

Multi-tasking – does it really work?

Dennis Sleigh

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Young people constantly amaze me with their ability to perform several functions at once – do their homework, listen to music, peruse Facebook for their myriad contacts, email their other friends, and take part in a phone conversation. Until now, I have envied them their dexterity, and have been in awe of their ability to save time. Sadly, it now seems that while their technical dexterity is obvious, the benefits of their actions might actually be negative. Perhaps it is time for schools to address seriously the issue we know as multi-tasking.

Before we consider a cost-benefit analysis of this activity, it would help to explain that multi-tasking is a term initially related to the operation of computers, enabling the computer to run two programs at the same time, with the goal of saving valuable machine time; it was

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possible because of the ability of a computer to switch backwards and forwards between two programs in milliseconds. It must be noted that the computer does not really do two things at once; instead, it switches from one managed task to another, determinedly using even the briefest opportunity to do so, to achieve the results demanded by the operator.

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two tasks both depend on the same part of the brain. It is easy to show that we successfully cope with more than one task when both – say, washing dishes and listening to a radio – are handled by different parts of the brain, but when we are engaged in learning, we cannot send text messages and simultaneously absorb the teacher's lesson about French verbs or the periodic table of elements. "That's a problem, because these operations are actually quite mentally complex, and they draw on the same mental resources – using language, parsing meaning – demanded by schoolwork. (Anne Murphy Paul, 2013:2)

Even if the students are listening to a lecture while texting, they face the same issue. One of my former students – hardly a model pupil himself – was regaling me with tales of his new school where, he said, more than half the class were on

their smart phones during a guest lecture about exam techniques. They probably wouldn't have known about the warning by Lapis (2014:24) "If you are sending a text during a meeting, you will miss chunks of the meeting." Our talented digital natives are deluded if they think otherwise – and the bad news doesn't end there.

Modern research on *multi-tasking while engaged in learning* has shown that not only does it lead to increased time taken on tasks, but it actually causes damage to the person's mental processes as well. It is one thing to recognise that we lose time when we engage in multi-tasking (after all, there are some benefits as well and we might argue that these compensate for the extra time) but when we learn that the exercise can be harmful, there is no longer room for complacency. Recent Canadian research indicates that if we try to learn something while simultaneously engaging in a secondary activity, our performance suffers because of the way we encode primary information. (Sana, *et al.*, 2013: 25).

By itself, this reduction in our learning is serious, but it gets even worse. Imagine that you have a class of students all working on a task using their iPads and some decide to take advantage of the opportunity to check their Facebook: not only do the multi-taskers suffer, but, if other students observe them, the work of these observers also suffers from involuntary distractions. As teachers, we are generally aware that students' learning will be determined by their attention levels, so it should come as no surprise to learn that any peripheral distractions will also cause learning deficit. Regrettably, now that we are in an age when multiple electronic devices are being used in classrooms, it is difficult to police their use as effectively as we might like. Indeed, if we really want to obtain the maximum benefit from such devices, we cannot really expect to devote much attention to monitoring students – who may have already learned at home how to deceive adults about their illicit use of technology.

One trenchant critic of this phenomenon, Christine Rosen (2008:106), quoted a definition of multi-tasking as a "...mythical activity in which people believe they can perform two or more tasks simultaneously." She also left no doubt as to her views when she commented that "...multitasking is now shorthand for the human attempt to do simultaneously as many things as possible, as quickly as possible, preferably marshalling the power of as many technologies as possible." The promised benefits of such action seem to leave a lot to be desired.

Let us at least hope that her acerbic prediction might never eventuate: "The picture that emerges of these pubescent multitasking mavens is of a generation of great technical facility and intelligence but of extreme impatience, unsatisfied with slowness and uncomfortable with silence" (2008: 108).

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Then why do it?

We might well ask "Why would anyone bother to multitask?" and there are many possible answers: we are so busy we can't afford to waste time; modern technology has made it possible for us to do so; and multitasking leads to greater profits. If, however, this habit leads us to actually waste time, or even to experience personal damage when we engage in it, the arguments don't hold up. We need to look for other options. Our long-lasting love affair with fast food outlets should have taught us something: the food might be ready when we want it, but the negative health effects are there long after we have finished our quick meal. With so-called multi-tasking, we were fed the promise that we would soon save so much time that we would be able to relax more. This does not seem to be case even though we have been hearing variations on this theme ever since the Industrial Revolution.

