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# Conceptual Model of Productive Ageing to Support Intrinsic Value Activities through ICT Services

Norisan Abd Karim, Haryani Haron

Faculty of Computer and Mathematical Sciences Universiti Teknologi MARA (UiTM), Shah Alam MALAYSIA

Corresponding Author Email: norisan@tmsk.uitm.edu.my

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**Abstract**

This paper looks into the conceptual model for productive aging towards quality of life. This conceptual model underlines the limitation of intrinsic values research in productive aging and ICT as enabler towards intrinsic value. The research aims to investigate on how Information and Communication Technology (ICT) services support intrinsic values activities in productive aging. The literature review on productive ageing, intrinsic values and the theories related to intrinsic motivation theories are found in this paper in order to help the researcher frame the research design of this study. The uses of ICT services with the features of intrinsic motivation (IM) such as competence, relatedness, autonomous, altruism that could support the elderlies in their intrinsic values activities especially in self-development, care giving and volunteering for productivity is emphasized in this research.

**Keywords:** Productive Ageing, Intrinsic Values, ICT Services.

## Introduction

In Malaysia, the ageing population is expected to increase from 28.3 million in 2010 to 38.6 million in 2040 (Tobi et al., 2017). According to the International Planned Parenthood Federation (2017), the percentage of ageing population aged 60 years and above in Malaysia has been increasing steadily from 5.2% for the year 1990 to 6.2% for the year 2000, and 8% for the year 2010. The country is expected to have more ageing population in 2030, where the percentage of the elderlies will be 14% in the 2030, and 24% by the year 2050. Improvements in life expectancies and the declines in fertility rates among the younger generation are some of the factors that have given rise to an ageing population.

According to prior researcher (Hamid, 2019), 61.2% of older Malaysian are able to contribute to society, thus it shows elderlies enable to involve in many activities as long as we know their interest and create the opportunities for them to participate. The research on productive ageing should be paid attention as it is in line with “Akta Warga Emas Negara” to encourage the participation of the elderlies in the activities. Even though elderlies have limitation in physical activities however researchers (Kenayathulla et al., 2016) have indicated that a majority of the elderly would like to share skills and knowledge they had accumulated

throughout their career life. This shows elderlies love to participate in intrinsic values activities.

Past researchers found out, the elderlies faced with low quality of life due to physical deterioration, social isolation and many more (Cordeiro *et al.,* 2015). Involvement in community, active in social activities can improve quality of life (Mutalip, 2019). Prior study has shown that the quality of life of the elderly is very much influenced by social factors especially living arrangements, social participation and social support (Khan & Tahir, 2014). Elderlies can adapt to the new situation with the help of the technologies to suit their condition (Hamid, 2015).

Majority of the previous researchers in elderly's study (Schulte et al, 2018, Fernandez-Ballesteros et al., 2011; Haslam et al., 2012; Lum, 2013; Morrow-Howell, 2010; Robson, Hanson, Abalos & Booth., 2006) focussed on extrinsic values, which concern monetary-returned activities, policy development, and elderlies practices in society. Previous researchers paid little attention to values related to intrinsic, intangible and emotional factors (Sánchez-Fernández & Iniesta-Bonillo, 2007). Kim (2010) found that elderlies sought intrinsic values in their lives. Intrinsic values are important to elderlies as it will lead to quality of life (Kahana et al., 2013). Thus, there is a need for intrinsic and emotional values in productive aging. Prior researchers have also stressed the many problems experienced by elderlies due to their deteriorating physical and mental conditions such as depression, dementia, heart disease, hypertension, diabetes and others (Sherina et al., 2004), whereby one of the many common problems faced by elderlies is loneliness (Asboe et al., 2011). This problem is due among others to the lack of social inclusion (Achilleos et al., 2013). Thus, increasing social interaction is one of the interventions used to reduce loneliness among elderlies (Nyqvist et al., 2013) that lead to increase elderlies quality of life. ICT has good potentials to promote social activities among elderlies (Achilleos et al., 2013).

