

# Entertainment education: Communicating public health messages through dance

Dr Lara Rangiwhetu<sup>a\*</sup>, Garrett Winters<sup>b</sup>, Associate Professor

Nevil Pierser<sup>a</sup> & Professor Philippa Howden-Chapman<sup>a</sup>

<sup>a</sup> *He Kainga Oranga—Housing and Health Research Programme, University of Otago.* <sup>b</sup> *WETA Digital, New Zealand*

Lara Rangiwhetu is a PhD candidate with He Kainga Oranga evaluating social housing regeneration. Garrett Winters is a visual effects artist with over 10 years of experience in the film industry. Lara and Garrett have also represented New Zealand in salsa dancing, competing and performing in the USA, Australia and New Zealand. Nevil Pierser is a statistician and Deputy Director of He Kainga Oranga. Philippa Howden-Chapman is the Director of He Kainga Oranga and Professor of Public Health at the University of Otago, Wellington, with a keen interest in the arts.

## Abstract

Public health communication, if done well, can make a significant positive contribution to people's health. Entertainment education provides audiences with a creative and pleasurable experience to promote uptake of key messages. 'Dance Your PhD' entry views outnumber the majority of journal article citations, so the first author chose to partake in the competition to raise awareness of the poor quality of New Zealand housing and its impact on wellbeing, and explore non-traditional methods to communicate research findings. A range of dance styles were utilised in the film including contemporary, reggaeton, disco and salsa to illustrate various concepts including water ingress and mouldy housing conditions negatively impacting health. In a short timeframe, the dance film received a relatively large number of views on YouTube. Non-traditional forms of communicating research should be readily considered, as they provide a quick, accessible and memorable way of disseminating messages to a wide audience and can improve health literacy.

## Keywords

Communication; education; dance; public health; social housing

## Introduction

This paper aims to explore the value of communicating public health messages and findings from research through a non-traditional format. In this case, a film was

created that attempted to convey the impact of a social housing upgrade on tenants' wellbeing through the use of dance.

Potential for education, and therefore uptake of evidence, can be promoted by telling a compelling story that commands attention and is memorable (Leavy, 2018). Leavy proposes that the impact of work is also mediated by how widely it can be disseminated, and that there is “an ethical and practical mandate for getting our work beyond the academy” with a focus on “being the best story-teller I can be for particular audiences I aspire to reach” (Jones & Leavy, 2014, p. 3). Practitioners (such as housing project managers), policy makers in local and central government, the general public and research participants are often key audiences for communicating public health messages. Practitioners and policy makers often have very small windows within which to make decisions or recommendations and are often subjected to information overload (Revere et al., 2007). Research participants are also an important audience as information is derived from them or their experiences. However, research participants are not always literate, may not wish to read long reports and/or may not have access to academic articles (MacKenzie et al., 2015). Therefore, alternative approaches to traditional forms of research dissemination, such as theses, books and journal articles, should be explored to reach a wide audience.

Public health communication, if done well by commanding attention and reaching a wider audience, can make a significant positive contribution to people's health. Bernhardt (2004, p. 2051) defines public health communication as the “scientific development, strategic dissemination, and critical evaluation of accurate, accessible, and understandable health information communicated to and from intended audiences to advance the health of the public”.

People's lived experiences, especially of poverty, interpreted by artists have helped understanding and communication of complex public health issues (Howden-Chapman & Mackenbach, 2002; Ombler & Donovan, 2017). For example, the art exhibition, ‘Everyone has a Story’, put on by Wellington City Council social housing tenants, intimately reflected the artists' lives and stories. This allowed others insight into their world and an opportunity to gain a deeper understanding and appreciation for their circumstances.

Conventional public health communication could increase its impact by embracing artistic approaches to create resonant messaging. Asimov claims “there is an art to science ... and a science in art” (Datta, 2016, p. 1). Jones does not consider art and science to be binary either, but “a result from the same activity:

creativity” (Jones & Leavy, 2014, p. 1). There are now a number of organisations dedicated to the integration and collaboration of art and science (Irving, 2015). Hersko (2009) promotes the merging of the fields, arguing for the translation of data into art, as through metaphors information can be both more emotionally accessible and intellectually comprehensible. Singhal promotes entertainment education, defined as “a performance which captures the interest or attention of an individual, giving them pleasure, amusement, or gratification while simultaneously helping the individual to develop a skill to achieve a particular end” (Maibach & Holtgrave, 1995, p. 228). This approach assumes that entertainment, rather than explicitly education communication, can attract a larger voluntary crowd. Viewers are more likely to be attentive and receptive to entertaining education messages and are more likely to consider the suggested cognitive and behavioural change than those seeing explicitly didactic messages about public issues, including on public health.