It seems that today we are expected to work harder for the almighty dollar, in order to compete with the international markets and create wealth for our nation. Everyone seems to be caught up with the idea that the world is a more frantic place than ever before, and therefore we are all much busier than we need to be (or want to be). The idea of multi-tasking seems to have been to enable us to cut a swath through the mountain of work confronting us, so that we could reach a stage where our constant busyness was likely to be relieved. Teachers are certainly not spared this pressure – we are asked to do more and more, and our curricula are becoming more and more cluttered, with no sign of significant removals. Small wonder that our students are painfully aware of the pressures of modern society – they witness them every day at home, at school, on the playing fields, through social media... and the list goes on. It must be tempting for them (as it is for us) to look for ways to increase efficiency, and that is why the concept of doing more than one thing at a time has a logical appeal. Too bad the apparent appeal is false.

But is really does work for me

Of course, anyone who tries to tell their students that multitasking is a fraud will be met with howls of protest. "I can easily do more than one task at the same time – for example, when I do my homework, I always listen to music and this helps me to concentrate." Even this simple claim is dubious. It has been suggested that if we listen to instrumental music it is a valid claim, but once we start to listen to songs we are caught

up in the problem of disparate demands on our brain. I like to listen to classical music when I am writing, but if, interspersed with orchestral pieces I come across a known operatic aria, I inevitably find that my mind is taken from the task I am performing while I try to follow the words of the opera. The same, apparently, happens when listening to the Top 10. (In case I stand accused of spreading or perpetuating myths, I should note here that experts differ on the role of music while studying, but if you want to get a representative view, Google "multitasking + listening to music" and see what different authorities are saying.)

The difficult aspect of any self-assessed performance is that when challenged to justify simultaneous actions, we switch back to the 'correct' task and convince ourselves that we have missed nothing while we were texting a friend. Despite our protestation, research in recent years has belied that claim. Sana *et al.* (2013:25) cite evidence that shows "If a secondary task is introduced, particularly one that is irrelevant to the learning context, attention must shift back and forth between primary and secondary tasks, thereby taxing additional resources. This multitasking can result in weaker encoding of primary information into long-term memory."

What measures should we take?

Despite the evidence against multitasking, Sana *et al.* (2013:30) do not advocate a ban on technology. They explore various options, pointing out that when used appropriately iPads and similar devices can be very helpful for student learning, particularly in some subject areas. They consider limiting technology to those courses where it is essential, but point out that even this is risky, as typed notes from a lecture have been shown to be more positive than handwritten ones. Instead, the researchers suggest teachers should be resourced adequately to enable them to take a proactive role, by raising the interest and interaction levels of their lessons to a degree where other distractions would be less tempting. They also recommend that all students be told very clearly about the true picture of multitasking, not only on their work but also on the performance of others who can see them.

Perhaps they need to realise that "...in the brain, multi-tasking is managed by what are known as mental executive functions. The first stage is known as 'goal shifting' (deciding to do one thing instead of another) and the second is known as 'role activation' (changing from the rules for the previous task to rules for the next task)." (Cherry K, 1) While this switching makes sense for a computer, where it can occur in milliseconds, it is far slower – and therefore far less viable – with the human brain.

One of the common concerns about multitasking is that it makes us less capable of sticking to one task for long. It has long been

suggested that average student attention span is much less than that of previous generations, and I have often heard this attributed to the way students are subjected to 'short, sharp and shiny' events on their favourite television programs, so that they need the constant stimulation of the 'sound bite approach'. There seems to be a lot of truth in this claim, but again, experts differ. Certainly, little attention seems to be paid today to the views of Lord Chesterfield who said the "...steady and undissipated attention to one object is a sure mark of a superior genius; as hurry, bustle, and agitation are the never-failing symptoms of a weak and frivolous mind." (cited by Rosen, 2008:103)

An alarming example of this tendency came from my daughter who was teaching a secondary Religious Education class where she was teaching the benefits of meditation. She took the students outside to take the time to smell the beautiful roses growing near the administration block. Imagine her horror when she realised that most of the students were actually rushing from one rose bush to the next, in order to smell the greatest possible number of flowers.

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There might still be uncertainty about the full effects of multitasking, but as long as some credible researchers are questioning its contribution, it makes sense that we monitor our students' performance in this matter. In case we put this onto the back burner, let us at least take seriously the warning of another commentator, Gorlick (2009:n.p.), whose caution can provide the last words here: "The researchers are still studying whether chronic media multitaskers are born with an inability to concentrate or are damaging their cognitive control by willingly taking in so much at once. But they're convinced the minds of multitaskers are not working as well as they could."

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