



**HAL**  
open science

## Using Cyber Applications Towards Positive Psychology Interventions in Africa

Carien Van 't Wout, Joey Jansen van Vuuren, Anna-Marie Jansen van Vuuren

► **To cite this version:**

Carien Van 't Wout, Joey Jansen van Vuuren, Anna-Marie Jansen van Vuuren. Using Cyber Applications Towards Positive Psychology Interventions in Africa. 14th IFIP International Conference on Human Choice and Computers (HCC), Sep 2020, Tokyo, Japan. pp.207-221, 10.1007/978-3-030-62803-1\_17. hal-03525282

**HAL Id: hal-03525282**

**<https://inria.hal.science/hal-03525282>**

Submitted on 13 Jan 2022

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

# Using Cyber applications towards Positive Psychology interventions in Africa

Carien Van 't Wout<sup>1</sup>, Joey Jansen van Vuuren<sup>2</sup><sup>[0000-0002-2836-9403]</sup> and Anna-Marie Jansen van Vuuren<sup>2</sup><sup>[0000-0001-7923-0447]</sup>

<sup>1</sup> Council of Scientific and Industrial Research, Pretoria South Africa

<sup>2</sup> Tshwane University of Technology, Pretoria, South Africa

jansenvanvuurenjc@tut.ac.za

Jansenvanvuurena1@tut.ac.za

**Abstract.** This paper describes “Positive Psychology” and its origins as well as its current status within the field of Psychology. Though the field is gaining rapid support in the rest of the world, it has not made the same progress in Africa, although its approach seems to form part of the continent’s indigenous knowledge systems and practices. In order to comment on possible future developments in this field, Africa’s fast increasing exposure to the cyber domain is illuminated, followed by examples of cyber domain interventions that have improved the well-being of Africans. Access to information and interactive communication seems to facilitate an increase in positive experiences, development of positive individual traits and positive communities, especially in the field of agriculture. This suggests that mobile applications and the cyber domain can be used as a platform for positive psychology interventions.

**Keywords:** Positive Psychology, ICT, agriculture, Africa, development.

## 1 Background

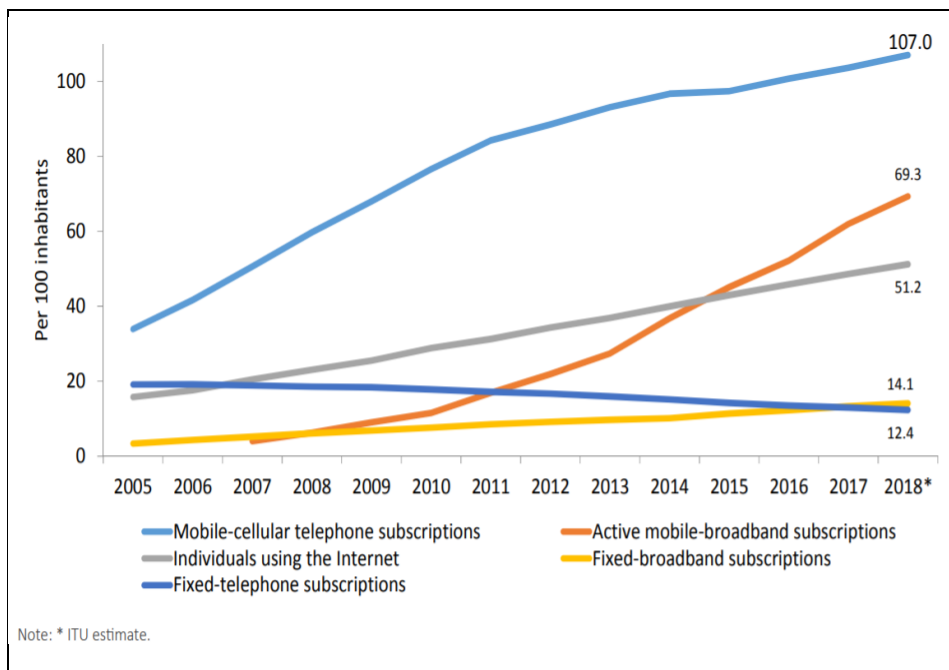
We are currently living in a data-driven society. Data is regarded as a valuable resource in the digital age [1]. Still, data can be a potential source of weakness in the cyber domain where one is constantly under threat of cybercrime [2]. The United States Military Joint Publication 3-12, Cyberspace Operations, (2013), define the cyber domain as:

*“A global domain within the information environment consisting of the interdependent networks of information technology infrastructures and resident data, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers”* [3]

The Information Society is another term used within the cyber domain referring to a society in which the creation, distribution, and manipulation of information has