### **Literature review: Public health messaging**

There are always new public health messages being released into a crowded media environment. “Changing the information environment successfully is the main goal of most public health campaigns, with the ultimate goal of changing behaviours” and improving outcomes (Randolph & Viswanath, 2004, p. 421). Randolph and Viswanath (2004) put forward conditions for what they deem a successful public health campaign. These include ensuring audience exposure to the messaging and the use of social marketing tools to develop appropriate messaging including through creative marketing. Arts-based research is one approach that has been adopted to fulfil both these requirements.

### **Arts-based research**

“The arts have been incorporated to inform education scholarship since at least Dewey (1934) and Langer (1957)”, who arguably sparked the outburst of arts-based research in the last few decades (Belliveau, 2015). Sinner et al. (2006) support the assertion that this is a rapidly growing field. They studied dissertations developed over the previous decade at the Faculty of Education, University of British Columbia, which utilised arts approaches in either their methods or presentation of findings. These were found to demonstrate four attributes: “commitment for aesthetic and educational practice, inquiry-laden processes, searching for meaning, and interpreting for understanding” (Sinner et al., 2006, p. 1254).

Arts-based research practices are “methodological tools used by researchers across the disciplines during any or all phases of research, including problem generation, data or content generation, analysis, interpretation, and representation” (Leavy, 2018, p. 4). This includes, but is not limited to, literary forms, performative forms, visual art, audiovisual forms, multimedia forms and multimethod forms (Leavy, 2018). Despite the various terminology used by academics (see Table 1), the underlying tenets and advantages of arts-based research remain consistent:

- to develop new insights and learning;
- is useful to describe, explore, discover, problem-solve;
- to forge micro-macro connections, between individual lives and larger contexts;
- promotes a holistic approach, with disciplinary methodological and theoretical borders crossed, blurred, and expanded;
- is evocative and provocative, providing different perspectives;
- promotes critical consciousness, raising awareness, and empathy;
- unsettles stereotypes, challenges dominant ideologies, and includes marginalised voices and perspectives;
- is participatory in nature;
- contains multiple meanings;
- increases public scholarship and usefulness.

**Table 1: Partial Lexicology of Terms for Arts-Based Research**

A/r/tography	Arts-based health research (ABHR)
Alternative forms of representation	Arts-based research practices
Aesthetically based research	Arts-informed inquiry
Aesthetic research practice	Arts-informed research
Art as inquiry	Critical arts-based inquiry
Art practice as research	Living inquiry
Art-based enquiry	Performative inquiry
Art-based inquiry	Performative social science (PSS)
Art-based research	Poetic science
Artistic inquiry	Practice-based research
Arts-based research (ABR)	Research-based art (RBA)
Arts-based social research (ABSR)	Research-based practice
Arts-based qualitative inquiry	Scholartistry
Arts in qualitative research	Transformative inquiry through art
Arts-based educational research (ABER)	

(From Leavy, p. 2018, p. 5)

Using an arts practice to represent work can engage a wide audience and expand understanding (Belliveau, 2015). Leavy (2018, p. 10) comments that arts-

based research differs “from traditional academic articles, which are jargon-filled and circulate in peer-reviewed journals to which only academics have access”, as it is “understandable (jargon-free), and ... they circulate in venues to which public audiences have access”. Evergreen (n.d.) agrees, arguing that “[p]resenting data effectively changes the conversation”. In reports “[p]eople swap easily understood sentences for passively-structured, jargon- or acronym-filled, faux academese. It is an odd language that, I think, is used with the intention of sounding objective and smart. But it isn’t reader-friendly” (Evergreen, n.d.). Reports also have the potential to exclude people from findings. For example, participants involved in Hasnat’s PhD research were illiterate or unlikely to read an extensive report or journal articles; therefore, the very people the study was about would have been excluded as a potential audience had they used traditional methods of disseminating academic findings (Greenwood & Hasnat, 2017).

Greenwood and Hasnat (2017, p. 103) assert that arts-based research approaches have the “power to bring data to life and make it easily accessible to its intended audiences”. In another study by Greenwood (2016), participants were divided by language barriers, as while the majority were Czech, few of whom spoke English, there were also three Bangladeshi participants who spoke English but no Czech. While verbal communication is typically relied upon to conduct research and communicate messages, there are limitations to this. A need to work across multiple languages meant that Greenwood (2016) opted to conduct sessions without words, instead developing physical imagery and other negotiated ways forward. A physically creative base, drama, was used to integrate the group and provide a common experience from which to examine theoretical concepts. Afterward, when synthesising the outcomes of the process, Greenwood found it difficult to capture in words the complexity of emotions, energy levels, hesitation, moods and dynamic leadership witnessed. Greenwood (2016, p. 99) claimed that visceral, kinaesthetic and emotional experiences are key to our world with some ideas “beyond language and the ways discursive language mediates our experience”. “The idea of the ineffable is interesting, acknowledging the possibility that there may be some things that we might know (perhaps sensually, kinaesthetically, somatically, experientially) but are unable to put into words” (Reason, 2010, p. 2). Renold (2017, p. 45) also reiterated this idea, stating that “not all “felt effects” can be articulated through words”.

