Managing the use of technology

Keep control of your life by making technology work for you

Harold L. Taylor

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Contents

	Introduction	**7**
1	**The good, the bad, and the ugly of technology**	**8**
1.1	The good of technology	8
1.2	The bad of technology	9
1.3	The ugly of technology	11
1.4	Using technology	13
2	**Why are we always running out of time?**	**14**
2.1	The Internet, social media, and TV	14
2.2	Email	15
2.3	Video and computer games	16
3	**How our time is being depleted by technology**	**17**
3.1	Where is the time coming from?	17
3.2	Real time relationships	17
3.3	Sleep	17

3.4	Exercise	19
3.5	Multitasking	20
4	**How to manage technology**	**21**
4.1	Make good choices	21
4.2	Protect your relationships	22
4.3	Manage your email	23
4.4	Don't stay glued to your chair	24
5	**Multitasking is not recommended but it's not a lost cause**	**26**
5.1	Multitask with caution	26
5.2	All multitasking is not the same	27
6	**A time management strategy that is increasing in importance**	**30**
6.1	Schedule your priorities	30
6.2	Use a planner for your scheduling	30
6.3	Choosing a planner	30
6.4	Make a commitment, not a "To Do" list	31
6.5	Balance high-tech with high-touch	31

7	**To control the use of technology you must first control your brain**	**33**
7.1	Increase your focus in spite of interruptions	33
7.2	You can ignore distractions and break bad habits	34
7.3	Strengthen your executive skills	35
7.4	Motivation is all in your mind	36
8	**Books referenced**	**37**
9	**About the author**	**39**

Introduction

This book is not about how to use your latest iPad or smart watch; nor will it tell you which devices you should buy or use in various situations. Rather, it warns you that technology steals time as well as saves time, and suggests how you can use it to your advantage without allowing it to vacuum time from other meaningful activities.

Computer games, social media, the Internet, and even e-mail, if not controlled, will not only consume unrealistic amounts of time, but can become addictive, and in excess, can negatively impact your health and well-being.

We have a limited amount of time at our disposal, and using excessive amounts of it on these digital innovations can leave inadequate time for such necessities as sleep, exercise and relationships. This in turn can result in excessive stress, reduced performance, and health issues that offset many of the productivity gains made by technology.

This book reviews the good, the bad and the ugly of technology, identifies how and where it consumes excessive amounts of time, and suggests how we can manage the use of technology so we can take advantage of all its benefits without suffering any ill effects.

This will involve making wise choices, practicing self-discipline and doing what doesn't seem to come naturally – taking control of your life. This is possible since you're in possession of a priceless piece of technology, which will never be surpassed by any future innovation created by man – your brain.

Control your brain and you control yourself. Control yourself, and you control technology. Control technology, and you have your life back.

1 The good, the bad, and the ugly of technology

1.1 The good of technology

There is little problem outlining the "good" of technology. Most of us have experienced the ease with which we can obtain information, directions and advice, perform calculations, solve problems, and even contact people around the world in a matter of seconds at little or no cost. We don't have to write – or even type – in order to communicate. We no longer have to search for telephone numbers, memorize – or in many cases, even think. It is all done *for* us.

The "good" of technology is evident almost everywhere – at home, at school, at work or while travelling. It benefits students, teachers, business managers & entrepreneurs, and people from all walks of life, whether young or old.

Although seniors may not be as fully immersed in technology as others, they certainly benefit from it. They have access to medication – dispensing systems that not only remind them when to take their pills, but in some cases even inform the doctor if they don't. Smart watches can track their daily activities, and even detect heart attacks – sending alerts if something's not right. Sensor carpets can help identify when a person has fallen. All of these technological innovations help to keep seniors out of hospitals and seniors homes, enabling them to remain at home and self-manage their chronic conditions.

The *Ontario Telemedicine Network* (ontariotelehomecare.otn.ca) provides technology which allows patients to measure their vital signs at home – things such as weight, blood pressure and blood oxygen – with the results being monitored by specially-trained nurses or respiratory therapists.

Long-distance medicine, or telemedicine as it is normally called, is also made possible through technology. It is a relatively new field in which the doctor and patient may never meet or even interact in real time. One example is *Grand Rounds*, an elite network of physicians in the U.S. who deliver second opinions on treatment plans and diagnoses for baffling ailments. No doubt the virtual medicine will expand as it bridges the gap between patient demand and physician availability – especially since it can access doctors with specialized experience and track records.

And look what technology has done for the physically handicapped. The Internet allows sick and physically handicapped people who may be isolated by their lack of complete mobility to connect online.

