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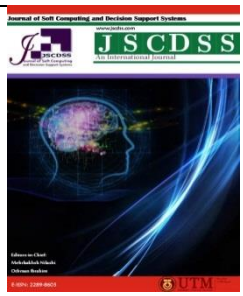

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The Influence of Dispositional Resistance to Change on Seniors' Mobile Banking Adoption in Malaysia

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Abstract

Mobile banking has become an important mean for banking activities but its adoption is sluggish among some market segments such as senior market. However senior market is gaining importance in online marketing field but studies on seniors' adoption of mobile banking is rare. This study aims to investigate the effect of personality trait "dispositional resistance to change" on mobile banking adoption among individuals above 50 years old. The data was collected using survey method in Kuala Lumpur from seniors who were non-users of m-banking. 384 usable responses were obtained. PLE-SEM was applied to analyze the data. The result revealed dispositional resistance to change has significant negative effect on seniors' intention to adopt m-banking. The study also provides the implications for research and practice and limitations and recommendations for future research are discussed.

Keywords: Seniors, Mobile banking, Dispositional resistance to change, Malaysia

1. Introduction

Mobile banking or m-banking is the latest technological innovation in financial industry (Shaikh and Karjaluoto, 2015; Alalwan et al., 2017). M-banking is the act of conducting financial transactions through mobile environment, using mobile Internet and mobile devices such as smartphones and tablets. M-banking enables users to access to banks' financial and non-financial services such as fund transfer, loan request, balance inquiry, account management without time and spatial limitation (Afshan and Sharif, 2016; Baptista and Oliveira, 2016; Tan et al., 2016).

High penetration of smartphone and third generation mobile communication lead to increase in m-banking adoption (Shaikh and Karjaluoto, 2015). M-banking is a powerful medium for banks to reach and interact to their customers. M-banking is getting popular among bank customers due to its advantages such as ubiquity, flexibility, interactivity, accessibility (Oliveira et al., 2014; Tan et al., 2016). Statistic published by Juniper Research (2016) revealed that the global m-banking users stand at 1.2 billion in 2016 and it would increase to over 2 billion by 2021. Researches on m-banking adoption seem to reach to a consensus that m-banking users are mostly among young consumers with good knowledge and skills about computer and Internet and seniors mostly lag behind in use of m-banking (Laukkanen and Pasanen, 2008; Karjaluoto et al., 2010; Joshua and Koshy, 2011; Mohammadi, 2015; Tan et al., 2016; Boonsiritomachai and Pitchayadejanant, 2017; Chawla and Joshi, 2017).

Generally, in online marketing field, there is a traditional belief, that young people are the main users of ITs and seniors are reluctant in IT adoption, thus marketers in online and mobile businesses mostly focused on young consumers in designing marketing strategies (Choudrie and Vyas, 2014; Lian and Yen, 2014; Tan et al., 2016). However in recent years, managing senior market has attained increasing attention in online marketing field and marketers have considered seniors as potential market segment for online businesses (Lian and Yen, 2014; Kuoppamäki et al., 2017). This market is usually defined as individuals between the age of 50 and above (Gurtner et al., 2014; Lian and Yen, 2014).

High penetration of IT in societies made seniors to expose more to IT applications. Increase in seniors' use of ITs, along with the increase in their population due to enhancement in life expectancy made seniors as potential market segment for online and mobile businesses (Thompson and Thompson, 2009; Gurtner et al., 2014). Seniors are getting more familiar with technologies such as computers, the Internet and mobile phones (Laukkanen et al., 2007). Also some studies indicated that seniors use of IT is increasing and they are getting more active online (Gurtner et al., 2014; Lian and Yen, 2014; Vroman et al., 2015; Kuoppamäki et al., 2017). Therefore senior market

became an important market segment for many industries that are active online such as banks and financial institutions (Laukkanen et al., 2007).

This study focuses on seniors' adoption of m-banking particularly in Malaysia. This is because moreover the high penetration of mobile internet and mobile cellular in Malaysia, also seniors' use of IT such as Internet is increasing in the country. Based on the report published by Malaysia Communication and Multimedia Commission (MCMC) in 2017, Malaysia ranked fourth in broad band and mobile cellular phone penetration among ASEAN countries. The mobile cellular penetration was 131.2% which means people in Malaysia may have more than one mobile phone. The report also indicated that there has been consistent growth in the adoption of mobile Internet as well as increase in use of Internet by seniors in Malaysia in recent years (MCMC, 2017). Furthermore according United Nations projection in 2013 Malaysia will become an aging country by 2030 (Lim and Sulaiman, 2013). The mentioned statistic shows that seniors in Malaysia could be promising market segment for online and mobile businesses such as m-banking. To motivate seniors to adopt m-banking, it is essential for banks to know seniors' behavior and factors affecting their adoption of m-banking that help to create strategies that can motivate seniors to adopt m-banking.

