

PROTOCOL

Exploring suspension of disbelief in healthcare simulation: A scoping review protocol

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ABSTRACT

Introduction

Suspension of disbelief (SoD) is a concept that relates to participants in healthcare simulation being willing to suspend their disbelief, being able to accept the unreal elements of a simulation, but still act as if the situation was real, so that they may become immersed in the simulation. However, the evidence to support this commonly used concept is not clear. This protocol sets out the methods to be used to undertake a scoping review of the literature relating to SoD in healthcare simulation.

Methods

A scoping review methodology will be used to undertake a comprehensive database (I: MEDLINE, Psychology and Behavioural Sciences Collection, CINAHL Plus with Full text, APA PsycINFO APAPsycArticles, AMED – The Allied and Complementary Medicine Database and Scopus) literature search focussing on healthcare simulation following the Population, Concept and Context framework (healthcare professionals, SoD, and simulation). Included literature will be assessed using the Mixed Methods Appraisal Tool for primary research papers and the Authority, Accuracy, Coverage, Objectivity, Date, Significance checklist for grey literature.

Analysis

Data analysis will be undertaken using thematic analysis and narrative reporting. This work will contribute to the wider understanding of the concept within healthcare simulation. It will help to provide guidance and a focus for future research into the concept.

Introduction

Healthcare simulation has adopted a variety of concepts from different fields throughout its evolution. One such concept is the suspension of disbelief (SoD), which originated in the field of literature as a concept that writers needed to create a sense of belief in what was being read, heard or seen. Dieckmann, Gaba and Rall [1] suggested SoD in simulation as being a state that is created by the facilitator to help participants feel immersed in their simulation experiences. While the concept is widely accepted in practice as a requirement for healthcare simulation [2], it is not clear how this is defined and achieved, and whether it contributes to the effectiveness of a simulation.

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This scoping literature review aims to explore the concept of SoD to help form an understanding of how it is described within the healthcare simulation literature, whether there is any evidence or perceptions on what is required to achieve it, and its impact on learning.

Background

Dieckmann [2] describes the requirements of participants in healthcare simulation to be in the 'presence' of the simulation. He identified two cues of healthcare simulation, reality and fiction, that impact the ability of participants to engage. Healthcare simulation has seen the SoD to be a 'means to an end' for participants to achieve immersion and a sense of realism during scenarios [3]. However, Dieckmann, Gaba and Rall [1] highlight the importance of creating the optimal conditions for participants to be able to achieve SoD.

The concept of SoD originates from the field of literature. Samuel Coleridge is credited with describing the term in his work, *Biographia Literaria* [4] in 1817. This seminal work described the necessity of authors to create such an environment for the audience that they are able to believe what they are seeing, hearing or reading with the knowledge that it is not real.

In line with literary history, the concept has been extensively explored within the arts. In particular, there has been a good understanding of the importance of SoD in encouraging engagement with the arts and media. Ji and Raney [5] proposed a model of entertainment where SoD, fed by the narrative of realism and external realism, leads to the emotional and cognitive involvement of audiences. This puts the emphasis on the producers to create the necessary realism conditions for audiences to experience SoD and therefore become emotionally and cognitively involved in the entertainment performance.

More recently, the field of robotics has looked at the importance of willing the SoD within social robots. Duffy and Zawieska [6] describe five challenges: temporal limitations, control over context, overlap of fiction and reality, and conversation and strangeness. All are considered important to the science of robotics in ensuring believability in social robots and are seen as needing to be overcome to enable meaningful social interaction with social robots.

Despite the presumed requirement to understand SoD in healthcare simulation and the extensive work undertaken to understand it within other disciplines, it does not appear to have been explored in detail within the field of healthcare simulation. In addition to the work of Dieckman Gaba and Rall [1] and Dieckmann [2], Muckler [3] has explored the concept, describing some of the attributes thought to contribute to the creation of SoD. Muckler and Thomas [7] researched the lived experiences of nursing students suspending disbelief during simulation-based education events. This showed that environment and tempo of the simulation were important determinates, but also that apprehension and confidence with both simulation and the topic of simulation contributed to the participants' ability to suspend. The International Nursing Association for Simulation Learning (INACSL) relates SoD to the concept

of fidelity [8] (another highly debated concept in healthcare simulation). However, to the authors' knowledge, there has not been any published literature review scoping and exploring the use of the SoD term within healthcare simulation to date.

Research aims

This scoping review aims to systematically identify and map a range of literature to answer the following research question: How is the term SoD defined and described in the healthcare simulation literature? What evidence or strategies are there of how to achieve SoD? What impact does SoD have on the outcomes of the simulation activity?

Objectives

- To identify how the term SoD is defined in the healthcare simulation literature.
- To explore how SoD is described within the healthcare-simulation-related literature and practised.
- To identify any evidence or strategies that claim to effectively create SoD.
- To assess SoD's importance in relation to and impact on the intended outcomes in a healthcare simulation.