Michio Kaku, in his book *The future of the mind*, comments that scientists can insert a chip into the brain of a patient who is totally paralyzed and connect it to a computer, so that through thought alone, that patient can surf the web, read and write e-mails, play videogames, control their wheelchair, operate household appliances and manipulate mechanical arms. It boggles the mind to think that it is now possible for the brain to interface with a computer and control any object around it.

Computers will even handle your investments. "Robo advisors" are automated investing services that rely on computer models to manage portfolios.

Older folks can really appreciate the marvels of technology while younger people take it for granted. Imagine being able to deposit checks into ATM machines with no paperwork or even an envelope, and withdraw money with a touch of a few buttons. We no longer have to type; but simply dictate to our laptops using voice activated software. We store our files in the cloud, ask Siri for directions or glance at our GPS. We can shop for groceries, clothing, and electronics – literally anything – without leaving our chair. We can choose any movie, sporting event or educational program we want and do it through our TV set or portable device. We can keep ourselves entertained online with jigsaw puzzles, crosswords, games or Sudoku. We can't brew coffee on our laptops yet, but we can listen to the background noises of a coffee shop at coffitivity.com while we sip our automatically brewed coffee.

But it all comes at a cost.

1.2 The bad of technology

The younger generation cannot see anything bad about technology because they have nothing to compare it to. Nor can they fully appreciate the benefits, because they have never experienced anything else. They were born into it.

There is little doubt that technology is rewiring our brains. Because of the plasticity of our brains, *any* experience will rewire them to some degree; but we spend so much time with digital technology that it is having a much greater impact.

There are many cases of physical changes to the brain caused by repetitively performing one type of task for long periods of time, which could be either good or bad depending on the results. And as far as I know, there's nothing bad about that. For example, London taxi drivers were found to have a larger hippocampus, an area of the brain associated with context, navigational skills and spatial memory. This was caused by their continuous task of navigating the complex network of streets in that city.

Similarly, the brains of virtuoso violinists, athletes, and other performers show a measurable increase in size of those areas associated with the particular skill that they are continually practising.

It makes sense that continually playing video games will also strengthen those skills needed to excel in the particular games being played. What those areas are, and whether any such skills are transferrable are not yet clear. Although at least one neuroscientist has suggested that the person would do well if he or she were hired to play video games.

Unfortunately, video games have been found to increase blood pressure and heart rate and activate the stress response. Research also indicates that extensive video gaming makes youngsters more aggressive and desensitizes them to violence. There also have been at least two documented cases of death occurring while playing video games – both cardiac arrests – and one of them being a 19 year-old – but who knows if there weren't pre-existing conditions.

The book, *Mind Change* by Susan Greenfield mentions a survey of gamers aged 10 to 19 that revealed that they spent 30% less time reading and 34% less time doing homework.

There are a few things becoming evident with the increase in screen use and digital technology in general. We are becoming more easily distracted, ADHD symptoms appear to be increasing, some of us are becoming addicted to computer games, email and/or the Internet, and evidence seems to suggest we are becoming less empathetic, more shallow in our thinking, and more open to health problems such as obesity and heart disease.

And of course some people are experiencing cyber bullying, occasionally leading to anxiety or suicide, and there is evidence of a few cases of death by gaming; but these are rare occurrences.

Nicholas Carr, in his book, *Shallows: what the Internet is doing to our brains*, claims he has noticed changes in his own reading. He loses concentration after a page or two, becomes fidgety, loses track of the storyline and looks for something else to do.

In the past decade, Internet use has expanded by 566%. It is estimated that 40% of all people of the world are now online. According to the book *The End of Absence* by Michael Harris, by 2012 we were searching for information via Google more than 1 trillion times each year. We "liked" 4.5 billion items on Facebook and uploaded hundreds of hours of video on YouTube for every minute of real time.

With over 6 billion cell phones in use, and the average teenager, according to Nielsen research, sending about 4000 text messages each month, it is not difficult to imagine the impact on our brain. Torkel Klingberg, in his book *The overflowing brain*, claims "boundaries are no longer defined by technology, but by our own biology."

Torkel mentions a survey of workplaces in the U.S. that showed workers were being interrupted every three minutes, and people have an average of eight windows open at the same time.

Ed Hallowell, who has written several books related to ADD and ADHD, coined the expression "attention deficit trait" to describe the ADHD – like symptoms being displayed by adults and induced by a business environment that is now characterized by a fast pace, rapid change, constant interruptions and information overload.

Absorbing new information also burns energy. And it takes even more energy to multitask, make decisions and work on demanding tasks. To maximize brain efficiency, we must protect our brain from energy- draining activities encouraged, if not caused, by technology.

Getting more things done faster is no longer limited by the lack of technology, but by our brain. Our brain has a limited capacity for processing information, and this limit is being approached and frequently passed by the ever-increasing rate at which it is being assaulted by new information. Just as watering a potted plant too fast with too much water causes much of the water to overflow, so too much information coming at us too quickly from every direction causes much of it to be lost. We miss receiving it, can't store it or quickly forget it. And the information we lose could be important or even critical.