## Communicating science through dance and film

Scientists using the specific art form of dance to illustrate their research can be traced back to Stanford University in 1971 (Bohannon, 2010). Dance involves nonverbal communication, whose power lies in the ability to create moods and influence perception (Hanna, 1979). Participants in a study by Eli and Kay (2015) described dance as a way to “communicate otherwise unspoken experience to others, as well as viscerally recognise and empathise with another’s experience” (p. 67), an understanding that mirrors Greenwood’s conclusions.

Lipps’ theory ‘Einfühlung’ (empathy) argued spectators can experience an ‘inner mimesis’ when watching bodies in motion, where they felt they were carrying out the actions being observed (Jola et al., 2012). This is supported by research outputs that have shown the same neurons fire in the frontal and parietal cortices of a monkey’s brain when grasping for food or watching a researcher make the same grasping motion (Gallese et al., 1996 cited in Jola et al., 2012). John Martin, an early twentieth century dance theorist, also claimed that dance “conveys meaning because viewers, even though sitting in their seats, feel the movements and consequently the emotions of the dancer” (Foster, 2011, p. 1); a concept now being explored further by neurophysiologists who posit that “synaptic connections in the cortex ... fire both when one sees an action and when one does that action” (Foster, 2011, p. 1). The research project ‘Watching Dance: Kinesthetic Empathy’ used mixed methods, including “audience research and neuroscience to explore how dance spectators respond to and identify with dance” (Jola et al., 2012). Some participants reported that their face responded to the facial expression of the dancer, supporting this theory. However, more research is needed for conclusive results and work is ongoing in this area.

Film has also been recognised as a useful educational and dissemination tool for communicating ideas (Wilson et al., 2010). As well as increasing exposure to concepts, retention of key messages is also theoretically promoted through the use of imagery, with free recall increasing from abstract to concrete words to pictures and then real objects (Yulle, 2014). The use of feature length films in public health education was studied by Gallagher et al. (2011). Students commented that watching films about public health issues was “a more engaging story-based approach than just sitting through lectures” and that they retained more information (Gallagher et al., 2011, p. 111).

‘Dance your PhD’ is an annual contest that began in 2007, sponsored by Science Magazine and the American Academy for the Advancement of Science (Science,

2016). It involves PhD candidates filming the essence of their thesis, expressed through the form of dance, and posting their entries to YouTube. The founder of the ‘Dance your PhD’ contest, John Bohannon, proposes that dance can help to explain complex problems (Bohannon, 2011). His view is that to capture and communicate the essence of a complex idea, the fewer words used the better. Myers (2012) suggests that if the entries were evaluated based on communication of scientific concepts, they would mostly fail but have merit as an avenue to engage the public in science as well as challenge the stereotypical view of scientists. However, it must also be noted that some PhD films are now being used in classrooms as teaching tools to explain concepts in a fun way.

Anecdotal evidence suggests only a small number of people read a PhD (Jump, 2015; Kearns & Gardiner, 2012). The top 100 cited articles are also considered outliers (each cited from 12,000 to 305,148 times), as approximately half of all papers have only been cited once and the top cited paper was written back in 1951 (Van Noorden et al., 2014). This may be because a number of academic articles require people to pay for subscriptions. On the other hand, YouTube is available to anyone with access to an internet connection and in 2011 drew 10% of internet traffic (Paek et al., 2011), with *The Mobile Internet Phenomena Report* claiming that YouTube was responsible for 35 percent of all mobile internet traffic in 2019 (Sandvine, 2019). YouTube is the current world leader of social mobile network traffic, commanding more than four times the traffic of Facebook (Sandvine, 2019). Jones puts forward that “[b]y communicating across platforms through social networking, a new and powerful distribution system is developing for our creative outputs” (Jones & Leavy, 2014, p. 6).

In order to reach a wider audience about the research, and profile the work that the Council was undertaking and the expected benefits, the lead author chose to enter the 2016 ‘Dance your PhD’ competition. To be eligible to enter the ‘Dance your PhD’ competition, the PhD must be in a science related field and must include the author in the dance. This is distinguished from a PhD in dance research or using advanced dancers to convey meaning. While two of the authors of this paper have previously performed and competed internationally as salsa dancers, and two authors have had a long-term interest in the representation of life through art forms, including painting and film-making, the authors’ predominant field of research is in public health and housing.

## Background

The ‘Dance your PhD’ entry was based around the essence of the PhD, which was to explore the extent to which social housing upgrades (for example, with respect to water tightness, warmth and layout) improve health, social wellbeing and safety for occupants (Rangiwhetu, 2019). Wellington City Council is part-way through a \$400 million upgrade of all their social housing with a grant from central government (Stitt, 2013). The primary aim of the PhD was to analyse the costs and benefits of the upgrade of their largest complex on tenant wellbeing. Rental housing in New Zealand is of particularly poor quality (White et al., 2017). The PhD aimed to highlight this issue and provide a case for funding further upgrades, using the film to raise awareness.

