Commentary

Self-control' and social media during online lectures: Addressing the elephant in the distance learning classrooms

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The ongoing coronavirus disease 2019 (COVID-19) pandemic has caused a paradigm shift in learning by compelling medical educators to use distance learning tools involving tele-networking. In a matter of months, this change has transformed the way in which millions of students learn. Although the online educational medium has managed to bridge some gaps between students and teachers during a time of required social distancing, internet-based tele-education is faced with its own inherent obstacles. During online lectures, students often grapple with distractions such as online social media and continuously buzzing notifications. These distractions include checking WhatsApp® messages and visiting social networks such as Facebook®, Twitter® and Instagram®. In the absence of conventional "face-to-face" (F2F) teaching in a physical classroom environment, students are deprived of overt motivation and concealed inspiration induced by the physical presence of teachers and peers. Therefore, the extent of scrupulous learning solely depends upon the determination and self-control possessed by an individual student. This is often inversely proportional to social media distractions. Self-control is defined as a "state of self-initiated regulation of thoughts, feelings, and actions when enduringly valued goals conflict with momentarily more gratifying goals".[1] Self-regulated learning involves a combination of psychological processes that include self-control, academic self-motivation and learning strategies, all of which are involved in making a student an independent learner.[2] In other words, this combination of processes helps determines student engagement towards the course content.[3] Considering the number of distractions available today, sustaining self-control during the process of acquiring knowledge is undeniably challenging and frustrating. Persistent self-control against such distractions is among the most difficult actions for students in part because of the monotonous and unexciting nature of the study material and the online format in contrast to more engaging and exciting material available on social media.[4] In one study, 92% of undergraduates acknowledged that they had either sent or received text messages during class.[5]

In the context of the academic environment, student responses to various learning scenarios can be classified as either academic goal-congruent (AGC) or academic goal-incongruent (AGI). Having self-control and adequate concentration in online lectures is categorised as an AGC response, whereas succumbing to the temptation of social media during an online lecture is an AGI response.[1] This is complicated by the fact that the platforms used for both online teaching and social media networks are usually shared, such as smartphones and computers. This predicament entices students to juggle their attention between academic content and social media simultaneously. Students often find social media content as a gateway to escape from seemingly dull academic activities.[6] In case of a self-control conflict between academic study and social media, the short-term momentary gains of AGI impulses almost always supersede the long-term goals of AGC desires.

There is empirical evidence that students who have learned to harness their self-control also do better academically, with higher grades compared to their counterparts with lower levels of self-control.[7] Therefore, it is crucial to understand the mechanism of self-control in order to develop better self-control. The process model for self-control elucidates a sequence by which distracting impulses are generated and controlled by students. It includes stages such as *situation, attention, appraisal, and response*. Let us consider the stages of self-control in a commonly encountered *situation* during an online lecture. At the time of listening to an online lecture, a student observes a notification in a social media account,

and their *attention* is drawn towards it. Their working memory is now posed with the challenge of juggling between the two competing impulses: whether to attend to that social media notification or concentrate on the ongoing lecture. This stage is termed the *appraisal. F*inally, the impulse which reaches the threshold manifests as *the response.*[8]

To articulate the regulation of impulses, let us examine various strategies operating at the corresponding stages of self-control. *Situational strategies* include actions such as logging out of social media accounts on the device used for attending an online lecture or physically distancing a mobile phone while attending a lecture on a computer. Strategies such as intentionally directing one's gaze away from social media notifications and consistent intentional self-observations to check for one's behaviour regarding such distractions help to attain self-control at the *attention phase. Appraisal strategies* require the creation of a mental framework wherein the student places higher value on the AGC impulses and ignores AGI impulses; this, however, is often dependent on student personality. Balancing the frustration arising from the process of attending a series of lectures requires a continuous awareness of and modulation of such strategies. This may manifest as an aversion towards online lectures or attention fatigue.