The more we rely on computers to control critical systems such as airline routes, electricity grids, financial markets, street traffic lights, lines of communication and other aspects of our lives, the greater the more helpless we are when computers crash. One example is the incident on July 8, 2015, when as chance would have it, American Airlines were forced to ground all their flights, the New York Stock Exchange halted all trading, and the Wall Street Journal also experienced computer problems – all on the same day.

In my 81 years I have forgotten to pick up bread on the way home from work and struggled to recall a name several times, but have yet to experience brain outages of those proportions.

1.3 The ugly of technology

The really ugly, is beyond comprehension, and hopefully will never occur. I am referring here to scenarios described in several books such as *Mind Change* by Susan Greenfield and *The End of Absence* by Michael Harris, where we could become a race of non-thinking humans, easily controlled by others – sort of an Aldous Huxley's *Brave New World* or George Orwell's *1984* scenario. Or heaven forbid, as scientists such as Ray Kurweil, author of *The singularity is near*, seem to predict, that artificial intelligence will eventually exceed our own, or at least when we die in the flesh, our minds will be uploaded to a computer and remain conscious.

Nobody knows for sure the ultimate impact of the new technology. But we do know it seems to have a life of its own, regardless of the degree of good, bad and ugly, and we are unable to stop or slow down the ever- increasing speed of change even if we wanted to do so.

As related by Michael Harris, the time it takes for a new technology to be adopted by 50 million people, referred to as the rate of penetration, is decreasing rapidly. For example, it took 38 years for radio, 20 years for the telephone, 13 years for TV, and only four years for the World Wide Web. Facebook took 3.6 years, the iPad, two years, and Google Plus only 88 days.

Michio Kaku pointed out in his 2014 book, *The future of the mind*, that it took 350 years since the invention of the telescope to enter the space age, but it has taken only 15 years since the introduction of the MRI and advanced brain scans to actively connect the brain to the outside world.

Now, many of us are quick to adopt a new technology, regardless of its merit, for fear of being left behind. And we are becoming so reliant on digital technology that we are spending more time in the virtual world than the real world. As Susan Greenfield points out in her book, *Mind change: How digital technologies are leaving their mark on our brains*, by 2017, online sales are projected to account for 10% of all retail sales in the United States. 58% of all Americans play videogames. U.S. Internet users spend 22.5% of their online time on social networking sites or blogs. More than a third of the couples who married between 2005 and 2012 in the U.S. reported meeting their spouse online.

What's ugly about that? Well, only that the trend towards the virtual world will continue, and that we are passing these habits onto the next generation who may never know what they're missing by not actively playing outdoors, having fun in the rain, enjoying the company of others in real time, communing with nature and growing in mind, body and spirit as they create their own games and learn to cope with problems on their own.

Of course, they won't know any different so perhaps the ugliness is only in my own mind. But I think the Internet is a place you go to in order to find information; after which you leave – like we used to do with hardcopy encyclopaedias. In short, using technology without being absorbed by it.

1.4 Using technology

The purpose of this book is not to debate the advantages and disadvantages of technology, because the rapid progression of technology, good, bad or ugly is a fact of life. What I want to do is offer some suggestions as to how to take advantage of what technology has to offer, while avoiding any accompanying time traps and health and lifestyle issues that many people are experiencing.

We are fortunate inasmuch as we are a part of the only generation, assuming you're over 25, who know what it was like *before* the current digital age of speed. We can judge for ourselves what is helpful and what is not, and we can actually reject certain high-tech devices or methods if we feel they are not for us. Future generations will not have that luxury.

When I was born, radio was already a fact of life. I didn't question it; because that's just the way it was. But I never saw a TV set until I was in my early teens, and the first cell phone did not appear until 1973. Now there are 6.8 billion cell phone subscribers worldwide.

My mother used to tell us to get our ears away from the radio and to go play outside in the fresh air. Science and modern medicine have long ago proven the wisdom of that suggestion. Parenting hasn't changed that much – except many younger parents already use iPads as babysitters. Sitting in the airport a few weeks ago I took a picture – with my iPad of course – of a young father and his toddler sitting side-by-side, each engrossed in their respective handheld devices.

This is not a statement about the merit of iPads, it is a question about the *use* of iPads. How you use technology determines the impact of technology on your life. And how you use it is determined by your mindset. There is a scripture reference that urges us, "Do not conform any longer to the pattern of this world, but be transformed by the renewing of your mind." The key is to continue renewing your mind, not to outsource it to technology.