In this instance, the primary audience of the dance film were the judges for the ‘Dance your PhD’ competition, with the content developed to meet the guidelines set out. However, it was also shown to Wellington City Council decision makers prior to submission and it was hoped it would gain traction to be seen by a wide audience, including policy makers in central government and members of the general public. The original intention of the PhD was to create a before-after comparison (Rangiwhetu et al., 2018); however, delayed building and then COVID-19 have meant that tenants are still to be reengaged for follow-up work where a screening of the film was also planned.

## Aim

The aim of the dance film was to raise awareness of the poor quality of New Zealand housing and its impact on wellbeing, explore the use of storytelling and non-traditional formats to communicate research findings and determine the reach of non-traditional formats to communicate public health messages to a wider audience.

## Method

Inspiration for the dance came from Jeremy Nelson’s choreography *Bridges and Doors*, a performance piece based on New Zealand’s unique housing architecture (McLaughlin, 2016). Inspiration was also drawn from the dance performance *Lord of the Clave*, an ensemble of Latin dances that formed a parody of J.R.R Tolkien’s book, *The Lord of the Rings*, choreographed by New Zealanders Amanda Dorrell, Jacob Rosevear and Chloe Robinson, and performed in New Zealand and the USA in 2016.





there was underinvestment in the social housing stock, as they had encouraged privatisation of the social housing sector (Howden-Chapman, 2015; Steeman, 2013; Young, 2016). This film helps to promote the work the Council is doing, part funded by the previous Labour-led Coalition Government with Prime Minister Helen Clark, to improve accommodation for those that are vulnerable, as well as to expose viewers to the potential benefits of well-constructed housing.

In order to create the film, the authors drew on their PhD research, previous dance knowledge and contacts as well as one author's years of experience in the film industry and film and editing equipment. To get endorsement to put the logos of the Wellington City Council and He Kainga Ora, the Housing and Health Research Programme at the end of the film connections into these organisations were also required. Dissemination required one author having an active YouTube account. Authors also promoted the link via their networks.

The short, five-minute film follows 'Gollum' searching for 'precious knowledge'. Gollum is a character from J.R.R. Tolkien's famous novel *The Lord of the Rings*, which was turned into a blockbuster film series. In these films Gollum's primary desire is to find and possess a ring that he refers to as 'my precious'. This search resonates with the aim of PhDs in general, where desired knowledge is sought after by the researcher. In this case, the 'precious knowledge' Gollum sought to confirm was: water tight, warm, well laid out housing improves health, safety and social wellbeing for occupants. This storyline was chosen to both present the work in a cohesive, fun, and easy to follow narrative structure and to situate the viewer, as the film was made for the international 'Dance your PhD' competition and *The Lord of the Rings* films have become linked with New Zealand where they were filmed.

To set the scene, a time lapse film of Wellington City Council's largest social housing complex was created from photographs taken every hour over the upgrade process. As seen in Figure 2, the second scene uses a cardboard house to symbolise and highlight the poor quality of the housing pre-upgrade. Contemporary dancers in blue morph suits were used to symbolise rain and emphasise the issue of tanking, where rainwater entered the units through the roof, sides and floor (due to a lack of waterproofing), as occurred in the actual housing. Contemporary dance was chosen, as this style tends to focus on floorwork, with dancers using gravity as a pull to the floor. In scene three, the film depicts a 'tenant' indoors, huddled on a couch alone trying to keep warm, surrounded by dancers in black morph suits using reggaeton

and shimmying movements to portray the growth of mould around them. Black dye on the dancers' fingers is smeared across the walls to underscore the issue.



**Figure 2: Still frame of 'rainwater'.**

The film was made early on into the PhD, so scene four illustrates the Council's proposed demolition and rebuild of the apartments, using Lego bricks to depict the new modular design of the housing in scene five. The positive impact expected on tenants is then portrayed in scene six, with 'Gollum' finding the sought-after knowledge in the new housing. The 'tenant' then becomes the focal point of the dancing with large and lively disco and Cuban salsa dance moves indicating their pleasure. Disco dancing is known to include lively basic moves that are easy to teach and perform, enabling an inclusive dance experience. In this case the outcome for the 'tenant' is expected to be the outcome for all intervention recipients. Cuban salsa can be danced in a rueda (wheel) with dancers moving around a circle changing partners depending on the call from the leader. This form of dancing was chosen to symbolise social interaction. Figure 3 shows a snapshot of scene seven with the 'tenant' engaging and interacting with neighbours in the proposed new community spaces.