Research to develop productive ageing model to support intrinsic values activities is increasingly becoming more important because the world is faced with new population growth trends especially among elderlies where the number of elderlies is increasing currently and in the future. Productive ageing must be measured not only through extrinsic but also intrinsic values activities.

The trends of the elderlies' needs are continuously changing over time, with the number of educated elderlies expected to be increasing in the future globally as well as in Malaysia (International Planned Parenthood Federation, 2017). Good education background as a reason for economic growth (Mariana, 2015) is also a key factor, where in the future the elderlies are wealthier compared to elderlies in the past. This factor will contribute to the changes in trends of the elderlies' needs and activities. For example, in the future, the increasing number of elderlies is expected to participate in lifelong learning and philanthropy activities. The elderlies' behaviors are more likely to be more philanthropic than younger adults (Freund et al., 2014). Kim (2010) highlighted that elderlies look for intrinsic values in life. Intrinsic motivations are the reasons for elderlies to participate in tasks that will return intrinsic values to them. Thus, it is essential to support elderlies to remain productive. For example, elderlies are mostly immobile due perhaps to their ill health and physical disabilities, which make ICT services good opportunities to support them in whatever they are doing.

Thus, this paper aims to investigate on how Information and Communication Technology (ICT) services support intrinsic values activities in productive aging. Subsequently, a productive ageing model to support intrinsic value activities through ICT services is proposed which can enhance the intrinsic values among elderlies.

The discussions begin with the concept of productive ageing, where all activities of productive ageing that meet the needs of elderlies are investigated in this research. Next, the motivations for the elderlies to perform the activities-rewarding intrinsic values are explored. This research then looks at ICT services for elderlies, where the level of needs and technology for the elderlies are elaborated. The limitations of the elderlies in contributing their services to the community are highlighted in this paper. Even though, the elderlies have limitations in terms of physical and health constraints, it is thought that they could still contribute and achieve something valuable such as intrinsic values through the activities.

Thus, the exploration of the intrinsic values and their relationships to the motivations to attract the elderlies' participation in the activities are duly reviewed. The discussions continue with the examination of the intrinsic motivation features that support elderlies in productive ageing. Finally, the research concludes with the conceptual model of productive ageing to support intrinsic value activities.

## Literature Review

### *Productive Ageing*

After examining previous literatures, the synthesized productive ageing dimensions/activities are shown in Table 1.1. Productive ageing in this research can be defined as the participation of older people in meaningful activities that provide values to the society and themselves (Butler, 2010). Values are related to goals and there are two types of values namely intrinsic and extrinsic values (Holmes, 2012). Since intrinsic values are important outcomes of the elderlies' activities, thus, the next section elaborates intrinsic and extrinsic values in the context of productive ageing and how it is related to intrinsic motivations.

The dimensions/activities of productive ageing based on literature review can be divided into four, which are Market Activities, Caregiving, Volunteering and Self-Development Activities.

Table 1.1
*Synthesized Productive Ageing Dimension*

| Dimension/Activities of Productive Ageing | Sub Activities | Authors |
|---|---|---|
| **Market Activities**<br>**- Engage in part time or full time work with pay** | Employment activities | Aquino et al., 1996; Butler, 2010; Caro and Chen, 1993; Kim, 2010; LoSasso and Johnson 2002; Morrow-Howell & Wang, 2012; Patrick O'Relly et al., 1994; Peng & Fei, 2013; Fernandez-Ballesteros et al., 2011; Sherraden et al., 2001 |
| **Volunteering**<br>**-Social and civic activities for social contribution**<br>**-Any initiatives done without expecting payment** | i) Formal social and civic activities (volunteering social services agencies volunteering for religious club, working on crime prevention, Educational Aids)<br>ii) Informal social assistance (helping neighbours, peer counseling) | |
| **Care Giving**<br>**-Non-paid activity with economic values usually performed with bonding relationship** | i) Grand parenting<br>ii) Taking care of relatives and friends<br>iii) Taking Care of older family members, medical care<br>iv) Domestic work**(**Gardening, Meal preparation, Cleaning etc.) | |
| **Self-Development**<br>**-Activities that facilitate independent activities and the living of older people, which provide meaning in their lives by not burdening others.** | i) Formal Learning<br>ii) Informal Learning<br>iii) Leisure/hobbies<br>iv) Self-Maintaining | Butler, 2010; Kim, 2010; O'Relly and Caro, 1994; Peng, & Fei, 2013. |

