ANTECEDENTS OF CYBER SECURITY BEHAVIOR: THE ROLES OF COPING APPRAISAL, THREAT APPRAISAL AND RESPONSIBILITY NORMS AMONG GOVERNMENT EMPLOYEES

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DOCTOR OF PHILOSOPHY

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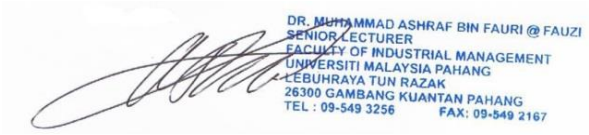
We hereby declare that we have checked this thesis and in our opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Doctor of Philosophy.



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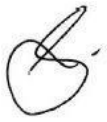
I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.



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ABSTRAK

Nilai kesedaran keselamatan siber dalam kalangan pekerja merupakan peranan penting bagi organisasi dalam melindungi aset. Keselamatan siber telah menjadi isu kritikal dalam masyarakat kerana penggunaan Internet yang semakin meningkat. Pelbagai sikap terhadap amalan keselamatan siber untuk pekerja dalam organisasi adalah punca utama perkara ini. Kajian terdahulu telah mendedahkan di rantau Asia Tenggara, Malaysia dilaporkan negara paling terdedah dengan 46% responden mengaku menjadi mangsa penipuan. Sama pentingnya, menurut tinjauan pengguna Internet pada 2020 yang dijalankan oleh Suruhanjaya Komunikasi dan Multimedia Malaysia (SKMM) sejak 6 bulan lalu, 53.1% pengguna pernah mengalami jenayah siber. Sebaliknya, 9.4% pengguna telah mengalami jenayah siber dalam tempoh lebih 3 tahun, 7.6% pengguna dalam 2 tahun lepas dan 27.7% pengguna Internet telah mengalami jenayah siber dalam tempoh 12 bulan terakhir pada tahun 2020. Untuk mempelbagaikan tahap penilaian ancaman (kelemahan yang dirasakan, keterukan yang dirasakan), penilaian daya tindak (halangan yang dirasakan, keberkesanan tindak balas keselamatan, keberkesanan kendiri tindak balas) dan juga untuk menilai tahap impak norma tanggungjawab (tanggungjawab peribadi, tanggungjawab pihak ketiga) terhadap tingkah laku keselamatan siber pengguna. Norma tanggungjawab disepadukan ke dalam model sebagai cara untuk menilai tingkah laku pekerja terhadap keselamatan siber. Kajian ini juga menangani jurang dalam literatur dengan menyiasat sejauh mana hubungan antara kelemahan yang dirasakan, keterukan yang dirasakan, halangan yang dirasakan, keberkesanan tindak balas keselamatan, keberkesanan kendiri tindak balas, tanggungjawab peribadi dan tanggungjawab pihak ketiga wujud. Reka bentuk kajian kuantitatif telah digunakan dalam kajian ini. Kajian rintis digunakan untuk menguji model yang direka menggunakan pemodelan persamaan struktur untuk menganalisis hubungan antara pembolehubah. 446 responden daripada agensi kerajaan di Malaysia mengambil bahagian dan dianalisis menggunakan pemodelan persamaan struktur kuasa dua separa (PLS-SEM). Salah satu penemuan yang paling ketara dalam kajian ini ialah tingkah laku keselamatan siber memberi kesan yang besar kepada kakitangan kerajaan Malaysia. Penemuan ini merupakan salah satu penemuan paling kritikal daripada kajian ini. Keterukan yang dirasakan, halangan yang dirasakan, keberkesanan kendiri tindak balas, keberkesanan tindak balas keselamatan, tanggungjawab peribadi dan tanggungjawab pihak ketiga secara positif mempengaruhi tingkah laku keselamatan siber. Sebaliknya, hanya kelemahan yang dirasakan mempunyai kesan negatif terhadap tingkah laku keselamatan siber kakitangan kerajaan di Malaysia. Oleh itu, ia menyimpulkan bahawa penilaian daya tindak dan norma tanggungjawab yang dikaitkan dengan PMT mempunyai pengaruh yang ketara terhadap tingkah laku keselamatan siber kakitangan kerajaan Malaysia berbanding penilaian ancaman. Hasil kajian ini menunjukkan penemuan sebenar yang mungkin boleh diambil tindakan dengan berkesan untuk mengurangkan kesan serangan siber terhadap kakitangan kerajaan di Malaysia. Kajian ini juga telah menemui potensi untuk menyumbang kepada keselamatan agensi kerajaan di Malaysia daripada serangan siber yang dilancarkan oleh pelaku di alam siber.

ABSTRACT

The value of cyber security awareness among employees plays an important role for organizations in the protection of assets. Cyber security has become a critical issue in society due to growing internet use. Various attitudes towards cyber security practices for employees in organizations are a major cause. Previous research has revealed that in the South East Asia region, Malaysia is reportedly the most vulnerable country, with 46% of respondents admitting to being victims of scams. Equally important, according to an Internet user survey in 2020 conducted by the Malaysian Communication and Multimedia Commission (MCMC), over the last six months, 53.1% of users have experienced cybercrime. On the other hand, 9.4% of users have experienced cybercrime in more than three years, 7.6% of users in the last two years and 27.7% of Internet users have experienced cybercrime in the previous 12 months in 2020. This study verify the extent of threat appraisal (perceived vulnerability, perceived severity), coping appraisal (perceived barrier, security response efficacy, response self-efficacy) and also to evaluate the impact level of responsibility norm (personal responsibility, third-party responsibility) on user's cyber security behaviour. Responsibility norms are integrated into the model as a means to assess employees' behaviors toward cybersecurity. This study also addresses a gap in the literature by investigating the extent to which the relationships between perceived vulnerability, perceived severity, perceived barrier, security response efficacy, response self-efficacy, personal responsibility, and third-party responsibility exist. A quantitative research design was used in this study. The designed model was tested in two stages of pre-test using structural equation modelling to analyze relationships between variables. 446 respondents from government agencies in Malaysia took part and were analysed using partial least-squares structural equation modelling (PLS-SEM). One of the most notable findings of this study is that cyber security behaviour has a significant impact on Malaysian government employees. These findings are one of the most critical findings from this study. The perceived severity, perceived barrier, response self-efficacy, personal responsibility, and third-party responsibility positively influenced cybersecurity behaviour. In contrast, the perceived vulnerability and security response efficacy have a negative impact on the government employee's cybersecurity behaviour in Malaysia. Thus, it concluded that the coping appraisal and responsibility norm associated with PMT has a significantly strong influence on the cyber security behaviour of Malaysian government employees than threat appraisal does. The outcomes of this study will demonstrate the actual findings that may be brought into effective action to decrease the impact of cyber-attacks on government employees in Malaysia. This study also has discovered the potential to contribute to the security of government agencies in Malaysia from cyber-attacks launched by perpetrators in cyberspace.

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