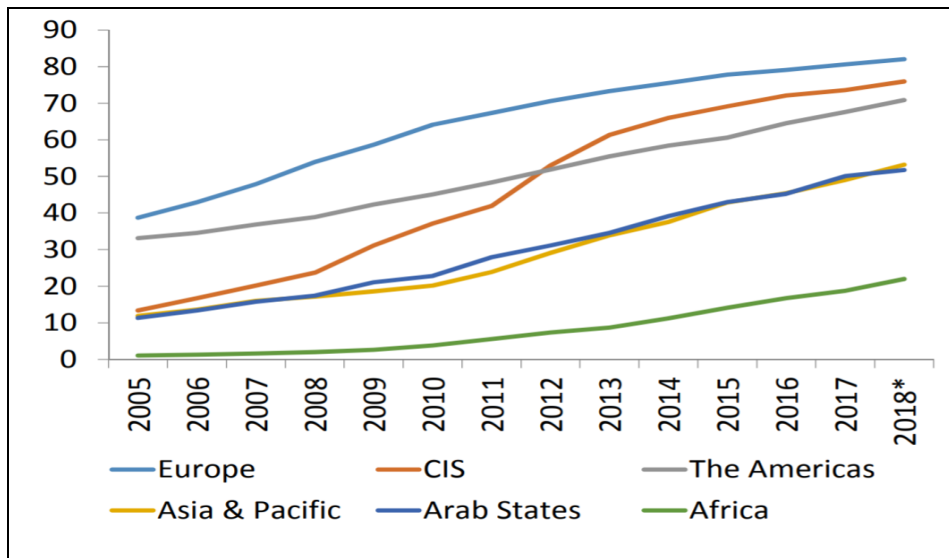
become the most significant economic and cultural activity: The information society is not only affecting human interaction, but additionally it is requiring the traditional organisational structures to be more decentralised, flexible and participatory.

The Fourth Industrial Revolution is contrasted with the Agrarian or Industrial society in that people use information more intensively in their decision-making activities, to communicate and compare, and to take greater control over their own lives. The Fourth Industrial Revolution also has a strong focus on the interactive use of Information Communication Technologies (ICT) by humans. The past two decades has seen substantial growth in access to ICT, particularly on broadband networks, mobile phones and other smart devices allowing access to the Internet. Furthermore, within the last five years the availability and use of broadband networks grew extensively, as illustrated in Figure 1.



**Fig 1:** Global ICT Growth Statistics from Measuring the Information Society Report, (2018) [4]

Between 2015 and 2016, a type of digital revolution took place on the African continent. This was the result of lower smartphone prices that allowed users, who would not have been able to afford computers, access to the internet. Thus, Smartphone use doubled in Africa in the last two years," [5] Although the cost of data remains high in most African countries, service providers and developers are using this revolution by leveraging the power of mobile networks to transform services in the health, agriculture, education, energy and water management sectors. [5]. Figure 2 provides the statistical support to illustrate this.



**Fig 2:** Proportion of Internet Users by Region [4]

Significant technological advancement in mobile technology, has not only connected African users to their international counterparts via social media, but also granted them better access to information – this includes the news, awareness of local and international trends, as well as government and community support. This implies that the cyber domain facilitates the development of positive psychology constructs, e.g. self-determination, relatedness, belongingness, need for competence and autonomy. The next section will elaborate on this statement by describing positive psychology and its constructs.

## 2 Positive Psychology: An Introduction

*At the meta-psychological level, [positive psychology] aims to redress the imbalance in psychological research and practice by calling attention to the positive aspects of human experience. At the pragmatic level, it is about understanding the wellsprings, processes and mechanisms that lead to desirable outcomes” [6].*

In the year 2000, the American Psychological Association president, Martin E.P. Seligman and co-author Mihaly Csikszentmihalyi, wrote an article in the *American Psychologist Journal* to introduce sixteen articles about a “new” psychology that concentrated on positive subjective experiences and positive individual traits as well as positive communities and institutions [7]. They argued that the aim of psychologists using this approach is to improve quality of life and to prevent the pathologies such as stress, anxiety and depression, rather than to focus primarily on

treatment. Thus, positive psychology aims to increase the qualities and factors that enable individuals and communities to flourish, rather than to just endure and survive. The main positive psychology constructs discussed in their article are summarised in Table 1.