Any invention, from the Guttenberg press, the automobile and the first typewriter to modern day computers, has consumed some of our time, especially through the initial stages of the learning curve. The difference in digital technology is that it consumes such huge amounts of our time. Everyone seems to have a shortage of time these days. Every adult and child seems to own multiple devices that they use for entertainment, information, socializing and communication.

In the next chapter we will examine how a few of the current technologies are currently consuming our time.

2 Why are we always running out of time?

2.1 The Internet, social media, and TV

Television, the number one leisure activity in North America and Europe, consumes over half of our free time and is accused of stealing time away from our friendships and relationships with people. The Internet has joined the TV set in vacuuming up more of our time. In 1998, studies concluded that the more that people used the Internet, the less they communicated with their families and friends, and the greater the increase of loneliness and depression. Several years later, with the introduction of social networking sites, this changed somewhat inasmuch as we started communicating and socializing more; but with little if any personal face-to-face contact.

Facebook, the largest social networking site, was launched at *Harvard University* in 2004. By 2009, there were over 250 million people in 170 countries and territories on every continent, and almost half its users visited the site every day. A *Toronto Globe & Mail* article, July 22, 2010, announced that membership had hit 500 million that year and that its members were spending roughly 700 billion minutes there. At that time they were adding 50 million users each month and getting 100 billion hits per day.

In 2014, Facebook boasted 1.32 billion active users spending an average of 40 minutes a day on this one social media giant.

Although 40 minutes a day seems like a long time, it is nothing compared to the 5 hours a day consumed by television. And at least there is more social interaction while communicating on Facebook than there is in being glued to a TV set. Two million friends are requested every twenty minutes and three million messages are sent during that same time period.

Social networking is now the fourth most popular online activity, ahead of email and behind search engines, general Internet portals such as Yahoo & AOL, and software downloads. The amount of time spent using social networking sites is growing three times the rate of overall Internet usage, according to *Scientific American Mind*.

2.2 Email

Another thing that consumes our time is email. A Canadian Health report (mentioned in the book, *Sleep to be Sexy, Smart & Slim* by Ellen Michaud with Julie Bain) claims that more than a half of all employees take work home, 69% check their email from home, 59% check voice mail after hours and 29% keep their cell phones on day and night. As a result, 46% feel that this work-related intrusion is a stressor and 44% report negative spill over onto their families. (And the families are supposed to be the most effective buffer to workplace stress.)

Work is no longer a place, but a state of mind. Our work goes with us wherever we go – if not in our hand, then in a computer bag or holstered on our hip. With smartphones and tablets, it's easier to be a workaholic these days. According to Dr. Julian Ford and Jon Wortman, author of *Hijacked by your brain*, 37.8% of professional men and 14.4% of women are already working more than 50 hours per week.

The average working professional spends roughly 23% of the workday on email, and glances at the inbox about 36 times an hour according to the book, *The Power of Forgetting* by Mike Byster (2014).

Email can be addictive – like continually pulling the handle on a slot machine to bring a person that much closer to a payoff. Psychologists call it "operant conditioning" – a term used to describe any voluntary behavior that is shaped by its consequences. The consequence of repetitively checking email is receiving the occasional email that is of interest.

The use of texting, which is even faster and more intrusive than email, is on the increase, particularly among the younger generation. According to research by Nielson, and reported in the book, *The end of absence: reclaiming what we've lost in a world of constant connection*, by Michael Harris, the average teenager now manages upward of 4000 text messages every month.

If we were to be more attentive to whatever project we were working on at the time, had a greater power of focus, and were not so easily distracted – in other words, had stronger executive skills as discussed in my ebook, *A brain's eye view of time management* (Bookboon, 2014), we could resist any urge to check email at inappropriate times. The same thing applies to smartphone and Internet use and other work habits.

2.3 Video and computer games

Unlike email, computer games are designed to be addictive, like the slot machines in Las Vegas, and researchers in 2005 found that dopamine levels in players' brains doubled while they were playing. Dopamine is the hormone associated with mood and feelings of pleasure.

A 2012 study of U.S, adolescents, mentioned in the book *Mind Change* by Susan Greenfield, reported that boys between the ages of 10 to 13 were playing video games an average of 43 hours a week.

Video gaming has also become a popular spectator sport – evidently more popular than the World Series, with 32 million people watching the League of Legends World Championship while only about 15 million tuned into the World Series last year. The audience for gaming is expected to increase to 170 million by 2017.

Evidently you become a better gamer if you watch the experts. And there is a gradual increase in the number of adults spending significant amounts of time on video games as well.

If we are spending so much time watching TV, surfing the Internet, watching YouTube videos, playing electronic games, checking email, talking or texting on smartphones and participating in social media, where do people get the time to do all this?

In the next chapter we will look at where this time is coming from. This is the price we are paying for digital technology.

