

School Children! A Security Aware Generation?

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Abstract

Everyone has personal data that they wish to keep private from other individuals. Young people are the same; they also have bank accounts, telephone numbers and identities that can be stolen. This publication looks at the current levels of information security awareness amongst pre-university students – how they store and share their information, how they are trained in information security and how aware they feel of their own security. Using quantitative (online survey) and qualitative (focus groups) methods, this investigation indicates that young people are not always clued up on the issues surrounding the safety of their personal data even when they believe that they are. The results also imply that young people could be made to think more about what they actually know rather than what they think they know.

Keywords

Information Security Awareness, Students.

1 Introduction

Recently, it has been seen that a number of high profile errors made by companies and the government that have resulted in the release of personal data into the public arena whether it be a laptop left on a train, CD's lost in the post or account details sent to the wrong addresses. In each of these cases, the public have been quick to complain, and rightly so, but just how aware are they when it comes to looking after their personal data for themselves?

Young people are particularly vulnerable when it comes to the subject of information security especially with the popular use of mobile devices and social networking websites. These devices make it much easier for people to store and/or share data about themselves and their friends and acquaintances.

This paper looks at the current situation of young people and their personal data focusing on social networking and the internet, mobile devices, USB memory keys and their levels of information security awareness. Information security training is also considered

2 Current Situation

Social networking websites are very popular with young people. One of the most popular, 'Facebook', had over 50 million users in October 2007 (Facebook, Inc.,

2007). It was further estimated that the number of active users would double every 6 months (Facebook, Inc., 2008). It has been found that those aged between 16 and 17 years of age have a high tendency with 73% of adding strangers as “friends” (Davies, 2007) and hence allowing them full access to any information contained on their profile. It is possible to restrict the amount of information that is displayed on social networking profiles however young people do not always do this. Experts have said that users are exposing themselves to identity theft, credit fraud and future embarrassment (Beucke & Thacher, 2005). In 2006, a study showed that whilst young people had an idea in their own mind about the safety of their personal data, the actual level of awareness was quite low given the high skill level when using the internet (Lacohée et al, 2006).

It was estimated that 28% of 10-19 year olds owned a mobile phone in 1999 (Aoki & Downes, 2003). This figure had increased dramatically by 2001 when it was said that 90% of UK secondary school students owned a mobile phone (Davie et al, 2004). In addition to this it was found in 2001 that almost half of mobile theft victims were under the age of 18 (Davie et al, 2004).

Original research took place via an online survey as part of this project to investigate the levels or perceived levels of information security awareness. The survey requested respondents to be of pre-university age, this being between 14 and 18 years inclusive. 105 surveys were completed fully from a total of 123 that were attempted. A focus group was also conducted to investigate issues in a greater depth.

2.1 Social Networking and the Internet

Social networking websites are one of the key tools that young people use to stay in contact with their friends. This is reflected in the high awareness of such sites in particular Facebook where 99.05% were aware of or at some point used the site. Similarly 98.09% were aware of Bebo and 97.14% aware of MySpace. They are, in contrast to other communication mediums such as mobile telephones, free to use reflected in the fact that all respondents in the survey were aware of or had used a social networking website. These statistics show that young people have an extremely high engagement with technology and that it forms a part of their everyday lives.

Social networking websites were an area where young people were aware of some of the issues posed but, in many cases they chose to ignore the problems. 40% of respondents said that they would accept a friend request from someone that they did not already know. On the other hand 73.3% said that they were aware of protection features offered by social networking websites such as hiding a profile from search engines or preventing a profile from being accessed by non friends.

Access to the internet has become more widespread for young people. Research in 2005 of a similar age group of 9 – 19 years old showed that 75% had internet access at home and that 19% of these had access within their own bedroom (Livingstone & Bober, 2005). Today, three years on, 79% have access at home. Staggeringly, the number of young people who have access to a computer and the internet within their own private space has risen to 67.6%. When a young person has access within their

own space, they are less likely to have as much supervision from parents meaning that there is less control over the sites that they visit or the information that is given out.

2.2 Mobile Devices

It may not be a surprise to find that 93.3% of young people own a standard mobile phone. This in itself may seem innocuous but a mobile phone can hold a surprising amount of information. This most often takes the form of names and telephone numbers but also can include addresses of contacts. Smart phones are particularly used for storing large amounts of contact information and are increasingly owned as age increases with 5.7% of 16 year olds owning such a device compared to 20% of 18 year olds. As could be expected the most common item of data stored on a mobile phone was phone numbers stored as part of contact information. Most modern phones now include a camera as standard and this is reflected in the survey results as 89.9% of respondents store photos. More important information such as PIN numbers and credit card numbers are rarely stored on a mobile phone with 7.9% and 0.95% storing these respectively. It is however worrying that this practise is carried out in any form in the first place as presumably they also keep their wallet in a similar location to their phone.

69.5% of respondents said that they had not had a mobile phone lost or stolen. This is an unfortunate statistic as 15.2% were a victim of a theft and 20.9% claimed that they had lost their mobile device. Ideally these figures would be much lower.

2.3 USB Keys

USB keys are very popular amongst young people with 81.9% of respondents owning one. USB keys are becoming increasingly cheaper and also increasingly larger allowing the owners to store many more things. Due to their nature, USB keys are also very small in size and are easily lost or stolen. USB keys are mostly used by young people to store their school work (89.53%) and to transfer it from place to place. 73.25% also said that they stored photographs. These two in themselves are fairly harmless things but more concerning was the fact that over a third said that they carried their Curriculum Vitae with them on a memory stick. This is even more concerning when it was found that 70.93% did not use any form of encryption or password to protect their USB data leaving it wide open for any thieves to use the contents how they wish.