**Table 1.** Positive Psychology Constructs

<b>Positive Subjective Experiences</b>	<b>Positive Personality Traits</b>	<b>The Social Context</b>
Subjective well-being Contentment Satisfaction Optimal experience Hope Optimism Flow Happiness	Capacity for love Courage Self-determination Physical health Self-organising Self-directedness Interpersonal skills Adaptiveness Exceptional performance Creativity & talent Aesthetic sensibility Perseverance Forgiveness Originality Future Mindedness Spirituality Wisdom	Positive institutions that move people towards better citizenship:  Responsibility Nurturance Altruism Civility Moderation Tolerance Work Ethic

It is generally accepted that psychology as a science originated in 1879, with Wilhelm Wundt's establishment of the first psychology laboratory by in Leipzig, Germany. The aim was threefold: "curing mental illness", "making people's lives more productive and fulfilling", and "identifying and nurturing high talent" [7]. Although positive psychology was only defined two centuries later as a scientific field, examples of earlier positive psychology studies included Watson's work on effective parenting (1928), Jung's search for the meaning of life (1933), and Terman's research on marital happiness (1939). After the Second World War, thousands of psychologists found jobs treating mental illness at the Veterans Administration and academics only obtained grants for their research if it centered on pathology. This changed the focus within the psychology field. Although this period delivered positive outcomes in terms of understanding and providing therapy for mental illness (with its focus on assessing and curing individual suffering), the other two parts of the psychology profession's original aims were sorely neglected. Seligman & Csikszentmihalyi's article was a thus call for the profession to widen its scope to include positive human functioning for increased scientific understanding and effective interventions towards thriving individuals and communities.

Since then the work of these post-2000 researchers was consolidated, and these authors formed the Positive Psychology Steering Committee. Many other researchers

need mention due to their considerable contributions to the field; these include Snyder and Lopez who edited the *Handbook of Positive Psychology* (2002) [8], followed by *Positive Psychology: Scientific and Practical Explorations of Human Strengths* [9], sixteen special journal issues, as well as the establishment of *The Journal of Positive Psychology* in 2006 [10]. Studies of what is ‘right’ and ‘positive’ about individuals, communities and institutions yielded new findings and resources that enabled psychologists to improve their patients’ quality of life and assist educators in nurturing high talent and learner growth. Major developments include the psychometric instruments measuring positive psychology constructs, such as the “Clifton Strengths Finder” and the “Clifton Youth Strengths Explorer” (the latter is focused on 10 to 14-year-olds). These measures have enabled strengths development programs in learning institutions and the workplace. In addition, social scientists have learned more about how people respond to emotional experiences in productive ways. Knowledge increased on making the most of positive emotions and curbing the effects of negative emotions, and subsequently about how these practices lead to positive life outcomes [9]. Rigorous investigations into the constructs of *resilience*, *self-efficacy*, *hope* and *optimism* also took place in the field of positive psychology [11].

In an opening article in the *Journal of Positive Psychology* (2006), Linley, Joseph, Harrington and Wood review the progress and possible future direction of the field. They attempt to redefine positive psychology and pose the question of where the field is now. One purpose of this paper is answering these questions, specifically in terms of the African contribution towards “the study of optimal human functioning” and to propose that the cyber domain can add value to this field.

### 3 Positive Psychology in Africa

“Positive psychology” may have been practiced in Africa before being termed as such. Many factors influence the practice of psychology on the continent, of which the most prominent seem to be culture, economy or development status.

#### 3.1 Cultural Perspective

As North African countries are predominantly considered to be Muslim countries, one need to consider psychology’s history from an Islamic perspective. Haque comments that Western psychology has not lived up to its professional goals, i.e. to help people understand themselves, the purpose of life, and how to live in a balanced and constructive manner. He argues that from a Muslim perspective, modern psychology assumptions are erroneous in proposing that human behaviour is observable only by the senses and therefore subject to quantification and measurement, while at the same time ignoring transcendental aspects. Hague comments that if psychology studies human behaviour and cognitive processes, it should include beliefs, attitudes, norms, customs and religious influences based on transcendental experiences and value systems [12]. These comments correspond to psychology’s objectives.

In sub-Saharan Africa, “positive psychology” has often been compared to the philosophical concept of “Ubuntu”. Scholars and traditional healers have argued from the African perspective that health cannot be achieved without achieving a balance of life with others and with the environment [13]. This worldview emphasizes the spiritual dimension (transcendental) which generates traditional knowledge as a valuable resource to be shared by all. Solidarity, caring and sharing are important in times of hardship, grief, illness as well as in good times (health, celebrations). Importance is placed on interpersonal relationships as well as the relationship between the physical and meta-physical. Lesonang (2016) explains that traditional healers follow a holistic approach to address the human experience of disease whilst modern medical practitioners attempt to heal only the affected part. They also have a dichotomous role of promoting the well-being of an individual and maintaining continuity in the way society functions. Traditional healers believe that it is their duty not only to alleviate suffering, but also to develop life in all forms [13]. It therefore seems that the African perspective of psychology is more oriented towards positive psychology principles in their assessment (scientific observation and measurement), diagnosis and treatment of mental illness.