3 How our time is being depleted by technology

3.1 Where is the time coming from?

Thankfully, a lot of time is generated by technology itself as it speeds up mundane but essential tasks, streamlines communications, eliminates the necessity of doing many routine activities and automates everything from opening tin cans to garage doors.

Unfortunately, using technology in many cases has become an end in itself, with about half the time being spent on digital media being stolen from health-related and lifestyle activities such as exercise, sleep, family time, leisure time and one-on-one relationships. These in turn negatively impact our personal productivity as well as our health and lifestyle.

3.2 Real time relationships

The book, *Social: Why our brains are wired to connect* by Matthew Lieberman, described a survey conducted in 1985 where people were asked "Over the last six months, who are the people with whom you discussed matters important to you?" The most common number of friends listed was three. When the same survey was used in 2004 the most common number of such friends listed was zero.

According to an article in the March/April, 2015 issue of *Psychology Today*, smartphones are definitely interfering with relationships. When one person in the relationship is frequently checking email or text messages it is sending a signal that what he or she is doing on their cell phone is more important than interacting with the other person.

One study from *Brigham Young University* found that of 143 women in relationships, the majority reported that cell phones, computers, and other devices were significantly interrupting their relationships and family lives.

3.3 Sleep

Sleep is one of the first things to suffer if a person needs more time to get things done. In my lifetime, the average amount of sleep we get has decreased from just over eight hours to 6.7 hours. (More recently I read a figure of 6.5 hours, along with an explanation that this is the average amount of sleep people *say* they get but by the measurement of brain activity while these same people were sleeping, the *actual* figure was 6.1 hours.)

If you get less than six hours sleep a night you are considered to be sleep deprived. After six hours of sleep or less you could experience sleepiness, a tired feeling, trouble concentrating, headaches and even nausea. Warning signs could also include changes in your mood such as apathy, fatigue, anxiety, nervousness, irritability and depression. You could be more forgetful than usual, make more mistakes, drive more erratically and anger more easily.

Most doctors seem to recommend between seven hours and nine hours a night and not less than six. Seven seems to be the ideal number that crops up in research again and again, although everyone isn't the same.

According to the West Virginia research team, sleeping less than five hours a night, including naps, more than doubles the risk of being diagnosed with angina, coronary heart disease, heart attack or stroke. Calcified arteries were found in 27% of those who slept less than five hours a night. Gary Small, who writes the *Brain Bulletin*, and speaks on that topic, says that sleep deprivation is one of the risk factors in Alzheimer's. The June, 2014 issue of *Scientific American Mind* quotes neuroscientist Dwayne Godwin as saying that sleep helps clear the brain, flushing away waste products such as Alzheimer's-related proteins. One sleep scientist claims that sleep is one of the most important predictors of how long you will live – as important as whether you smoke, exercise or have high blood pressure.

Depriving yourself of sufficient sleep also affects your energy level. According to Robert Rosenberg, an Arizona sleep specialist (quoted in Prevention.com, August, 2015), sleep is the only time when your brain can produce ATP, a substance that stores and delivers energy in cells.

Most people think they need less than 7 hours a night, but according to the *American Academy of Sleep Medicine*, only 1 to 3 percent of the population actually needs less than 7 hours a night. The rest are sleep deprived. For a full discussion on how a lack of sufficient sleep can negatively impact your productivity, health and well-being, refer to my ebook, *Sleep: A time management strategy* (Bookboon, 2014).

And if you're wondering by now what health and wellness have to do with personal productivity, from a time management perspective, both illness and death are a complete waste of time.

3.4 Exercise

Exercise is another activity that is easily sacrificed as people feel pressured by a lack of time. The best thing for strengthening working memory and long-term memory, as well as other cognitive skills, is to continually exercise both your body and your brain. You need to keep the blood flowing to the brain with the oxygen and glucose that it needs in order to operate at its peak. The brain may be only 2% of the weight of the body, but it consumes up to 25% of the overall glucose and blood circulation.

According to Statistics Canada, only 13% of Canadian adults aged 49 to 59 and 11% of those aged 60 and above meet the guidelines for moderate physical activity (defined as 150 minutes of moderate to vigorous activity per week in bouts of 10 minutes or more, in addition to muscle and bone strengthening activities using major muscle groups at least two days a week).

The benefits of physical activity was highlighted when researchers in Australia published results of trials conducted with 170 older adults who had started showing memory problems and had increased risk of developing dementia. The participants averaged an extra 29 minutes a day of physical activity over six months. The experimental group scored better on tests of their cognition than the control group and was twice as great as the one that had previously been shown with the drug Aricept, which is currently being used to slow the progression of Alzheimer`s disease. And the improvement lasted for 12 months after the exercise program ended. The explanation is that exercising the heart somehow stimulates growth factors to produce more new nerve cells in the hippocampus, one of the key centers in the brain for memory and learning.

