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SoTL in Process

Using Infographics to Go Public with SoTL

ABSTRACT

There has been a call to amplify the scholarship of teaching and learning (SoTL) and expand its reach by engaging with audiences outside the academy. In this paper, we share our journey in crossing disciplinary boundaries and creating a SoTL-informed infographic for public consumption. As the field of SoTL continues to evolve, infographics hold tremendous potential to communicate SoTL to various stakeholders, including educators, students, administrators, policymakers, and the public. We outline best practices in infographic development and the potential of infographics as a tool for taking SoTL public, emphasizing their visual appeal and effectiveness in conveying complex information. We conclude by discussing the implications of using infographics to advance SoTL communication. The efforts of our group serve as a valuable example of how infographics can be used to bring SoTL knowledge out of academia and into the public domain.

KEYWORDS

best practices, knowledge sharing, public engagement, infographics

INTRODUCTION

In 2022, Friberg and Chick encouraged SoTL scholars to listen to social concerns, identify specific issues that may be related to teaching and learning, and use classroom-based research to re-articulate key findings for public audiences. In *Going Public Reconsidered: Engaging with the World Beyond Academe Through the Scholarship of Teaching and Learning*, Chick and Friberg laid a foundation for spreading discussions about teaching and learning into public spaces in order to engage audiences outside of the academy about important societal issues.

We are a group of interdisciplinary healthcare scholars who wanted to embrace the challenge to go public with SoTL. Our SoTL project explored the impact of public involvement in health professions education on students, the public, curricula, and healthcare systems. While this work resulted in a manuscript for publication, the public is unlikely to come across or read our formal academic paper. However, we believed that they would be interested in our key findings related specifically to the impact of their involvement with students. To do so, the key findings of our SoTL work had to be represented in clear and digestible ways that could be shared in the many spaces where the public (e.g., patients, families, and communities) interact with healthcare students. Thus, we settled on developing an infographic as a tool for our knowledge sharing, as it is a tool that allowed us to meet these goals.

To create an effective and evidence-based infographic, our team engaged in learning about infographics and communication strategies. An undergraduate communications student joined our team to help us create an evidence-informed infographic, targeted at the public, that can be used in a variety of settings (see Figure 1 for our developed infographic which is an example of a research-based infographic). In this paper, we will share a summary of the evidence behind the use of infographics, best practices for infographic development, and our top ten list of ways we believe infographics can be used to take SoTL public.

WHY INFOGRAPHICS WORK

Infographics are communication tools that provide intended audiences with complex information through easily comprehensible visuals. Their use dates to the eighteenth century when bar graphs, line charts, and pie charts were first recorded (Otten et al. 2015). More recently, professionals in fields such as business, finance, healthcare, and politics have embraced infographics to reach desired audiences. The use of visual information has increased exponentially since the 1990s (NeoMam Studios 2019). Currently, the public is exposed to five times more information each day, often leading to mental strain. Presenting information in colourful visuals makes an audience 80% more likely to read it (NeoMam Studios 2019). Furthermore, it takes the body 150 milliseconds to process a symbol, and 100 milliseconds to attach meaning to it, making infographics an efficient way to convey messages (NeoMam Studios 2019). Scott, Fawkner, and Oliver (2016) found that when learning new information, humans remember up to 6.5 times more if it is learned in an infographic style compared to reading plain text.

Infographics can be used to display complex patterns and trends visually and in easily understood ways. Terabe et al. (2019) researched the impact local flyers had on a community's understanding of upcoming projects by spreading flyers that shared information using only text, and flyers that included text and infographics to explore which method better informed citizens. Similarly, Claes and Moere (2013) researched street infographics and the awareness they created regarding local issues. Both studies examined how infographics, including graphics and text, engaged the public; they found people who engaged with infographics could correctly understand and remember the information presented (Claes and Moere 2013; Terabe et al. 2019). Further, Siricharoen (2017) conducted case studies regarding how infographics can address information overload and suggested infographics improve public awareness of various issues, especially those in healthcare.