### 3.2 Status of Positive Psychology in Specific Countries

In *Uganda*, plenty of opportunities exist to apply positive psychology. Because of civil wars, the HIV pandemic and frequent natural disasters, most people need some form of psychosocial rehabilitation. Physical disabilities are common, resulting from the rebel attacks, landmines and intentional mutilations. According to the CIA’s World Factbook, an estimated 1.8 million people were internally displaced in Uganda due to these conflicts and challenges. At the time of writing, the country had approximately 2.2 million orphans – mostly due to the HIV pandemic – as well as another 8 million vulnerable children [14]. The opportunity or need for positive psychology interventions are thus extensive; however, no university psychology programme or course currently exist that holistically centers on positive psychology [12]. However, despite professional psychologists’ central focus on mental illness, there are numerous activities demonstrating the presence of and application of it in Uganda. Educational, clinical, organisational and counselling psychologists, as well as medical doctors, nurses, social workers, counsellors, academics, traditional healers and religious or other leaders are involved in the practice of positive psychology. Examples of positive psychology applications include the following [15].

- HIV/AIDS counselling that emphasises positive living. Organisations such as Traditional Healers and Modern Practitioners Together Against AIDS (THETA) and The AIDS Support Organisation (TASO) give hope to those infected, promote good health and the development of positive attitudes towards life.
- Community-based rehabilitation (CBR) aimed at improving the well-being of persons with disabilities. Tertiary diplomas and degrees and Special Needs Education are offered in CBR. The focus is on empowerment of individuals and life-long community participation.
- School guidance and counselling teaches children coping skills to deal with their problems independently and effectively.

- Teachers' training includes a focus on their role to guide and/or counsel children to develop self-esteem, confidence, a sense of direction, interpersonal and problem-solving skills.
- Street children are trained in life skills with particular attention to independent living, coping with emotions, stress and problem solving in order to enable living a productive life away from the street.
- Life skills education is incorporated in primary school curriculums.
- Psychosocial rehabilitation to children affected by the war.
- A Community Resilience and Dialogue Project promotes well-being by promoting dialogue and small business development training, advanced business training and other economic development assistance tools.

Many of these positive psychology practitioners may, however, lack training and expertise. The emphasis is usually on community support, team building, life skills development, coping and forgiveness [15].

The challenges for the practice of positive psychology in Uganda are similar to those of other African countries, in that very few people voluntarily seek psychologists' help. Psychology is not very popular among citizens— which make it an unpopular study or career choice. This in turn hampers the development of culturally appropriate frameworks and methodologies. Positive psychology has not been developed formally and the term seems abstract to those that hear it. Most of those that apply its principles are unaware of the scientific study of it [15].

In the *Democratic Republic of Congo (DRC)*, having a mental disorder is a shame that extends to the family, because each individual is an integral part of a larger community. The family, clan or tribe also suffers and therefore treatment includes all these parties as well. Unfortunately, people with a mental disorder are often accused of witchcraft and therefore consultation is rather with a traditional healer than with a psychologist. Visiting a psychologist or psychiatrist for behavioral health concerns, or for improvement in individual positive psychology traits, is very rare. Limited mental health care facilities exist in comparison with the size of the country and its population. The DRC has only six mental health hospitals with 500 beds, no day treatment facilities and almost no mental health care practitioners [16].

Psychology is not a well-established discipline in DRC universities. Only two clinical psychology programmes exist and psychology remains more theoretical than practical. The focus is primarily on understanding the stages of human development for the training of primary and secondary school teachers. Job opportunities for psychologists are scarce to non-existent and leads to limited enrolment for these programmes at university level. The Congolese culture, like many other traditional African cultures, is described as one where the individual is not viewed as existing alone, but as existing corporately; the community (the whole) is more important than the individual (the parts). This creates a challenge for so-called Western psychology where the client/patient as an individual is paramount. The field positive psychology is still struggling to grow as a science as well as towards providing adequate mental health services to Congolese people. Thus, a need exists for a culturally appropriate therapeutic approach to mental health [16].

In *Kenya*, no universities were found offering Positive Psychology courses except for the Africana College of Professionals that offers a 3-day Certificate course [17].



In South Africa, Professor Irma Eloff, with research associates from Saudi Arabia, Zimbabwe and Nigeria, explores the state of Positive Psychology on the continent by asking participants in the profession to respond to the status and prospects of positive psychology in their respective countries. The six countries included are Lesotho, Malawi, Nigeria, Uganda, Zimbabwe and Algeria. The following is a summary of their quantitative and qualitative findings [18].

- Positive psychology is an emerging and limited field.
- When positive psychology is practiced, it is often implicit rather than explicit.
- The theoretical and conceptual framework is uncertain.
- Positive psychology is often linked to indigenous knowledge systems.
- Respondents are hopeful of a future for positive psychology in Africa.

The cyber domain provides numerous opportunities for improving the well-being of African societies – and by implication, for the enhancement of positive psychology constructs. Some case studies will be discussed in the next section.

## 4 Improving the Well-being of Africans via the Cyber Domain

The scope and length limitations for this paper allows for the mentioning of a few examples, which is by no means an exhaustive list.

