Development and evaluation of an augmented reality education program for pediatric research

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1st Editorial decision

21-Feb-2020

Ref.: Ms. No. JCTRes-D-19-00040
Development and Evaluation of an Augmented Reality Education Program for Pediatric Research
Journal of Clinical and Translational Research

Dear author(s),

Reviewers have submitted their critical appraisal of your paper. The reviewers' comments are appended below. Based on their comments and evaluation by the editorial board, your work was FOUND SUITABLE FOR PUBLICATION AFTER MINOR REVISION.

If you decide to revise the work, please itemize the reviewers' comments and provide a point-by-point response to every comment. An exemplary rebuttal letter can be found on at http://www.jctres.com/en/author-guidelines/ under "Manuscript preparation." Also, please use the track changes function in the original document so that the reviewers can easily verify your responses.

Your revision is due by Mar 22, 2020.

To submit a revision, go to https://www.editorialmanager.com/jctres/ and log in as an Author. You will see a menu item call Submission Needing Revision. You will find your submission record there.

Yours sincerely,

Michal Heger
Editor-in-Chief
Journal of Clinical and Translational Research

Reviewers' comments:

Reviewer #1: Innovative study using technology to meet the desire of learners (patients and families). Would like to know more about the development of the AR program- cost, time, overall feasibility/generalizability. It would have been helpful to describe what age children are targeted in the abstract and earlier in the study. There can be a huge difference in 7yo vs 13yo and having 2 different versions even for this age group may be helpful. Your conclusion states that children's and parents assimilation and understanding of research (and medical) knowledge are enhanced....did you actually look at medical knowledge? You do have a reference to this effect but not clear that you studied that in this particular study and may be overreaching.
p 4 line 24 …"used in medicine to teaching" should be "used in medicine to teach"
p 5 line 52 "in the decisions regarding participating in pediatric research".....do you mean "participation in pediatric research"?
p6 line 17 "to establish a sense understanding"....you forgot a word here

I particularly liked the description of process on p7 lines 35-49.

p8 line 36 "research assistants double-checked"....double check wording here as not clear
p 11 line 47 "significant improvements in understating" should be "understanding"

Is Table 6 broken down by age group for the children? That may provide more useful information.

Reviewer #2: This study aimed to determine whether providing assent information that is typically in written form to children in either a storybook or AR format would affect their information consumption and understanding. Overall, this is a good publication. There is a lot of value in providing children with this information via multiple avenues -- especially interactive, engaging content. The study methods were sound, and the publication was well written. A few comments/questions:

Methods
- Were any participants excluded based on their score on the DICC? It seems like they were likely not, but it would be good to clarify.

- The value of knowing that people preferred AR over written or verbal is not as powerful, since only written content was given as a control. In the future, it would be helpful to see a comparison of all three.

Conclusion
- Since the goal of this work is eventually to have many places use this method of information delivery, would you discuss how you might see this working across different studies? Would the experience you outlined be a general overview of research, and then the study-specific details could be customized? Or does each use of this content need to be customized? (which is, of course, not very scalable)

Misc
- Page 9, line 36 - remove "double checked"
- Page 12, line 48 - "understating" should be "understanding"
- Throughout - use AR instead of "augmented reality", since you define the abbreviation immediately.

Author's rebuttal

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24 February 2020
Re: revision JCTR-D-19-00040

Dear Michal,

Thank you for giving us an opportunity to resubmit a revised version of our manuscript entitled "Development and Evaluation of an Augmented Reality Education Program for Pediatric Research."

We have addressed all comments of the reviewers using the track changes function in Word (attached as supplementary material not for publication). Moreover, every modification or rebuttal of the reviewer's comments is detailed per comment below in red italics.

We appreciate the useful and constructive comments of the reviewers, as a result of which the paper has been considerably improved.

On behalf of the authors, kindest regards,

Alan Tait

Reviewer #1

1. Would like to know more about the development of the AR program- cost, time, overall feasibility/generalizability.
Some of the details of the AR program are proprietary, however, we have added more detail regarding the development of the AR program and its generalizability.

2. It would have been helpful to describe what age children are targeted in the abstract and earlier in the study. There can be a huge difference in 7yo vs 13yo and having 2 different versions even for this age group may be helpful.
We have now included the age range of the children in the abstract and mention our focus on children and young adolescents in the methods section.

3. Your conclusion states that children's and parents assimilation and understanding of research (and medical) knowledge are enhanced....did you actually look at medical knowledge? You do have a reference to this effect but not clear that you studied that in this particular study and may be overreaching.
The reviewer is correct that we did not look at medical knowledge in this study. I have deleted that statement although we believe that the way in which children assimilate and understand research knowledge is likely similar to that for medical knowledge and, as such, these types of innovative approaches are also likely to help children understand treatments and procedures.

4. p 4 line 24 …"used in medicine to teaching" should be "used in medicine to teach"
Thank you, we have corrected this.

5. p 5 line 52 "in the decisions regarding participating in pediatric research".....do you mean "participation in pediatric research"?
Done, thank you.

6. p6 line 17 "to establish a sense understanding"....you forgot a word here
Corrected, thank you.

7. p8 line 36 "research assistants double-checked"....double check wording here as not clear
This means that the initial data entry was double-checked by another individual for accuracy. We have added a note to that effect.

8. p 11 line 47 "significant improvements in understating" should be "understanding"
Done, thank you.

9. Is Table 6 broken down by age group for the children? That may provide more useful information.
Thank you for this suggestion. We have reformatted table 6 to indicate preferences by child age (based on median split). As shown, the preference for an AR application together with a verbal discussion with the investigator was consistent for both younger and older children.

Reviewer #2

1. Were any participants excluded based on their score on the DICC? It seems like they were likely not, but it would be good to clarify.
Participants were not excluded based on DICC scores.

2. The value of knowing that people preferred AR over written or verbal is not as powerful, since only written content was given as a control. In the future, it would be helpful to see a comparison of all three.
This is a valid point and we agree that inclusion of verbal only would have been optimal.

3. Since the goal of this work is eventually to have many places use this method of information delivery, would you discuss how you might see this working across different studies? Would the experience you outlined be a general overview of research, and then the study-specific details could be customized? Or does each use of this content need to be customized? (which is, of course, not very scalable)
This was essentially a proof of concept study to evaluate the effect of a novel AR program on understanding and acceptance of information provided for research. The idea would be for this to serve as a general introduction to research but then use the technology to provide more study specific information, as needed. Once the basic assets (Images, 3D models, sounds, etc.) have been designed the ability to customize is relatively straightforward. We have added some information in the methods to describe scalability.

4. Page 9, line 36 - remove "double checked"
Done

5. Page 12, line 48 - "understating" should be "understanding"
Done

6. Throughout - use AR instead of "augmented reality", since you define the abbreviation immediately.
Thank you, done.

2nd Editorial decision

24-Feb-2020

Ref.: Ms. No. JCTRes-D-19-00040R1
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Pediatric Research
Journal of Clinical and Translational Research

Dear authors,

I am pleased to inform you that your manuscript has been accepted for publication in
the Journal of Clinical and Translational Research.

You will receive the proofs of your article shortly, which we kindly ask you to
thoroughly review for any errors.

Thank you for submitting your work to JCTR.

Kindest regards,

Michal Heger
Editor-in-Chief
Journal of Clinical and Translational Research

Comments from the editors and reviewers: