

We thank the Anonymous Referee #1 for taking the time to review the manuscript (**gc-2020-43: *Using paired teaching for earthquake education in schools***). We have updated the manuscript as suggested. The detailed response is shown below in **blue**.

1. The paper, in the middle, “goes into the weeds” on lots of little in-class details when the reader hungers for the “bottom line,” i.e., Did it work? Yes or No? And why? Suggest that lots of these minutia details be relegated to an appendix, perhaps shortening the main text by 50% or so. The main text can summarize “the weeds.”

Response: We thank the reviewer for this observation. However, we are not sure what exactly has been identified as "minutia details" that should be moved into an appendix. The middle of the paper (referred to by the reviewer) is the result section. We shortened the text, but could not remove a large section from this part of the manuscript as it describes the evaluation data and plots. We have also moved section 2.1.1 to the appendix. This section provides an example of a paired teaching video which is explained in 8 paragraphs.

2. “. . .the local language (Tajik) was used in teaching and in all written and media materials.” Does this mean that the paired teaching videos were available in Tajik as well as in English? The manuscript is unclear on this. It states that the live discussions of students and teachers were in Tajik, but is unclear on the videos. If the students in Dushanbe were shown English-spoken videos, then the lack of before-and-after knowledge improvement is most understandable.

Response: Yes, the paired teaching videos that were tested in Tajik classrooms were dubbed in Tajik (the local language). We have modified the manuscript text to make this point clear.

3. The key message is the “underwhelming” amount of new learning, especially in Dushanbe. This reviewer was unable to discern how much of this is due to language (were the videos in English?) and how much to culture. Interactive classrooms are quite novel in most countries – where the tradition is that the teacher is undisputed leader and the students dutifully follow. Perhaps it would have been better to start the students on paired-learning materials on more traditional STEM subjects like math or basic science. But this is easier said than done due to lack of video materials in the local language.

Response: Thank you for making this point. We do not think that the language was a barrier to learning. As mentioned under our response to comment #2, all instructions and discussions as well as materials used for teaching including the videos were made available in the local language. As for other hindering factors, we agree with the reviewer that interactive classrooms are novel in most countries where many teachers are unfamiliar or inexperienced with collaborative learning methods. This certainly was the case in Tajikistan. Therefore, the textbook-based classroom culture is most likely an important hindering factor in this study. We have discussed this in more detail in section 4.3 (classroom culture).

As for using more traditional STEM subjects to introduce paired teaching, this can be a possibility as long as the content is relevant and related to those subjects. Based on the previous experiences and input we received from the school administrators and teachers, geography classes were a good choice for testing our geoscience videos because of the content overlap. The videos covered topics that were also covered (though not in depth) in geography textbooks (e.g., Earth's interior, plate motions, and natural hazards).

4. The failure of teachers in Dushanbe to serve as in-classroom teachers in the paired-teaching mode may be cultural and/or due to lack of training in this new pedagogical model. Please discuss.

Response: We agree with the reviewer, and have added a paragraph to the manuscript to discuss this point. We provide a summary here: the paired teaching video lessons are designed to be a complete resource. They include video segments, teacher's guides, downloadable handouts and lists of other resources relevant to the topic. Therefore, no teacher training should be needed in order for teachers to use these videos. However, teachers are encouraged to view the videos and familiarize themselves with the content before using them in their classrooms. This study, however, reveals that these videos may not be seen as a complete resource by some teachers. While the UK teachers tested the videos with minimal input from video creators, teachers in Tajikistan asked to observe classroom testing of the videos. This request was made despite the fact that the teachers were offered (i) training to deliver the videos, and/or (ii) the option to co-teach the video lessons with experienced instructors. The textbook-based classroom culture (typical of schools in Tajikistan) may explain why Tajik teachers did not want actively engage in video testing. The study, therefore, shows that the paired teaching pedagogy is not a "one size fits all" teaching approach, and depends on the classroom culture and teacher's comfort operating within it.

5. The recently renovated school in Dushanbe: Was it designed with the latest protections for earthquakes, with their destructive threats to life and limb? Answering that question would have been a nice addition to class discussions, especially if the answer was very positive – that is, substantial structural improvements and student training improvements.

Response: The school in Dushanbe was not renovated. It is a brand new school built in the place of the old school. We have changed the language in the manuscript to correct this. The new school has been constructed according to the existing seismic building codes of Tajikistan. Since schools are considered to be critical infrastructures (like hospitals) in Tajikistan, they are designed to withstand earthquakes with intensity degree of IX on Medvedev-Sponheuer-Karnik (MSK-64) intensity scale. The IX intensity value describes earthquake events that can be destructive, causing substandard structure collapse and substantial damage to well-constructed structures. Therefore, the school has been built with the latest protections for earthquakes.

The structural integrity of the school building was not discussed with the classroom during video testing as it was not the focus of the three selected videos. However, as part of our non-structural hazards video lesson, students were given the opportunity to carry out a rapid visual screening of their classrooms to identify and evaluate non-structural hazards. These are non-structural components in buildings such as furnishing, equipment, electrical and mechanical fixture and architectural features. For each non-structural hazard students identified, they offered possible mitigation strategies (see section 2.2.3, lines 196-200). The non-structural hazard video lesson uses a place-based approach, which promotes the kind of discussion the reviewer is recommending.