The Impact of Facebook on the Quality of Life of Senior Citizens in Cape Town

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Abstract. Social Networking Sites (SNSs), such as Facebook, can be used to maintain social connectedness especially with friends and family, irrespective of geographical distances or physical impairments. This is particularly beneficial for older people who are more prone to social exclusion. This paper investigates the impact that the use of Facebook has on the quality of life (QOL) of senior citizens living in Cape Town. The study use a positivist approach with a conceptual model comprised of parts of Kleine's Choice Framework and CASP-19 as the theoretical lens for evaluation of how Facebook impacts the QOL of senior citizens in Cape Town. Results of an anonymous survey confirmed that respondents were light users of Facebook, using only a limited number of features. The research also revealed that the respondents used Facebook primarily to stay socially engaged with their friends and family which adds happiness to their lives and ultimately translates to an improved QOL. The results reinforced a causal relationship between Facebook use and the QOL of senior citizens in Cape Town.

Keywords: Social networking sites, Facebook, Senior Citizens, Quality of Life

1   Introduction

Research concerning the benefits of information and communication technologies (ICTs) for improving productivity and efficiency is pervasive. However, in terms of how ICTs are able to improve the general quality of life (QOL) of marginalised demographics such as senior citizens is still lacking [1]. The Sustainable Development Goals, as agreed by 193 United Nations member countries, specifically include the directive to "leave no one behind", emphasizing the predicament of neglected population groups such as the lesser abled, the poor and – the focus of this research – the aged. The increase in life expectancy, faced by many countries globally, highlights the important issue of how to maintain social relationships, particularly with friends and family, which is regarded as a critical factor for ageing well [2].

Although the use of SNSs, such as Facebook, is pervasive amongst young people, use by senior citizens is still lagging behind the younger demographic [3]. Research has revealed that lack of social contact as a result of living alone or of having limited social networks, could lead to social isolation and ultimately impact negatively on the health of senior citizens. However, through the use of Facebook, senior citizens are able to remain socially connected irrespective of geographical distances or most physical impairments brought about by old age [4]. It possesses the ability to change

people's lives, specifically for marginalised groups such as senior citizens whose levels of social engagement and social connections decrease due to retirement and loss of friends or partners [4]. It stands to reason that, with a growing ageing population increasingly making use of SNSs, understanding how the use of SNSs by senior citizens can positively impact their quality of life is of great value to society at large. But there is a shortage of research on how SNSs are able to improve social connectedness and support for the elderly [4] [5]. The purpose of this study was, therefore, to address the gap in research in understanding how the use of SNSs, Facebook in particular, impacts the QOL of senior citizens in Cape Town.

The main aim of this study was to analyse and evaluate the impact of SNSs on the QOL of senior citizens in Cape Town. The two research questions being addressed in this research paper are: Q1 "How do senior citizens in Cape Town use Facebook?" and Q2 "Does the use of Facebook impact the QOL of senior citizens in Cape Town?" Question Q1 will be explored with descriptive statistics. Question Q2 was explored both with descriptive and inferential statistics; the null hypothesis for question Q2 is H_0: The use of Facebook does not impact the QOL of senior citizens in Cape Town. This research contributes insights to the body of knowledge on how ICTs such as SNS can be used to increase the quality of life of marginalised members of society, i.e. our senior citizens. More specifically, it investigates which aspects of the QOL are perceived as being impacted the most.

2 Concepts and Literature Review

2.1 The Social Media Landscape Today

The use of social media has become pervasive. From a global perspective, approximately two billion users of the internet are currently using SNSs with Facebook as the market leader, with 1.59 billion active monthly users [6]. From a local perspective, a quarter of all South Africans, approximately thirteen million people, now use Facebook [7].