It stands to reason that the more time you spend at computers or in front of TV sets, the less exercise you are getting, and this is evident in the increase in obesity in North America.

3.5 Multitasking

Yes, multitasking can free up time under certain circumstances, as I will explain later. But the price you pay is the risk of reduced attention and quality and the resulting impact could wipe out or exceed any gains. In their haste to get things done, more and more people are attempting to multitask inappropriately.

Technology encourages and provides more opportunities to multitask. A smartphone, for example, might allow you to leave work early and watch your son's soccer game; but you are still connected to your office and not fully present while your son is performing on the field.

In the following chapters I will discuss ways of managing the use of technology, including when you can safely multitask.

4 How to manage technology

4.1 Make good choices

Technology was not *meant* to infringe on relationships, family time, sleep or exercise. Nor was it expected to weaken executive skills such as attention and emotional control. Technology was meant to increase our personal productivity, make us more efficient and free up discretionary time so we are not slaves to our work. But in many cases we have become slaves to technology.

Technology was meant to be a means to an end but in many cases it is being used as an end in itself – akin to Marshall McLuhan's statement in the 1960s, "the medium is the message." It has opened up new ways to spend our time such as online gaming, gambling and surfing the Internet. The convenience of digital technology has its costs. And if not managed, the cost in terms of personal health as well as personal productivity could be high.

We could make suggestions for managing email and electronic files and review keyboard shortcuts, and so on; but they would be of little value if you are unable or unwilling to resist the temptation to buy into every new device or update that hits the market or limit your use of the non-productive games, social media, videos and websites that bombard all of us on a daily basis.

The fact is, we can't do everything. Time management in the digital age of speed involves making wise choices. And it's difficult to make wise choices when we do our thinking with sleep-deprived brains – sleep-deprived because we don't have enough time after our over-involvement with digital technology to sleep properly, exercise sufficiently or eat nutritionally.

An online poll of over 1000 Canadian adults released by *Angus Reid/Vision Critical* (*Toronto Star*, January 26, 2013) revealed that 90% of the respondents believed their smartphones made their lives more convenient. So convenient, evidently, that 30% of them go online before getting out of bed, 31% use them at the dinner table, 29% actually use them in the washroom and 42% use them just before falling asleep at night.

In this chapter and in those following, I will suggest some strategies that you might take to prevent digital technology from becoming all-consuming. This does not mean you should ignore technology; it means you should use it responsibly so that you don't ignore your life.

4.2 Protect your relationships

I already mentioned the impact that smartphone use is having on relationships, and that they are already a topic of discussion in some marriage counselling sessions. Being shunned, ignored or rejected is painful, and functional MRIs actually reveal that both physical pain and rebuff or rejection share the same pathways in the brain. It is even believed that these seemingly minor hurts through inattention or rejection are cumulative. Over time, they can fester to the point of compromising physical and mental health.

First you must decide what is important in your life and developing personal policies or guidelines to protect those activities. One thing that is being affected by technology is time for personal one-on-one relationships.

If both parties in a relationship are guilty of using their smart phones while together – such as in restaurants, at family gatherings or in the bedroom – communications will suffer, and communications is usually considered essential to a happy relationship. Action has to be taken to protect those times together.

Such action could include setting some boundaries and guidelines that are acceptable to both parties. We all need time for technology – both for business and personal reasons – but it should not overlap with time being spent together. Perhaps there could be specific times when both partners work independently for an hour or so. There could be a policy of no cell phones during specific activities such as mealtimes, during dates, and at bedtime. You could decide to turn off cell phones and laptops at a specific time in the evening or have technology-free hours during the day. And never set a place for technology at the dinner table.

The important thing is to assess the impact, if any, that cell phones and other devices are having on your relationships, health and use of time, and take any necessary action. The impact on others should be considered; but the final decisions are yours to make.

4.3 Manage your email

If email is consuming too much time, you could set up a time and a procedure for handling email. Don't allow it to control your day. You might check email twice per day, for instance – more frequently if your company's success depends on a quick response to emails. Checking your email every five minutes or so is both costly and time consuming.

Timothy Ferriss, author of the book, *The 4-Hour Workweek*, checks his email no more than once per week. He insists that any lost orders or other problems are overshadowed by his gain in efficiency. Personally, I wouldn't go to this extreme. But twice per day does not seem unreasonable.

It's not generally a good idea to check email first thing in the morning. You could easily get distracted from your plan. But if you make it part of your plan to check email first just to ensure there are no vital and urgent items there, that's not such a bad idea.

You may decide not to respond to email until about 11 or 11:30 a.m. You could check it again about 3:30 in the afternoon. You might want to turn off the automatic send/receive option so that email doesn't pop up in your inbox the moment you sign on. Email programs seem to be designed to control *us* rather than the other way around.