In examining self-control, the age of students should also be considered. During their adolescence, students tend to be emotionally immature. More emotionally mature students are better at planning and adhering to study strategies with grit and are more inclined to foresee the perils of short-term gratification offered by social media. Such characteristics are different from those who are emotionally immature.[9,10] An interesting theory put forth by Baumeister et al[11] compares the state of self-control with that of a muscle. He hypothesized that the students involved in a state of conscious and deliberate self-control may eventually exhaust their limited capacity for self-regulation and enter a state of "ego-depletion" unless the student consciously thinks about a greater cause, including long-term goals.

In the present COVID-19 distance learning context, a student attending an online class might pay wilful attention for a stipulated period. However, once the threshold for boredom is reached, they might then proceed to browse social media that offers immediate gratification and pleasant distraction. In extreme conditions, as in case of fatigue, a student may try to avoid attending online classes or opt to log in but distance mentally from the class. In our practical experience, we observed that, during the early phase of online classes, students exhibited significant enthusiasm in terms of asking questions and attendance. As the months went by, the number of students attending classes diminished and there were fewer or literally no questions posted in the chat box. Rosenbaum[12] proposed an approach of a self-control schedule / learned resourcefulness, including a paradigm incorporating how

far a student is capable of delaying immediate gratification. Rosenbaum asked us to consider what processes regulated cognition by the student, and how far the student can control their emotions to attain goals.

Students can employ shortcut strategies to circumvent the *appraisal* stage and directly modulate their responses by having discrete strategic plans, personal rules, and habits.[13] Such strategic plans include anticipation of social media distractions and remaining determined not to entertain such impulses. Having an explicit plan such as "once the online lecture starts, I will not respond to social media notifications" aids in forming a strong mental link between the situation and the response, which eventually manifests as an effortless and autonomous response. Having personal checks such as "If I get social media notifications during the online lecture, I will always ignore them" will in due course become a strong habit.[14] More ambitiously, we can aim to train students in acquiring meta-cognitive knowledge and skills for implementing these self-control strategies by themselves. Self-control is also better achieved if the students work in groups rather than alone.[15] Adding to the problem, levels of student motivation differ in attending online lectures compared to a physical classroom environment, where the student feels somewhat controlled by external exigencies and often performs based on a reward-punishment model ('external regulation'). The isolated online learning environment is in sharp contrast to physical classroom interaction. In an online environment, unless the students feel that the content is relevant or might help them in the future, they often will not concentrate and get distracted easily, acting per their sense of volition ('integrated regulation').[16] At this juncture, we should consider the fact that students will deeply integrate information only when they are confident about the control that they possesses over the learning process.[17] Thus, students with a higher degree of intrinsic motivation may demonstrate more self-control behaviour in an unmonitored learning environment compared to their counterparts who have introjected regulation and remain highly unstable in maintaining self-control behaviours in the same unmonitored learning environment.[18]

To conclude, we medical educators should understand the fact that there are no magical remedies that can enhance the competence and academic self-efficacy of our students while attending online classes. This commentary tries to bring this issue of concern to the forefront, since it has not been discussed elsewhere and yet this issue is making many question the utility of online learning itself. Expecting all students to develop "self-control" strategies is impractical, just as expecting students to avoi social networking sites altogether is impractical in our contemporary era. Nevertheless, we should be concerned about this issue of "self-control" and plan creative teaching strategies for enhancing the mental preparedness of our students. We propose the following factors for increasing

student engagement amid social media distractions. For students, we suggest: a) having apps which block the distractions of social media during times of lecture and b) allotting a chosen time for checking and responding to social media posts. For teachers, we suggest: a) being more interactive by hosting discussion boards to help increase student engagement and b) setting goals and having reward programs for students at the beginning of the online lecture. We are not sure when our academic model will return to the "old normal". Thus, understanding and investing in self-control strategies is a worthwhile ability to be developed.

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The authors report no conflict of interest. The authors are solely responsible for the content and writing of the article.

Authors' contributions
DK has defined the concept, done literature search and designed the manuscript. RS has contributed towards manuscript preparation, edited and helped in terms of technical inputs

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