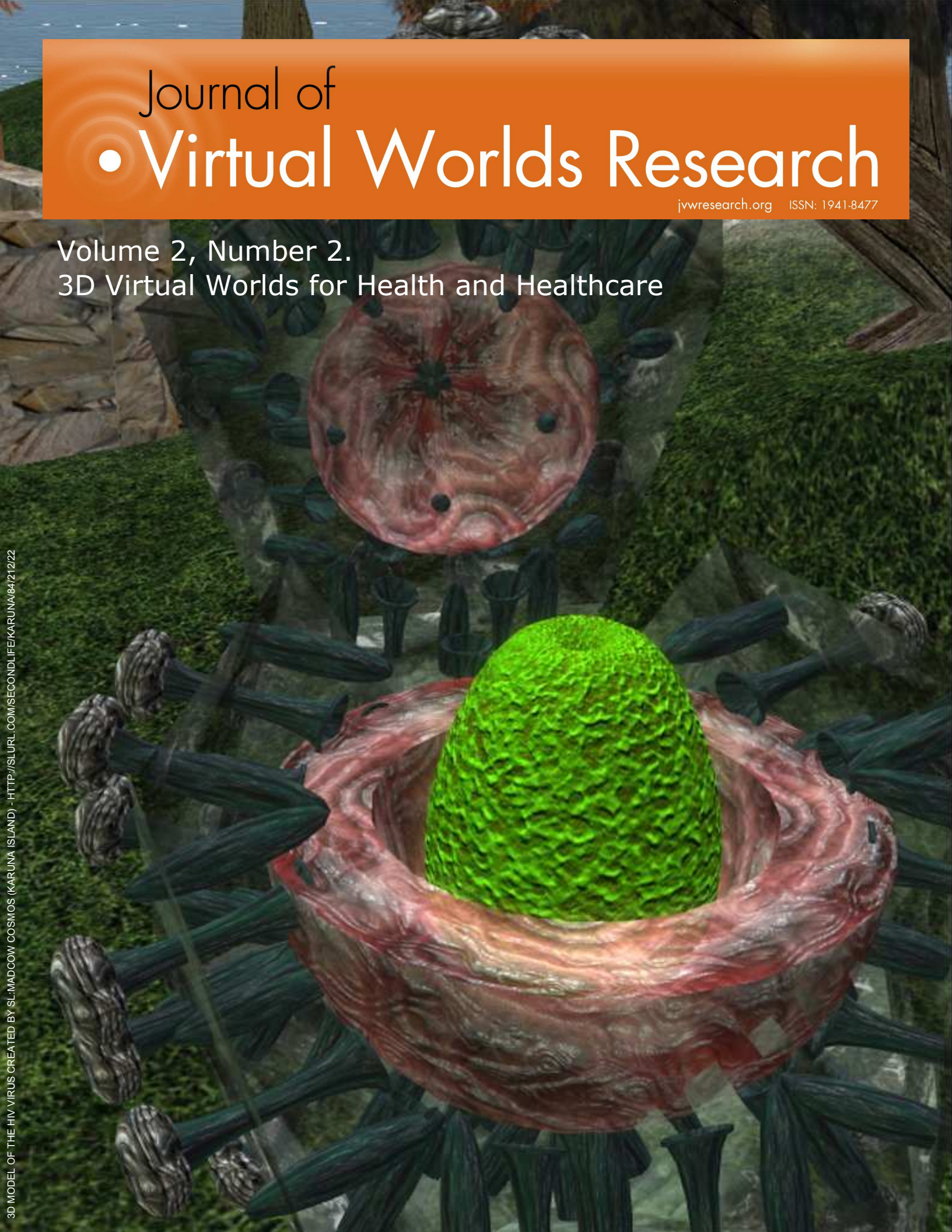

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3D MODEL OF THE HIV VIRUS CREATED BY SL:MADCOW COSMOS (KARUNA ISLAND) - HTTP://SLURL.COM/SECONDLIFE/KARUNA/84/212/22

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Pitfalls in 3-D Virtual Worlds Health Project Evaluations: *The Trap of Drug-trial-style Media Comparative Studies*

By Maged N. Kamel Boulos and Inocencio Maramba, University of Plymouth

Abstract

This 'think-piece' proposes to avoid evaluation trials comparing 3-D virtual worlds and the flat Web, and to instead investigate and evaluate the two modalities as different but complementary and synergistic media rather than as competing media trying to replace one another.

Keywords: evaluation studies; health; healthcare; media comparative studies.

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Pitfalls in 3-D Virtual Worlds Health Project Evaluations:
The Trap of Drug-trial-style Media Comparative Studies

By Maged N Kamel Boulos and Inocencio Maramba, University of Plymouth

Comparing the World Wide Web (also known as 2-D, two-dimensional Web or flat Web) to three-dimensional (3-D) multi-user, immersive virtual worlds can be tricky, and some might consider it similar to comparing apples with oranges or comparing the experience of reading an online health information leaflet to that of having a face-to-face meeting with a clinician. The affordances of both media are different; they are also not mutually exclusive nor a substitute for one another. Rather, they are very complementary and synergistic in many ways.