2.2 Senior Citizens

Defining age can be difficult and complex due to its multi-dimensionality. Ageing can be conceptualised within the context of a four-dimensional model based on biological (looks), cognitive (interests), social (actions) and psychological (feelings) functional areas of self [8]. The aged can be referred to as the elderly, third age or seniors [9]. The increase in lifespan due to advances in health and medicine has sparked a global ageing phenomenon that has resulted in an energetic older population compared to a few decades ago, thereby questioning traditional definitions and boundaries. But, typically, chronological age has been used to define the elderly, predominately for research on ageing and communication, as it is easy to measure [10]. The retirement age from 2008 to 2015 for men in South Africa averaged 60.3 with a high of sixty-five in 2008 and a low of sixty in 2009. For women, the retirement age remained unchanged at sixty in 2015 from sixty in 2014 [9]. Senior citizens are therefore defined as age sixty and older for the purpose of this study.

2.3 Senior Citizens and Technology Use

The use of ICT has changed the way people live today. It has become an essential component for living in an age of information where technology has become pervasive across all aspects of life [11] [12]. It has the ability to change people's lives by improving their level of independence, specifically marginalised groups such as senior citizens [1]. Due to improvements in the health sector resulting in an increase in life expectancy, the world is currently experiencing an unprecedented shift in demographic profile of an increasing ageing population [13]. Although technology can play a vital role in improving the lives of senior citizens, it could also exacerbate the problem of a digital divide between younger and older demographics; studies have revealed that older people tend to lag behind younger people with regards to ICT adoption [14].

Despite the rapid uptake of social media over the last decade, a gap in academia exists in understanding the convergence of online social media and older people [15]. Maintaining social relationships with friends and family that are meaningful has been factored as a vital component for ageing well [2]. While usage is pervasive amongst the younger population, usage by senior citizens is still lagging by a huge margin [3] [4]. The majority of research has focused on younger age groups such as teenagers and university students. Despite the increase in adoption rates of SNS's by senior citizens, not much is known yet regarding reasons and motivations for adoption and use within this age category [16] [17] [18]. Previous research suggests issues such as perceived lack of usefulness, ease of use as well as privacy and security concerns as key factors contributing to the slower adoption rates by senior citizens [16] [18]. Senior citizens are influenced by their social peers and members of their family, particularly their children and grandchildren who play the role of change agents in creating awareness and ultimately the use of the technology [19].

2.4 Benefits of Social Networking Sites for Senior Citizens

The benefit of improved social connectedness and support for senior citizens through the use of SNSs has been well documented. Senior citizens are able to maintain social connectivity irrespective of geographical distances or loss of physical mobility as a result of ageing [19]. The ability to feel socially included without leaving the comfort of their homes, promotes feelings of safety and autonomy [3]. Improved social connectedness assists in lower levels of loneliness and depression amongst senior citizens [10] [19]. Another key benefit highlighted by research is the improvement in intergenerational communication [15]. Communication between senior citizens and their children or grandchildren is often not reciprocal with more effort being placed on the part of senior citizens. SNSs strengthen this notion and change the flow of communication from asymmetrical to symmetrical [20].

2.5 Challenges Faced by Senior Citizens Using Social Networking Sites

Despite the surge in use of SNSs by senior citizens, significant barriers exist that prevent many seniors from using SNSs. Lack of access to the service can be an issue as older people often don't have access to either a computer or a broadband connection [10]. Lack of training was also cited as a barrier; although senior citizens in some cases are willing and able to make use of SNSs, they often lack the knowledge

and support to do so [17]. Sensory impairment such as loss of vision as a result of old age can hinder the use of SNSs by senior citizens [2]. Another common barrier featured in the literature is that of poor interface design [21]. Design features such as font size and colour as well as content layout often do not take into account the physical limitations of older people. Older users often find the use of SNSs complex and difficult to navigate [21]. Concerns around security and privacy remains a major concern for senior citizens [14] [15].

2.6 Defining Quality of Life

QOL is a complex and multi-dimensional phenomenon and therefore should be viewed holistically [22] It is influenced at a macro-level within society as well as at an individual level, and it encompasses both objective and subjective dimensions [23]. QOL has been defined as an "individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns" [22, p1405].