### 4.1 Enhanced Social Connectedness and Well-being via Social Networking

According to The Oxford Handbook of Mobile Communication and Society, smartphones enabled opportunities and possibilities for communication, participation, creativity, learning, expressing identity and belonging, improving health and well-being and enjoying entertainment and games. Children with smartphones and internet access spend a large amount of time online, primarily for communication and entertainment purposes, but it also develops digital skills at an early age [19]. The positive outcomes of this includes an increased sense of relatedness, belongingness, need for competence and sense of autonomy

### 4.2 Economic Empowerment in Rural Agriculture

In Africa, the agriculture sector is a major source of employment. Therefore, if one wants to employ cyber applications to uplift a society, and thus practice positive psychology, one will need to incorporate agriculture. During an information communications technology conference in Kigali, Rwanda, ten of the best agriculture applications (apps) were identified. The table below provides a summary of some of these apps and their objectives as well as relevance to positive psychology [20].

**Table 2.** Agriculture Apps Developed for Rural Africa

Application	Description	Objective
-------------	-------------	-----------

<b>iCow</b>	Dairy agricultural products accessed and subscribed to via a menu after dialling a short code. The system then sends messages to users at intervals, depending on the product choice.	To increase farmer productivity through access to knowledge and experts; to encourage the development of a younger farming generation.
<b>Rural e-Market</b>	Multilingual, easy and affordable app for smartphone, tablets or computers	Communicating market information; improve transparency and access to market information
<b>mFisheries</b>	A suite of open-source mobile and web applications for small scale fisheries. Comprises a virtual marketplace application which displays market prices using open data sources. Includes “GotFishNeedFish” with navigational tools such as compass and GPS, logging and retrieval application. It has training companions such as abbreviated first aid courses.	Connects agents in the fisheries value chain
<b>Esoko</b>	Most popular African Agriculture platform. A customisable comprehensive platform to transform and manage information needs – with an all-in-one user-friendly interface, backed up with a deployment team to help users in all locations.	Tracking and sharing of market intelligence. Links farmers to markets with automatic market prices and offers from buyers. Disseminate personalised messages based on crop & location. Manages extension officers and lead farmers with messaging.
<b>FarmerConnect</b>	Cloud-based and mobile enabled platform that delivers personalised agricultural extension services and text/audio information in local languages to smallholders and farmers.	Helps to stay connected with information and aiding agencies on a daily basis. Increase yields and income.
<b>M-Shamba</b>	Interactive platform that provides information to farmers using mobile phone features, including cross-platform applications accessible in both smart and low-end phones and SMS. Currently used by 4000 farmers in Kenya to help them adapt to new	To provide information on production, harvesting, credit, marketing, weather and climate/ Customised information based on farmer location and crop/animal preference. Farmers can also share information on various topics with each other.

	technologies in rice farming.	
--	-------------------------------	--

These applications for smallholders and farmers (containing agricultural advice for better production results as well as information on current rates for specific commodities) has improved the lives of many Africans. In the past, such farmers or small business owners were exploited by dubious intermediaries that ‘made up’ the current prices for commodities to their own liking. Farmers could not verify the current buying and selling prices (the market) of their specific commodity. These computer applications have therefore not only mitigated exploitation, but have also improved productivity and subsequently the livelihood of these farmers [21]. In terms of positive psychology, well-being has been improved by reducing stressors such as hunger, poverty and under-nutrition and in turn increasing subjective experiences such as satisfaction, contentment, optimism and hope. The objectives of these apps may also lead to an increase in positive personality traits such as self-determination, self-organizing and positive emotions leading to physical health improvements.

### 4.3 Improving Literacy in Tanzania

Tanzania has one of the world’s largest youth populations and its youth are at the heart of Tanzania’s aspiration to become a middle-income country by 2025. The country’s economic and social progress as well as human development, however, depends on empowering and educating the youth with the skills needed to take this nationwide goal forward. The well-being of both individuals and their communities can be improved by quality education. It would lift families out of poverty and increase the country’s economic growth. Completing secondary education has been shown to strongly benefit individuals’ health, employment, and earnings throughout their lives. Yet millions of Tanzanian children and adolescents do not gain a secondary education or vocational training.

It is estimated that 5.1 million children aged 7 to 17 are not in school. Education ends for many children after primary school: only three out of five Tanzanian adolescents, or 52% of the eligible school population, are enrolled in lower-secondary education and even less complete their secondary education. Thus, secondary education can empower the youth with skills needed for sustainable development. This must include technical and vocational training, as well as education on citizenship and human rights. Access to essential information must be ensured to protect health and well-being.

