Self-regulation Strategic Framework for minimizing distraction in digital society

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Abstract. While advanced innovations through digital technologies are rising, they present their own difficulties, for example, digital distraction. There is a need to minimise digital distraction among digital citizens in order to create a bright digital society. Thus, the need to employ proper strategies to minimise digital distraction is vital. However, there is a dearth of research on how self-regulation strategies can help individuals improve their ability to filter digital distraction. Digital distraction cannot be ignored as it can decrease productivity and performance in learning among young adults. This paper intends to formulate a strategic framework in tackling the issue of digital distraction for brighter digital society.

1. Introduction

While digital technologies can bring an incredible transformation, digital distraction may be the defining problem in today’s workplace due to decreased productivity (Rosen & Samuel, 2015) and underperformance in learning [1]. In today’s digital world of media bombardment, it becomes increasingly difficult to focus on a single task due to the distracting nature of digital tools that contributes to mind wandering and off-task thinking while being engaged with technology [2]. Digital distraction is unavoidable because an individual’s mind wanders 30% - 50% daily [3]. Digital distraction affects negatively work productivity or any kind of learning and is common among young adults, especially university students [4].

Many suggestions from literature suggested several ways to reduce digital distractions by focusing on external distraction such as spreading awareness on the ways to recognise signs of digital overload and efforts to reduce time spent with digital device, overcoming fear of missing out by learning how to accept things the way they are by meditation, stopping multitasking habit as there are many occurrences in the literature revealing multitasking individuals showed lower IQ scores [5] and lower performance [6,7], turning off notifications to reduce interruptions, limiting visits to time-inducing websites such as Twitter, Lazada, Zalora, Instagram and Facebook, creating a positive working eco-system to enable a more work life balanced for individuals and focusing more on energy-enhancing activities [5,8].

While these suggestions are good, it does not remove the internal distraction within the individuals. It merely shifts the external distraction to internal anxiety [9]. Nevertheless, in order to effectively manage the ubiquitous digital technologies and persistent digital distractions that are invading the digital learning environment, it is imperative for individuals to acquire productive self-regulatory skills to be productive in the digital environment because digital distraction cannot be eliminated. However, there is a dearth of research on how self-regulated.
Strategies can help individuals improve their ability to filter digital distraction. Self-regulation is not a person’s behavior or characteristic. It is a skill that can be developed and mastered.

Self-control is the skill to control attention, emotions, mind wandering, unwanted thoughts or behaviours so that an individual can focus on the task at hand and ignore distractions [10]. This finding is also consistent with other researches which found individuals with low self-control demonstrate impulsive behaviours and are not capable of inhibiting distractions, appropriate desires and actions [11]. Self-control is not synonymous to impulsivity, but rather should be conceptualised as self-regulation [12]. In other words, self-regulation makes self-control possible. Furthermore, researchers, Strang and associates mentioned that self-control in individuals fully develops by mid-20s [13]. Hence, young adults do have the potential to improve their skills. Digital citizens, who are members of the digital society must therefore employ effective strategies and behavioral principles to fight digital distraction [8].

The purpose of this paper is to formulate a strategic framework in tackling the issue of digital distraction among young adults to secure a brighter and sustainable digital society through a social cognitive view. When proper strategies are employed, digital distraction can be minimized [14]. The following section presents the literature regarding digital society, digital distraction and self-regulation and the underlying theory. The proposed strategies to minimize digital distraction is discussed in Section 3 followed by a proposed framework. Conclusion of the study is finally presented in Section 4.

2. Literature Review

2.1 Digital Society
A digital society reflects a society that is formed based on the adoption and integration of digital technologies at home, work, education and recreation [15]. Example of features that makes up a digital society are individuals who uses the Internet for everyday transactions such as paying bills, taxes, access important information, individuals who prefer electronic transactions over cash, the use of smart card technology which employs biometric authentication, financial transactions, medical records, government units that are electronically connected and individuals who are highly digital literate.