With detailed discussions of activities on productive ageing from the past researchers, the activities will be used as a theoretical lens in this research in order to discover productive ageing activities in the Malaysian context.

*Intrinsic Value and Extrinsic Values*

Values are related to goals. There are two types of values namely intrinsic and extrinsic (Holmes et al., 2012). Intrinsic values refer to values or norms which are intrinsically good because they contain intrinsic properties in themselves (Frankena, 1973). Intrinsic values are ends in themselves. Intrinsic values can be defined as something that have their own good in themselves not by other relations (Pianalto, 2009). In productive aging, intrinsic values play important roles as a result of performing tasks for elderlies' activities. On the other hand, extrinsic values are tenets that are physical or instrumental in the contribution of intrinsic values. They are values in relations to something else. For example, happiness is an example of an intrinsic value; however, money is an extrinsic value that will lead to the people's happiness (Korsgaard, 1983).

From past literature (Sun, 2013), it showed that elderlies in China, for example, exhibit their intrinsic values in their daily practices. They participate in family and community programs

through activities such as caregiving to show their healthiness, caring and priceless knowledge and experience. Due to the deterioration in physical and mental health, elderlies can still take part in productive activities by showing their intrinsic values such as affection, pleasure, life satisfaction and self-realization. Support and recognition from the family and society should be given to the elderlies to encourage their participation. This study proved that elderlies are able to give significant contributions to their families as well as society. The elderlies are able to be productive in terms of intrinsic values such as mutual affection, aesthetic and achievement experience, and knowledge and wisdom (Ranzijn, 2002). Recent research has also agreed on the values of the elderlies, as highlighting the productive ageing concept to students in a university curriculum resulted in good perceptions of the elderlies (Kim et al., 2017). Thus, more research should be carried out to support them. Intrinsic values can be found in intrinsic motivation and can provide firmer foundation for life satisfaction (Holmes et al., 2012). In productive aging, intrinsic values play important roles as a result of performing task for elderlies' activities. It shows a close association between intrinsic motivation and intrinsic values. Intrinsic value is the goal of intrinsic motivation (Ryan & Deci, 2000). People are motivated intrinsically to perform tasks because of the inherent values. Motivation to participate in the activities could be in the form of intrinsic, extrinsic and affective need fulfillment in ironic media engagement (Brabham, 2012).

Prior studies in Japan (Kim, 2010) emphasized on the contribution of productivity in life's satisfaction. This study identified the factors that motivate elderlies to be productive in their lives. It showed that Japanese elderlies contribute to the productive activities because they want to look and be independent as they possibly can. The value of self-satisfaction in productive activity is meaningful to them, increased their well-being and quality of life. However, intrinsic value must be supported by intrinsic motivation. Intrinsic motivations play an important role towards the achievement of intrinsic values. Therefore, those elements are considered in this research.

Previous researchers highlighted a few theories, model and attitudes as intrinsic motivations toward people's well-being (Csikszentminahy, 1990; Wang, 2012). Thus, in this study, theories such as the Self-Determination Theory, Flow Theory, Organizational Citizenship Behavior, Technology Acceptance Model, Uses and Gratification Theory as elements of intrinsic motivations will be used as ICT services features to support intrinsic value activities for productive aging.