Safe and equal enrolment for girls in secondary education can act as a powerful equalizer, ensuring all girls and boys have access to the same subjects, activities, and career choices. Formal vocational training is not available to all Tanzanian children who want it. Many children are rather taken into child labour - mostly to look after the family herds - to supplement their family’s income. Often these children work in exploitative, abusive, or hazardous conditions, in violation of Tanzanian law. Girls face many challenges on account of their gender; many marry before the age of 18 and thousands of adolescent girls drop out of school because of pregnancy [22].

The cyber domain can provide a number of solutions to address the challenges in Tanzania. One such cyber domain intervention to support Tanzania's economic growth by improving the literacy of its youth deserves mention. The United Nations High Commissioner for Refugees (UNHCR) partnered with San Francisco-based non-profit enterprise *Worldreader* in an experimental project to provide four secondary schools in Tanzania with e-readers containing books in Swahili and English. The project provided some 2,300 students across two settlements with access to educational reading. The residents of both settlements and the surrounding communities can use the Worldreader Mobile service. This provides them with access to a library of African and international books using a data-enabled mobile feature phone. Worldreader currently has e-reader programmes across nine African countries, including Rwanda, Ghana and Malawi [23]. Joyce Mends-Cole, UNHCR Representative in Tanzania, predicted that the impact of the initiative would be immeasurable; that it would increase literacy and expand mental and physical horizons - helping to provide quality education to large numbers of students. Mends-Cole argued that the access to this type of reading material will allow the youth to dream about greater possibilities, and for girls and women, the impact would be exceptionally good. The Co-Founder of Worldreader reported that their organization demonstrated that access to digital books can significantly improve early grade literacy outcomes. A video insert in the report about the e-Reader project, shows children using the e-Reader and commenting on how this device positively affected their lives. They read daily and want to keep on learning to follow a professional career one day. It is therefore evident that these devices have impacted positively on the individual traits of the users' subjective well-being [23]. The next phase towards youth development and education in Tanzania is to provide access to the internet. Camfed.org (2018), provides feedback on the positive outcome of this initiative; stating how a combination of e-reader technology and mentoring from young women has helped students succeed in their primary and secondary education. The literacy project using cyber tools, implemented by Camfed and Worldreader between 2015 and 2017 has driven up learning outcomes for marginalized children in Iringa district. Students can now access a wide variety of English language books and use a vocabulary function to look up unfamiliar words. The devices have encouraged a more collaborative way of learning and facilitates whole school literacy activities including debate competitions [24]. A Secondary student in Tanzania commented that e-readers have gave her a technological solution to simplify her learning [24].

#### **4.4 Enabling a Financial Infrastructure for Migrant Workers: MPesa**

Many rural areas lack banking infrastructure. The normal banking procedures for sending money abroad requires steep banking charges. This makes the transfer of small amounts by migrant workers a challenge. In Kenya, most of the population subscribes to a mobile payment service, of which the most popular choice is M-Pesa.<sup>1</sup> This mobile app has made a dramatic impact in Africa. The system was first launched

---

<sup>1</sup> "Pesa" means "money" in Swahili.

by Vodafone's Safaricom mobile operator in 2007 as a simple method of texting small payments between users. Currently, it boasts 30 million users in 10 countries and includes a range of services including international transfers, loans, and health provision [25]. MPesa improves the livelihoods of communities by providing an accessible source of income from relatives who are migrant workers. This positive application in turn may produce further positive outcomes as per the positive psychology paradigm, such as optimism, hope, self-determination and positive communities.

**Error! Reference source not found.** provides more examples of cyber domain solutions for achieving positive psychology related objectives for improving the wellbeing of Africans identified from the challenges mentioned in this section. The intent of these examples is to illustrate that the cyber domain can be utilised in a directed manner – other than acknowledging the mere usefulness of ICT - to develop and/or increase positive psychology constructs and improve overall mental health.