A ‘digital citizen’ who is a member of a digital society is a person who develop skills and knowledge to effectively use the internet and digital technologies; who uses digital technologies and the Internet in appropriate and responsible ways in order to engage and participate in society and politics [16].

United States being one of the largest online markets revealed that 99% of individuals’ age between 19 to 29 years were the most age group who uses Internet in 2016 [17]. Similarly, according to the Internet Users Surveys 2017 by the Malaysian Communications and Multimedia Commission (MCMC), 53.6% of individuals aged 20 to 34 makes up the highest percentage of Internet users in Malaysia [18].

2.2 Digital Distraction
Digital distraction is a distraction due to digital devices and media that breaks the concentration from the main task of work [5]. Distractions can happen in the classrooms and offices. These distractions can take the form of messaging, emailing, online shopping, interacting with social media, web surfing and playing computer games. Hollis and Was claimed that technology itself can be a distractor [2]. According to a study at the University of California, it takes an individual 23 minutes and 15 seconds to get back to the original task after being interrupted [19]. Furthermore, in a 2015 report, Microsoft looked at Canadian media consumption and found that the average attention span has fallen from 12 to eight seconds [20]. Therefore, these distractions also promotes mind-wandering which hurts productivity[21,8].

Shirky offered four possible reasons for digital distractions which include (1) surplus of cognition where individuals are no longer passive users of the Internet, instead they want to actively participate
in online activities (2) digital overload where an average individual consumes three times as much information as compared to individual more than 50 years ago (3) company policies that does not allow an individual to enjoy both professional and personal life equally and (4) wearable devices that are always attached to an individual such as smart watches, smart glasses, etc [19].

2.3 Theoretical Perspective
The Social Cognitive Theory (SCT) originated from Albert Bandura’s seminal research on human behavior established that human functioning is regulated by the interaction of personal, behavioral and environmental influence and largely motivated by ongoing exercise of self-influence [22,23].

Bandura noted that humans have a self-management mechanism that leads them to proactively control their cognition, motivation and behaviours. Therefore, acquiring self-regulation strategies means an individual is able to grasp, retain and work with the information in our mind while filtering digital distraction. This control mechanism helps us to handle many different tasks successfully.

2.4 Self-regulation
Self-regulation is where an individual attempt to control the three triadic factors of personal, behaviour and environment to attain a goal. Additionally, social cognitive theory suggest that self-regulation are essential in any digital environment. Issues surrounding individual failure in self-regulation often stemmed from a social cognitive perspective [24].

Self-regulation is a broad set of skills to monitor, control and manage one’s behavior, emotions or thoughts to reach a goal. It includes the ability of controlling the self by inhibiting responses, resisting temptations and to persevering each task. Zimmerman defined self-regulation as a self-directive behavior which transforms mental abilities into task related skills [25]. Zimmerman also stated that in order to be self-regulated, individuals need to be aware of their own thought process, monitoring them closely, and actively participating in their own knowledge process.

3. Proposed self-regulation strategies for minimizing distraction
The following strategies are proposed to minimise digital distraction by using cognition, behavioural, motivational and environmental principles of self-regulation to deter an individual from their digital devices and to focus at the end goal. The three general classes of strategies are personal regulation, behavioural regulation and environmental regulation.

3.1 Personal regulation

3.1.1 Metacognition
Metacognitive is an internal guide that enables an individual to be aware of their cognition processes and to use the cognitive abilities to gain knowledge. This internal guide can take many forms such as creating awareness, self-explanation, refocusing attention, realizing an action needs to take place, etc.

A metacognitive approach to minimizing distraction describes how people monitor their digital usages under a variety of conditions and how metacognitive strategies can be employed in an attempt to optimize focus and attention. Effective metacognitive monitoring and control allows individuals to compensate for the impact of distraction [26]. In other words, the first step in minimizing digital distraction is to self-reflect the reasons behind the distraction. This step enable individuals to understand what they are going through so that they can establish the habit of unfolding cognitive processes automatically in the presence of distraction.