Intrinsic Motivation (IM) theories to form ICT services features in productive ageing

Intrinsic motivation refers to reasons why people perform activities to fulfill their satisfaction or pleasure (Brown, 2007). For example, people engaged in activities for its own sake and not because of any interest. They participated in the activity for pleasure and satisfaction gained from the experience. Intrinsic motivation refers to the stimulation that drives an individual to perform the activities without extrinsic rewards (Coon & Miterer, 2010). There are many theories of intrinsic motivations that could be used to form ICT services features in productive ageing. The discussion and summary of Intrinsic Motivation Theory is written in the table below.

Table 1.2
*Summary of Intrinsic Motivation (IM) Theories*

| Theory | Features or elements of Intrinsic Motivation | Author |
|---|---|---|
| **Self Definition Theory (SDT)** | **Competence** (Ability to solve problem), **Autonomous** (Able to govern their own activities), **Relatedness** (Desire of humans to establish the relationships between them through interactions and caring). | Deci & Ryan, 1980 |
| **Flow theory** | **Challenge, Goals, Feedback** | Csikszentmihaly, 1990 |
| **Organizational Citizenship Bahaviour (OCB)** | **Altruism** (helpful to other people), **Courtesy, Conscientiousness, Civic Virtue, Sportsmanship** | Organ, 1988 |
| **User and Gratification Theory (U&G)** | **Gratification Sought, Gratification obtained** | Greenberg, 1974; Katz et. al., 1973; Palmgreen et al., 1980 |
| **Technology Acceptance Model (TAM)** | **Perceived ease of use** | Venkatesh & Davis, 2000 |
| **Theory of Intrinsically Motivating Instruction (TIMI)** | **Challenge, Fantasy, Curiosity.** | Malone, 1981 |
| **Positive Design Theory** | **Psychological, Cognitive, Social, Emotions.** | Zhang, 2007 |

The table 1.2 above shows the summary of intrinsic motivation theories. SDT is example of motivation related to inner psychological needs (Deci & Ryan, 1985). SDT is one of the popular IM theories and it have been used by a few researchers in the development of applications such as, Goldhaber (2012) applied SDT features to design ICT application of population ageing. Giesbrecht et al (2012) used SDT theory to form IT-based citizen advisory support system.
Secondly is TIMI theory. This theory is much related to computer-learning games (Malone, 1981). Meanwhile the elderlies in Malaysia are not so much exposed to computer games. However, the elderlies need challenge as part of competence IM and curiosity as inner need to encourage them to engage in the activities. The third theory is Flow theory. According to studies by Goldhaber (2012), there is an interrelation between Flow theory and SDT theory.

For example, competence (SDT) is one of the factors for activities to flow. Flow Theory emphasized the significance of intrinsic motivation in the flow of experience.
Competence (SDT) feature is associated with challenge, goal and feedback Goldhaber (2012), as competence shows people are able to deal with challenge, goal and feedback. Thus, it can be concluded that challenge, goal and feedback (Flow Theory) are part of competence (SDT).
Philanthropy is very popular activities among elderlies. The elderlies tend to participate more if it related to philanthropy (Hatter and Neilson, 1987) and altruism behaviour is associated with greater well-being (Kumar and Dixit, 2017).
Altruism features in OCB theory matches well in this case study as one of the elements of Intrinsic Motivations. Other features of OCB are more related to employee's behaviours towards organizations.
The U&G theory emphasized on psychological motivation needed by the users to perform the activities. This theory does not provide details features of U&G however there is clear guideline provided by this theory where "gratification sought" and "gratification obtained" must be considered as motivation to encourage participation (Katz et. al., 1973; Palmgreen et al., 1980).
Another theory related to intrinsic motivation theories is perceived ease of use in TAM.
Autonomous (SDT) feature is related to ease of use as autonomous will facilitate users to choose their activities as they like. And lastly, positive design theory highlighted that it is important to consider Psychological, cognitive, social and emotions in ICT design (Zhang, 2007).
ICT and Elderlies
Abraham Maslow, an American psychologist who was best known for creating Maslow's hierarchy of needs, investigated the motivations that influence human actions. Based on the theory he developed, he identified five levels of human needs hierarchy, which are from the basic needs up to self-actualization. Table 1.3 shows the need at every level and its equivalent human needs. People tend to fulfill their basic needs first until they are satisfied, which is the physiological level after which they move on to the next level (Thielke et al., 2011).