**Table 3.** Examples of Cyber Solutions for Improving the Wellbeing of Africans

<u>Objectives Related to Positive Psychology</u>	<u>Examples of Cyber Related Solutions</u>	<u>Example Instances</u>	<u>References</u>
Provide tertiary training opportunities focused on positive psychology.	Online learning in positive psychology	coursera.org ; udmy.corg	<a href="https://mindisthemaster.com/positive-psychology-certificate-online-practitioner/">https://mindisthemaster.com/positive-psychology-certificate-online-practitioner/</a>
HIV/AIDS counselling emphasising positive living	Mobile app for people living with HIV/AIDS	Life4me+, Care4Today	<a href="http://www.healthline.com/health/hiv-aids/top-iphone-android-apps#care4today">www.healthline.com/health/hiv-aids/top-iphone-android-apps#care4today</a>
Increased well-being for people with disabilities	Mobile apps for the disabled	Be My Eyes, Dragon Dictation	<a href="https://access2mobility.com/top-8-mobile-apps-for-persons-with-disabilities/">https://access2mobility.com/top-8-mobile-apps-for-persons-with-disabilities/</a>
Overall wellbeing	Apps for overall wellbeing	Moodfit	<a href="http://www.verywellmind.com/best-mental-health-apps-4692902">www.verywellmind.com/best-mental-health-apps-4692902</a>
Learning coping skills	Apps for coping skills	MoodMission	<a href="http://www.verywellmind.com/best-mental-health-apps-4692902">www.verywellmind.com/best-mental-health-apps-4692902</a>
Science-based activities and games that are meant to reduce stress, build resilience, and overcome negative thoughts.	Mobile apps to improve happiness	Happify	<a href="https://www.verywellmind.com/best-mental-health-apps-4692902">https://www.verywellmind.com/best-mental-health-apps-4692902</a>
Life skills training for school children and street children (and to assist teachers and trainers)	Apps to Teach Responsibility and Life Skills to children	Faces I Make, Toontastic	<a href="https://blog.bit-guardian.com/top-10-apps-for-kids-to-learn-responsibility-and-life-skills/">https://blog.bit-guardian.com/top-10-apps-for-kids-to-learn-responsibility-and-life-skills/</a>
Community dialogue through online platforms	Online platforms	Dialogue-Africa blog,	<a href="http://www.dialogue-africa.com">www.dialogue-africa.com</a> Eyala blog

Economic and Community upliftment by means of improved agricultural production.	Mobile farming apps	See Agricultural apps in Table 2	
Literacy: provide basic and secondary education to those that do not have access to schooling	Access to educational reading by means of e-readers.	Worldreader Mobile service	<a href="http://www.telegraph.co.uk/technology/news/10653277/UN-launches-e-reader-initiative-in-Tanzania.html">www.telegraph.co.uk/technology/news/10653277/UN-launches-e-reader-initiative-in-Tanzania.html</a>

These are only a few examples of many to illustrate the positive impact that the cyber domain has had on the lives of Africans. It further suggests that mobile apps and the cyber domain can be used as platform for positive psychology interventions. Specifically seen in the light of the current lack of trained practitioners in Africa, such interventions could be conceptualised and designed by skilled practitioners elsewhere or by local cyber professionals and remotely disseminated in a coordinated manner to facilitate the positive psychology interventions. Psychologists and other practitioners can also be supported in carrying out positive psychology interventions. If they communicate their requirements to cyber professionals, tailor-made tools can be developed to serve specific needs. The cyber domain can furthermore enable education in the field of positive psychology e.g. access to electronic resources and online courses.

## 5 Conclusion

Positive Psychology made a dramatic return to the psychology stage in 2000. Since then it has made remarkable progress in the western world as a recognised field of practice. In Africa, it has had limited recognition (as referred to in the Western theoretical and conceptual framework) in tertiary education or formal application but seem to have been practiced as part of traditional, cultural or religious systems for decades. The application of positive psychology principles is evident in many activities on the continent – all aimed at improving the well-being and livelihoods of its inhabitants.

The growth of access to ICT, especially mobile phones, the internet and the expanding cyber domain in Africa has granted users more access to information, connectedness and community support as well as economic empowerment. People can use these platforms to communicate and compare, to learn, to manage their businesses more effectively and to take control of their lives.

Mobile apps can assist those with little or no access to education and information support or knowledge building. Access to information and the enablement of interactive communication seems to facilitate an increase in all the positive psychology construct categories as mentioned in Table 1, namely positive experiences, development of positive individual traits and positive communities. The examples discussed illustrated how positive psychology constructs could be developed. This suggests that mobile apps and the cyber domain can also be used in a deliberate approach, as a platform for positive psychology interventions. It can be developed towards improv-

ing the quality of life and productiveness of people; for nurturing of high talent (e.g. math and structural design games) and learner development (literacy apps). A myriad of strength development programmes can be developed for learning institutions and work environments. Interactive apps can be developed to engage people in dialogue and to provide customised training and support towards economic empowerment, which will improve and enhance individual and community well-being. Such tools can be developed by multi-disciplinary cooperations or talented individuals. It can be remotely developed also, thereby overcoming some of the current challenges experienced for the application and future expansion of positive psychology in Africa.