Despite the potential of senior market segment for adoption of online and mobile business such as m-banking, most online marketing studies including m-banking adoption studies predominantly focused on young market or there are the few numbers of seniors among their respondents (Choudrie and Vyas, 2014; Lian and Yen, 2014; Teh et al., 2014; Kuoppamäki et al., 2017). Therefore the result of those studies cannot be generalized to mature market, because seniors' IT adoption may differ from young people (Arning and Ziefle, 2007; Teh et al., 2014). The process of aging such as decline in physical and cognitive abilities such as decrease in vision ability or memorability may impede seniors in IT adoptions (Czaja et al., 2006; Phang et al., 2006). For instance, working with small screen size of smartphone may be difficult for seniors or a mobile application with complicated menu, is difficult to remember. Also seniors have less experience and skill with IT applications compare to young people who are familiar with IT from their schools or jobs (Czaja et al., 2006). Studies also showed that seniors have less self-confidence and higher anxiety in use of ITs (Czaja et al., 2006; Zhaohua Deng, 2014). Therefore they may have different attitude and behavior in adoption of IT applications such as m-banking (Laukkanen et al., 2007; Lian and Yen, 2014; Teh et al., 2014; Zhaohua Deng, 2014). To understand seniors' m-banking adoption, researches must be undertaken to investigate m-banking adoption with focus particularly on seniors segment. As mentioned earlier, there are few studies about seniors' m-banking adoption in IT literature and there is lack of understanding about seniors' acceptance of m-banking (Choudrie et al., 2018). Therefore to fill this gap this study attempted to investigate seniors' m-banking adoption and it focused on the issue related to seniors' personality trait, namely "dispositional resistance to change". The following sections explain about the definition of senior for this study and factors affecting their IT adoption. Next it explains about personality traits and their effect on IT adoption, and finally explain particularly about the personality trait, "dispositional resistant to change".

2. Literature

2.1 Who are seniors?

To study seniors' m-banking adoption, first we need to know who are seniors. There are variations of definition for seniors (Laukkanen et al., 2007; Lian and Yen, 2014). IT adoption studies for instance which investigated IT adoption by seniors, have used various age segments to define senior. Some studies considered seniors as individuals who are 50 years old and above (Phang et al., 2006; Ryu et al., 2009; Xue et al., 2012), while some other studies have considered the age, 55 above as being a senior (Laukkanen et al., 2007; Amma and Panicker, 2013). Also there are some IT studies that have considered seniors as population who are over 65 years old (Reisenwitz et al., 2007; Conci et al., 2009; Heinz, 2013). However, most marketing studies defined seniors as individuals over the age 50 (Karani and Fraccastoro, 2010). The reason for the cut-off point of age 50 for being senior is because at this age people start to decline in health and cognitive skills that influence their performances in different activities (Albert and Heaton, 1988). The report published by MCMC in 2017, showed that there is digital divide among population over the age 50, and the use of Internet is the least in this age segment. The current study defines seniors as individuals who are 50 years old and above, based on the definition of seniors in most studies in marketing literature (Karani and Fraccastoro, 2010) which is also consistent with the MCMC report (2017) about individuals' Internet usage.

2.2 Factors affecting seniors' IT adoption

Studies about seniors' behavior in use of online and mobile businesses are rare (Lian and Yen, 2014; Choudrie et al., 2018). However some researches have attempted to identify seniors' IT adoption characteristics and their adoption behavior. For example study by Lian and Yen (2014) investigated online shopping adoption of young and old people and found seniors have more barriers in adopting online shopping compare to young people. Their study revealed that factors such as performance expectancy and social influence are drivers that motivate seniors to adopt online shopping, but value, risk and tradition barriers demotivate seniors in online shopping adoption. Similarly study by Laukkanen et al. (2007) compared m-banking adoption between young and old people and found seniors have more barriers in adoption of m-banking compare to their younger counterparts. Their study revealed moreover usage and value barriers that impede both young and old people in m-banking adoption, risk and tradition barriers

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also have negative effect on seniors' adoption of m-banking. Study by Phang et al. (2006) also revealed the significant effect of factors such as perceived usefulness and ease of use and the Internet safety perception on seniors' intention in adoption of e-government. They also found the influence of self-actualization need, resource saving, computer anxiety and computing support on seniors' adoption of e-government through mediating effect of perceived usefulness and ease of use. Ryu et al. (2009) studied video user created content (video UCC) adoption among older people and found factors such as perceived benefit, ease in participation, enjoyment and perceived user resources, physical condition, life course event directly influence seniors' adoption. Additionally their study showed that factors such as computer anxiety, prior similar experiences and compatibility can have indirect impact on seniors' behavior toward use of video UCC. Zhaohua Deng (2014) investigated seniors' acceptance of mobile health service (m-health), and found seniors' perception of value of m-health, perceived behavioral control and their attitude positively affect seniors' acceptance of m-health but resistance to change have negative significant influence on their acceptance of m-health. Studying seniors' use of Internet, Reisenwitz et al. (2007) found nostalgia and user's personality characteristics such as risk aversion and innovativeness affect seniors' use of Internet. Another study, by Heinz (2013) also examined the effect of different personality characteristics on seniors' technology adoption and found personality trait "agreeableness" can impact seniors' behavior in use of technologies. Above literature are summarized in Table 1. From Table 1, we can realize that however many researches attempted to investigate seniors' adoption of ITs, (Wagner et al., 2010) but studies on seniors' adoption of m-banking is rare. Laukkanen et al. (2007) was the only study that investigated m-banking adoption by matured market.