Infographics can produce a sense of inclusion and accessibility by making information more available to those with limited language abilities. Through the use of fewer words and more figures, infographics can increase understanding without relying on native language sentences (Terabe et al. 2019). In addition to helping overcome language barriers, infographics are also a great way to share information with children who may have lower levels of reading comprehension (Barlow, Webb, and Barlow 2021). When produced with clear and understandable graphics, infographics allow an audience to disregard the words or language and instead learn and communicate using graphics. As a universal communication tool, infographics can be utilized in areas where people may face language barriers or have varying levels of education, making it easier to deliver information with less likelihood of misunderstanding (Smiciklas 2012).

Figure 1: Exemplar of taking SoTL public with an infographic
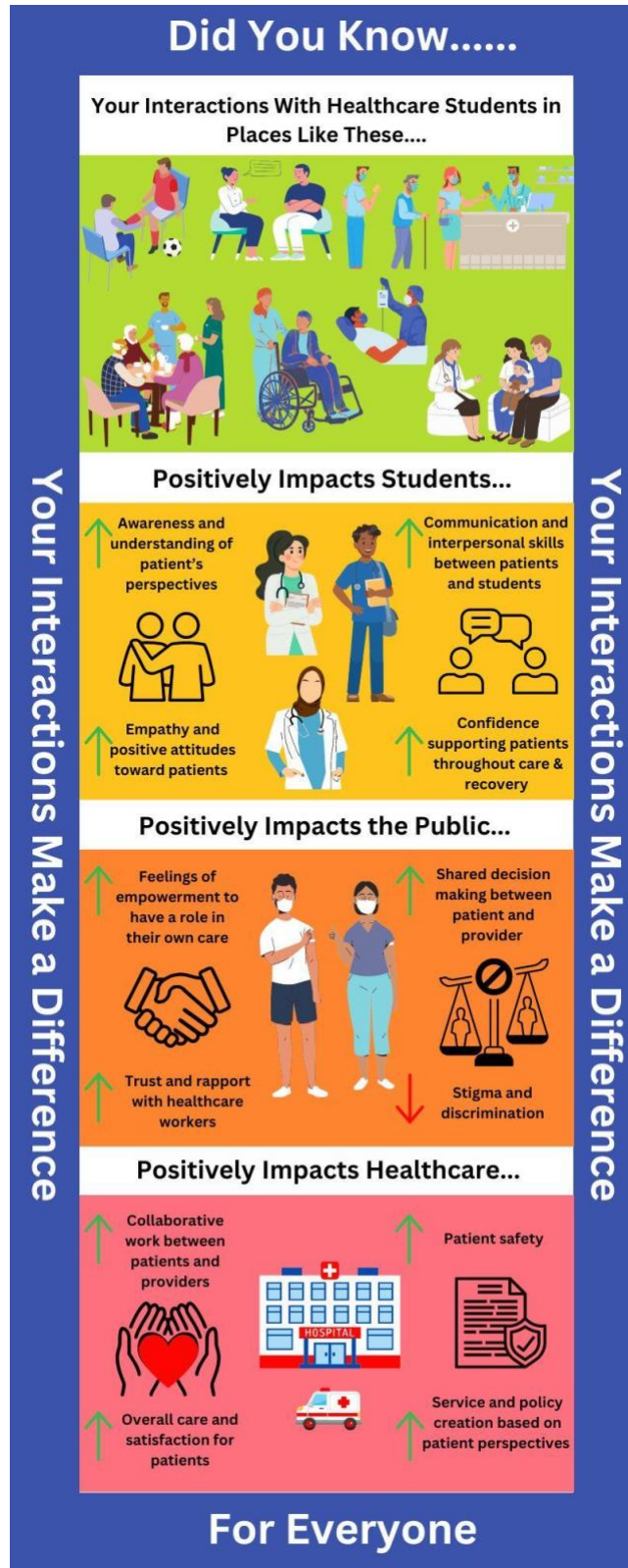
Infographics have been found to be useful for people with communication challenges that hinder their ability to not only understand complex information but to communicate it (Muir and Munroe-Chandler 2020). This idea was further researched by Piil et al. (2023), who examined infographics and their promotion of communication between medical professionals and cancer patients, finding that they facilitated communication about illness and symptom management without using complex medical words which allowed for better patient understanding. The combination of text and visuals in infographics enhanced the understanding of illness by patients, care providers, and families (Muir and Munroe-Chandler 2020). Further, Stonbraker et al. (2019) found that "well-designed infographics can facilitate effective communication, especially when culture, language, or literacy differences are present."