Methods

This scoping review will follow the Joanna Briggs Institute (JBI) methodology [9] for scoping reviews. These guidelines will ensure that the review is rigorous in its process and that the review is appropriately and accurately documented. The review will also conform to and use the Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews (PRISMA-ScR) [10]. To undertake the review, a Population, Concept and Context (PCC) framework was developed, as suggested by the JBI [9]. This assisted in converting the research question into a comprehensive search strategy.

Eligibility criteria

Scoping reviews allow the researcher to explore the extent, range and nature [10] of the literature and help to identify potential gaps in the literature [11] that could guide future research efforts. This requires the scoping review to encompass a diverse range of literature to address the question being reviewed. The eligibility criteria that will be applied to identify relevant literature will follow the PCC framework described earlier.

Population

We will include all registered healthcare professionals (HCP) and trainee HCPs. For the purposes of this review, the definition by Sergey's Medical Dictionary [12] for an HCP will be used. This defines an HCP as a person who is associated with or registered with an HCP regulatory body.

Concept

Articles that make reference to the concept of SoD will be included.

Context

Articles that include healthcare simulation will be included. Articles that focus on educational approaches that do not include simulation will be excluded. Studies from outside of health care and/or no focus on health care will be excluded. For the purposes of the review, any healthcare simulation modality (Manikin-based, simulated-person-based, virtual reality, screen-based, etc.) will be considered.

Types of studies

This review will include all types of primary research from peer-reviewed content (qualitative, quantitative and mixed-methods research) as well as peer-reviewed non-research articles such as editorials, opinion papers, in practice reports and essays. Book chapters will be included where relevant, as will doctoral theses if this is focussed on the concept and meets the inclusion criteria. Excluded literature will include posters, conference abstracts and letters to editors. These are unlikely to go into sufficient detail to provide meaningful data for synthesis.

Due to the nature of the concept and the scoping approach, no time limit will be applied, and there will be no limit on geographical location or language. Any papers that are not in English will have a translation sought. If this is not possible, then they will be excluded, and this will be noted in the reporting.

Article selection will be carried out by two reviewers (First screening: PG, DP; second screening (PG, SMW) at each point, with a third reviewer overseeing the process and resolving areas of disagreement if needed.

Information sources

The following databases will be systematically searched to identify the relevant literature: MEDLINE, Psychology and Behavioural Sciences Collection, CINHAL Plus with Full text, APA PsycINFO APAPsycArticles and AMED – The Allied and Complementary Medicine Database, all accessed via EBSCOhost health science research database. Scopus (Accessed via Elsevier) will also be searched. Grey literature will be searched via the website, opengrey.eu. In addition, the *International Journal of Healthcare Simulation* and *Journal of Healthcare Simulation* will also be searched. While this is not currently an indexed journal, it is peer-reviewed and directly relates to healthcare simulation. This approach will ensure a diverse and wide-ranging examination of the literature.

Search strategy

The PCC approach contributed to the development of search strings of key terms and their synonyms as outlined below. The search will employ the use of truncation, proximity operators and wildcards [15] to assist with the search.

Search strings

With the exception of Scopus, the search terms and query strings set out below will be used:

‘Suspension of Disbelief’ OR ‘Suspend* Disbelief’ OR Disbelief OR Captivation OR Engage* OR Engrossed OR Immersed) N5 Simula*

AND

‘Simulation Training’ OR ‘Simulation based education’ OR ‘Simulation education’ OR ‘Clinical Simulation’ OR ‘Simula*’

AND

‘Nurs*’ OR ‘Doctor’ OR ‘Medic*’ OR ‘AHP’ OR ‘Allied Health Professional’ OR ‘Physio*’ OR ‘ODP’ OR ‘Operating Department Practitioner’ OR ‘Pharmacist’ OR ‘OT’ OR ‘Occupational Therapist’ OR ‘Radiographer’ OR ‘Paramedic’ OR ‘Emergency Responders’ OR ‘Midwife’ OR ‘Midwi*’ OR ‘Podiatr*’ OR ‘Speech and Language Therapist’ OR ‘Orthotist’ OR ‘Radiographer’ OR ‘Osteop*’ OR ‘Dietician’ OR ‘Drama Therapist’ OR ‘Art Therapist’

For Scopus, due to the differing approaches of the database, the query string will be adapted to meet the requirements of the database, but still be equivalent to the terms set out in the other database query strings. The query strings for Scopus are as follows:

{Suspension of Disbelief} OR {‘Suspend* Disbelief’} OR {Disbelief} OR {Captivation} OR {‘Engage*’} OR {Engrossed} OR {Immersed}) W5 ‘Simula*’

AND

{Simulation Training} OR {Simulation based education} OR {Simulation education} OR {Clinical Simulation} OR ‘Simula*’

AND

‘Nurs*’ OR {Doctor} OR ‘Medic*’ OR ‘AHP’ OR {Allied Health Professional} OR ‘Physio*’ OR ‘ODP’ OR {Operating Department Practitioner} OR {Pharmacist} OR ‘OT’ OR {Occupational Therapist} OR {Radiographer} OR {Paramedic} OR {Emergency Responders} OR {Midwife} OR ‘Midwi*’ OR {Podiatrist} OR {Speech and Language Therapist} OR {Orthotist} OR {Radiographer} OR {Osteopath} OR {Dietician} OR {Drama Therapist} OR {Art Therapist}

Data management

The completed literature search will be stored within the collaborative AI research platform Rayyan [13]. This will be used as a central storage repository to aid collaboration between the reviewers. Additionally, it aids the identification and resolution of duplicate articles, helping to sort the literature in the first pass review of the results. This aids the selection process.