Table 1 also shows that seniors' IT adoption is an inter-disciplinary field and factors from different disciplines such as gerontology for example physical condition (Ryu et al., 2009), technological discipline, such as perceived safety (Phang et al., 2006), psychology such as life course event (Ryu et al., 2009), self-actualization need (Phang et al., 2006) can affect seniors' IT adoption. Literature also shows the effect of factors from individual characteristic group such as personality traits on seniors' IT adoption such as innovativeness (Reisenwitz et al., 2007) and agreeableness (Heinz, 2013). Scholars have mentioned the important role of personality traits in IT adoption (Devaraj et al., 2008; Junglas et al., 2008). They defined personality as a pattern of behaviors which is characteristic of person that influences his or her thinking, feeling and behavior (Levy, 1970; John and Srivastava, 1999). Personality traits can form individual's style of thinking and can appear in his/her choices and behaviors in different situations and can explain why people prefer an option to other (Olver and Mooradian, 2003). Therefore researchers attempted to investigate the effect of different personality traits in various behaviors and human choices such as IT adoption (Olver and Mooradian, 2003; Devaraj et al., 2008).

Many personality traits have been identified and new traits dimensions continue to join the list. This study focused on the effect of personality characteristic related to change-behavior namely "dispositional resistance to change" on seniors' adoption of m-banking. The next section discusses about personality trait "dispositional resistance to change" and its role in IT adoption.

2.3 Dispositional resistance to change

People naturally have an inner inclination to resist changes and save what is familiar (Kurt, 1947). This innate tendency to oppose the change has some roots in individual's personality. Oreg (2003) attempted to identify the sources of resistance to change in people personality. Studying extensive literature on resistance to change, he identified six causes of resistance to change within individuals' personality such as reluctance to lose control, cognitive rigidity, lack of psychological resilience, intolerance to the adjustment period involved in change, preference for low levels of stimulation and novelty and reluctance to give up old habits that make an individual more predisposed to resist change. However, these characteristics are associated to how individuals response to change but they have not been conceptualized to evaluate the dispositional propensity to resist changes (Oreg, 2003).

Table 1

Factors affecting seniors' IT adoption

Authors/ years	Online activity	Factors affecting seniors
Phang et al. (2006)	E-government	Perceived usefulness, ease of use, Internet safety perception, self-actualization need, resource saving, computer anxiety and computing support.
Laukkanen et al. (2007)	M-banking	Usage, value, risk and tradition barriers
Reisenwitz et al. (2007)	Internet	Nostalgia, risk aversion and innovativeness
Ryu et al. (2009)	Video user created content	Perceived benefit, ease in participation, enjoyment, perceived user resources, Physical condition, life course event, computer anxiety, prior similar experiences and compatibility
Heinz (2013)	General use of technology	Agreeableness
Lian and Yen (2014)	Online shopping	Performance expectancy, social influence, value, risk and tradition barriers.
Zhaohua Deng (2014)	M-health service	Perception of value, perceived behavioral control, attitude, resistance to change

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Oreg (2003) conceptualized a multi-facet factor name dispositional resistance to change (DRTC) that could embrace different sources of resistance in individual's personality and directly measures individuals' innate propensity to resist change in general. Oreg (2003) defined dispositional resistance to change as the individuals' dispositional propensity to resist changes and keep the status quo (p. 680). Based on Oreg (2003), individuals are different from each other in their inner tendency to resist or accept changes. These variations can forecast individuals' attitudes about special changes. Presumably individuals with high DRTC will not enter changes into their lives and if they have to accept changes, they may experience more negative feelings, such as fear, anxiety and anger (Oreg, 2006). Therefore, DRTC is considered as a personality trait that may influence a consumer's intention and behavior toward any change or an unfamiliar situation (Oreg, 2003). From this point of view, consumers may resist to any change, even if the change be beneficial to them (Oreg, 2006).

In order to gather the complexity of DRTC, Oreg (2003) measured DRTC as second-order construct, comprising the four related yet distinct dimensions which are conceptualized to measure an individual's dispositional proclivity to resist change. Each dimension signifies a different source of resistance within one's personality. These dimensions are Routine Seeking (RS), Emotional Reaction (ER), Short-Term Focus (STF), and Cognitive Rigidity (CR). Fig. 1 shows the construct DRTC as second order factor with its four dimensions as first order factor. Routine seeking encompasses the extent to which a person enjoys and looks for steady and routine environments in general and reflects individuals' unwillingness to quit old habits and a predisposed preference for low levels of stimulation and novelty. People with high level of DRTC, mostly prefer to keep the status quo and follow the routine instead of accepting the change and they are low in novelty seeking. Routine seeking dimension captures this aspect of DRTC within personality (Oreg, 2003).

