Mindfulness and Technology: A Blended Learning

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

Review Article

ABSTRACT

Children in the 21st century have no choice to be isolated from the digital world as they almost grow up with devices from an early stage. The availability of internet service and *digitization* expanded the access to children for learning opportunities, even those who belong to the remote area of developing countries. Since internet services have connected people globally, creating many opportunities and adding new challenges to young children, such as cyber bullying, lack of physical exercise, and many others. Despite the numerous advantages of Information, Communication, and Technology (ICT), experts worry that children spend most of their time with devices contributing to *digital dependency* and *screen addiction*. It has changed the children's way of life, thoughts, and experiences, as these issues are the subject of public debate of overuse of the internet increased the threat to their well-being. One of the significant risks is that children are facing mental health problems, including anxiety, depression, and lack of inner peace. Thus, the education system should rethink balancing digital learning and real-world context learning in the 21ˢᵗ-century education system. The present paper discusses how young children are affected by digital dependency and how mindfulness support mitigating these issues by adopting blended learning of technology and mindfulness in the teaching-learning process.

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1. INTRODUCTION

Mindfulness is an English translation of pali word *sati* [1] and *sati* originates from Buddhist philosophy according to Buddhist literature. The word Sati is derived from the Sanskrit word S*mriti*, which means memory [2]. "The mindfulness (sati) is mostly linked with a clear comprehension of the right purpose of the suitability of an action and other considerations" [3]. It has been described as " the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment [4]. However, in a meditative context, *sati* is not equivalent to the function of memory but of recollecting and a particular way of remembering [5].

Mindfulness is a special technique, which helps to comprehend, what's happening in the present moment (in our mind, body, and surroundings), without judging anything [6]. The way of mindfulness is meditation, which aims to help us; become more self-aware, feel calmer and less stressed, be more able to choose how to respond to our thoughts and feelings, and be kinder towards our self [6]. Mindful-based meditation showed various benefits in all age groups, especially it is helpful for mental health-related problems like; depression relapse prevention, reduced anxiety, panic disorder, and stress, ability to cope with emotion, changed addictive behavior, and reduced insomnia [7,8].

In neuroscience, it helps with structural and functional changes in the brain, and the generation of new brain cells (neurogenesis). The results showed positive changes in the structure of the brain of those who are doing meditation regularly, and even have a positive effect on physical problems such as hypertension and heart disease [8]. It is observed, the most striking changes in long-term meditators, even brain changes are clearly observable in those people who just have started meditation not more than eight weeks for an average of under half an hour a day [9]. Similarly, from a clinical perspective, it is supportive for pain management, symptom control, coping with major illnesses like cancer, hormonal changes, and possibly slower aging [7]. Mindfulness intervention is becoming more popular in teaching and learning, as it directly contributes to students' cognitive development and improved learning performance. It is found student becomes less stressed and more focused on the task due to improved concentration power. They are able to perform better along with study and other activities like sports and creative works for example [9].

Among numerous benefits, one of the major contributions of mindfulness is to promote positive relationships among people as shown in Fig. 1.

Fig. 1. Mindfulness to promote positive relationship among the people
(*Sourced: Adopted from Mental Health Foundation [8], New Zealand*).

The mindfulness practices boost up the one's ability to better understand the importance of relationship, do respect on other's feelings ,thoughts, emotion and respond appropriately [8].

In recent years many studies have been conducted on mindfulness and its effects on the children. In initial stage the mindfulness practice is applied in the field of medicine and then it has spread into the fields of pshychology, healthcare, neoroscience, business, the military and education [10]. Studies supported with evidence that mindfulness practice in the classroom is now widely accepted because it has many potential benefits for the young population. Mindfulness practises effective in developing qualities such as attention skills, positive behavioural changes, and emotional regulation. Teachers who are dealing with problematic student behaviour can benefit from mindfulness. Teachers can incorporate mindfulness practises into their daily routines or directly integrate them through the curriculum [11].