While little is written on the downsides of infographics, some scholars call into question the potential superficiality of knowledge translated in infographics. Giovanni et al. (2022) examined infographics published in medical and heath related journals and found they contained insufficient information without referring to the original paper, which could lead to the audience misunderstanding or misinterpreting the findings. It is important that SoTL scholars are mindful of these challenges in their infographic design and development. This could be mitigated by ensuring sufficient detail is provided in the infographic and providing links to more information on the research.

BEST PRACTICES FOR INFOGRAPHIC DEVELOPMENT

In 2017, VanderMolen and Spivey composed a list of core elements for best practice in infographics, such as: including colour and graphics; providing facts, statistics, and credible sources; answering questions; and providing limitations and recommendations. Muir and Munroe-Chandler (2020) suggested including a captivating or action-oriented title, using bold colour schemes to increase engagement with information pieces while leaving the background pale, and proving an overarching theme or message based on credible sources. Stonbraker et al. (2019) identified similar recommendations and further contributed that healthcare consumers often looked at graphics as literal, and therefore, all interpretations of an image should be considered. When using images or graphics that depict people one should avoid natural skin tones when they can to be as neutral and inclusive as possible (Stonbraker et al. 2019). Content should be based on a synthesis of peer-reviewed literature (Muir and Munroe-Chandler 2017; Spicer and Coleman 2016). Prompts should be included so the audience can connect with the material and reflect on it and their own experience with the topic. As a final suggestion, McCrorie, Donnelly, and McGlade (2016) recommended the use of charts and images to simplify information that may be confusing to the public.

Barlow (2021) provided guidance on the use of colour that accommodates those with colour-blindness by avoiding colour combinations such as red and green, brown and green, purple and blue, and green and blue, since these combinations can have negatively impact understanding of the infographic. Further, Barlow suggested the importance of well-designed visual and text elements based on dual-coding theory which suggests the combination of text and images has a positive effect on learning if caution is taken to not overload the infographic with information and visuals (Barlow 2021). Spicer and Coleman (2022) expanded on the idea of cognitive load theory explaining its three components:

(1) intrinsic load, which refers to the inherent complexity of a topic; (2) extraneous load, which refers to external factors that affect learning (e.g., distracting images not relevant

to the topic); and (3) germane load, which refers to the mental energy expended to organize and understand content. (1)

Applying visuals to cognitive load can deter intrinsic load, eliminate the extraneous load, and increase germane load; therefore, infographics can be a practical way to communicate with and educate the public.

Furthermore, Monroe and Morrison (2022) researched ways to make infographics more accessible to blind, low-vision, and dyslexic audiences, finding that while graphics typically ease the effort required for comprehension for an average-sighted person, they create cognitive load for a person with low vision as they rely on mentally constructing an image by description or by their limited view (Monroe and Morrison 2022). Those with dyslexia also experience this cognitive load as they read slower when text is accompanied by an image, and often look at less of the overall picture. Infographics can be made accessible and inclusive of the blind, those with low vision, and viewers with dyslexia by emphasizing important information, describing trends and implications, keeping content succinct with a limited number of concepts at a time, and ensuring content is well organized (Monroe and Morrison 2022).