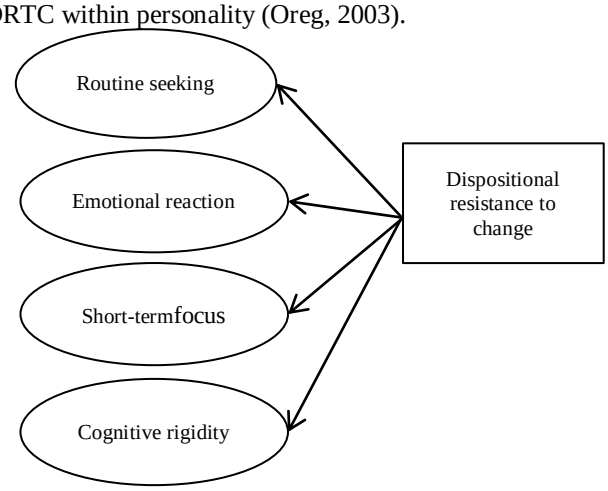

Fig. 1. Dispositional Resistance to Change Source: Oreg, (2003)

Another dimension of DRTC is emotional reaction that captures 'reluctance to lose control' and a 'lack of psychological resilience'. Emotional reaction reflects the extent to which people feel tensed and uncomfortable in response to change (Oreg, 2003; Oreg et al., 2008). People who are high in DRTC normally feel more stress and fear, confronting the change. Emotional reaction dimension embraces this aspect in DRTC. The items in emotional reaction (e.g., I feel tensed if things do not occur according to plan) measure the amount of stress and uneasiness the individual experience when facing the change (Oreg, 2003).

Short-term focus, is the extent to which individuals are involved with the short-term difficulties in contrast to the potential long-term benefits of the change, and with it an individual's intolerance for [the] adjustment period involved in change, as well as, reluctance to lose control (Oreg, 2003). Individuals with high level of DRTC are more distracted by short-term inconveniences involved in the change, such that they refrain from selecting a rationally valued long-term benefit. Because they may focus more on the effort, they have to put on in accepting the change instead of the benefit brought by change. The items in short-term focus dimension (e.g., often I feel a bit uncomfortable even about changes that may potentially improve my life) measure this aspect of dispositional resistance to change (Oreg, 2003).

Finally, cognitive rigidity indicates the stubbornness and unwillingness in individuals to consider substitute ideas and viewpoints (Oreg, 2003; Oreg et al., 2008). Individuals who are high in DRTC normally don't change their mind easily and they are cognitively rigid. The items in cognitive rigidity dimension (e.g., I do not change my mind easily) address this aspect in DRTC construct (Oreg, 2003).

Oreg (2003) stated that DRTC scale can predict change-related behavior above and beyond other related personality traits (Oreg, 2003), such as big five model of personality (McCrae and Costa, 1987), risk aversion (Slovic, 1972), sensation seeking (Zuckerman, 1971) and tolerance for ambiguity (Budner, 1962). Additionally, the validity and reliability of DRTC measurement has been proved by several studies in different contexts and countries (Oreg et al., 2008). The following discusses the effect of DRTC on IT adoption.

2.4 The role of dispositional resistance to change in IT adoption

Scholars stated that users' adoption or rejection of technological innovation is not solely depends on technology design. Some people may be reluctant in adoption of technology despite its benefits and the great technology design. This can be explained partly by their high innate tendency to resist the change and save what is familiar (Nov and Schecter, 2012). Introduction of new technologies often involve some form of changes to users (Cochran, 2009; Nov and Schecter, 2012). Users to adopt the technology have to accept the changes brought by the technology and experience its benefit. DRTC as a personality characteristic related to change-behavior can have significant influence on individuals' perception and

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behavior in use of ITs (Nov and Ye, 2009; Laumer et al., 2010; Mzoughi and M'Sallem, 2013; Laumer et al., 2015).The reason for such issue is that, people with high DRTC are reluctant to initiate the change into their lives. They find it difficult to break the routine and try out an unknown situation. They are emotionally stressed in the face of change, and find it cognitively difficult to change their minds (Oreg, 2003). Therefore, individuals with high DRTC are expected to be disinclined to try out new things such as new innovations (Oreg, 2003) because even when a new technology bring significant benefits, the act of learning and switching to the new technology is psychologically difficult for them (Nov and Ye, 2008). Despite the importance of DRTC in IT adoption, little is known about the role of DRTC in IT adoption and contribution of DRTC in IT adoption needs further investigation (Mzoughi and M'Sallem, 2013). Therefore, this study aimed to fill this gap and investigated the effect of DRTC on seniors' adoption of m-banking.

It is worth studying the effect of DRTC in the context of m-banking adoption and seniors. It is because m-banking as a new innovation can bring some form of changes in conducting banking activities to users. On the other hand seniors are a population known for high resistant to change and adoption of technological innovations (Laukkanen et al., 2007). It is said that, seniors seek stability and routine and they are not innovative (Schiffman and Sherman, 1991). They prefer to continue using conventional methods instead of accepting the change and adopt the innovation. In case of banking activities, they may prefer to refer to bank branches or using ATM instead of adopting the new innovation such as m-banking that could change the approaches in conducting banking activities. DRTC as a personality trait that embraces individuals' innate inclination to resist the change can have impeding effect on seniors' adoption of m-banking, because to adopt m-banking, they have to accept and cope with the changes brought by m-banking in their banking activities. Therefore, seniors' with high DRTC would be less intended to adopt m-banking. Thus this study hypothesized:

H: Dispositional resistance to change has negative effect on seniors' intention to adopt m-banking.