Based on Brocks' theory of a good life [24], QOL can be measured in three different ways: (1) normative (2) preference satisfaction (3) subjective evaluation. The normative approach refers to the standard or norms that define a good life and is influenced by the core belief system of an individual. This approach is not subjective by nature but rather is based on societal norms and traditions of what constitutes a good life or QOL. Preference satisfaction as an approach to QOL has an economic undercurrent. It is based on the availability of material goods and the satisfaction obtained in the ability to acquire these goods, thereby improving QOL. The final approach, subjective evaluation, refers to each individual's subjective experience of QOL and is associated with the more traditional sense of subjective well-being [9].

Two other QOL approaches are the subjective and objective approaches. The subjective approach of QOL refers to each individual's evaluation and feelings of how they personally view whether they are content and happy with their life [25].

2.7 Quality of Life Instruments and Frameworks

There is no definitive model or instrument used to measure QOL. The instruments available can measure QOL based on global measures (global QOL), as well as health measures or health related QOL (HRQOL). The WHOQOL group's instrument is a multi-dimensional, 28-item global measure which include the domains of physical, psychological, level of independence, social relationships, environment and personal beliefs or spirituality [22]. The CASP-19 QOL instrument is a more recent measure of QOL focussing on old age [9]. It is comprised of 19 Likert-scaled questions based on four domains: control, autonomy, self-realisation and pleasure [9].

Given that none of the above focus on how information technology can impact QOL, we also explored Kleine's Choice Framework. The Framework which is rooted conceptually in Amartya Sen's capabilities approach, seeks to operationalise the capabilities approach [26]. According to Sen's capabilities approach, development centres on an individual's freedom of choice. An individual's "functionings" refers to things which individuals value doing or being, and "capabilities" refer to the functionings that are possible or viable for an individual to achieve. The Choice

framework explains how an individual is able to achieve the outcomes they wish to achieve as a result of choices, resources, and social structures available to them, but it foregrounds the role which the use of IT can play in this dynamic [26]. We focussed on the agency factors of the Choice framework i.e. the individual resources which are potentially influenced or affected by the use of information technology i and the moderating role of demographic attributes such as gender and age.

2.8 Research Model

A conceptual model constructed in a similar study [1] to assess the impact of mobile phones on the QOL of the elderly was utilised. The model builds on a number of existing models and frameworks, namely, (1) Foley's internet adoption framework, (2) the CASP-19 quality of life measurement, and (3) Kleine's Choice Framework. "Use" was was measured in two different ways: through the use of features which represented how people use Facebook, and through functionality which represented what people use Facebook for.

The QOL construct is measured through two different lenses to obtain a richer overall perspective on QOL. As the CASP-19 measure is specifically based on old age, it was deemed fit to be utilised for this study. Additionally, questions based on the agency factors of Kleine's Choice Framework were used to measure the outcomes of the Choice Framework. This shows how Facebook as a technology enables people to increase their choices and freedoms to live the life they want to live, leading to improved outcomes such as easier communication, increased knowledge, better or more social relationships, increased mobility and more time and autonomy, which ultimately impacts QOL.

3 Research Methodology

A positivist research philosophy was adhered to for this study as existing frameworks were used to objectively measure the impact of Facebook on the QOL of senior citizens in Cape Town. The primary goal of this research is to establish and explain the causal relationship between Facebook and the QOL of senior citizens in Cape Town. Since the use of Facebook is expected to make only a marginal contribution to the actual overall QOL, a crucial methodological decision was taken to *not* measure Facebook use separate from overall QOL and then attempt to explain the variation in the latter statistically by means of the independent variable. Instead, the seniors were asked *directly* whether their use of Facebook was seen to impact the various aspects of QOL. The quantitative data was collected through an anonymous questionnaire.

The target population for this study was senior citizens in Cape Town who are able to read and write, use the SNS Facebook and who are sixty years and older. Due to time constraints, the use of convenience-based, non-probability sampling was deployed. To obtain a somewhat representative population sample, a stratified sampling approach was also followed, including willing participants from various retirement villages who agreed to participate in the study. This approach enabled the inclusion of both people living in retirement villages or homes as well as in their own residences or with their families or friends. Retirement villages in affluent areas were

approached as well as retirement homes and care facilities in less affluent areas to further ensure a more representative sample. A total of fifty-nine valid responses (n=59) were received after removal of incomplete and invalid responses.

