guiada por Búsqueda
- Track IWSP – Ingeniería Web y Sistemas Pervasivos
- Track MEISSI – Métodos Empíricos en Ingeniería del Software y Sistemas de Información
- Track PSM – Proceso Software y Metodologías

- Track RCP – Requisitos, Calidad y Pruebas

Does the Level of Detail of UML Diagrams Affect the Maintainability of Source Code?: A Family of Experiments.

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Abstract. Although the UML is considered to be the de facto standard notation with which to model software, there is still resistance to model-based development. UML modeling is perceived to be expensive and not necessarily cost-effective. It is therefore important to collect empirical evidence concerning the conditions under which the use of UML makes a practical difference. The focus of this paper is to investigate whether and how the Level of Detail (LoD) of UML diagrams impacts on the performance of maintenance tasks in a model-centric approach. A family of experiments consisting of one controlled experiment and three replications has therefore been carried out with 81 students with different abilities and levels of experience from 3 countries (The Netherlands, Spain, and Italy). The analysis of the results of the experiments indicates that there is no strong statistical evidence as to the influence of different LoDs. The analysis suggests a slight tendency toward better results when using low LoD UML diagrams, especially if used for the modification of the source code, while a high LoD would appear to be helpful in understanding the system. The participants in our study also favored low LoD diagrams because they were perceived as easier to read. Although the participants expressed a preference for low LoD diagrams, no statistically significant conclusions can be drawn from the set of experiments. One important finding attained from this family of experiments was that the participants minimized or avoided the use of UML diagrams, regardless of their LoD. This effect was probably the result of using small software systems from well-known domains as experimental materials.

Keywords: UML diagrams, software maintenance, level of detail, controlled experiment, replication, family of experiments.

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