3. Methodology

3.1 Measurement instrument and questionnaire design

The survey questionnaire consisted of two parts. Part A includes questions regarding respondents' demographic information such as age, gender, ethnicity, income and educational level. Part B contains the items to measure the constructs of this study namely, DRTC and intention to adopt m-banking, using five point Likert scale varying from 1 (strongly disagree) to 5 (strongly agree).

This study to measure DRTC, used the DRTC scale developed by Oreg, (2003). DRTC scale consists of four dimensions. These dimensions are routine seeking, emotional reaction, short-term focus and cognitive rigidity that refer to different sources of resistance to change in people personality. These four dimensions together measure the individuals' natural tendency to resist against the change. Two items in DRTC scale, related to dimension emotional reaction (DRTC 6 and DRTC9) were modified from the original DRTC scale to be suitable for the context of this study. Also the item (DRTC4) "whenever my life forms a stable routine, I look for ways to change it" in routine seeking dimension and another item (DRTC14), "I often change my mind" in cognitive rigidity dimension are reverse coded. Also this research adopted the items from Venkatesh et al. (2003) to measure intention to adopt m-banking with modification to make the items suitable for the context of m-banking. Table 2 presents the items to measure DRTC and seniors' intention to adopt m-banking.

The questionnaire was reviewed by two experts in the area of e-commerce. The wordings of some items were modified based on experts' reviews. After experts validated the questionnaire, the research provided back to back translation from English to Malay language and vice-versa. Two professional editors reviewed the translations to ensure the questionnaire in Malay language results in an equivalent version as the original and to ensure for no structural error and the appropriateness of the wording. After validation of the questionnaire a pilot test was conducted to build better reliability. Thirty respondents took part in the pilot study and their feedback indicated the clarity of the questionnaire's items. Additionally based on the results of the pilot study, the questionnaire obtained the acceptable criteria for reliability (Cronbach's Alpha for all constructs and dimensions of DRTC were above 0.7).

3.2 Population, sampling and data collection procedure

The population of this study consists of Malaysians aged 50 years and above who were non-users of m-banking. Due to restrictions of bank's customers' data, convenience sampling was adopted for the survey. The data was collected in Kula Lumpur because of high penetration of mobile broadband (213.3% per 100 inhabitant) (MCMC, 2017). Using mall-intercept approach, the researcher approached to potential respondents, invited and explained the objective of the study. Participation was voluntary and respondents' details remained anonymous. The researcher assisted the respondents while answering the questions. It took the participants about 25 minutes on average to complete the questionnaire. The two months survey gathered the total of 384 useable questionnaires. The non-response bias was computed by using independent t-test, which showed that there was no significant difference between early and late respondents. Furthermore, common method bias was evaluated by using Harmen's single factor test (Podsakoff et al., 2003) and the result indicated that the single factor is 44.786% which is less than 50%. Therefore, common method bias was not a concern for our dataset.

Table 2

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Measurements

Construct	Items
Dispositional resistance to change Oreg, (2003)	**Routine seeking** DRTC1: I generally consider changes to be a negative thing. DRTC2: I'll take a routine day over a day full of unexpected events any time. DRTC3: I like to do the same old things rather than try new and different ones. DRTC4: Whenever my life forms a stable routine, I look for ways to change it. DRTC5: I'd rather be bored than surprised. **Emotional reaction** DRTC6: If I were to be informed that there's going to be a significant change regarding the way my banking transactions are done, I would probably feel stressed. DRTC7: When I am informed of a change of plans, I tense up a bit. DRTC8: When things don't go according to plans, it stresses me out. DRTC9: If bank changed their system regarding the way I do my banking transactions, it would probably make me feel uncomfortable even if I thought I'd do my banking transactions as well without having to do any extra work. **Short-term focus** DRTC10: Changing plans seems like a real hassle to me. DRTC11: Often, I feel a bit uncomfortable even about changes that may potentially improve my life. DRTC12: When someone pressures me to change something, I tend to resist it even if I think the change may ultimately benefit me. DRTC13: I sometimes find myself avoiding changes that I know will be good for me. **Cognitive rigidity** DRTC14: I often change my mind. DRTC15: Once I've come to a conclusion, I'm not likely to change my mind. DRTC16: I don't change my mind easily. DRTC17: My views are very consistent over time.
Intention to adopt m-banking Venkatesh et al., (2003)	INT1: I intend to use mobile banking services in the near future. INT2: I predict, I would use mobile banking services in the near future. INT3: I plan to use mobile banking services in the near future.

Notes: DRTC = Dispositional Resistant to Change; INT = Intention

4. Data analysis

4.1 Respondents' demographic profile

The demographic profile of respondents is presented in Table 3. It shows that most of respondents are male (60.4%) whereas females captured about 39.6% of the total sample. The majority of respondents were found within the age group of 55-59 (34.4%). Most of participants belong to Malay ethnicity (43.5%). In term of education, 53.9% of participants hold education of high school and bellow and 33.6% of them having income bellow RM 2000.