**Figure 3: Still frame of ‘tenants’ interacting.**

Music was chosen to enhance the messages in various scenes and make it more emotionally accessible. The song *Healthy Homes*, by Sam McConville and Ben Stegman, about the poor conditions of rental New Zealand housing, is used to set the scene and conclude the work. Lyrics such as ‘the curtains are green’ and ‘I don’t want to wear a raincoat in the kitchen’ conjure up strong imagery of extreme living conditions that need to be addressed. The Phoenix Foundation’s song *Black Mould* reiterates this message with the dark moodiness of the music and lyrics such as ‘this mould will never die’. After the renovation, *Staying Alive*, by the Bee Gees, is used for its upbeat tempo and its association with lifesaving acts, such as cardiopulmonary resuscitation (CPR) and health messages (Chattanooga Fire Academy, 2013).

Within six months, the short film had over 400 views on YouTube. Given it is a different and unexpected way of explaining a PhD, anecdotal evidence suggests people who watched it and were followed up with by the authors found it memorable and engaging. Those that were involved in making the film shared it amongst their networks and the first author was invited to talk to a group interested in praxis at Victoria University after someone watched the film.

## Discussion

Getting the ‘right message’ out multiple times to the ‘right’ audience is key to uptake of information (Randolph & Viswanath, 2004). Judging by the number of views and viewers’ interest in the ‘Dance your PhD’ entry, the use of a non-traditional format to communicate research was successful in reaching a wide audience within

a short space of time. This generated exposure for the research, the public health message related to the poor quality of New Zealand housing and the work that Wellington City Council is doing upgrading social housing.

Based on known metrics, the top viewed 'Dance Your PhD' film, with over 196,000 views, has already surpassed the third most cited paper written in 1976, in a fraction of the time (Metz, 2015; Van Noorden et al., 2014). Although, it should be noted that for both mediums, the numbers (including citations for articles and YouTube views) are likely to be an undercount of reach as more people read articles than cite them, and in classroom demonstrations or other instances multiple people may simultaneously watch a film. Furthermore, watching a YouTube clip from the same device multiple times is not counted as additional views, despite the audience potentially differing. However, these metrics support the point that non-traditional forms of communication can increase the exposure of research and public health messages to a wider audience.

The dance film supplements other messaging provided by He Kainga Ora's Housing and Health Research Programme including journal articles, reports for government, submissions on government proposals, media interviews and blogs. Randolph & Viswanath (2004) noted that most public health media campaigns were supplemented by the use of additional media in order to promote messages in communities, as increased exposure to messaging can help compete in a crowded media environment. Campaigns that built community coalitions or influenced policy were also thought to have more positive long-term impact with respect to health (Randolph & Viswanath, 2004). Ongoing advocacy from members of He Kainga Ora has influenced central government policy. For example, the programme strongly influenced the Healthy Homes Guarantee Act 2017, which mandated standards in rental properties with respect to heating, insulation, ventilation, moisture ingress, draught stopping and drainage (Rangiwhetu et al., 2020).

Without effective communication, even innovative research with interesting results and crucial public health messages are unlikely to leave an impression (De Ranieri, 2015). Jones states that "this generation of students is not convinced by lecturers' recitations of PowerPoint slides. They certainly are not stimulated by such a shop-worn approach" (Jones & Leavy, 2014, p. 3). Attention to audience is therefore crucial, with the use of creativity and imagination important in getting information across (Jones & Leavy, 2014). Dance makes research accessible to non-scientists, such as family, friends and students (Bohannon, 2010). To this end grants have been provided to make a series of dance films to demonstrate statistical

concepts (Irving, 2015). Dance films and parodies of popular music videos are also now being used in classrooms as teaching tools to explain concepts in a fun way (AsapSCIENCE, 2018). A filmed dance was even used in the last Australian elections by one candidate to explain their political platform in an attempt to engage potential voters on ‘big’ issues (Molloy, 2019). This led to the candidate coming third in their area, picking up over 10% of the vote—more votes than any of the minor party candidates and the first time an independent candidate has reached double figures in the area since 1983 (Graham, 2019).

Dance does not only serve to engage audiences; it has also been seen to help people view research and ideas from another angle or perspective. For example, it can help researchers clarify key messages in their projects, allowing them to refocus on the bigger picture instead of getting lost in textual and statistical analyses (Irving, 2015). Teachers and researchers have been motivated to get people up dancing themselves to better understand abstract scientific concepts, such as the movement of molecules, which has in turn further informed research (Bohannon, 2010). Students have been actively encouraged to participate in recreating cellular processes to aid their learning of concepts, which may lead to a different way of teaching altogether (Flink & Odde, 2012). However, “[t]eaching and learning are complex processes and there is no simple way to fulfil the increasing demand for inclusive education” (Berggraf Sæbø, 2014, p. 1). While embodying the problem has been shown to be memorable, social and creative, leading to better test scores (Irving, 2015; Stern & Schaffer, 2012), it should be acknowledged that this learning style may not be for everyone.