4   Analysis and Results

The following section is an explanatory analysis and evaluation of the quantitative data collected using the survey instrument discussed earlier.

4.1   Demographic Analysis

For the question regarding gender, respondents were given the options of selecting male, female, prefer not to answer and other. Of the fifty-nine valid survey responses collected, twenty-one (36%) were male and thirty-eight (64%) were female. A Mann-Whitney U test was performed on this data to determine if QOL differs between males and females. The results indicate no significant statistical difference at $p < 0.05$ between males and females in terms of QOL with the exception of the material and time resource variable of the Choice QOL construct.

The mean age of respondents was 65.9 with a minimum age of sixty and a maximum age of one hundred. The majority of respondents' age was between sixty and sixty-three. A Mann-Whitney U test to determine if QOL differs between respondents aged below and above 70, indicates a statistically significant difference (Z adjusted = 2.126, $p = 0.033 < 0.05$) only with regards to the health resource construct.

Forty-four percent of respondents (44%) were fully retired. However, 32% of respondents indicated full-time employment and a further 14% part-time employment. This is also an expected result as the majority of respondents are in early old age, slowly transitioning into third age [28]. The results of the Mann-Whitney U test to determine if QOL differs between respondents who were retired versus respondents who worked, reveal statistical significance at $p < 0.05$ for the Autonomy and Pleasure CASP-19 QOL constituent construct as well as the CASP-19 QOL construct as a whole. With regards to the Choice QOL construct, all the constituent constructs are significant with the exception of the material, social and informational resources. The Choice QOL construct as a whole, however, reveals a statistical significant difference.

4.2   Research Question Q1: How Facebook is Used

Previous research conducted, identified children and family as an influential factor specifically in relation to senior citizens' adoption of ICT [12]. Respondents were therefore asked who introduced them to Facebook. The majority of respondents, thirty-four respondents (58%), indicated that family was the main factor influencing the adoption of Facebook which is aligned to the studies mentioned above.

Respondents were also asked how long they were using Facebook and, on average, how much time they spent on Facebook. Of the fifty-nine valid responses received, only fifty-seven respondents answered the question regarding how long they were using Facebook which resulted in a mean value of 4.9 years. In terms of time spent on Facebook, the majority of respondents (nineteen) spent thirty minutes to one hour a day on Facebook, followed by fifteen respondents who spent less than thirty minutes a day on Facebook. Twelve only checked once or a few times a week whereas eight

respondents spent more than an hour each day. The results of the Mann-Whitney U test to determine if QOL differs between respondents who spent less than once a week on Facebook versus respondents who spent more than or equal to once a week on Facebook, reveal statistical significance at $p < 0.05$ for the Pleasure, Self-realisation and CASP-19 QOL constituent construct as well as the CASP-19 QOL as a whole. With regards to the Choice QOL construct, all the constituent constructs are significant with the exception of the cultural resources.

The proposed research model looks at Facebook use as an independent variable measured in two different ways, through the use of features which represents what people use on Facebook, and functionality which represents how people used Facebook. The results support previous research on social media use by the elderly, indicating that social media is used primarily to stay connected with friends and family and not to create new ties or relationships [4]. Thirty-one respondents indicated that they never use Facebook to meet new people; only two respondents indicated that they use Facebook to meet new people 'a lot of the time'.
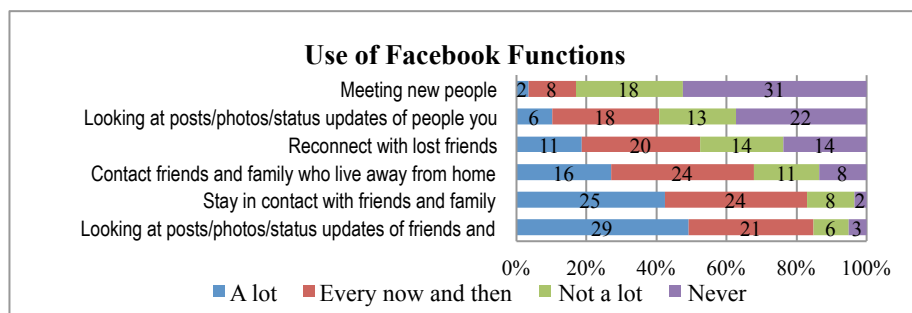