We need to identify and focus/capitalise on what 3-D virtual worlds are best at--those (useful) things and scenarios that can only be effectively carried out in virtual worlds and not via any other 'e' medium (at least, not as effectively), and also to determine the optimal formulae for blended approaches that combine 2-D and 3-D media.

Online leaflets and static information materials have no social component--even those materials offering single-user interactivity or asynchronous, multi-user (predominantly textual) interactivity remain seriously lacking in this respect. Second Life®, on the other hand, is about 3-D social networking *par excellence*; it has this unique 'human touch' and is instantaneous, something not found (at least not in a similar way) in 2-D social networking sites like MySpace and Facebook nor in instant messaging/voice chatting services like Paltalk and Skype. Second Life® is closer in many respects to face-to-face social encounters, but also adds to them many exciting new dimensions, fantasy, and virtually endless possibilities. And let us not forget that Second Life® is a collaborative 3-D "wiki" and an immersive audio-visual spatial experience that users can edit and experiment with - and then see the changes in real time!

People also have different tastes/preferences and currently the audiences of the 2-D Web and the 3-D Web/Second Life® are overlapping but still different. Furthermore (and in support of the above mentioned potential complementarity and synergy between both media), we are starting to see the 2-D and 3-D Webs gradually converge and merge to produce many new and novel applications.

Our main "concern", as with all such comparative evaluation studies, is about the 'generalizability' of the results. It is relatively easy to compare specific instances or productions of a number of modalities (2-D and 3-D)— instances that reflect the way we have produced or used those modalities and their production quality—and match to our specific audience (e.g., specific software packages used, ad hoc configurations and customisations, and custom content selection, blending and presentation approaches, etc.). However, it is much more difficult to boldly say "Modality X (in general, as a 'bucket category') is better or worse than Modality Y, or worse than Modalities X and Y combined"—even when we try to tie those statements to some 'best practice' conditions drawn from our own specific experience. The 'generalization' difficulty and limitations of such conclusions also remain when combining results from different studies (conducted by different groups, who have used their own different instances of those modalities) and doing a meta-analysis and pooling of those results (Cook, 2009).

We are not saying not do a comparative study; we are just reflecting on why people should be doing one (see our comparison with drug trials below). The results of such studies can of course be very informative and useful for improving the evaluated instances or productions, and very illuminating in deciding which of those modality instances should be dropped (to save resources and money), added or improved in a future iteration of the evaluated course or situation, assuming that our student characteristics/audience profile will remain stable.

This is unlike in drug comparison trials, where unique drug entities in unique physical dispensing forms that have specific baseline pharmacokinetic and pharmacodynamic attributes need to be, and are being, compared (the purpose in these trials is not to generalise). The variations are essentially in the study subjects and their environment(s), and of course in how 'subject plus environment' interact with the evaluated drug entities (intra- and inter-subject variability). Applying the same evaluation model to the comparison of e-learning delivery modalities would be like trying to say "if a specific Antidepressant X is found to be better than Placebo, then all Antidepressants (past, present and future) are, or can be said to be, better than Placebo", which is obviously very flawed reasoning. Drugs (in the above context) are fixed; subjects and environment of course vary. On the other hand, e-learning modalities, generic or tailored, are very variable, and students and their environment also do vary. In a parallel example, one cannot judge the quality or utility (or superiority/inferiority, if comparing with other modalities) of, say, the whole motion picture industry and contributions based on a single film production (good or bad) or a limited group/selection of such productions (the 'generalisation' issue).

This is similar to the problems involved in comparing computer-based learning and non-computer instruction, which, as stated by Friedman (1994), is logically impossible because there are no true comparison groups (see also Cook, 2009). Even comparison of different modes of computer-based learning methods is subject to a large variance within and among interventions using different media. According to Cook (2005), when comparing a discussion board to a Web-page-based tutorial, it may prove challenging to account for all the differences in instructional methods and presentation. Such differences will also be present when comparing 3-D Virtual Worlds with the 2-D Web. It has also been noted by Norman (2003) that the blind application of experimental and clinical trial methods can lead to small, non-replicable and non-interpretable results ("we cannot simply administer 20 mg of e-learning" or be certain about " how much of the 'therapy' was actually received by the student").

What kind of research should be done then? As we stated previously, research would be better focused on finding out in which situations these various modalities excel at delivering content and fostering useful interaction and communication. Also, the relationship between individual learning styles and the mode of e-learning has received relatively little attention. It may be more useful to conduct research within levels of instructional design and not across them (Cook, 2005).

So 3-D virtual worlds are here to stay and eventually become tightly and seamlessly integrated with the 2-D Web over the coming months and years, rather than replace the 2-D Web. It would be more useful to investigate the two modalities (3-D and 2-D) in this context, as different but complementary and synergistic media rather than as competing media trying to replace one another (Cook, 2009).

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