3.1.2 Motivation
Motivation is another type of personal influence. Motivation is needed to help individuals observe their behavior and to reach goals [27]. Motivation strongly influence the degree to which individuals
engage in self-regulation [28]. Task value belief strategy which is a motivation component help individuals focus on the task at hand if they acknowledge the value that comes along the task.

Another motivation approach that are appropriate for a digital citizens is self-efficacy beliefs [28]. Self-efficacy refers to perceived capabilities and it determine how people feel, think, motivate themselves and behave. Bandura hypothesized that self-efficacy influences the choice of activities, effort invested and persistence [23]. In other words, when facing challenges like digital distraction, self-efficacious individuals are more likely to invest effort and persistence in minimizing the distraction. Sustained motivation depends on digital citizens believing that if they change their destructive behaviour, they will be more productive and experience positive outcomes.

3.2 Behavioural Self-Regulation

3.2.1 Self-observation
Self-observation is seen as the most important of these processes because it involves monitoring one's actions towards behavior, information and motivation. Self-observation can influence behavioural change [29]. Behavior is assessed on the dimensions of quality, rate, quantity and originality. This can be aided with self-recording where behavior activities are recorded with features of time, place and duration of occurrences. Without recording, observations may not faithfully reflect behaviours due to selective memory. Many individuals with poor habits such as being easily distracted might be surprised to learn how much time they have wasted with off-task activities.

3.2.2 Self-judgement
Self-judgement is the evaluation of one's performance towards a targeted goal. In this context, self-evaluation is the evaluation of one's current behaviour to the desired digital behaviour. Self-evaluation enables an individual to re-evaluate their behaviour in conjunction with the desired goal. It involves setting quality standards and criteria for progress to judge one's own performance [30].

Negative evaluations will not decrease motivation if individuals believe they are capable of improving [31]. Individuals may introduce self-consequence to indicate rewards or punishments. Rewards such as new clothes, breaks to enhance motivation and self-efficacy can be used. Punishment such as digital detox can be used that would help refrain individuals from distractions from digital devices.

3.3 Environmental Self-Regulation

Social cognitive theorists believe human functioning is impacted by social, enactive experience and environmental structuring. Enactive experience are positive activities that enable an individual to successfully perform a behaviour and to change a negative efficacy to positive efficacy. Enactive experience in the most influential way of changing an individual’s perceptions [23].

Verbal persuasion coupled with social modelling is a form of social experience that are able to convey strategies to minimise digital distraction. Thus, it is imperative for educators and employers to model the right digital behaviour for these young adults. In addition to social persuasion and social modelling, two other forms of social support are social direct assistance from peers, parents, educators and graphical representation of information such as posters, diagrams, pictures and formulas [32] which can help support individuals who are easily distracted with technology.

Apart from that, environmental structuring also play a role in the aspect of minimising digital distraction. In the effort to manage digital workspace, university students have the privileges to create their own study area with less distraction whereas working individuals might not have a freedom to create a distraction-free work space. Hence, individuals may focus on structuring work such as constructing projects as short tasks. This will help individuals stay focused.
Figure 1. Proposed Self-regulation Strategic Framework

Upon reviewing the literature, it can be postulated that self-regulation strategies can aid in minimizing digital distraction among young adults. Hence, a self-regulation strategic framework was proposed as shown in Figure 1. These strategies are reciprocal as they affect one another.

4. Conclusion
While digital technologies are crucially necessary to keep pace with today’s fast growing knowledge-driven society, it can also be an obstruction for individuals in a digital society. Distraction caused by digital devices takes away an individual’s attention from a task is not often a conscious choice.

Self-regulatory skills are important at personal, organisational and community level where individuals need to learn how to be responsible for personal goals, workplace and the community. If self-regulation skills are developed, the digital society will experience a long term benefit as it is proven to be one the most important critical skill to acquire specifically in the context of a bright digital society.

It is recommended that the community and higher education makes it its mission to create a bright digital society through educational efforts and strategies. Future research could incorporate empirical investigation that can further explain digital distraction among Internet users. Another interesting aspect is to investigate the impact of different aspects of digital distraction such as multitasking, attention span, mind-wandering and others towards productivity and learning.

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