Table 3
Demographic profile of respondents

Variables	Categories	Numbers	Percentage
Gender	Female	152	39.6
	Male	232	60.4
Age	50-54	126	32.8
	55-59	132	34.4
	60-64	65	16.9
	65-69	53	13.8
	70+	8	2.1
Race	Malay	167	43.5
	Chines	142	37
	Indians	61	15.9
	Others	14	3.6
Education	High school & below	207	53.9
	Diploma	72	18.8
	Undergraduate	59	15.4
	Graduate	46	12
Income	Below RM 2,000	129	33.6
	RM 2,001-RM 4,000	111	28.9
	RM 4,001-RM 6,000	45	11.7
	RM 6,001-RM 8,000	54	14.1
	RM 8,001-RM 10,000	27	7.0
	Above RM 10,000	18	4.7

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4.2 Structural equation modelling analysis

This study used SmartPLS 3 software version 3.2.6 to perform the Partial Least Squares Structural Equation Modelling (PLS-SEM) analysis (Hair Jr et al., 2016). PLS-SEM permits the researchers to investigate the set of interrelated hypotheses simultaneously by evaluating the relations among multiple independent and dependent variables in a theoretical model. This research applied two-stage approach in conducting PLS-SEM for the evaluation of measurement and structural model. This study also evaluated the model fitness, effect size and the predictive power. This study adopted PLS-SEM because it is suitable for complex research model with multifaceted constructs (Ang et al., 2015). As this study examines the effect of DRTC that is a second order construct, PLS-SEM is a suitable method for this study.

4.2.1 Assessing measurement model

Intention to adopt m-banking is categorized as a reflective construct, as in prior research (Venkatesh et al., 2003; Venkatesh et al., 2012). DRTC also is operationalized as first order reflective, second order reflective construct as in prior research (Oreg, 2003; Oreg et al., 2008; Laumer et al., 2010). Based on guideline for assessing the measurement model by Hair Jr et al. (2016), this study evaluated measurement model by examining the internal consistency reliability, convergent and discriminant validity. The internal reliability was assessed by Composite Reliability (CR) and Cronbach's Alph (CA) where 0.70 is threshold for satisfactory internal consistency reliability (Hair Jr et al., 2016). Convergent validity was evaluated by average variance extracted (AVE) and items loading with AVE greater than 0.5. Also the indicators outer loadings should be higher than 0.708. (Hair Jr et al., 2016). The results for loadings, AVE, composite reliability and Cronbach's alpha are presented in Table 4. It shows that the CA, CR and AVE for the construct, "intention to adopt m-banking" and each sub-dimension of DRTC meet their standard threshold (CA>0.7, CR>0.7 and AVE>0.5). Also the factor loading of items on their respective construct meet the standard threshold that is above 0.7. Therefore the measurement model is reliable and the condition for convergent validity is satisfied.

To assess the discriminant validity, an indicator's outer loadings on a construct should be higher than all its cross loadings with other constructs. Also to evaluate discriminant validity the Fornell-Larcker criterion is used. The criteria for this test, is the square root of the AVE of each construct should be higher than its highest correlation with any other construct. Table 5 and Table 6 demonstrate the result for Fornell-Larcker tests and cross-loading respectively. The result presents that there is no issue regarding discriminant validity in the present study.

Table 4

Convergent validity and construct reliability

Construct		Item	Outer loading	Cronbach Alpha (CA)	Composite reliability (CR)	Average variance extracted (AVE)
Intention to adopt m-banking		INT1	0.875	0.797	0.881	0.711
		INT2	0.786			
		INT3	0.866			
Dispositional resistance to change	Routine seeking	RS1	0.85	0.92	0.94	0.758
		RS2	0.891			
		RS3	0.895			
		RS4	0.868			
		RS5	0.848			
	Emotional reaction	ER1	0.844	0.855	0.902	0.698
		ER2	0.899			
		ER3	0.805			
		ER4	0.792			
	Short-term focus	STF1	0.842	0.864	0.908	0.711
		STF2	0.827			
		STF3	0.839			
		STF4	0.863			
	Cognitive rigidity	CR1	0.857	0.831	0.888	0.665
		CR2	0.705			
		CR3	0.839			
		CR4	0.852			

Notes: INT = Intention; RS = Routine Seeking; ER = Emotional Reaction; STF = Short Term Focus; CR = Cognitive Rigidity

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Table 5
Fornell-Larcker criterion

	CR	ER	INT	RS	STF
CR	0.816				
ER	0.461	0.836			
INT	-0.406	-0.436	0.843		
RS	0.544	0.605	-0.545	0.871	
STF	0.483	0.496	-0.494	0.658	0.843

Notes: Diagonal values are squared roots of AVE; off-diagonal values are the estimates of inter-correlation between the latent constructs

4.2.3 Assessing structural model

The PLS-SEM was applied to assess the inner structural model, using 3000 bootstrapping sub-sample with 95 percent confidence intervals to calculate t-statistic and P-value. The hypothesis of this study is 1-tailed. The t-value for path-coefficient in which a value of 1.28, 1.645 and 2.33 shows the significant level of 0.1, 0.05 and 0.01 respectively was adopted to verify the hypothesis (Hair Jr et al., 2013). This study also tested the relationships between the first-order dimensions of DRTC (RS, ER, STF, CR) on designated second-order construct to examine whether there is enough strong relationship between four dimensions of DRTC on their designated second-order construct. The results related to the relationships between second-order construct and its first-order dimensions are presented in Table 7 and indicated that all four dimensions significantly contribute to their second order construct. RS has the strongest relationship with DRTC, following with STF.