2. TEACHING AND LEARNING IN DIGITAL WORLD

New technology replaced a way of life, which intensely impacts on the way of teaching learning process. The teaching and learning methods have changed over a period of time. The traditional methods have been replaced by modern methods [12]. The emerging modern technology has changed how society relates to knowledge. The relentless rise of new technologies substituted as well disrupted the traditional ways of acquiring an education [13]. Information Technology (IT) has significantly impacted all sectors, including the education system With increased easy access of IT in home and school, it is promoting numerous learning opportunities as well as sharing the knowledge throughout the world [14].

In the traditional approach, the teacher is regarded as the primary source of knowledge, directing the flow of information to the student as a receiver. It is typically based on a teacher-centred and classroom-based approach, with learners relying on the teacher who established the entire learning paradigm. In this method the learner's skill, knowledge and practice is of little value [15,6]. There is less creativity whereas learners reproduced what the teacher told them over and over again [16]. Even though the information is delivered through lectures and whole class discussions, most traditional classrooms use textbooks, chalkboards, paper, and pencils for teaching and learning. If students are confused, they can ask the teacher questions about any perception [17,18]. Specially traditional education system is centered on such sources like schools, teachers and print media. Students have an opportunity to ask questions on any perception to the teacher, if they are confused [17,18].

Globalization, new technologies, migration, and global competition are the major factors driving students' acquisition of skills and knowledge required to survive and succeed in the twenty-first century [19]. Some devices such as computers, laptops, smartphones, and tablets are frequently used as learning tools in the twenty-first century [17]. In this era, massive use of multimedia and web based learning is very common in teaching and learning from west to east [20]. Before 1990, the face-to-face method was preferred in the classroom, and later, a blended approach was implemented, allowing for both face-to-face and e-learning options. As a result, we are witnessing radical changes in pedagogy, with classrooms being transformed through the most profound use of e-learning [21].

Modern society heavily relies on advanced technology, and intelligent mobile devices have gained popularity with the advent of the internet .These changes unlocked restrictions on time and space while the devices turn into ubiquitous learning tool at present. The technology has made accessible and transmittable almost all kinds of information in most advanced places to remote and to all groups of people. The technology has also broken the barriers in most parts of the world and opened the door of access in education .Along with these changes; ICT has become an integral part of human life [16].

Traditional teaching methods have been phased out with designing teaching activity for digital learning. Fast multitude and flexibly applying technology tools are the key issues for current information technology integrated education [22]. In this 21st century, the term "technology" is an important issue in many fields including education. This is because technology has become the knowledge transfer highway in most countries [23]. These new technologies bring fundamental changes to the lives of 21st century children, who are the most frequent users of emerging digital and online services (OECD, 2016, cited from OECD, [24]).

The schools and other educational institutions which are supposed to prepare students to live in "a knowledge society" and this impose mandatory provision to consider ICT integration in their curriculum [25]. Integration of Information, Communication and Technology (ICT) will assist teachers to the global requirement to replace traditional teaching methods with a technology-based teaching and learning tools and facilities [26]. For children, the online world presents many opportunities as they are able to learn new things without any guidance, have connection with different people globally, opportunities to observe new places via the internet which opens up a world of possibilities [27]. Digitalization allows children to connect with friends including made easy for children with disabilities, available varieties of technology provides access to education for children living in remote or marginalized areas. Greater online connectivity has opened new avenues for civic engagement, social inclusion and other opportunities, with the potential to break cycles of poverty and disadvantage [27]. Visual presentations,

educational videos, interactive programmes, and learning tutorial materials appear more appealing to children. The availability of a wide range of books and other learning materials on the internet at all times has improved access of their learning opportunities [28].
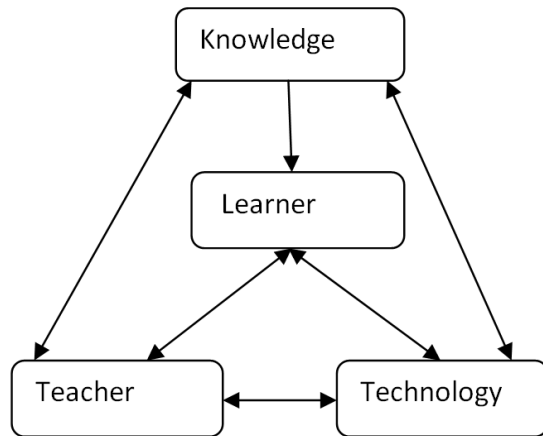

Fig. 2. Teaching and learning in digital world
Diagram adopted from Hamiti & Reka [21]

With the development of advanced technologies, the number of people using social media is rapidly increasing worldwide. Social media use is now one of the most common activities among children, adolescents, and young adults. It provides a portal for entertainment and communication for today's youth, quickly becoming one of the primary platforms for accessing information and news [29].

