Keynote Abstract-I

Information Security Behaviour Research – East Meets West
Professor Tanya McGill
Murdoch University, Australia
T.Mcgill@murdoch.edu.au

Abstract

Information security and privacy threats are rising, and significant costs result from the information loss and the business disruption that ensues. In response to this growing issue, organizational spending on IT security is at an all-time high, with global information security spending expected to be more than $124 billion in 2019 (Moore & Keen, 2019).

Technical protections are part of the solution but improving human security behaviour is integral to effective protection. Even the best technology, if used improperly or rejected by users, can leave an organization vulnerable. The human side of information security is being tackled from many angles by many researchers around the world. Some of the areas being investigated include how to deliver effective security training and awareness initiatives, how to improve users' ability to remember passwords and how to create an effective organisational security culture. This address shares some of the information security and privacy research my colleagues and I have undertaken and discusses areas that require more attention. The presentation focusses on the following research question:

- *Do the findings of information security research undertaken in developed countries apply in developing countries?*

The first project relates to the role of information security culture in improving information security behaviour, and specifically to the factors that influence information security culture in government organisations in Bhutan (Tenzin, McGill & Dixon, 2020). The student researcher's starting point was that Bhutan is different and that previous research undertaken in developed countries might not apply in Bhutan. But of course, existing research is generally the starting point for new research, so the model tested drew from existing research – and there was justification for the hypotheses from both developed and developing countries. Government employees were surveyed, and we found that what was hypothesised based on research in other countries was also relevant in Bhutan; that is, senior management support for information security activities, having information security policy,

conducting training and awareness campaigns, having good interpersonal trust between employees, and fostering an employee-oriented organizational culture influence information security culture. The study also found that establishing an effective information security culture contributes to good information security behaviour. The finding about the role of interpersonal trust is particularly valuable as it clarifies the importance of interpersonal trust in establishing an effective information security culture, and through that good information security behaviour. So, is anything different about information security culture this developing country? The key differences are probably not in terms of absolute relationships, but in the levels of the factors and maybe the strengths of the relationships. For example, levels of interpersonal trust are higher in Bhutan, probably because of their national culture. But there has been less commitment to implementing good information security policy, and to conducting training and awareness campaigns. So, the same relationships are likely to exist, but the levels of the various factors that influence information security culture probably differ.

Another example where the research explicitly compared a developed and developing country is Thompson, McGill, Bunn, and Alexander (2020). In this project Australia and Sri Lanka were compared with respect to privacy concerns about government surveillance. We found that the results of four of the six hypothesised relationships were the same in the two countries – but that two differed. Concerns about the actual collection of information influence the protections individuals take in both countries. Also, their need for surveillance and their trust in the government influence acceptance of surveillance in both countries. Privacy concerns about secondary use of data did not influence of acceptance in either country.

The key differences between the countries were in whether concerns about having information collected influenced people's acceptance of data collection, and it did in Australian but not in Sri Lanka, and also in whether acceptance of surveillance influenced the protections people take, and again it did in Australia but not in Sri Lanka. We proposed that these differences, and differences in the strengths of some relationships, are due to differences in power distance (Hofstede, 2011), and this was partially supported as people from higher power distance countries appear to be more accepting of those in positions of authority collecting information. So again, national culture plays a role in differences in findings between countries.

The third project that I will discuss investigated how individual differences influence information security and privacy behaviour. There has been limited research on how demographic differences influence information security

behaviour yet understanding this could be important in identifying users who are more likely to have poor information security behaviour, and in then tailoring initiatives to more effectively target particular groups of users and the security issues they face. McGill and Thompson (2020) focussed on one key individual difference – gender –and examined differences in security and privacy behaviour. We found that there were significant differences between males and females in over 40% of the security and privacy behaviours we considered, suggesting that overall levels of both are significantly lower for females than for males in Western countries. Also, the behaviours in which differences were found appear to be those that require more technical skill. These results suggested that training should be tailored, so that it targets the areas most needed by particular subgroups of the population.

However, we did not know if these differences would be found in non-Western countries. Further analysis undertaken for this conference has shown that there are differences between the privacy protections used by Australians and those used by Sri Lankans. Also, the gender differences found in Australia and the US do not appear to occur in Sri Lanka. This means that conclusions based on the implications of these findings may not transfer well to other countries. These differences emphasise the importance of understanding the context in which the research is conducted well, and not just assuming that research findings and conclusions are transferrable. Caution is needed, but this means that there are many opportunities to replicate and extend research that have been undertaken in other countries.

References

Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture, 2*(1), 8.

Moore, S. and Keen, E. (2019). Gartner Forecasts Worldwide Information Security Spending to Exceed $124 Billion in 2019.

McGill, T. and Thompson, N. (2020) Gender differences in information privacy and security (under review).

Tenzin, S., McGill, T. and Dixon, M. (2020) An Investigation of the Factors that Influence Information Security Culture in Government Organisations in Bhutan. PhD in preparation. Murdoch University.

Thompson, N., McGill, T., Bunn, A. and Alexander, R. (2020) Cultural factors and the role of privacy concerns in acceptance of government surveillance. *Journal of the Association for Information Science and Technology.* https://doi.org/10.1002/asi.24372.