Importantly, best practices for infographic creation are evolving and require further analysis to understand how messages are best communicated to diverse audiences. Infographics can be created on any topic, in many different formats, and for all different audiences. However, this flexibility can be a limitation as best practices for the creation and evaluation of infographics are inconsistent (Stonbraker et al. 2019, 598). While the best practices for specific topic areas, settings, or audiences can be identified in the literature, these best practices may not apply universally to all infographic topics, settings, and audiences. Stonbraker et al. explain that while systematic methods to develop and assess infographics are constantly being developed, the evidence on how and if these processes can be used in various settings is still lacking. Based on our review of best practices, we created an infographic for creating public-facing infographics to help guide SoTL scholars in creating their infographics (Figure 2).

IMPLICATIONS FOR SOTL

Communicating SoTL to increasingly diverse public audiences is a challenge. If SoTL scholars are to embrace the idea of being "appropriately public" (Felten 2013) and to expand SoTL's reach, different knowledge translation tools will be needed. Within SoTL, infographics have been used to support learning activities (Cavazos et al. 2022), to visually represent course syllabi (Kaur 2021), and for distribution as teaching materials (Murray, Munro, and Popoola 2021). Exploring the literature made it clear there is more potential for the use of infographics within SoTL. Infographics can serve as a bridge between SoTL research and practice, facilitating the effective communication of valuable teaching and learning insights to various stakeholders across the teaching and learning community and beyond. Figure 3 displays a summary of the top 10 ways we believe infographics can be used in SoTL.

Figure 2: Best practice for the creation of public facing infographics

Figure 3: Ten ways infographics can support SoTL
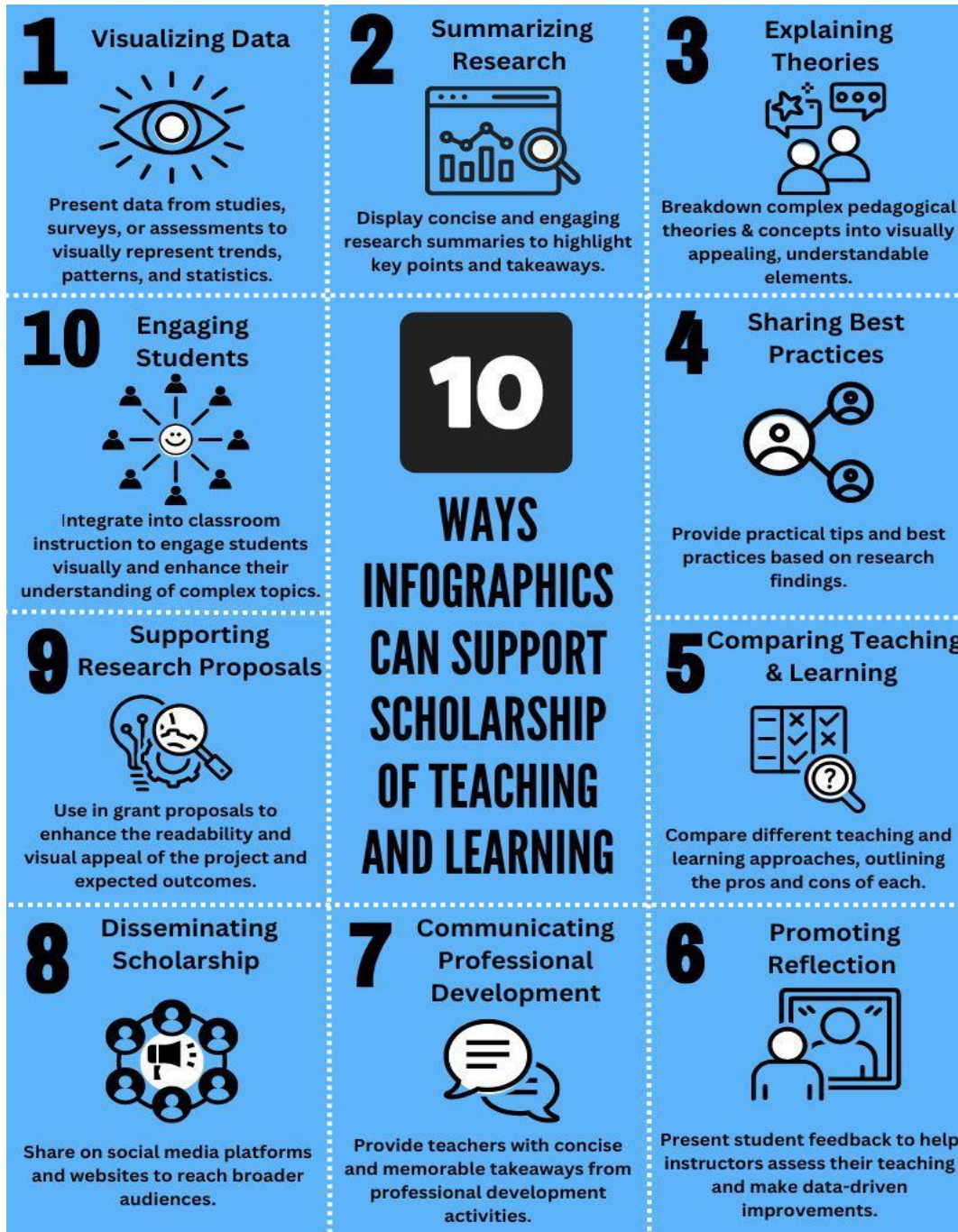
LEARNINGS FROM OUR INFOGRAPHICS