2.1 Digital Dependency and its Impact on Children

Young people including children are more connected with digital technology than ever, digital technology includes digital devices such as; computers, tablets and mobile phones. Children of today are much cheerful to engage via internet using such gadgets as well as many digitally mediated activities [30]. The 21st century is an era of advanced technology, indeed, from babies to school-age children are digital consumers, often using TV, computers, gaming systems, even smartphones and tablets. The problem is anywhere,when children can grasp an object in their hands, they play with their parents' smartphones or tablets [28]. However, they are despondent for face-to-face interactions with family members and other people, despite being inseparable from mobile phones and social media due to their reliance on them. They spend every spare minute on gadgets and the internet, which limits their ability to interact socially with others in the real world [31].

Numerous harmful issues have been associated with children's digital dependency .One of the most horrific effect is children's neurological development ,which is influenced by their early experiences and the environment which can alter gene expression and affect long-term neural development [32]. Experts including journalists from mass media and the popular science press - occasionally claim that harmful structural brain changes can occur also from using excessive digital technology technology (Ferranti, 2016 as cited by Winther, [30]).On the basis of empirical evidence; an extensive exposure to videogame playing during childhood may lead to neuroadaptation and structural changes in neural regions associated with addiction. Digital natives exhibit a higher prevalence of screen-related 'addictive' behavior in comparison with digital divides [32]. Media reports sometimes claim that internet use and new technology can 're-wire' children's brains and make them addicted (Ferranti, 2016 as cited by Winther, [30]).

There are other many risks factors besides brain development due to extreme usage of digital devices in early age, some of other threats to the children are ;children's eye health problem, problem with physical development and obesity, problems of insomnia , attention problem, lower academic achievement, social development problem, language development problem and mental health associated other problems [28]. No doubt, digital technology offers the life of people incredibly easy and comfort, but it seems disaster for than all round development for children. An evidences explained; half of all mental illnesses begins by the age of 14 and three quarters by the mid-20s.With anxiety and personality disorders sometimes beginning around age 11.Mental health problems represent the largest burden disease among young people [33]. The children are affected by three ways as provided by UK internet providers on potential risks factors into 3Cs as;

- Content—what are children looking at and whether they are accessing inappropriate content.
- Contact—who are they speaking to—strangers and people presenting with false identities.
- Conduct—how they present themselves and engage with others, and the prevalence of online [34].

A considerable debate and contradictory opinions are spreading through the media about whether or not the digital education system is worthwhile. It is challenging to manage an isolated life without technology, but today's generation is frequently referred to as digital humans or even digital natives. There is also some debate about whether electronic devices are necessary or just a fashion statement to have the latest devices and, of course, the most advanced software for these devices [35].

2.2 Blended Learning

Education system of any country is always guided by the demands, the rapid changes and increased complexity of today's world present new challenges which also imposes to address new demands on the education system everywhere [36]. As a world becomes more globally connected and integrated, no one can deny the increasing trend of internationalization of identity. This tendency oblige the every education system should rethink towards the learners to be citizens of the world, not just of their own locale. No doubt, in this highly demanding environment, need to consider relevant education system that enable the student in this diverse world with necessary skills [36,37].

At present many educators and trainers suggested blended learning approach especially in school education system, this approach "provides innovative educational solutions through an effective mix of traditional classroom teaching with mobile learning and online activities" [38]. The Queensland University of Technology (2011) offers a very up-to-date definition on blended learning as: Blended Learning is a practical framework that can be used to encapsulate a range of effective approaches to learning and teaching. It encourages the use of contemporary technologies to enhance learning, and the development of flexible approaches to course design to enhance student engagement [39].