The result of hypothesis testing is presented in Table 8 and Fig. 2. The result indicates that DRTC (β= -0.587, p < 0.01, t-value= 15.712) has significant negative relationship with seniors' intention to adopt m-banking as this research hypothesized. Therefore the hypothesis developed by this study is supported. DRTC explains 34.4 percent of variance in seniors' intention to adopt m-banking.

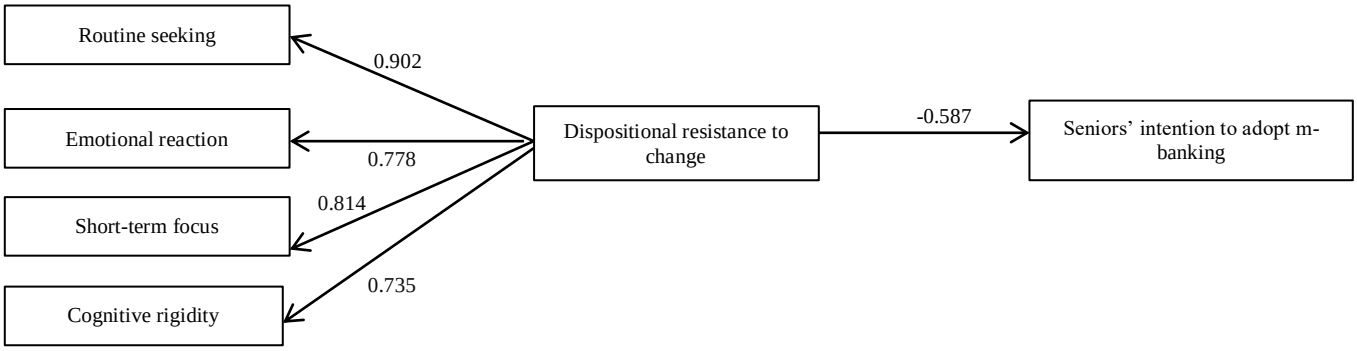

Fig. 2. Result of hypothesis testing

Table 6
Cross-loading

	CR	ER	INT	RS	STF
CR1	**0.857**	0.408	-0.355	0.487	0.429
CR2	**0.705**	0.309	-0.304	0.307	0.262
CR3	**0.839**	0.394	-0.367	0. 496	0.442
CR4	**0.852**	0.385	-0.299	0.46	0.415
ER1	0.383	**0.844**	-0.416	0.525	0.394
ER2	0.427	**0.899**	-0.386	0.547	0.437
ER3	0.378	**0.805**	-0.335	0.489	0.419
ER4	0.35	**0.792**	-0.319	0.485	0.408
INT1	-0.385	-0.394	**0.875**	-0.501	-0.462
INT2	-0.322	-0.262	**0.786**	-0.391	-0.366
INT3	-0.319	-0.431	**0.866**	-0.476	-0.415
RS1	0.498	0.561	-0.449	**0.85**	0.567
RS2	0.458	0.543	-0.463	**0.891**	0.581
RS3	0.449	0.551	-0.522	**0.895**	0.554
RS4	0.507	0.471	-0.469	**0.868**	0.58
RS5	0.459	0.508	-0.469	**0.848**	0.582
STF1	0.43	0.428	-0.412	0.557	**0.842**
STF2	0.375	0.387	-0.401	0.58	**0.827**
STF3	0.407	0.43	-0.435	0.498	**0.839**
STF4	0.414	0.425	-0.418	0.579	**0.863**

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Table 7
Test of second-order construct

Second order construct	First order constructs	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T Statistic (|O/STDEV|)	P-value
DRTC	RS	0.902	0.903	0.013	71.734	0.00
	ER	0.778	0.778	0.023	33.795	0.00
	STF	0.814	0.814	0.019	42.546	0.00
	CR	0.735	0.736	0.026	28.155	0.00

Significant at $P < 0.05$, $t > 1.645$.

Table 8
Structural Model Examination

PLS Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T Statistic (|O/STDEV|)	P-value
DRTC→ INT	-0.587	-0.588	0.037	15.712	0.00

Table 9
Predictive Relevance

Endogenous Construct	SSO	SSE	Q^2 (=1−SSE/SSO)	Predictive Relevance
Seniors' intention to adopt m-banking	1,152.00	888.338	0.229	$Q^2>0$

4.2.4 The predictive relevance

This study evaluated the predictive relevance of the structural model by testing $\boldsymbol{Q^2}$ value. $\boldsymbol{Q^2}$ value shows whether the structural model is relevant in explaining the endogenous variable (Hair Jr et al., 2013). According to Hair Jr et al. (2016), redundancy value for $\boldsymbol{Q^2}$ of an endogenous construct, greater than zero, indicates that the exogenous constructs have predictive relevance for the endogenous construct under investigation, while $\boldsymbol{Q^2}$ less than zero indicates lacks of predictive relevance. Table 9 presents the value of $\boldsymbol{Q^2}$ of the cross-validated redundancy that is greater than zero. Therefore it supports the structural model predictive relevance.