Table 1.3
*Maslow's Hierarchy of Needs*

| Level | Need |
|---|---|
| **Physiological** | Breathing, food, water, sex, sleep, homeostasis. excretion |
| **Safety** | Security of body, of employment, of resources, of morality, of the family, of health, of property |
| **Love/Belonging** | Friendship, family, sexual intimacy |
| **Esteem** | Self-esteem, confidence, achievement, respect of others, respect by others |
| **Self-actualization** | Morality, creativity, spontaneity, problem-solving, lack of prejudice |

From the prior studies, many researchers look into ICT services that are related to health (Suzuki et al., 2011), survival and safety (Ahrary et al., 2018; Arshad et al., 2017; Portet et al., 2011) such as aging at home where ICT services are to assist elderlies' daily activities (Zhu et al., 2009). In other words, when mapping onto Maslow's hierarchy of needs, the current ICT services for elderlies focus much on levels 1 and 2. Though so, there are also a few technologies that promote elderlies' social inclusion (Achilleos et al., 2013; Benoit et al., 2009)

which is at level 3 of Maslow's model. However, ICT features for social applications that promote social inclusion, affiliation and increasing self-esteem and self-actualization for productive aging in Malaysia remain uncharted or under researched. Prior researchers also stated that the current ICT tools lack in features designed to accommodate elderlies' capabilities characteristics and proposed stimulations or motivations needed in ICT services to support their participation in activities (Saidinejad, et al., 2016). They are also not familiar with new ICT tools (Oderud et al., 2017). Thus, there is a need for interventions as an enabler to promote social relatedness, self-development, enhancing self-esteem and self-actualization of elderlies, which are at levels 3, 4 and 5 in Maslow's hierarchy towards the development and acquisition of intrinsic values. ICT services in Malaysia tend to focus on assistive technology research for the elderlies such as hearing aids and wheel chairs (Garçon et al., 2017). Elderlies in Malaysia also use the internet, mobile phones such as when they read online newspaper, SMSes, emails, set their alarm clocks, cameras and others (Abdul Rahim et al., 2008). However, current technologies are not user-friendly to the elderlies due, among others, to the lack of functional literacy in ICT that make them demotivated to use ICT (Muhamad et al., 2016). Thus, there must be an inherent value that motivates them to adopt and use ICT (Goldhaber, 2012). Therefore, without neglecting disable elderlies inflicted with diseases such as stroke, cancer and Alzheimer, attention also should also be paid to the elderlies with free of disease or elderlies who are still capable in contributing services to the community in many ways using ICT services to remain engaged in the community

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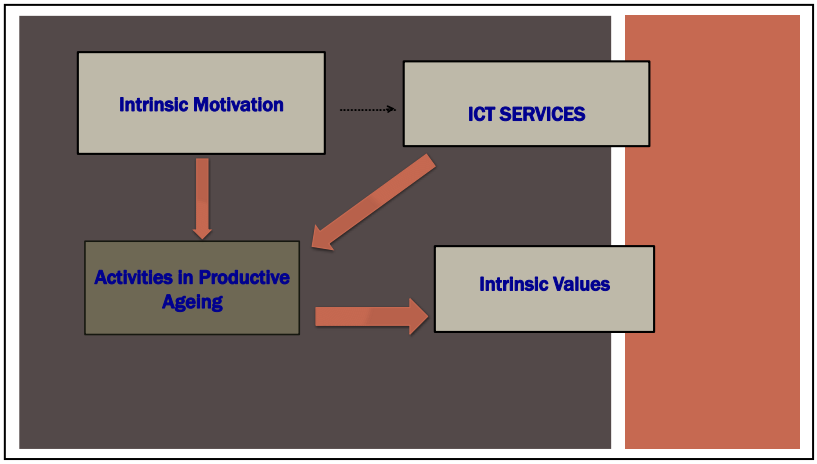


