Dear Dr Daniel Turek,

After review, we have reached a decision regarding your submission to Data Science Journal, "Effective Data Science Education: A Project-Based Case Study Perspective". Our decision is to request revisions of the manuscript. These revisions may then undergo further peer review prior to acceptance.

The full review information is included at the bottom of this email. There may also be a copy of the manuscript file with reviewer comments available once you have accessed the submission account.

To access your submission account, follow the below instructions:
1) login to the journal webpage with username and password
2) click on the submission title
3) click 'Review' menu option
4) download Reviewed file and make revisions based on review feedback
5) upload the edited file
6) Click the 'notify editor' icon and email the confirmation of re-submission and any relevant comments to the journal.

Please include a full response to the reviewers' comments alongside your revised manuscript. Please also ensure that your revised files adhere to our author guidelines, that the files are fully copyedited/proofed prior to upload and that all copyright permissions have been attained. This is the last opportunity for major editing, therefore please fully check your file prior to re-submission.

If you have any questions or difficulties during this process, please do contact us.

Please could you have the revisions submitted by [GIVE 2 WEEK DEADLINE]. If you cannot make this deadline, please let us know as early as possible.

Kind regards,

Dr Hugh Shanahan
Royal Holloway, University of London
Hugh.Shanahan@gmail.com

Reviewer A:

1. Originality:

While all research builds upon existing knowledge and evidence, do you believe this submission progresses knowledge on this subject? Are there original findings, or do conceptual arguments provide a somewhat new perspective on established thinking? Select one of the options below, and feel free to elaborate in the comment box.
:
Somewhat original

Comments/Explanation:
:
I think its important to examine and discuss the education of data science. This article used a conceptual approach by examining current theories of science education

2. Methodology:

Please assess the clarity and overall appropriateness of the methodology, keeping in mind that different criteria may be applied in assessing empirical versus more theoretical or conceptual articles. Are the methodology and data sources noted in the article, and are methodological weaknesses addressed? Overall, do you find the methodology appropriate for the subject matter being examined in the submission? Please briefly explain your response in the comment box, and provide suggestions to the author for bolstering the methodology, if appropriate.
:
Sufficient methodology

Comments/Explanation:
:
I think a case study is sufficient to use.

3. Clarity:
Do you find the writing to be clear and structured in a logical manner? Please keep in mind that, if an article is accepted, we will work with the author to strengthen the prose and structure. In the comment box, please offer suggestions for strengthening the writing AND/OR the structure of the piece.
:
Somewhat unclear

Comments/Explanation:
:
At the beginning of the paper, I held a clear understanding of the direction of this paper (i.e. This is case study of data science. U.C. Berkley Bids Collaborative . Successes, failures and recommendations, used theories to add context to the study).

The description of the projects should be discussed earlier in this paper. In the section header: Lessons Learned, I was unsure why the author included We now discuss several of these lessons learned. I was looking for a clear description of the outcomes of this study. Specifically stating what the successes, failures and recommendations were. Perhaps organizing the paper in this manner will provide more clarity and structure to the writing.

4. Ethical approval:
If human or animals have been used as research subjects, are statements of ethical approval by a relevant authority present? Where humans have participated in research, informed consent should also be declared.
If not present, please detail where you think a further ethics approval/statement is required.
:
n/a

5. Other Comments:
Please use the box below to provide other comments, which do not fall into the categories above, to the author.
:

Reviewer C:

1. Originality:

While all research builds upon existing knowledge and evidence, do you believe this submission progresses knowledge on this subject? Are there original findings, or do conceptual arguments provide a somewhat new perspective on established thinking? Select one of the options below, and feel free to elaborate in the comment box.
:
Not original

Comments/Explanation:
:
Lessons learnt are rather obvious and superficial, e.g. "Projects must be well-posed, and have a well-defined goal which students could work towards", "relevant data must be available in advance". These are very much true, but without more concrete data behind them and innovative solutions to mentioned issues, they do not constitute a scientic contribution. The paper really misses better evaluation of the ways to define project milestones, use of Github and Slack. If these aspects were quantified, possibly on a bigger group, the paper would become useful.

The lessons learnt (or best practices) determined by authors, are definitely correct but I would argue that they are also well know already to most of educators.

2. Methodology:

Please assess the clarity and overall appropriateness of the methodology, keeping in mind that different criteria may be applied in assessing empirical versus more theoretical or conceptual articles. Are the methodology and data sources noted in the article, and are methodological weaknesses addressed? Overall, do you find the methodology appropriate for the subject matter being examined in the submission? Please briefly explain your response in the comment box, and provide suggestions to the author for bolstering the methodology, if appropriate.
:
Weak methodology

Comments/Explanation:
:
The discussion on traditional and non-traditional approaches to teaching is missing reference to constructive alignment. While project based learning can be considered a form of constructive alignment, it is only a small subset. It seem that this omission influences the whole paper, where discussion is focused a bit too much around technicalities and less so on major conceptual differences between various teaching and learning tasks with related grading practices that should motivate higher levels of learning. See works of Biggs for more information. Possibly failure of traditional instruction model is also missing some references to e.g. https://lup.lub.lu.se/search/publication/1691321 (I realize it's not in English, but it's worth it).

There is no quantitative data in the paper, which is a major negative point for a paper that attempts an evaluation of experience in a course. One exception is graph from github, but it's not analyzed in much depth.

3. Clarity:
Do you find the writing to be clear and structured in a logical manner? Please keep in mind that, if an article is accepted, we will work with the author to strengthen the prose and structure. In the comment box, please offer suggestions for strengthening the writing AND/OR the structure of the piece.
:
Somewhat clear

Comments/Explanation:
:

No major comments here.

4. Ethical approval:
If human or animals have been used as research subjects, are statements of ethical approval by a relevant authority present?
Where humans have participated in research, informed consent should also be declared.
If not present, please detail where you think a further ethics approval/statement is required.
:
Students are subjects, but only indirect, so probably no consent is necessary.

5. Other Comments:
Please use the box below to provide other comments, which do not fall into the categories above, to the author.
:
In my opinion the paper needs to provide more quantitative data and deeper analysis to be considered for acceptance.