Fig. 2. Use of Facebook Functions

In terms of features used on Facebook, the results indicate that the respondents used only a limited set of features such as the Like button, commenting on other Facebook users' activities, birthday notifications, messaging people, writing posts on a wall and uploading pictures. Features such as updating security and privacy settings, profile settings and clicking on advertisements were used in a very limited capacity. Further statistical tests including reliability and validity tests were performed on this construct which is discussed in a later section of the document.

Questions regarding ten possible obstacles to using Facebook were also asked. Only five were seen as significant. Surprisingly, the cost of using Facebook and design and layout was not seen as a major obstacle as noted in previous studies. The majority of respondents were in agreement that spamming, false advertising and complicated privacy and security settings were seen as obstacles to using Facebook which is aligned to previous studies [3] [16].
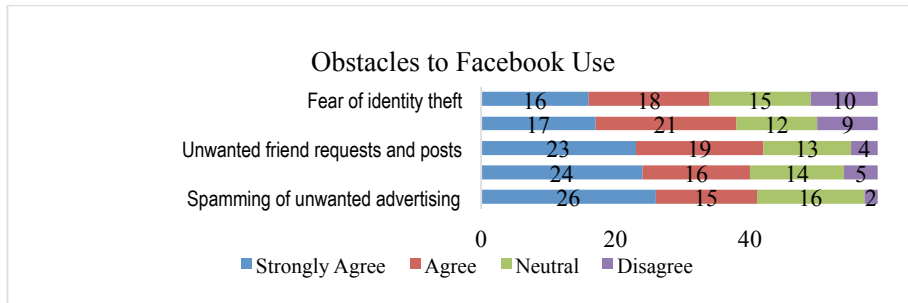
Fig. 3. Obstacles to Using Facebook

4.3　Research Question Q2: Descriptive Analysis of Quality of Life Impacts

Respondents were asked to answer nineteen questions based on the CASP-19 QOL instrument but these questions were modified by linking the (perceived) impact of each QOL item to their Facebook use (Fig 4).
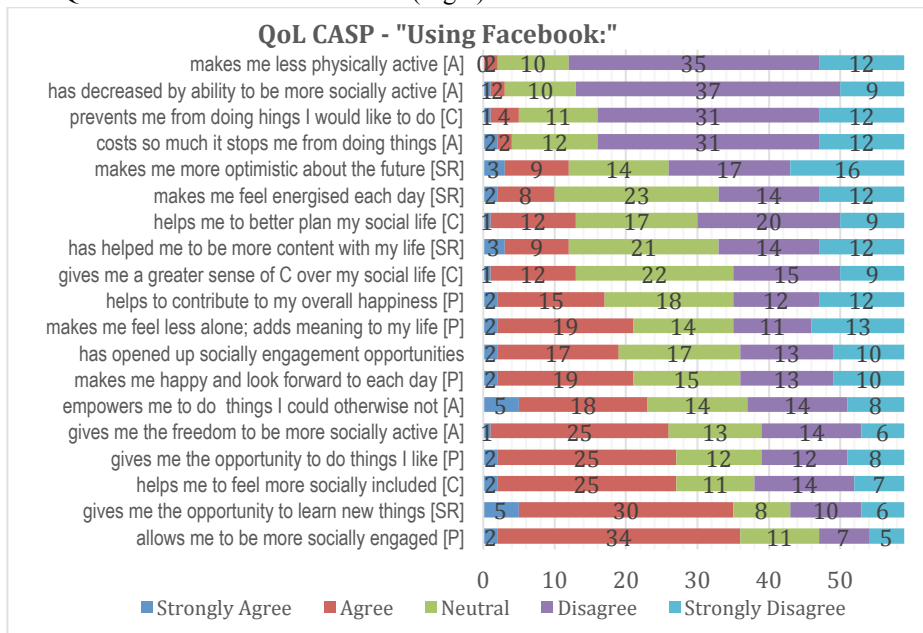

