Responses to Reviewer Comments

We appreciate the editor and reviewers for the comments we have received. We have considered all the comments in the current revision. The improvements are indicated in the manuscript using track changes. The final version of the manuscript can be obtained by replacing the line in the "Article.tex" file:

> \usepackage[draft]{changes}

with:

> \usepackage[final]{changes}

Below, we detail the responses to the comments and the changes made:

Comment 1 - Improved figure number 2

Response to Comment 1 - Thank you very much for this observation. Indeed, the purpose of this figure needed to be clarified. We have improved the figure by adding the abstraction of the process that researchers obtained from the sketch made by the experimenters. Additionally, we have added the following explanation in the caption:

> Example of a sketch made by the experimenters. The researchers have used drafts like this to progress in defining the experimental process workflow described in Section 4.1.

Comment 2 - Proper formatting is required throughout the manuscripts.

Response to Comment 2 - We have carefully reviewed the manuscript.

- We ensured that the LaTeX template corresponds to the latest version, available at https://digital-library.theiet.org/journals/author-guide. The IET logo now appears in the upper right corner by adjusting the template to the newest version.
- We corrected the way the bibliography is presented in the Reference Section. Cited articles now appear correctly in brackets.

- We corrected the lists so that the bullets appear in the correct place.
- We reduced the size of the bullets.

Since these changes affect the overall format, they are not marked in the manuscript. Otherwise, the entire text would appear as modified.

Comment 3 - Please provide limitations and future scope in the conclusion section.

Response to Comment 3 - Threats to validity are described in Section 6 "Threats to validity." However, threats to validity do not represent the limitations of the work. We appreciate the reviewer's comment. In Section 7 "Conclusions," we have included the following text:

> However, this work is subject to various limitations. The first and most important is the empirical basis obtained. Although ethnographic research has been extensive over time and conducted using multiple techniques, in the end, we only have data from one research group. Furthermore, this group's experimenters have self-trained in the field, meaning they have not received specific academic training. The observed peculiarities could be habits acquired over time that other, more recent groups with formal training do not possess.
>
> We also cannot rule out errors in perception on the researchers' part as well. As mentioned earlier, we had yet to learn of experimentation at the beginning of ethnographic research, which may have led us to misinterpret some behaviors of the experimenters. On the other hand, perhaps the researchers' "fresh" perspective has allowed us to identify our findings.

Regarding future work, we have modified the single paragraph that appeared on the manuscript:

> We are aware that the findings of this study correspond to the particular perspective of an experimental research group, albeit representative of the ESE community. Therefore, it is necessary to carry out further studies to generalize the results of the present work. We have completed a survey exploring issues, e.g., terminological diversity, that surfaced during the ethnography. We have also completed a comparative study of the experimental process between the SE and an established engineering discipline. Both works will likely be published shortly.

> In addition, we plan to conduct more studies (probably not ethnographic because they require too much time) on this topic soon.

replacing it with a more explicit and detailed description of future research plans:

> To overcome the limitations of the present investigation, it is necessary to carry out further studies to generalize the results of the current work. Our plans are as follows:
>
> - Verify the existence of terminological diversity, one of the first aspects that has emerged in the research and is relatively easy to check. We have already started this work. We surveyed SE experimenters from multiple research groups. In the survey, we asked them about the meaning and usage of experimentation-related terms. Preliminary results confirm the existence of terminological diversity.
> - After completing the ethnographic research, we initiated a comparative study of the experimental process between SE and an established engineering discipline (specifically, biotechnology). Preliminary results indicate the absence of terminological diversity and a greater formalization of the experimental process within specific research areas but not at a general level. This could be the key to terminological diversity in SE: sub-areas of SE generally have not developed specific terminology and protocols (with [51] being a notable exception), which could lead to the need for ad-hoc concepts and processes.
> - Both works will likely be published shortly. In addition, we plan to conduct more studies in the future on this topic soon. We still need to decide on the objects under study and the methodologies used since ethnography is very demanding. A possibility to study the impact of specialization in the sciences is to analyze experimental repositories. This represents an indirect but efficient approach in terms of time and effort. Another alternative is conducting qualitative studies using focus groups composed of SE experimental researchers.

Comment 4 - Please clearly define the objective of manuscripts in the introduction section.

Response to Comment 4 - Thank you very much. Indeed, the definition of the research objective was a single and short line. We have re-written the research objective more clearly:

> This paper aims to investigate how experimental researchers conduct experiments in practice. We intend to determine how experimental researchers plan, execute, analyze, and report their investigations and what concepts, protocols, and processes they use.

Comment 5 - Please add some recent references.

Response to Comment 5 - We have included the following recent references:

> Traini, L.: 'Exploring performance assurance practices and challenges in agile software development: an ethnographic study', Empirical Software Engineering, 2022, 27, (3), pp. 74.

> Azarova, M., Hazoglou, M., Aronoff.Spencer, E.: 'Just slack it: A study of multidisciplinary teamwork based on ethnography and data from online collaborative software', New Media & Society, 2022, 24, (6), pp. 1435–1458.

> S. Yadav, M. S. I. Sudman, P. Kumar Dubey, R. Vijava Srinivas, R. Srisainath and V. Chithra Devi, "Development of an GA-RBF based Model for Penetration of Electric Vehicles and its Projections," 2023 International Conference on Self Sustainable Artificial Intelligence Systems (ICSSAS), Erode, India, 2023, pp. 1-6, doi: 10.1109/ICSSAS57918.2023.10331883.