Figure 1 Conceptual Model of A Productive Ageing to Support Intrinsic Value Activities through ICT Services

The development of this conceptual model emerged from the discussions in the literature regarding the concepts of productive ageing, intrinsic motivations, intrinsic values and how relationships of these concepts are related to each other. The current ICT services for the elderlies are identified from past literature to identify the gap(s) of the relevant technologies. The theoretical lens of activities of the elderlies are used to map with the activities of the elderlies in the context of Malaysia. The model focuses on the features of ICT services that support intrinsic values activities and is presented in Figure 1. The conceptual model enables the researcher to reach the main goal of this research, which is to identify the motivational features that influence the elderlies to participate in the ICT-supported services activities.

Even though the elderlies experience constraints due to their physical frailty (Brady et al., 1987; Buckinx et al., 2015; Friedman et al., 2001), ICT services have good potentials to assist elderlies in social activities regardless of their weaknesses (Achilleos et al., 2013). Prior researchers have recommended the use of ICT services among the elderlies with physical constraints in managing themselves (Gros et al., 2016). Previous researchers highlighted a few theories, models and attitudes as intrinsic motivation towards the people's well-being (Csikszentminahy, 1990; Wang, 2012). Past researchers have identified many theories of intrinsic motivations that have been applied into the Information and Communication Technology services (Giesbrecht et al., 2012; Goldhaber, 2012; Lepper & Hodell, 1989; Schunk et al., 2014). The existing theories of intrinsic motivation include the Self-Determination Theory, Flow Theory, Theory of Intrinsically Motivational Instruction, Organizational Citizenship Behavior and many more (Csikszentminahy, 1990; Deci & Ryan, 1985; Organ, 1988; Malone, 1981).

Intrinsic motivations are critical features of ICT services for the ageing population because they are much less likely to undertake a task if they do not find it enjoyable (Carstensen et al*.,* 1999; Melenhorst et al*.,* 2001). In addition, older people are much less likely to engage in activities that they do not find enjoyable. ICT services can attract the elderlies to participate in the activities through the innovation of new technologies such as social media, web technologies, mobile technologies, interactive communication channels and artificial intelligence applications if they find it interesting. This means that increasing the intrinsic motivation of users through the application with the relevant motivation theories could encourage older individuals to adopt new ICT services. The ICT services of the elderlies that apply intrinsic motivations features are the main focus in the research. However, the features of motivation theories that can be applied in ICT services for elderlies to motivate or encourage their participation remain unfamiliar in Malaysia. The discussions from previous sections elaborate the productive ageing concepts, where it discusses the activities of the elderlies in their daily lives.

Productive aging can be defined as the participation of older people in meaningful activities that provide values to their societies and themselves. To remain or encourage participation of the elderlies in the activities, the types of activities for the elderlies must be identified. The types of activities from one country to another vary accordingly. ICT services can be used to support the activities and sub activities such as employment, caregiving, and self-development activities for the elderlies. Due to the limitations in their physical abilities in terms of employment, against the elderlies' desire to achieve intrinsic values through the activities, the present research does not consider (formal) employment activities. The dimensions/activities of productive ageing based on the literature reviews for this research comprised of three dimensions/activities, which are Self Development, Caregiving and Volunteering (Aquino & Russell, 1996; Bang, 2005; Bass et al., 1995; Butler, 2010; Fernandez-Ballesteros et al., 2011; Hee, 2005; Herzog et al., 1989; Kim, 2010; Morrow-Howell et al., 2001; Morrow-Howell & Wang, 2013; Peng & Fei, 2013; Reilly & Caro, 2013; Sherradan et al., 2001; Sasso & Johnson, 2002). Butler termed self-development of productive ageing as life enrichment. Self-development activities include education and training (O'Relly & Caro, 1994), lifelong learning (Kim, 2010; Morrow-Howell & Wang, 2012; Peng & Fei, 2013) and hobbies (Kim, 2010). These activities are activities for the betterment of the elderlies. Kim (2010) described self-devlopment activities as the activities that help independent living of elderlies.