Fig 4. Quality of Life Measure – CASP-19

Twenty-one questions were based on the *relevant* agency factors of Kleine's Choice Framework but also phrased to measure how Facebook as a technology enabled the participants to increase their resources, choices and freedoms available to them in life thereby impacting their QOL (Fig.5).
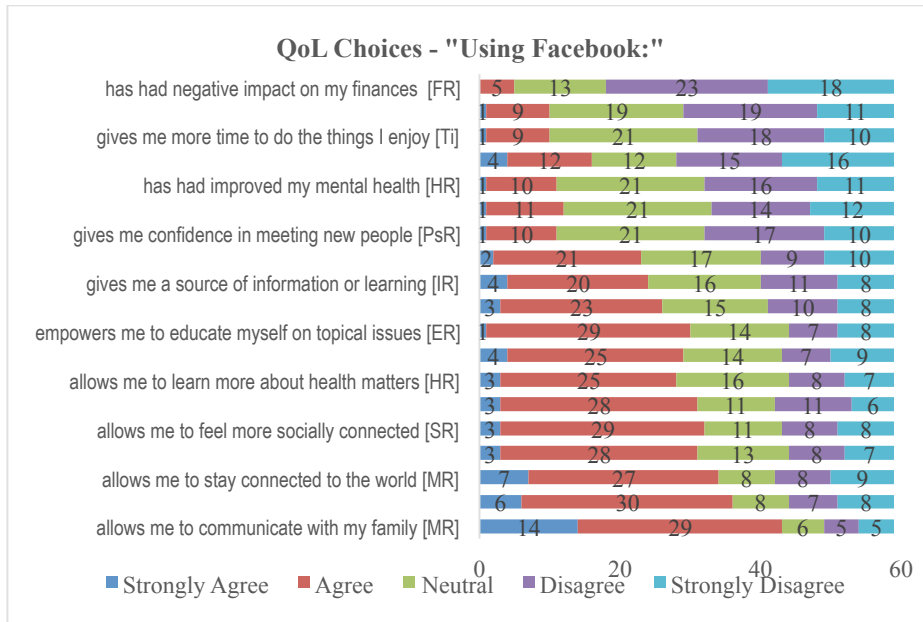
Fig. 5. Quality of Life Measure – Choice

What is highly surprising is that only *two* CASP-19 measures were perceived to be positively influenced by the use of Facebook: allowing the seniors to be more socially engaged with friends and family, and giving them the opportunity of learning new things. All other measures had an average rating which was statistically not different from "Neutral" or fell into the "Disagree" range.

By sharp contrast, many of the findings relating to how the use of Facebook results in perceived increases in the choices and agency freedom are much more significant. The respondents perceived, on average, that Facebook allowed them to increase their educational resources, health resources (by finding out about health issues), social resources (connect better with existing friends and family; find new friends), saved time and allowed them to tap into the cultural and newsworthy happenings and events in their local community as well as the global world. It did not appear to have an impact on their financial or psychological resources.

4.4   Research Question Q2: Reliability and Correlation Analysis

Reliability analysis was conducted on the dependent and independent constructs and all Cronbach alpha coefficients of the retained constructs were well above 0.70.

The distribution-free non-parametric Spearman Rank Order Correlation test was used to analyse the data. The Facebook features generally show a significant, negative but relatively small correlation with both the CASP-19 and Choice QOL variables. The Facebook functionality, however, shows a statistically positive moderate to strong correlation with both the CASP-19 and Choice QOL variables.