Arts-based educational researchers assert that the value of using artistic modes of inquiry and representation is that it provides an informed platform for making decisions about “pedagogical theory, practice and policy” by provoking questions, discussions and different perspectives (Sinner et al., 2006, pp. 1226–1227). The University of British Columbia has now adopted this approach into many fields of study, including medicine, commerce, science and engineering, rather than limit it to the ‘arts as an object of study’ as was done previously (Sinner et al., 2006). As “‘impact’ and ‘public involvement’ are required of funders more frequently, opportunities are presented in which to make a case for an arts-based element” (Jones & Leavy, 2014, p. 5). Ringrose (2018) notes an increasing push for academics to use digital media, such as Twitter, to reach a wider audience. “Historically, there was a mandate within the academy to publish or perish; however, in recent years, there has been a push to go public or perish” (Leavy, 2018, p.10); with academics

measures not only with respect to H-indexes and citations but also followers on public forums (Ringrose, 2018).

### ***Limitations***

While Roxas et al. (2018, p. 1) claim that “[d]ance is a universal, non-verbal, human language that can communicate to others through participation in the physical act or via watching”, Bailie et al. (2014) and Eli and Kay (2015) argue that dance styles are not necessarily a pan-human, ‘natural’ form of expression, as they are encultured; embedded in the cultures in which they are created and performed. Therefore, messages derived from a dance can be different for different audiences and between audience members, especially when other aspects, such as costumes, lighting, music and sets, are considered too. In this case, subtitles were used to aid viewers’ understanding of the key messages we wanted to convey.

This was the authors’ first attempt at conveying research results through dance and film. There is room for improvement in choreographic direction, videography and communication through dance. However, as Leavy (2018, p. 11) states, “[B]egin where you are. Learn as you go.” While the majority of performers in the short film danced linear salsa competitively, at an international level, this was not a dance style utilised in the film due to creative choice and the messaging we were trying to convey. Utilising experts in the relevant dance fields and collaborating with experienced dance researchers would enhance communication.

Using YouTube as a platform for communication opens up doors to a number of different audiences. However, technological savvy and/or access to technology is still a barrier to some people, potentially tenants, viewing the film (Mendes et al., 2019). While a link to the film was promoted through the authors’ contacts, it was not widely publicised. A more aggressive campaign would likely have led to more views.

It is not well understood who the viewing audience was or what they thought of the film. In order to better understand this, an anonymous survey link could have been promoted at the end of the video or in the description on YouTube.

### **Conclusion**

In terms of disseminating findings, non-traditional formats can be a complementary, quick, accessible and more memorable way of getting public health messages out to a wider and more diverse audience to improve health literacy. While a PhD involves

a submission of written work to meet the requirements of the degree, and writing journal articles is often considered necessary for career progression, other forms of communication with the end user in mind (especially if they are illiterate), such as education entertainment, should not be overlooked.

## Acknowledgements

We would like to acknowledge all the people who helped create the dance video, including: Lucy Harrison, Teresa Winters, Andy Francis, Satya Duhita, Juliette Thomson, Tara Traut, Anna Stevens, Ryan Rangiwhetu, Jacob Rosevear, Simone Harris, Adam Polaczuk, Alex Purcell, Stephen Woodwark, Liane McGee, Sid Sharma and Wellington Indoor Sports. We are also grateful to Sam McConville and Ben Stegman for permission to use their original music.

## Funding

This work was supported by the Health Research Council of New Zealand under Grant number 15-429.

## Conflict of Interest

While one of the authors used to work in the Research and Evaluation team at Wellington City Council (the entity upgrading their social housing), we do not believe there are any conflicts of interest with respect to this paper.

## References

- AsapSCIENCE. (2018). Lab rules—Dua Lipa "new rules" parody. <https://www.youtube.com/watch?v=BRDapYgvDqQ>
- Bailie, R. S., Stevens, M., & McDonald, E. L. (2014). Impact of housing improvement and the socio-physical environment on the mental health of children's carers: A cohort study in Australian Aboriginal communities. *BMC Public Health*, *14*(472), 1-13. <https://doi.org/10.1186/1471-2458-14-472>
- Belliveau, G. (2015). Research-based theatre and a/r/tography: Exploring arts-based educational research methodologies. *p-e-r-f-o-r-m-a-n-c-e*, *2*(1-2). <http://p-e-r-f-o-r-m-a-n-c-e.org/?p=1491>
- Berggraf Sæbø, A. (2014). Drama: An inclusive form of teaching and learning. *New Zealand Journal of Research in Performing Arts and Education: Nga mahi a Rehia no Aotearoa*, *5*, 1. <https://www.drama.org.nz/publications/new-zealand-journal-of-research-in-performing-arts-and-education-2015>
- Bernhardt, J. (2004). Communication at the core of effective public health. *American Journal of Public Health*, *94*(12), 2051-2053. <https://doi.org/10.2105/AJPH.94.12.2051>
- Bohannon, J. (2010). Why do scientists dance? *Science*, *330*(6005), 752. <https://doi.org/10.1126/science.330.6005.752-b>



