ADAPTING TO NEW TECHNOLOGIES AND CHANGES IN PRACTICE. A PSYCHOLOGISTS APPROACH

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RESUME

This lecture will describe models of how people respond to new technology (e.g., the technology acceptance model) and use them to help veterinarians understand how they react to new technologies and changes in practice, as well as how they might change their responses if desired.

ADVANCES IN VETERINARY TECHNOLOGY

Advances in technology have the potential to transform veterinary practice. For example, reptiles can swallow data loggers that record their temperature (https://biaza.org.uk/projects/detail/monitoring-heat-provision-for-effective-thermoregulation-in-reptiles), 3D printers can be used to model bone structures and make prosthetics (https://prescouterc.com/2017/12/3d-printing-veterinary-medicine/), there are FitBIts for tracking activity levels in dogs (https://www.fitbark.com), drones to deliver medication (http://www.flyzipline.com), and some sources suggest that computers will become better at some aspects of a veterinarian’s work than humans are. There is even a journal dedicated to the role of technology in veterinary science (https://www.omicsonline.org/veterinary-science-technology.php). However, not all advancements are welcomed and many people are understandably cautious and slow to adapt. This lecture will describe psychological research on how people respond to new technology, with a view to helping veterinarians understand their – and their colleagues – responses to technology, as well as how these might be managed if needed. Note that the assumption is not that “all technology is good and must be accepted”, but rather that professionals should be open to new ideas, so that they can form opinions that are grounded in reality, rather than stereotypes and/or misconceptions, and therefore accurately appraise whether and how technology could help their practice now and in the future.

THE TECHNOLOGY ACCEPTANCE MODEL

The original version of the Technology Acceptance Model (or TAM) proposed that two beliefs determine a person’s intention to use a new technology that, in turn, shapes their behavior (i.e., actual use of that technology): (i) perceived usefulness and (ii) perceived ease of use. Perceived usefulness reflects the degree to which a person believes that using the technology would enhance his or her job performance. Perceived ease of use reflects the degree to which a person believes that using the technology would be easy. The TAM was extended in 2000 (the TAM 2) to include normative beliefs (specifically, the person’s perception that most people who are important to them think that they should or should not adopt the technology) and in 2003 (the UTAUT) to include facilitating conditions – the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system. Taken together, this framework suggests that people take a relatively rational approach to new technology in which they evaluate how useful it is likely to be, whether using it would be easy, whether others would want them to use it, and whether there is a suitable infrastructure in place to support the technology before forming an intention to use the technology or not.
IS THE ADOPTION OF NEW TECHNOLOGY THIS RATIONAL?

While the propositions of the TAM (and its extensions) make intuitive sense and such beliefs have been shown to predict responses to technology when people are invited to reflect on them (e.g., by completing a questionnaire, for a review, see King & Hevi), it is debatable whether people actually weigh up the pros and cons of new technology in this rational and objective way. First, and perhaps most obviously, so doing requires a good deal of information about the technology; e.g., how it works, how it might be used and the potential advantages and drawbacks. By definition new technology is unfamiliar. People’s opinions may, therefore, be shaped by media representations of similar technologies, by word of mouth and so on, rather than by actual experience with the technology. For example, evidence suggests that people’s beliefs about robots tend to be heavily influenced by science fiction. Therefore, it might be appropriate to provide opportunities for veterinarians to actually experience a new technology (or hear from trusted others who have experience of the technology) before suggesting that they take a decision about whether it would be useful or not.

Information alone may not, however, be sufficient, especially if people are already skeptical or view the technology as a potential threat (e.g., that it could replace duties that they enjoy or compromise an animal’s care). In these instances, it might be important to find ways to reduce defensiveness, so that the person can accurately appraise the potential benefits of a new technology. As described in my other lectures at this conference, self-affirmation may provide one means to reduce defensiveness and has been shown to help people to appraise health information. Similar techniques may therefore help veterinarians to objectively appraise new technology and changes in practice.

INDIVIDUAL DIFFERENCES IN HOW PEOPLE ADAPT TO NEW TECHNOLOGY

It is also worth noting that there are likely to be individual differences in how open people are to new technology and how willing they are to accept it. For example, the Diffusion of Innovations Model (Rogers, 1962) distinguishes between five groups of people: (i) Innovators; defined as people who want to be the first to try the innovation. Such people are venturesome, interested in new ideas, and willing to take risks; (ii) Early adopters, defined as people who enjoy leadership roles, and embrace change opportunities and are comfortable adopting new ideas – these are the people who lead the adoption of new technology; (iii) Early majority, defined as people who adopt new ideas before the average person. However, they are not leaders and typically need to see evidence that the innovation works before they are willing to adopt it. Strategies to appeal to this population include success stories and evidence of the innovation’s effectiveness; (iv) Late majority, defined as people who are skeptical of change, and will only adopt an innovation after it has been tried by the majority; and, finally, (v) Laggards, who are bound by tradition, are conservative and skeptical of change – these people are the hardest group to convince that new technology and/or practices might be beneficial. Although the nature of each of these groups could be debated and it should be recognized that people could fall into different groups with respect to different technologies (e.g., be quick to embrace medical technologies, but slower to embrace social and digital technology), the model can provide a useful framework for understanding differences in how people adapt to new technologies and changes in practice.

CONCLUSIONS

The TAM (and it’s extensions) provides a useful framework for understanding the beliefs that influence whether people will adopt new technologies and practices. However, given that new technology is (by definition) unfamiliar it seems unlikely that these beliefs will accurately reflect reality. Therefore, veterinarians need information about the new technology from a trusted source, or perhaps better still direct experience with the technology before being asked to consider its adoption. In this process, it would also be worth bearing in mind that there are likely individual differences in how open people are to new technology and practices and many people may respond defensively.
REFERENCES


Harris PR., Mayle K., Mabbott L, Napper L. Self-affirmation reduces smokers’ defensiveness to graphic on-pack cigarette warning labels. Health Psychology. 2007: 26;437-446.