

Multi-Tasking: Speedy Maneuvering in a Rapidly Changing World

A Necessary Skill for Meeting the Challenges of the Future

Multi-tasking, or doing multiple things at the same time, is hardly new. For decades, people have held a crying baby, mixed the soup in the pot and answered the door bell. But in recent years, with the rise of multimedia technologies, the Internet and environments such as digital games, simulators, iPods, cell phones and DVDs, the phenomenon of juggling multiple actions simultaneously has become an inescapable part of modern society – the primary experts being young people. To what extent does multi-tasking reflect a qualitative change in life style, can the skill be learned and is it important to master the capability?

Today's technology is invasive, and interrupts you while you write a document, reminding you of a forthcoming meeting, informing you that you have incoming mail, SMSing and calling you on your cellphone. Computer games have long since required simultaneous perception of rapid-paced stimuli, with flashing, beeping, colorful action that kills, mauls and mangles anyone who isn't quick enough to absorb all stimuli and their implications. Is multi-focus, multi-task speed simply another fact of modern living or are we looking at a new and changed generation that learns differently, thinks faster and masters a pace that allows it to multi-focus its attention and function effectively on several fronts simultaneously?

This may be a gradual development. You don't need to be young to wonder why movies from the 1960s are so slow-moving that you can easily get to the refrigerator and back before the kiss is over. Maybe everything is faster than it used to be. The inability to maintain focus on a given task or subject and carry it through is widely considered attention deficit. And today, everyone is expected to be

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able to move freely from one focus to another and back. To what extent is this a change of substance in the way people think, work and relate to others in the 21st century?

"The ability to divide attention among many alternative actions may have profound repercussions on the way people work, learn and socialize in the modern world," says Prof. Yoram Eshet, head of the Chais Research Center for the Integration of Technology in Education, where much of the Open University's research on technologies and their impact on today's society is carried out.

"The term multi-tasking is misleading, because when you write a letter, while working on Excel and checking e-mails, you are not, in fact, doing these things simultaneously. You are



Yarin Kimor demonstrates the magic of multi-tasking

actually switching from task to task, doing them sequentially," explains Prof. Eshet, "The problem arises when your performance depends on doing several things under extreme time pressure or when you need to process huge volumes of stimuli that bombard your cognition at a high speed, such as in computer games and flight simulators. When you switch so quickly from one task to another, you switch your cognitive state. You need the ability to create a smooth sequence from different activities and coordinate all of them in a smooth way.

"Not surprisingly, young people tend to be better at this kind of task than older people," according to Prof. Eshet. "It's not that the brains of young people are wired differently; it's that they are trained to become more experienced in the skills relevant to multi-tasking. Quantity becomes quality – by repetitively using digital environments that require multi-tasking, they gain these new skills. Research projects I've done with colleagues at the Open University have demonstrated several relevant findings. An international study (with Dr. Joel Klemes of the OUI) on the computer games culture of young people indicated that they spend

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hours in front of the computer every day, timing and orchestrating their reactions to a barrage of stimuli, while assimilating abundant information at tremendous speed, all the while honing the skills of rapid reactions, under bombarding stimuli – almost a self-training program for the multi-tasking requirements – quick, multi-level perception and action. Although human cognition hasn't changed much in the recent generations, children have managed to train themselves to become effective multi-taskers by spending many hours in real-time computer environments.

In a lecture, "To Live under Bombardment: Real-time Thinking in a Technological World," at a recent symposium on the topic "Multi-Tasking: Juggling the Impossible Mission of Multiple Tasks in the Technological Era" Prof. Eshet noted that "technology helps us, but it also confronts our cognition and motor skills with new challenges that require shifting attention from place to place, working simultaneously with the keyboard and the mouse, and doing all these things under tremendous time pressure. It's like driving a race car in a street full of people without causing an accident.

"In the era of technology, we operate constantly under a bombardment of real-time stimuli that require the utilization of real-time thinking. This is a special kind of thinking skill that determines to a large extent our performance in many modern technological and work environments. It's not as though a pilot can say, 'let me think about it.' There is no time to think because he has to process simultaneously huge volumes of information at a very high speed, under time pressure."

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Rapid, multi-task functioning has a down-side, Prof. Eshet warns. Switching back and forth from one job to the other can be distracting and research has shown that it can result in loss of time, efficiency, productivity and focus. However, multi-tasking is sometimes necessary in a world where there are so many options. Another problem: Young people accustomed to flashy, colorful stimulation, find themselves in the world of learning and have little patience for the pace of a learned lecture or reading lengthy

volumes (in black and white). But young people seem to have the resilience to enlist the required discipline to meet the tasks at hand – perhaps with the groan of bored protest. It is, of course, sensible to incorporate technologies in teaching the younger generation.

Bottom line: If people can be trained in real-time thinking, according to Prof Eshet, they can become smart users of technology and achieve success in today's world. Rapid functioning and maneuvering between simultaneous or sequential tasks is here to stay, so much so that it has emerged from a quantitative question of relative speed to a qualitative feature of life style, and those who can best handle multi-tasking will have a relative advantage in most spheres of activity, from technological proficiency to everyday functioning, concludes Prof. Eshet. "It is likely that what will eventually separate between successful people and unsuccessful people will be is their ability to multi-task."

The Magic of Multi-Tasking

A magician appears on stage and dazzles the audience with his performance of eye-defying tricks. The audience consists of hundreds of professionals in fields such as computer science, psychology, education and philosophy, attending a symposium on "Multi-Tasking: Juggling the Impossible Mission of Multiple Tasks in the Technological Era," organized by the Chais Research Center for the Integration of Technology in Education and the Shoham Ceasaria Rothschild Foundation Center for Technology in Distance Education. What's the connection between magic and multi-tasking? "We decided to open the symposium with a magician's performance entitled, "The Impossible is Possible – On Limitations of Human Processing." His tricks illustrated the symposium's focus," said Prof. Yoram Eshet. "In a magic show, the magician takes advantage of your inability to follow his multi-tasking ability."

Other speakers at the symposium were Dr. Alex Gotler of the Open University, who discussed the cognitive limitations of multi-tasking. Prof. Roni Aviram, of Ben-Gurion University of the Negev, lectured on philosophic aspects of multi-tasking and the "self" in modern society, lamenting the changing times. Dr. Eran Chajut of the Open University's Department of Education and Psychology chaired the symposium.