- Bohannon, J. (2011). Dance vs. powerpoint, a modest proposal. *TEDxBrussels*. [https://www.ted.com/talks/john\\_bohannon\\_dance\\_vs\\_powerpoint\\_a\\_modest\\_proposal](https://www.ted.com/talks/john_bohannon_dance_vs_powerpoint_a_modest_proposal)
- Chattanooga Fire Academy. (2013). *Stayin' alive at Chattanooga Fire Academy 2013*. [https://www.youtube.com/watch?v=GMssc\\_c4pK8](https://www.youtube.com/watch?v=GMssc_c4pK8)
- Datta, S. (2016, December 21). Acting out science, newspaper on the Internet. *The Hindu*. <http://www.thehindu.com/entertainment/theatre/Acting-out-science/article16918689.ece>
- De Ranieri, E. (2015). I wish someone had told me. *Nature Nanotechnology*, 10(9), 824. <http://dx.doi.org/10.1038/nnano.2015.201>
- Eli, K., & Kay, R. (2015). Choreographing lived experience: Dance, feelings and the storytelling body. *Medical Humanities*, 41(1), 63-68. <https://doi.org/10.1136/medhum-2014-010602>
- Evergreen, S. (n.d.). Evergreen data: Intentional reporting and data visualization. <http://stephanieevergreen.com>
- Flink, C., & Odde, D. (2012). Science + dance = bodystorming. *Trends in Cell Biology*, 22(12), 613-616. <https://doi.org/10.1016/j.tcb.2012.10.005>
- Foster, S. (2011). *Choreographing empathy: Kinesthesia in performance*. Routledge.
- Gallagher, P., Wilson, N., Edwards, R., Cowie, R., & Baker, M. (2011). A pilot study of medical student attitudes to, and use of, commercial movies that address public health issues. *BMC Research Notes*, 4, 111. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3090335/>
- Graham, J. (2019). Wannan independent candidate Alex Dyson brings his personality to politics and picks up primary votes. *The Standard*. [https://www.standard.net.au/story/6132421/independent-candidate-alex-dyson-stoked-with-result/?fbclid=IwAR1Mu\\_hXMtvE17nj8kjqZl6YeoLMBVLLZZSicOwhcnEZ3FPO247\\_EuOxJ2o](https://www.standard.net.au/story/6132421/independent-candidate-alex-dyson-stoked-with-result/?fbclid=IwAR1Mu_hXMtvE17nj8kjqZl6YeoLMBVLLZZSicOwhcnEZ3FPO247_EuOxJ2o)
- Greenwood, J. (2016). The limits of language: A case study of an arts-based research exploration. *New Zealand Journal of Research in Performing Arts and Education: Nga mahi a Rehia no Aotearoa*, 6, 88-100. <https://www.drama.org.nz/publications/new-zealand-journal-of-research-in-performing-arts-and-education-2016/>
- Greenwood, J., & Hasnat, M. (2017). I am illiterate, they are educated; what can I say to them? A playful exploration of the impact of performative presentation of case study data. *New Zealand Journal of Research in Performing Arts and Education: Nga mahi a Rehia no Aotearoa*, 7, 102-116. <https://www.drama.org.nz/publications/new-zealand-journal-of-research-in-performing-arts-and-education-nga-mahi-a-rehia-2017/>
- Hanna, J. (1979). *To dance is human: A theory of nonverbal communication*. The University of Chicago Press.
- Hersko, J. (2009). 'Translating' and 'retranslating' data: Tracing the steps in projects that address climate change and antarctic science. *Digital Arts and Culture*. <http://escholarship.org/uc/item/40z2b75n>
- Howden-Chapman, P. (2015). *Home truths: Confronting New Zealand's housing crisis*. William Books Limited. <https://doi.org/10.7810/9780947492335>
- Howden-Chapman, P., & Mackenbach, J. (2002). Poverty and painting: Representations in 19th century Europe. *British Medical Journal*, 325(7378), 1502-1505. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC139055/>
- Irving, L. (2015). Teaching statistics using dance and movement. *Frontiers in Psychology*, 6(50), 1-3. doi: [10.3389/fpsyg.2015.00050](https://doi.org/10.3389/fpsyg.2015.00050) Retrieved from <http://journal.frontiersin.org/article/10.3389/fpsyg.2015.00050>
- Jola, C., Ehrenberg, S., & Reynolds, D. (2012). The experience of watching dance: Phenomenological-neuroscience duets. *Phenomenology and the Cognitive Sciences*, 11(1), 17-37. <https://doi.org/10.1007/s11097-010-9191-x>
- Jones, K., & Leavy, P. (2014). A conversation between Kip Jones and Patricia Leavy: Arts-based research, performative social science and working on the margins. *The Qualitative Report*, 19(38), 1-7. <http://www.nova.edu/ssss/QR/QR19/jones38.pdf>

