

Information Letter

Title of the Study: The Operationality of the D and G Classifications of Functional Requirements During Requirements Engineering

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To help you make an informed decision regarding your participation, this letter explains what the study is about, the possible risks and benefits, and your rights as a research participant. If you do not understand something in this letter, please contact either of the investigators, Daniel M. Berry <dberry@uwaterloo.ca> or Victoria Sakhnini <vsakhnin@uwaterloo.ca>.

Participation in this study is voluntary. You may decline to answer any question that you do not wish to answer, and you can withdraw your participation at any time before submitting your answers by simply not submitting your answers.

Since no personal or identifying data are gathered by the questionnaire, your answers are completely anonymous. Therefore, there is no formal separate consent procedure to conduct prior to participation; if we had one, we would end up knowing who you are. If you consent, then submit your answers, and we will receive them. If you do not consent, then do not submit your answers, and we will receive no answers from you. It is that simple! In either case, we do not know who you are, unless you tell us in some free-text answer.

Thus, your having filled out the questionnaire and having submitted your answers is taken as your having consented to our knowing and publishing whatever is in your answers, including the free-text answers.

Know that your answers will be used in future research, for at least one paper, reporting what was learned from the answers of all participants. In particular, your answers will be included in the paper's online appendix as part of a replication package and will thus be preserved and be publicly visible indefinitely. Thus, be careful about what you write in free-text answers.

Study Detail:

Before writing the software (SW) for any computer-based system (CBS), it is necessary to determine its requirements, in what is called requirements engineering (RE). Since no SW can be written without knowing what it is required to do, RE is inevitable even if it is done as the SW is being written. The scope of a CBS is the set of requirements that drive its implementation.

Some believe that RE for a CBS should be done up front, producing a complete requirements specification before any of the CBS's SW is written.

- A common complaint is that (1) new requirements never stop coming; so upfront RE goes on forever with an ever growing scope.
- However, data show that (2) the cost to modify written SW to include a new requirement is at least 10 times the cost of writing the SW with the requirement included from the start; so upfront RE saves development costs, particularly if the new requirement is one that was needed to prevent a failure of the implementation of a requirement already included in the scope.

We believe that both (1) and (2) are correct, but each is about a different kind of requirements, (1) scope determininG (G) or (2) scope determineD (D), respectively.

We need to test whether distinguishing between D and G requirements is operational by requirements engineers so that any requirements engineering method that depends on identifying D and G requirements will be feasible to carry out.

Accordingly, we have recorded a video of a lecture explaining the D and G requirements and how to classify any requirement as either D or G. We test that this classification is operational by asking you to view the lecture and then to fill out a questionnaire that has you exercise the classifications in one randomly chosen manner. We use your answers to evaluate both the clarity of our explanation and whether the classification scheme itself is operational in the ways that we believe it is.

Participant Responsibility:

Participation in this study involves

- first listening to a 20-minute lecture, which is available online, about the classification scheme,
- then answering an online questionnaire in which you are asked to exercise the classification scheme in some way, and
- finally voluntarily submitting your answers.

The entire participation can be carried out online and requires approximately 45–60 minutes.

You do not need to download anything, but Internet access and a browser are required.

Withdrawal:

Participation in this study is voluntary. You may decline to answer any questions that you do not wish to answer, and you can withdraw your participation at any time during the answering of the questionnaire by simply not submitting your answers. Because the questionnaire asks no identifying questions and we receive the answers with no indication of who sent them, we have no way to associate your answers with you. Therefore, once you have submitted your answers, you cannot withdraw consent.

Remuneration: There is no remuneration for participating in the study.

Inclusion/Exclusion Criteria: The study is open to anyone. However, if we determine from inconsistencies in your answers that you are not a practicing CBS analyst, developer, or engineer, we may choose to ignore your answers. Since we will not have your identity, we will not inform you of this choice.

Benefits: The benefit from participation in the study is that you might learn a requirements classification scheme that might be useful in CBS development.

Risks: Since no personal or identifying data are gathered by the questionnaire, your answers are completely anonymous. Therefore, there is no formal separate consent procedure to conduct prior to participation; if we had one, we would end up knowing who you are. If you consent, then submit your answers, and we will receive them. If you do not consent, then do not submit your answers, and we will receive no answers from you. It is that simple! In either case, we do not know who you are, unless you tell us in some free-text answer.

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This survey uses Google Docs, whose computer servers are located in the USA. Consequently, USA authorities, under provisions of the USA Patriot Act, may access this survey data. If you prefer not to submit your data through Google Docs, please contact one of the researchers so you can participate using an alternative method, such as through an e-mailed or paper-based questionnaire. The alternate method may decrease anonymity, but we assure you that in saving your answers, we will not save with them any identifying data, such as the sender's e-mail address.

There are no other known or anticipated risks from participating in this study.

Information Stored: The data, with no personal identifiers, collected from this study will be maintained on a password-protected computer database in restricted access areas of our university.

Confidentiality: Since no personal or identifying data are gathered by the questionnaire, your answers are completely anonymous. Therefore, there is no formal separate consent procedure to conduct prior to participation; if we had one, we would end up knowing who you are. If you consent, then submit your answers, and we will receive them. If you do not consent, then do not submit your answers, and we will receive no answers from you. It is that simple! In either case, we do not know who you are, unless you tell us in some free-text answer.

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Ethics Clearance:

This study has been reviewed and received ethics clearance through the Research Ethics Board of the University of Waterloo (ORE#45030). If you have questions for the Board, contact the Office of Research Ethics, toll-free at 1-833-643-2379 (Canada and USA), 1-519-888-4440, or <reb@uwaterloo.ca>.

If you have any questions regarding this study, or would like additional information about participation, please contact either of the investigators, Daniel M. Berry <dberry@uwaterloo.ca> or Victoria Sakhnini <vsakhnin@uwaterloo.ca>.