Multiple regression analysis was conducted to test the null hypothesis that the use of Facebook does not impact the QOL of senior citizens in Cape Town. Two models were run, first with the CASP-19 QOL construct as the dependent variable and then with the Choice QOL dependent variable. The results for the first model revealed that the independent variable Facebook functionality is statistically highly significant at predicting QOL because of the low p-value of 0.000079 (<0.001). The same is not true for the independent variable Facebook features with a p-value of 0.0629 (>0.05). The results for the second model revealed that both the independent variables Facebook functionality and features are significant at predicting QOL because of the low p-value's (<0.05). The results revealed a definite causal relationship between Facebook use and the QOL of senior citizens in Cape Town, thereby rejecting the null hypothesis.

5 Findings and Implications

Results of the data analysed confirms that a strong relationship exists between the use of Facebook and the QOL for senior citizens living in Cape Town. The researcher is therefore able to reject the null hypothesis that there is no relationship between Facebook use and the QOL of senior citizens in Cape Town. The objective of this research was to determine (1) how do senior citizens in Cape Town use Facebook, (2) what do senior citizens in Cape Town primarily use Facebook for, and (3) does the use of Facebook impact the QOL of senior citizens in Cape Town. The following section will provide a breakdown of the findings for these objectives.

5.1 The Use of Facebook

To address the question regarding what senior citizens in Cape Town use Facebook for, the results reveal that Facebook is primarily used to stay connected with friends and family and not to create new ties or relationships with new people. In terms of the features senior citizens in Cape Town use on Facebook, they tend to steer away from using administrative type of features such as updating security and privacy settings, profile settings and clicking on advertisements. Only a limited set of fun features to stay connected with friends and family on Facebook are used, such as the Like button, commenting on other Facebook users' activities, birthday notifications, messaging people, writing posts on a wall and uploading pictures. The majority of respondents agreed that spamming, false advertising and complicated privacy and security settings serve as obstacles to using Facebook. Although cost and complicated design and layout were seen as barriers to Facebook use in previous studies regarding the use of social media by the elderly, this was not the case for this research study.

5.2 Impact on Quality of Life and Agency

Perhaps the most surprising finding is that, even when measured perceptually, the use of Facebook does not appear to link significantly to any of the Quality of Life dimensions as measured through the CASP-19 instrument. However, Facebook *does* allow seniors to increase many of the resources identified in the Choice framework, thus affording them with more freedom and agency. The inability of information

technology to make people happier whilst affording them more freedoms and agency is an important finding and should be pursued further in future studies.

6 Conclusion

Senior citizens in Cape Town have become regular users of Facebook. The majority of respondents mostly attributed their reason for using Facebook to the appreciation of the ability to remain socially connected with the lives of the friends, children and grandchildren. The manner in which Facebook is used was also attributed to the fact that it afforded them the opportunity to view and comment on pictures and posts of friends and family. Overall, a strong perceived positive relationship between Facebook use and the social dimension of QOL was established, rooted in the notion that improved social connectedness between friends and family ultimately leads to a better QOL especially for senior citizens who are more prone to social exclusion due to a decreasing social network brought about by old age.

However, most other aspects of QOL as measured through the traditional CASP-19 instrument appears to be unaffected by Facebook use. By contrast, Facebook was experienced to significantly increase a number of resources allowing seniors with greater agency and freedom; particularly social, educational, psychological, financial, informational, cultural and time resources. The lack of a link between the ability of ICTs to allow more freedoms and agency, on the one hand, but not experiencing an increase in overall quality of life, is an interesting finding worthy of further pursuit.

A limitation of this study was the use of convenience-based, non-probability sampling, as well as the relatively small sample. A higher response rate, especially from respondents living in old age homes, might have been beneficial in providing insight from people more prone to social isolation due to limited participation in social activities. Future research could explore the use of other social media applications such as WhatsApp on influencing the overall well-being of the elderly. The reason for this is that many potential respondents were not able to participate in the study as they have migrated from using Facebook to using WhatsApp, confirming its status as the top active social platform in South Africa, just ahead of Facebook [6]. Also, differentiating between the early and late aged seniors might yield additional insights.

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