

Authentic Moulage: Exploring participant engagement in simulation

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CANDIDATES DECLARATIONS

Statement of Originality

I hereby certify that the work embodied in the thesis is my own work, conducted under normal supervision. The thesis contains no material which has been accepted, or is being examined, for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made. I give consent to the final version of my thesis being made available worldwide when deposited in the University's Digital Repository, subject to the provisions of the Copyright Act 1968 and any approved embargo.

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Brian Jolly



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*By signing below I confirm that Jessica Parish lead the research project conception and design, the full data collection and the majority of the statistical analysis. I wrote the full paper. Co-authors contributed by way of review and some contribution to the design and editing of the final manuscript to the paper/publication entitled: **Investigating the impact of moulage on simulation engagement—A systematic review.***



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*By signing below I confirm that Jessica Parish lead the research project conception and design, the full data collection and the majority of the statistical analysis. I wrote the full paper. Co-authors contributed by way of review and some contribution to the design and editing of the final manuscript to the paper/publication entitled: **How does moulage contribute to medical students' perceived engagement in simulation? A mixed-methods pilot study.***



Brian Jolly



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Dr Lesley MacDonald-Wicks

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By signing below I confirm that Jessica Parish lead the research project conception and design, the full data collection and the majority of the statistical analysis. I wrote the full paper. Co-authors contributed by way of review and some contribution to the design and editing of the final manuscript to the paper/publication entitled:

Measuring the engagement of medical students in simulation using eye-tracking methodology: a randomised comparison study.



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Acknowledgements

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Peer Reviewed Journal Articles

By signing below, I confirm that Jessica Parish contributed more than 50% to the study design, data analysis and manuscript preparation of the publication below. Professor Brian Jolly, Dr. Robbert Duvivier and Associate Professor Carmel Loughland contributed to the manuscript preparation in their role as PhD supervisors.

Submitted Manuscripts included in this thesis

Title	Output type	Citations	DOI
Does Appearance Matter? Current Issues and Formulation of a Research Agenda for Moulage in Simulation. Simulation in Healthcare, 21(1), 47-50. 2017	Paper	5	10.1097/SIH.0000000000000211
Does authenticity in moulage matter? Results of a systematic review. Nurse Education Today, 64(1), 49-55. 2018	Paper	7	10.1016/j.nedt.2018.01.003
Expert opinions on the authenticity of moulage in simulation: a Delphi study. Advances in Simulation, 4(16). 2019	Paper		10.1186/s41077-019-0103-z
How does moulage contribute to participant perceived engagement in simulation? A mixed-methods pilot study in medical students	Paper		Submitted for Review
Measuring the engagement of medical students in simulation	Paper		Submitted for Review

using eye-tracking
methodology: a
randomised comparison
study

Peer Reviewed Conference Presentations and Posters

Title	Output type	Event
Does authenticity in moulage matter? Exploring Participant Engagement in Simulation	Conference Paper	Presented at SimHealth August 2015 in Adelaide, South Australia, Australia
SimART™: Adding RealiTy to Simulation I	Conference Workshop	ANZAHPE-AMEA in Newcastle, New South Wales in March 2015.
SimART™: Adding Reality to Simulation II	Conference Workshop	Presented at SimHealth August 2015 in Adelaide, South Australia, Australia
SimART™ - Rapidly applicable simulation on a budget.	Conference Workshop	Presented at the Australasian Simulation Congress 2016 in Melbourne in September 2016.
Does authenticity in moulage matter? Results of a systematic review.	Conference Paper	Presented at the Australasian Simulation Congress 2016 in Melbourne in September 2016.
Designing a scale for validation of moulage authenticity using the Delphi Method.	Conference Paper	Presented at the Australasian Simulation Congress 2017 in September 2017, Sydney.
SimArt: Matching moulage to your learning objectives	Conference Workshop	Presented at the Australasian Simulation Congress 2017 in September 2017, Sydney.
Moulage, more than just a Movie set trick...or is it?	Conference Plenary	Presented at the Australasian Simulation Congress 2019, on the Gold Coast, QLD.
What do the experts think? Development of the Moulage Authenticity Rating Scale (MARS)	Conference Poster	Accepted at IMSH 2020