## 6 References

1. Komukai, T.: People first: One can hide the data but not the truth. <https://www.ifipnews.org/human-centric-computing-data-driven-society/>. last accessed 2020/01/06.
2. Metcalf, A. , Scott, D.: The Cyber Domain. Marine Corps Gazette: Quantico Professional Journal of US Marines, vol 99. (2015)
3. Scaparrott, C.M.: Cyberspace Operations. Washington DC(5 February 2013)
4. ITU: Measuring the Information Society Report 2018, vol 2,. ITU Publications, Geneva, Switzerland (2018)
5. Dahir, A.L. : SmartPhone use has doubled in Africa in two years. Smart Future. <https://qz.com/748354/smartphone-use-has-more-than-doubled-in-africa-in-two-years/>, last accessed 25/09/2016.
6. Linley, P., Joseph, S., Harrington, S., Wood, A.: Positive psychology: Past, present, and (possible) future. *Journal of Positive Psychology* 1(1), 3-16 (2006). doi:10.1080/17439760500372796
7. Seligman, M. Csikszentmihalyi, M.: Positive Psychology An Introduction. *American Psychologist* 55(1), 5-14 (2000). doi:http://dx.doi.org/10.1037/0003-066X.55.1.5
8. Snyder, C.R., Lopez, S.J.: *Oxford handbook of positive psychology*. Oxford University Press, Oxford, England (2009).
9. Lopez, S., Major Developments in Positive Psychology. Gallup, Washington, D.C (2006).
10. Coetzee, S. Viviers, R.: An Overview of Research on Positive Psychology in South Africa. *South African Journal of Psychology* 37(3), 470-490 (2007). doi:http://dx.doi.org/10.1177/008124630703700307
11. Magaletta, P., Oliver, J.: The Hope Construct, Will, and Ways: Their Relations with Self-Efficacy, Optimism and General Well-Being. *Journal of Clinical Psychology* 55(5), 539-551 (1999). doi:http://dx.doi.org/10.1002/(SICI)1097-4679(199905)55:5%3C539::AID-JCLP2%3E3.0.CO;2-G
12. Haque, A.: Psychology from Islamic Perspective: Contributions of Early Muslim Scholars and Challenges to Contemporary Muslim Psychologists. *Journal of Religion and Health* 43(4), 357-377 (2004). doi:http://dx.doi.org/10.1007/s10943-004-4302-z
13. Lesonang, N.: Traditional Healing and Mental Health of Military Forces in Africa. In: GAJ vD (ed) *Military Psychology for Africa*. African SUN Media, Stellenbosch, South Africa pp 237-260 (2016).
14. Central Intelligence Agency: The World Fact Book. [https://www.cia.gov/library/publications/the-world-factbook/geos/print\\_ug.html](https://www.cia.gov/library/publications/the-world-factbook/geos/print_ug.html). last accessed 20/06/2020.

15. Chireshe, R., Ojwang, P., Rutondoki, E., Byamugisha, G.: Positive Psychology: The Case of Uganda. *Journal of Psychology in Africa* 18(1) 195-198 (2008). doi:<http://dx.doi.org/10.1080/14330237.2008.10820186>
16. Ikanga, J.,: Psychology in the Democratic Republic of the Congo: Its Struggles for Birth and Growth. *Psychology International* 25 (4):5-6 (2014).
17. Kenyaplex, Colleges and Universities offering certificate in positive Psychology in Kenya. <https://www.kenyaplex.com/courses/6664-certificate-in-positive-psychology-positive-psychology.aspx>, last accessed 19/09/2017.
18. Eloff, J., Achoui, M., Chireshe, R., Mutepha, M., Ofovwre, C.: Views from Africa on Positive Psychology. *Journal of Psychology in Africa* 18(1) 189-194 (2008). doi:<http://dx.doi.org/10.1080/14330237.2008.10820185>
19. Ling, R., Fortunati, L., Goggin, G., Lim, S.S., Li, Y.: *The Oxford Handbook of Mobile Communication and Society*. Oxford University Press, Oxford, England (2020).
20. Fripp, C.: Top 10 mobile agriculture applications. *IT News Africa*. <http://www.itnewsafrika.com/2013/11/top-10-mobile-agriculture-applications/>, last accessed 18/09/2013.
21. Daily Nation, Mobile apps making farm work easier, 'cooler'. <http://www.nation.co.ke/business/seedsofgold/ICT-in-agriculture-farming/2301238-3332292-rx75s0/index.html>, last accessed 6/08/2016.
22. HRW.Org, "I Had a Dream to Finish School" Barriers to Secondary Education in Tanzania. <https://www.hrw.org/report/2017/02/14/i-had-dream-finish-school/barriers-secondary-education-tanzania>, last accessed 26/09/2017.
23. Williams, R.: UN launches e-reader initiative in Tanzania. *The Telegraph - Technology News*. <http://www.telegraph.co.uk/technology/news/10653277/UN-launches-e-reader-initiative-in-Tanzania.html>, last accessed 18/09/2014.
24. CAMFED, Reference: Tech-assisted learning takes off in Tanzania. <https://camfed.org/latest-news/ereaders-succeed-in-tanzania/>, last accessed 10/06/2018.
25. Monks, K., M-Pesa:Kenya's mobile money success story turns 10. *CNN Marketplace Africa*. <http://edition.cnn.com/2017/02/21/africa/mpesa-10th-anniversary/index.html>, last accessed 26/09/2017.