2.4 Training and Awareness

To create a security aware society particularly amongst young people, training will need to take place, especially as there is no apparent security culture. Part of the lack of knowledge is most likely down to only 25.7% of respondents saying that they had had any form of information security or internet safety training. This is not to say that there are not sufficient resources available either as ready to teach material or as complete awareness websites. Despite them being available, the number of people that are aware of their existence is relatively low. The number of people who have actually used one or more is even lower. Figure 1 shows the number of young people

who have used, are aware of or are not aware of a select number of awareness websites. These websites are run by both governments and by independent organisations.

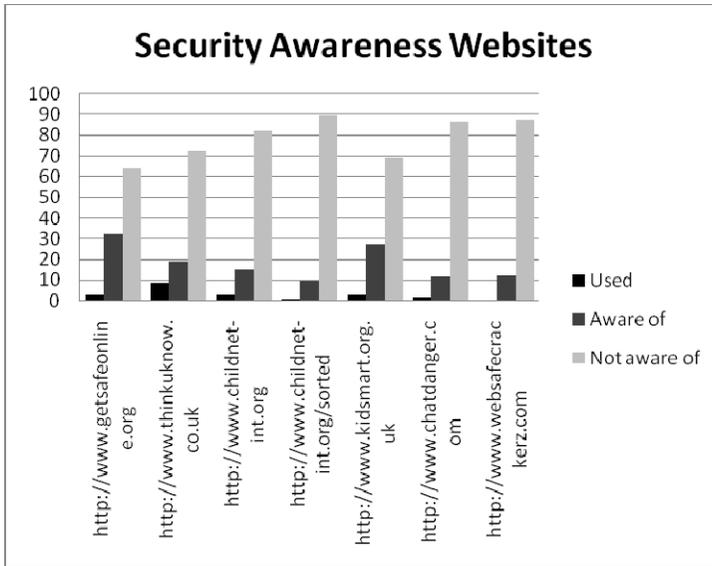


Figure 1: Awareness websites and their usage

One of the most interesting things concerning levels of awareness was the before and after questions in the survey. Respondents were asked if they felt they had an appropriate level of awareness at the beginning of the survey and then again at the end of the survey. To begin with, 80% of respondents were sure that they had an appropriate level of awareness. This compares to 61% when they were asked for a second time. This indicates that even something as simple as asking a few questions can stimulate a young person into thinking more about what they actually know rather than what they think they know.

3 Discussion

On closer inspection it was found that 24.76% changed their mind throughout the course of the survey by initially saying that they felt they had an appropriate level of awareness and then changing their mind to say that they did not. 5.7% on the other hand changed their mind in the opposite way by initially saying no and then changing their mind to say yes. 55.23% did not change their mind and maintained that they had an appropriate level of awareness throughout the survey. The answers from these respondents were analysed further to produce the following statistics, 23.09% of respondents who changed their mind from yes to no correctly identified the right definition for the term phishing. Only 7.69% of those who changed their mind had received any form of awareness training and 57.69% used or were aware of protection features that are available when using social networking websites. These statistics are a contrast to those found when analysing the results of those who

maintained throughout that they did have an appropriate level of awareness. 50% of these respondents were able to correctly identify phishing from the responses given in the survey. 37.93% said that they had received some form of awareness training at some point and 86.20% were aware of protection features that can be used on social networking websites.

From the above it is clear to see that those who personally thought that their level of awareness was adequate did in fact have a greater degree of knowledge. Those who did change their mind from yes to no did in fact have a poorer level of awareness shown though their answers given in the survey. This could indicate that the multiple choice answers given in the survey were clear enough to indicate a correct or ideal answer to the question. This therefore indicated to the respondent that the answers they were giving were not ideal and that in fact their level of awareness was poorer than they had initially assumed. This again reinforces the idea that asking a few simple questions could make a young person think more about what they know rather than what they think they know.

4 Conclusions and Future Work

The research carried out for this project has raised some interesting points relating to the awareness that young people have for their information security. Overall, young people appear to have a good grounding in the rights and wrongs when it comes to what they should and what they should not do with their personal data but having said this, the young people surveyed do not always practise what they preach especially when it comes to social networking. Here, the young people are usually fairly aware that they should not display many details about themselves however they still show them on their profiles with an 'it will not happen to me' attitude. Also on the subject of social networking privacy features offered by the various social networking sites, although well known, it is not known how many people take advantage of the facilities. Mobile phone ownership is very high but so is their loss/theft. Thankfully young people were most likely to store less important items on their profile such as names and telephone numbers rather than PIN numbers and credit card details. USB memory keys are now also very popular and can store important documents. Unfortunately due to their size they can easily be lost or stolen and many do not use any form of protection for the data held within in case of such an eventuality. A young person's knowledge of awareness training websites is very poor. Work needs to be conducted in this area to make such websites more accessible. It is not clear whether these sites are not interesting or whether they are simply not marketed correctly. Websites and posters whilst popular may not be the best way to deliver security awareness training. This issue was raised in the focus group by a young person. By using formal lessons it can be ensured that young people are made aware of the issues concerning the security of their personal information. Even better would be the inclusion of the topic in the national curriculum programmes of study.

Further research should be carried out to develop the ideas investigated further. More detailed analysis of the use of social networking websites is one possible avenue. Of particular interest, the creation of an awareness programme specifically for younger people could be devised using both the research carried out here and further research

into the topics and methods that would both benefit and be liked by the young people themselves. A comparison between those who have undertaken an awareness training programme and those who have not, can be made possibly by conducting a before and after survey.

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