Children learns most of things before the age of five and it is proven statement that our brains are designed to be effective when we interact with our surroundings which stimulus curiosity and exploration [28]. Exposures of gadgets from the beginning of the child's learning linked to cognitive delays and social interaction is bounded which results impaired learning. Researchers at the University of Washington reveal that modern gadgets are not necessary in child development, thus it is suggested for zero media use for this group [28].
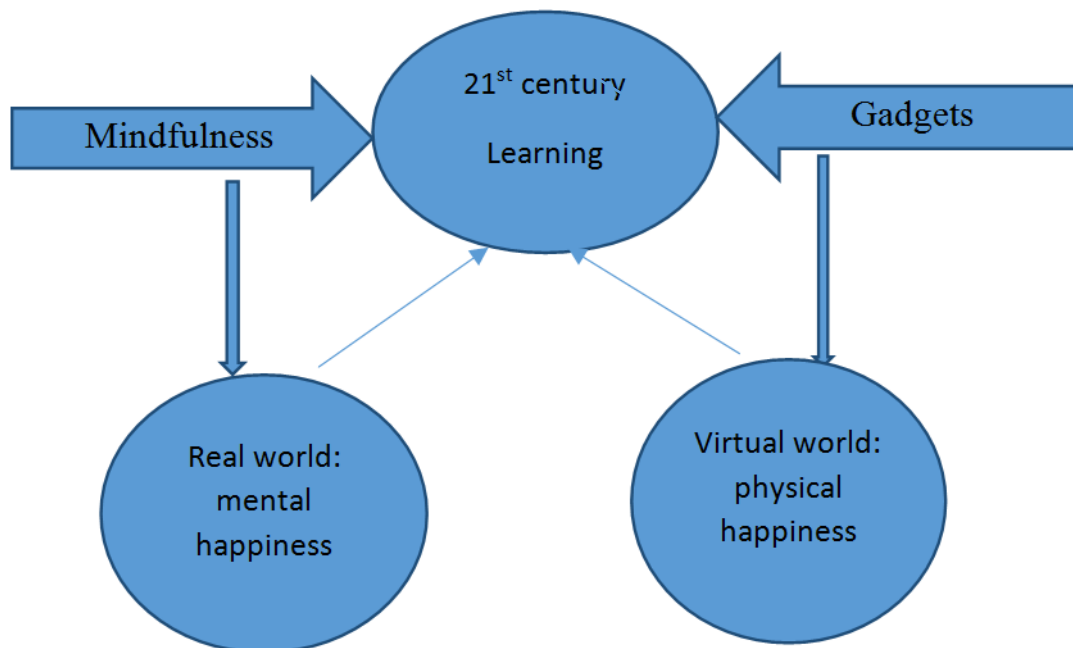

Fig. 3. Real word and virtual world: A blended learning model

3. CONCLUSION

Almost no one can imagine life without the internet and technology; it is practically impossible. For children, online learning provides more opportunities through access to educational materials available on the internet at any time and from any location. It enables students to attend classes from home or anywhere else. Because the younger generation is more internet savvy than digital migrants, they can learn new technical skills. However, digital or e-learning lacks face-to-face communication, contributing to social isolation. Students who prefer e-learning need better communication skills. Moreover, children addicted to the internet face mental and physical health issues such as anxiety, sadness, depression, sleep deprivation, obesity, eye problems, and many others. Therefore the application of mindfulness is growing interest amongst educational stakeholders for improving the health of children and the learning environment of the school. The fact is that mindfulness practice has also been shown to manage the above-mentioned health issues and children's problematic responses to other social issues [40,41]. As a result, it is widely accepted that mindfulness-based practices are effective for all age groups including young children as well.

There are three basic possible approaches for the integration of mindfulness in the teaching-learning process [9]. Among them, the first one is the indirect approach: in this approach, the teacher develops a personal mindfulness practice and embodies mindfulness attitudes and behaviors throughout the school day as well as the teachers are also able to integrate with classroom activities. The second approach is the direct approach: in this method, students are directly involved in mindfulness exercises and practice. Finally, the third approach is a combination of both direct and indirect methods in the teaching-learning process. Shonin, Gordon & Griffiths [40] suggests: encouraging teachers to practice mindfulness on the job, introducing children to mindfulness at an early age, teaching mindfulness from an experimental standpoint, focus on the integration of mindfulness into everyday life.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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