- Jump, P. (2015). *Is the doctoral thesis obsolete?* <https://www.timeshighereducation.com/features/phd-is-the-doctoral-thesis-obsolete/2020255.article>
- Kearns, H., & Gardiner, M. (2012). *The seven secrets of highly successful research students*. Thinkwell.
- Leavy, P. (2018). *Handbook of arts-based research*. The Guilford Press.
- MacKenzie, C. A., Christensen, J., & Turner, S. (2015). Advocating beyond the academy: Dilemmas of communicating relevant research results. *Qualitative Research*, 15(1), 105-121. <https://doi.org/10.1177/1468794113509261>
- Maibach, E., & Holtgrave, D. R. (1995). Advances in public health communication. *Annual Review of Public Health*, 16(1), 219-238. <https://doi.org/10.1146/annurev.pu.16.050195.001251>
- McLaughlin, C. (2016, June 30). Choreographer's architectural moves. *The Wellingtonian*, p. 5.
- Mendes, K., Ringrose, J., & Keller, J. (2019). Introduction: Digital feminist interventions. In K. Mendes, J. Ringrose, & J. Keller (Eds.), *Digital feminist activism: Girls and women fight back against rape culture*. Oxford Scholarship Online. <https://doi.org/10.1093/oso/9780190697846.001.0001>
- Metz, F. (2015). *How do policy networks influence the quality of our policies?* <https://www.youtube.com/watch?v=iRUDC1PiPAo>
- Molloy, S. (2019, May 6). Weirdest political video you've ever seen pitches policies via interpretative dance, newspaper on the Internet. *New Scholar: An Americanist Review*. <https://www.news.com.au/national/federal-election/weirdest-political-video-youve-ever-seen-pitches-policies-via-interpretative-dance/news-story/0350cb0f9543b160a3cc128d35cfe7a1>
- Myers, N. (2012). Dance your PhD: Embodied animations, body experiments, and the affective entanglements of life science research. *Body & Society*, 18(1), 151-189. <http://journals.sagepub.com/doi/pdf/10.1177/1357034X11430965>
- Ombler, J., & Donovan, S. (2017, February, 24). What does art have to do with public health, and how can they work together? *Art and Public Health: Wellbeing, Social Critique and Communication, Summer School Symposium*. <https://blogs.otago.ac.nz/pubhealthexpert/2017/04/10/what-does-art-have-to-do-with-public-health-and-how-can-they-work-together>
- Paek, H.-J., Hove, T., Jeong, H. J., & Kim, M. (2011). Peer or expert? *International Journal of Advertising*, 30(1), 161-188. <http://www.tandfonline.com/doi/abs/10.2501/IJA-30-1-161-188>
- Rangiwhetu, L. (2019). Evaluating the impact of social housing remediation and regeneration on tenants' wellbeing: Health, social connections and safety [Doctoral thesis, University of Otago]. <http://hdl.handle.net/10523/9653>
- Rangiwhetu, L., Pierse, N., Chisholm, E. & Howden-Chapman, P. (2020). Public housing and well-being: Evaluation frameworks to influence policy. *Health Education & Behavior*, 47(6), 825-835. <https://doi.org/10.1177/1090198120917095>
- Rangiwhetu, L., Pierse, N., Viggers, H. & Howden-Chapman, P. (2018). Cold New Zealand council housing getting an upgrade. *Policy Quarterly*, 14(2), 65-73.
- Randolph, W., & Viswanath, K. (2004). Lessons learned from public health mass media campaigns: Marketing health in a crowded media world. *The Annual Review of Public Health*, 25, 419-437.
- Reason, M. (2010). Watching dance, drawing the experience and visual knowledge. *Forum for Modern Language Studies*, 46(4), 391-414. <https://doi.org/10.1093/fmls/cqq014>
- Renold, E. (2017). 'Feel what I feel': Making da(r)ta with teen girls for creative activisms on how sexual violence matters. *Journal of Gender Studies*, 27(1), 37-55.
- Revere, D., Turner, A. M., Madhavan, A., Rambo, N., Bugni, P. F., Kimball, A., & Fuller, S. S. (2007). Understanding the information needs of public health practitioners: A literature review to inform design of an interactive digital knowledge management system. *Journal of Biomedical Informatics*, 40(4), 410-421. <https://doi.org/10.1016/j.jbi.2006.12.008>
- Ringrose, J. (2018). Digital feminist pedagogy and post-truth misogyny. *Teaching in Higher Education*, 23(5), 647-656. <https://doi.org.wmeproxy.wnmeds.ac.nz/10.1080/13562517.2018.1467162>