Selection process

The data selection process will be undertaken in two phases. The first phase will see the article title and abstract screened against the eligibility criteria. This will be undertaken by two reviewers (PG, DP). The second phase will see two reviewers independently reviewing the remaining full-text articles against the eligibility criteria to leave the final eligible papers (PG, SMW). If there are any discrepancies in both phases or the reviewers cannot agree on an article, the third reviewer will review these and make a final decision. The final eligible papers will then be critically appraised.

Eligibility criteria

To be included and in line with the discussion on the types of studies, the articles must have:

- Healthcare simulation focus.
- Have reference to SoD within title, abstract or full text.
- All languages will be included, and translation sought where possible.
- All geographical locations will be included, and there will be no time restriction on submissions.

The following will be excluded:

- No reference to SoD or derivatives of.
- Not related to healthcare simulation.
- Mathematical modelling simulation-focussed papers. Articles relating to chemical suspension.
- Articles relating to patient immersion.
- Articles relating to animal studies.

Data extraction

Data extraction will be undertaken using an extraction form (Microsoft Excel spreadsheet) developed by the reviewers to extract and analyse key information from the eligible literature. This information will be focussed on answering the research questions. To ensure that relevant results can be extracted and that potential mixed research methodology can be easily compared, the tool will be piloted as suggested by Li, Higgins and Deeks [14].

Data to be extracted will include the author(s), year of publication, country of publication, title, aims/ purpose, type of article (primary or secondary research, other types of literature and if so what), methodology, SoD definition, how the term SoD is used and in relation to what, any evidence/ methods describing how SoD is created/ achieved/ applied, any evidence/outcomes relating to SoD and any other comments.

Risk of bias

To address potential bias, a quality appraisal process will be carried out on all articles using structured validated tools. The Mixed Methods Appraisal Tool (MMAT) [15] will be used to appraise eligible research articles in relation to their validity and methodological rigour. The MMAT tool is versatile and able to appraise qualitative, quantitative or mixed-methods research studies. This versatility will help to reduce bias by ensuring consistency in application by reviewers. For all other literature, the Authority, Accuracy, Coverage, Objectives Date Significance checklist [16] will be applied to assess the quality. As per the MMAT tool, this will be used by both reviewers.

Data synthesis

The data analysis and synthesis will be carried out in accordance with the research question set out. This will include tabular and narrative methods of knowledge synthesis. The tabulated extraction results will be reported, and data from the extraction tool will be used to graphically display appropriate results. Further

synthesis will be through thematic analysis and reported as a narrative. Any additional or extended synthesis will involve narrative and/ or a tabular format if appropriate, in particular any consistencies in the way SoD is described and created. This approach is consistent with the guidance from the JBI [9] and will ensure that a full results analysis is identified and shared. It is anticipated that the literature extracted will contain a mixture of research and non-research articles. Thematic analysis and narrative discussion will allow for flexibility in the synthesis of the data.

Limitations

There are some notable limitations that need to be considered. Firstly, where selected articles cannot be accessed via the means available to the researchers, the article authors will be contacted for a copy of the article. If this is not possible, then the article will be excluded. This will be recorded for transparency. Secondly, while the term SoD has been used in some notable resources, such as the work of Dieckmann [2] and Rodgers [17], it is associated with other terms and concepts, such as immersion. Therefore, these terms have been included within the search strategy, but with the knowledge that this may lead to a large dataset to manage. This will be addressed by application of the inclusion/ exclusion criteria, which will ensure that articles that do not specifically refer to SoD are excluded. By doing this, the strategy is expected to encompass the widest possible initial results with the knowledge that the first screen will undoubtedly include a wider range of irrelevant literature but include the most amount of relevant literature to be searched. The terms 'Flow' and 'Flow State' [18] have not been used in the search. This has been purposefully done as, while there may be a conceptual link to SoD, the focus of this review is on SoD and how it is described. It may bias results to assume that Flow would be linked to SoD. Finally, there is the possibility that the concept and its terminology may not be recognised or used in different cultures and countries, or in the same way that it appears to be used and understood within the English-speaking world. This will be explored further through analysis of the final results location and any wider literature identified.

Conclusions

This scoping review will explore the use of the concept of SoD. It will help to contribute to the wider understanding of how the simulation community is defining and achieving SoD, as well as any associated evidence of its creation and benefit. We aim to systematically search the literature and report our findings following a systematic scoping approach. The results for the review will help to identify not only current practice but also any knowledge gaps that future research could address and inform simulation practice. With the evolution of more complicated simulation methodologies, it is pertinent to explore fundamental concepts of healthcare simulation and ensure that we understand these well to help inform future development of healthcare simulation.

Declarations

Authors' contributions

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Availability of data and materials

None declared.

Ethics approval and consent to participate

None declared.

Competing interests

None declared.

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