

**UNIVERSITI TEKNOLOGI MARA**

**INVESTIGATING THE  
RELATIONSHIP BETWEEN SOCIO-  
TECHNICAL CONGRUENCE AND  
SOFTWARE QUALITY IN  
SOFTWARE ENGINEERING  
PROJECT**

**ANJILA .J. BINTI SUALI**


**MSc**

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## AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student : Anjila .J. Binti Suali  
Student I.D. No. : 2015497002  
Programme : Master of Science (Information Technology) – CS751  
Faculty : Computer and Mathematical Sciences  
Thesis : Investigating the Relationship Between Socio-Technical  
Congruence and Software Quality in Software  
Engineering Project  
Signature of Student :  .....  
Date : July 2021

## ABSTRACT

Coordination in the development of a software project is essential to the process development because it could impact the software quality. Issues of coordination during development need to be identified to find out the impact on the software quality. Coordination is crucial in the development process, especially when the developers are working separately with other developers in dispersed locations. Furthermore, coordination becomes more complicated when involving a large-scale project. Failure to coordinate in the complex project impact the product quality. Product quality is one of the most important aspects when developing software. Product quality could be affected and increased the chance of product failure when the developers' coordination are unsynchronized. Thus, there is a need to have an approach to measure whether coordination occurs among developers. Measuring developer coordination is a fundamental challenge to ensure the interdependence tasks could be completed. An approach to conceptualize and measure developer coordination is known as 'Socio-Technical Congruence (STC). STC is the "fit" between the coordination requirements established by the dependencies among tasks and the actual coordination activities carried out by the developers. Because of that, this study focuses to identify the issues of coordination and its impact to the software quality. Moreover, this study is conducted to investigate the relation between the congruence of the developer's communication and the task dependency allocated and also the relation of STC and software quality. Systematic Mapping Study method was carried out to gather the previous literature related to the issues of coordination and its impact on software quality. Meanwhile, Mining Software Repository (MSR) method is used to extract data related to the developer's communication and tasks allocated to the developer. The extracted data is used to measure the congruent of coordination. The study has discovered that there are 13 issues of coordination. The findings also shows that the relationship between STC and software quality is a significant positive relationship. This finding indicates that high congruence in the development could deliver a high quality of the product when it is in positive relationship. This study is expected to contribute to the body of knowledge related to the STC in software engineering field.

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