I encourage everyone to at least give it a try. Check your email twice per day for at least a couple of days and then assess the impact on your business. I'm sure most people have experienced a computer crash or an Internet access problem or a vacation when accessing email was impossible, and yet we survived the experience with no earth-shattering problems.

4.4 Don't stay glued to your chair

Your health is important; certainly more important than time management. When you are sick, you couldn't care less about managing your time or personal productivity or technology. You just want to get better. All your time is devoted to getting well, and personal productivity as it relates to business comes to a standstill. So it stands to reason that health is the most important time management strategy.

We have already mentioned how digital technology is interfering with sleep, exercise and nutrition and a few of the possible consequences such as obesity, high blood pressure, stress, ADHD symptoms and other health issues. And that it is imperative that you cut out marathon work sessions, working through lunch, using digital technology well into the evening and failing to take regular breaks. But there also is an indication of physical problems emerging as a result of overuse of digital technology as well. The first of these to become evident was carpal tunnel syndrome and we have already made adjustments with the way we use our mouse, position the hand, and support our wrist.

But research published by Kenneth Hansraj in the *National Library of Medicine,* and reported in the *Toronto Star*, November 24, 2014, indicates that bending your neck over a smart phone for hours a day could lead to early wear and tear on the spine, degeneration and even surgery. And smartphone users spend an average of 2 to 4 hours a day hunched over, reading e-mails, sending texts or checking the social media sites.

Known as *text neck*, this problem is caused by an increase in the weight of the head as it bends forward. The weight on the cervical spine varies from 27 pounds at a 15° angle to 60 pounds at a 60° angle. So posture, height of chair and amount of time sitting in front of your computer are all factors that should be considered.

If you're sitting at your computer all day you can't be getting much exercise. A February, 2013 Australian survey of over 63,000 middle-aged men found that those who sat for more than four hours a day, were significantly more likely to have chronic diseases like high blood pressure and heart disease.

You might consider getting a stand-up desk as well. Tom Rath, in his book *Eat Move Sleep*, (Missionday, 2013) called sitting "the most underrated health threat of modern times." He claims that *sitting* more than six hours a day greatly increases your risk of an early death.

An article in the November, 2014 *Scientific American* proves this is not just a case of shock journalism. The author of the article, James Levine, co-directs *Obesity Solutions*, a program of the *Mayo Clinic* in Scottsdale Arizona. The title of his article is "Killer chairs," and he gives some statistics based on 18 studies reported during the past 16 years, covering 800,000 people – in addition to his own research.

He had a few eye-opening findings showing that sitting for over 4 hours a day contributes to diabetes, obesity, and cardiovascular problems

Neither Tom Rath nor James Levine seem to be suggesting jogging or marathon walks to remedy the problem, but rather to just get out of your chair. Get up and move around, as we were created to do, rather than lead a sedentary life. Walk around while you talk on the phone, work at a stand-up desk, have stand-up meetings, take the stairs instead of the elevator, walk to the local mall instead of taking the car – are the type of recommendations these authors seem to be supporting.

Don't overlook the health issues, and above all, take frequent stretch breaks.

5 Multitasking is not recommended but it's not a lost cause

5.1 Multitask with caution

By multitasking, I mean the *apparent* simultaneous performance of two or more tasks. And since research has confirmed that it is impossible for the brain to *fully* focus on two things at the same time, there is really no such thing as multitasking. People who think they are doing two jobs simultaneously, such as listening on the telephone while signing documents are deceiving themselves. The brain cannot do two tasks at the same time. It actually switches rapidly back and forth between one task and the other. Although the brain is only absent from either task for a fraction of a second, that brief absence could result in serious consequences.

Dr. Amir AllenTowfigh, a neurologist with *Weill Cornell Medical Center* claims that attempts at multitasking can jam up your brain processing. He says our frontal lobes are the main engines directing our attention, and they have a limited amount of processing power. Multitasking puts a strain on working memory since it requires you to bring back important pieces of information for each task as you switch back and forth between them. By using functional MRI, researchers discovered that when people juggle two assignments, their prefrontal cortex appeared to deal with the tasks one at a time, creating this mental bottleneck.

Brain research does indicate that you can have several motor programs running simultaneously, whether it's steering your car, talking on your cell phone, texting a message or whatever; but you can only focus your conscious attention fully on one thing at a time. Your body may react through habit; but your brain thinks sequentially. So relying on muscle memory when thinking is required can be a dangerous practice.

Multitasking can also be stressful, and during stress our weakest executive skills become more pronounced. Too much exertion without a break taxes the executive skills as well. In most cases the cards are stacked against you when you multitask.