5. Discussion

The result of this study showed that, personality characteristic "DRTC" has significant negative influence on seniors' intention to adopt m-banking as this study hypothesized. This finding confirms the other studies assertion about the significant negative effect of DRTC on individuals' behavior and perception in IT adoption (Nov and Schecter, 2012; Mzoughi and M'Sallem, 2013; Laumer et al., 2015). As mentioned earlier seniors are more resistant to adopt technological innovations such as m-banking (Laukkanen et al., 2007). This reluctance can be partly explained by the change-related personality trait, "DRTC" (Guo et al., 2013). Seniors with higher DRTC are more unwilling to initiate the change and prefer to follow familiar approaches despite the benefits brought by the change. Therefore however m-banking has advantages but seniors with high DRTC are less intended to adopt m-banking. In the current study, DRTC explains 34.4% of variance in $\boldsymbol{R^2}$. This observed variance in $\boldsymbol{R^2}$ is good, as based on F. Hair Jr et al. (2014) the value of above 20 percent is considered high for consumer behavior studies. Explaining 34% of variance in seniors' intention to adopt m-banking with only one construct, shows the significance of personality characteristic "DRTC" in seniors' decision in adoption of IT applications such as m-banking. The observed variance in this study is also good compared to other studies evaluating the influence of personality characteristics on IT adoption. Junglas et al. (2008) obtained only 11% of variance in privacy concern using big five model of personality (McCrae and Costa, 1987) that consists of five different personality characteristics. Devaraj et al. (2008) study also explained 18% of individuals' perception about technology (perceived usefulness) with big five model. Therefore the amount of variance explained by this study confirms Oreg (2003) statement, regarding the significance and capability of DRTC model in explaining change-related behavior such as adoption of new IT applications above and beyond other personality traits such as big five personality model.

6. Implications

This study has several implications for both research and practice. For research, the result of this study showed the negative effect of DRTC on seniors' adoption of IT such as m-banking. There are few studies in IT adoption literature, investigating the role of DRTC, despite the importance of DRTC on individuals' online behavior. Furthermore this study was the first study examining the influence of DRTC on seniors' m-banking adoption that is a market segment with high resistance to change. The result of this study extended the understanding about the impact of DRTC on IT adoption. Additionally it added to the body of knowledge particularly on seniors' IT adoption.

This study also has some implications for practitioners. One of the challenging tasks of online service providers such as m-banking is creating a marketing strategy to attract the market segment that is reluctant to use the service such as senior market. Therefore understanding factors that negatively impact the adoption of particular market segment help to develop effective strategies which help to overcome the barriers in their adoption. As the finding of this study showed, there is negative influence of DRTC on seniors' intention to adopt m-banking. Therefore it is suggested that banks use strategies that gradually

alleviate the inhibiting effect of DRTC. For instance, marketers could first impress upon seniors that there will be no great change required for them to make, to use m-banking and that m-banking simplify their banking activities. For example, application designers should develop senior friendly applications that are simpler and it is not perceived to embody too much change. Banks also should provide training and good illustrations that explain step by step how to use m-banking. Providing simple but sophisticated application that works error-free, along with providing proper support, time, resources and guidance help to overcome the inconveniency and stress in use of m-banking in seniors with higher DRTC. Furthermore banks should attempt to identify seniors from different DRTC levels through market survey and provide personalized programs and strategies for seniors according the level of DRTC. For instant, proper incentive system can be designed to target those with higher DRTC. In case where the individuals' personality may impede them from adopting the innovation extensively, proper reward system can be applied to encourage them to initiate using the technology and experience its benefit. Incentives are influential tools that help to accept the changes and can encourage people to involve in tasks that they would resist in the absence of an incentive system.

7. Limitations and recommendations

As with any other research, this study is not without limitation. This study utilized data collected from senior citizens in Kuala Lumpur. Thus generalizability of the finding to other geographical areas and age segments needs to be taken cautiously. Therefore it is recommended, future research to replicate the current study in different demographic and geographic setting. Furthermore, future research can extend this study by adding external variables and moderators such as income, education, experience with Internet, into the model, that was absent in the current study. This helps to uncover more in-depth understanding about the impact of DRTC on individuals' IT adoption. Another limitation of this study is due to cross-sectional design. Respondents of this study were non-users of m-banking, hence this study could not confirm the effect of DRTC on seniors' m-banking adoption after experiencing m-banking. Future research can use longitudinal design to gain more in-depth understanding about the influence of DRTC before and after m-banking adoption.

8. Conclusion

This study attempts to investigate the effect of personality trait DRTC on seniors' adoption of m-banking and found the significance negative influence of DRTC on seniors' intention to adopt m-banking. The outcome of this study contributes to the body of knowledge in IT adoption literature about the role of personality trait "DRTC" in seniors' m-banking adoption. The finding provided by this study can assist marketers and mobile application developers to better understand the reasons of senior market segment reluctance in adoption of IT applications such as m-banking that help to develop effective strategies to overcome the barriers in m-banking adoption and motivate seniors to use m-banking.

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