In developing the infographics shared in this paper, we learned infographic development is time intensive, requires strong attention to detail, and involves multiple drafts and consultation stages. Our diverse team provided varied perspectives and strengths and we were challenged to consider how to address our public audience outside of academia. Graphics can be interpreted differently in what they mean and represent, which demonstrated the importance of requesting

outsider feedback and asking questions such as "what does this graphic mean to you?" and "what are we trying to tell you in this infographic?" We obtained and incorporated informal feedback on our infographics from students and the public to ensure our messages were clear. However, a more formalized peer review and feedback process may have further strengthened our infographics. SoTL scholars planning to utilize infographics may consider engaging formally with stakeholders in the development and/or validation of an infographic.

Our most significant learning occurred in the development and use of our SoTL informed infographic for the public (Figure 1). When creating it, we aimed for an inclusive product that could be seen as representing a diverse array of peoples (i.e., ages, race, language, abilities, environment). We created this infographic with the intent of it being a multi-purpose artifact that can be used as a printed or digital poster in healthcare settings, a handout students can share with patients when interacting, or a pamphlet left in a pharmacy or laboratory setting. It can be shared easily in electronic forms and on social media sites while also being used in more scholarly venues such as a news article, conference poster, and as a visual abstract summarizing our review of SoTL literature. For us, the infographic has become a consistent image that grounds our work and can be used in a variety of ways to take our SoTL public.

CONCLUSION

In answer to the call by Friberg and Chick in 2022 to engage with public audiences, we identified a desire to share SoTL knowledge with the public. As the field continues to evolve, infographics hold tremendous potential to advance the communication of SoTL to various stakeholders, including educators, students, administrators, policymakers, and the public. Our project demonstrates that by effectively utilizing infographics, SoTL researchers can engage a wider audience and make meaningful contributions. The efforts of our group serve as a valuable example of how SoTL knowledge can be brought out of academia and into the public domain, empowering the public with valuable insights. By sharing our exploration of best practices in infographic design and identification of ways that infographics can be used in SoTL, we hope to inform and inspire others to embrace infographics as a tool to push SoTL into more accessible territories.

AUTHOR BIOGRAPHIES

Bryn Keogh (CAN) is an undergraduate student in communications and media at the University of Calgary. She is interested in healthcare communications and was supported by an Alberta Innovates Summer Studentship to support this work.

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