Invited Presentations

Event	Venues	Summary	Output
Scholars visit Canada 2016	Wilson Centre and the University of British Columbia.	The research trip to Canada involved 7 days of meetings with researchers, scientists and simulation experts. During this time, I discussed my proposed topic, hypothesis and methodology with various individuals. As a result of this trip, I was able to consolidate my research and add to the methodology. I presented multiple times, developing my presentation skills and arguing the case for the research	Presentation - <i>Does authenticity in moulage matter? Results of a systematic review.</i>
Invited Scholar University of Bern 2019	University of Bern, Moulagen Museum	During this visit I met with moulage users from Europe and presented a summary of my PhD work in its entirety. In addition, I was able to meet with academics in nursing and medicine from Germany and Switzerland to develop potential projects. Finally, I was able to tour the Moulagen Museum, a museum that houses historic moulages.	Presentation - <i>Authentic Moulage: Exploring Participant Engagement in Simulation</i>
Hunter Medical Research Institute Open Day 2019	Hunter Medical Research Institute (HMRI)	I presented a summary of how simulation and moulage prepare health professionals for work, and hosted a science expo tent featuring moulage.	Presentation - <i>Science Meets Fiction Talk: The Weird & Wonderful World of Wounds</i>

Event	Venues	Summary	Output
ASSH Simulated Patients Special Interest Group	Australasian Simulation Congress 2016	Update on work	Presentation
ASSH Simulated Patients Special Interest Group	Australasian Simulation Congress 2017	Update on work	Presentation
ASSH Simulated Patients Special Interest Group	Australasian Simulation Congress 2019	Update on work	Presentation

Other Media

Title	Output	Link
Moulage and Making Stuff Podcast	Podcast - Simulcast Podcast	http://simulationpodcast.com/ep-7-moulage-making-stuff/
HMRI's open day to be held on Friday, featuring blood and guts and the mysteries of the brain	News	https://www.newcastleherald.com.au/story/6427944/do-you-carry-the-anti-squeamish-gene-find-out-at-hmris-open-day/
H.M.R.I THROWS OPEN ITS DOORS TO HUNTER KIDS	News	https://www.nbnnews.com.au/2019/10/11/h-m-r-i-throws-open-its-doors-to-hunter-kids/
Authentic Moulage Journal Club	Podcast – Simulcast Podcast	http://simulationpodcast.com

ABSTRACT

Moulage in the traditional sense is the art of replicating illnesses and wounds through casting wax moulds. Origins are traced to Ancient Egypt and forbidden practices of 17th century Europe. While traditional moulage is now housed in musea across the world, modern moulage is used to replicate illness and effects in simulation using special effects makeup techniques. Simulation is a well-established technique to prepare health professionals for clinical practice, and is grounded in a strong evidence base. Despite the strong evidence for the use of simulation, the conditions of moulage is an underexplored topic within the context of simulation research, and we know very little regarding how it works, under what conditions and what the effect is on participants of simulation.

In order to better understand how and why moulage impacts on participants of simulation, a series of complementary studies were completed. Initially a Systematic Review of authentic moulage in simulation was undertaken to understand the current research on moulage. This provided a useful baseline for the current use and evidence for moulage in simulation. Subsequently, a further study was undertaken to define authentic moulage in simulation via an electronic Delphi consensus method. This study recruited international experts on moulage and resulted in the development of the Moulage Authenticity Rating Scale (MARS) to measure moulage authenticity. Finally, a third study was conducted to explore how the authenticity of moulage effects participant engagement in simulation using a randomized control experiment design. This study utilized the MARS tool developed from the previous study to design moulage that was low-authenticity and high-authenticity, and compared levels of engagement using measures of self-report, eye tracking and interview methods. The results of this work presents previously unrecognized information on how medical students perceive the authenticity of moulage and how it contributes to their

performance and engagement in simulation. In summary, I present a number of suggestions as to how simulation users and designers might consider moulage in their everyday practice.

This thesis presents a series of philosophical research questions and findings that collectively make an original contribution to the future of moulage in simulation and undergraduate Medical Education using simulation-based curriculum, teaching and learning.