It was found that self-development activities is promoting elderlies quality of life (Lee et al., 2021). Caregiving comprises of activities that involve taking care of elderlies, adult family members, relatives, and young children. It also includes medical care, assistance in daily life, traveling, helping them shopping and others. In addition, it can also include helping others who require assistance because of an illness or disability, and includes spousal caregiving or for frail family members and friends (Aquino et al., 1996; Bass et al., 1993; Butler, 2010; Fernandez-Ballesteros et al., 2011; Herzog et al., 1989; Hong, 2005; Jung, 2005; Kim, 2010; LoSasso & Johnson, 2002; Morrow-Howell et al., 2001; Morrow-Howell & Wang, 2012, Peng & Fei, 2013; Sherradan et al., 2001).

Volunteering is defined by Sherraden et al (2001) as part of socializing activities and they divided the activities into informal and formal social activities. Volunteering activities include volunteering in school, social services activities, religious club activities, counseling and many others.

It is important to identify the relevant ICT services for the elderlies with the ICT features that support intrinsic values in the activities in the Malaysian context so that the technology will fulfill the needs of the elderlies in their daily lives. Based on literature review, intrinsic values can be found in intrinsic motivation and can provide firmer foundation for life satisfaction (Holmes et al., 2012) and it is achieved from the activities. In productive aging, intrinsic values play important roles as a result of performing task for elderlies' activities. Intrinsic motivation refers to the stimulation that drives an individual to perform the activities without extrinsic rewards (Coon & Miterer, 2010). It shows a close association between intrinsic motivation and intrinsic values. Intrinsic value is the goal of intrinsic motivation (Ryan & Deci, 2000). People are motivated intrinsically to perform tasks because of the inherent values.

Prior studies found that work performed attributed to intrinsic motivation will produce more quality work, which reflect interest in work, increased creativity, more challenging and potentials in learning compared to extrinsic motivation (Ryan & Deci, 2000).

ICT services with intrinsic motivations features will support elderlies' activities towards the acquisition of intrinsic values. Lepper and Hodell (1989) applied four intrinsic motivations in instructional learning formation namely curiosity, fantasy, challenge and control.

There are many theories of intrinsic motivation that have been applied to Information and Communication Technology (ICT) by prior researchers. Literature has always associated ICT services features with theories of intrinsic motivation such as Self-Determination Theory, Flow Theory, User and Gratification Theory, Technology Acceptance Model, Theory of Intrinsically Motivational Instruction, Achievement Motivation Theory, Organizational Citizenship Behavior, and many more.

**Conclusion**

As a conclusion, intrinsic values are the main concern in this research because it is one of the important psychological needs of elderlies. The intrinsic values can be found in intrinsic motivations through the activities. This research describes the literature and main points that are related to issues of elderlies in the country. This paper provides past literature on ageing which covers the concepts of ageing, the current ICT services for elderlies, intrinsic values and theories related to intrinsic motivations.

Critical literature reviews provide a solid foundation in explaining and justifying strategies towards the development of productive ageing model to support intrinsic value activities. Thus, realizing the limitations of elderlies in participating in activities, this research begins by

providing a clear notion of what productive ageing concepts and the issues that are related to how ICT services support elderlies in productive ageing. This research has also successfully described and synthesized the dimensions/activities and sub activities of productive ageing as well as the theories than can be applied in ICT services for further research in the area of productive ageing model. The theoretical lens of productive ageing concepts and intrinsic motivation theories guide what issues are important to examine.

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