But there are situations where you can multitask (or perform rapid brain switching) and increase your performance without the fear of serious negative consequences; because all multitasking is not the same.

5.2 All multitasking is not the same

There are three types or degrees of multitasking. Let's look at the three types or degrees of multitasking in increasing order of efficiency.

The first and most obviously inefficient, and potentially dangerous, form of multitasking involves physically performing two tasks at the same time – both requiring cognitive involvement – such as talking on a cell phone while driving through city traffic, or text messaging while listening to a lecture on safety procedures.

The second type involves working on a routine task *physically*, while *thinking* about something else, such as planning your day while taking a shower or mentally rehearsing a speech as you collate reports or worrying about finances as you put away the dishes. Frequently the motor part of the multitasking becomes almost automatic through repetition.

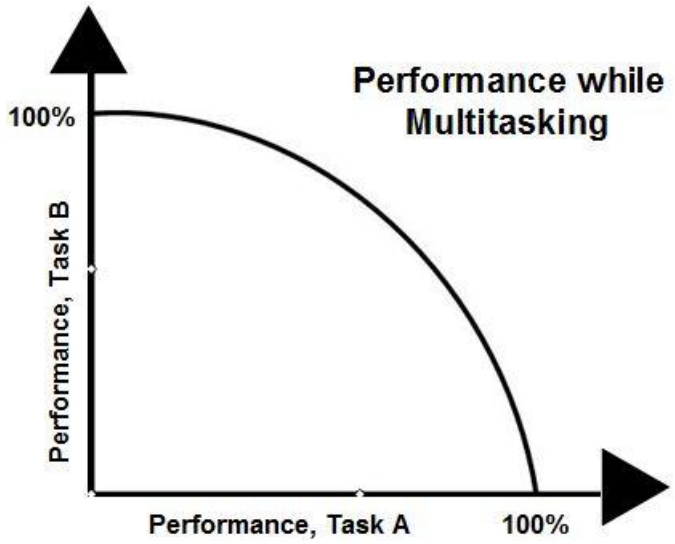
The third type involves what we used to refer to as a "utilizing idle time" – checking e-mail while a report is being printed or making a phone call while clothes are being dried or listening to information on your iPod while getting your hair done in a salon.

Only the first two are true multitasking, while the third one is simply making efficient use of time that might otherwise be wasted. This is not really multitasking and the worst that might happen is to forget to retrieve the printed page from the printer or forget to remove your clothes from the dryer.

The seriousness of the second type of multitasking depends on the tasks involved. Daydreaming, while operating a machine or crossing the street in traffic is dangerous; but listening to the radio while taking a shower is not usually a problem. After all what's the big deal if you miss the temperature report or forget to shampoo your hair?

But the fact is, you do get more accomplished in terms of quantity when you multitask. But the quality is not there. And there could be time-consuming – or even disastrous results.

Take a look at the diagram below. This diagram on the performance of simultaneous tasks was developed by Michael Posner back in 1978. Most of us come down pretty hard on multitasking, but the diagram does illustrate that even though the brain cannot actually perform two tasks at the same time, it can switch back and forth very rapidly between one task and the other – giving the appearance of simultaneous performance. But in doing so we always have to sacrifice a certain degree of efficiency in the performance of each of the tasks.



For example if you are fully concentrating on "Task A", depicted by the horizontal line, and ignoring "Task B", depicted by the vertical line, you would achieve 100% performance on "Task A, and zero performance on "Task B". But if you start to work on "Task B" as well, performance on "Task A" will decrease, following the curved line upwards and backwards.

As an illustration, assume at this moment that you are getting bored with my explanation of multitasking because you have heard so much about multitasking in the past, so you decide to check your email as you read. You immediately start moving along the curved line from the point where it meets the horizontal "Task A" line towards the point where it meets the "Task B" line.

As you become more and more interested and involved in checking and then responding to email, you hear and absorb less and less of what I am writing. Let's assume you are about one-third of the way along the curved line. You can determine your degree of concentration on both tasks and your total performance, by drawing a vertical line from that point on the curve to the horizontal "Task A" line, (which would probably show at about 85% if there were gradations on the line), and then drawing a horizontal line from the same point on the curve to the vertical "Task B" line (which would indicate about 45%.)

So at that point you would be concentrating or performing about 85% on the reading task, and about 45% on the email task.

The good news is that by the time I finish this chapter you will have completed your email, and if you add the 85% performance on one task to the 45% on the other task, you would have actually performed at 130% by your attempt at doing two tasks simultaneously.

The bad news is that you may have made some glaring errors, beyond typos, when replying to your email messages. You may even have missed something important in this chapter on multitasking that could affect your own performance or that you could have passed on to your staff or others.

You have to be the judge as to whether any multitasking is beneficial or harmful, and that's why I emphasized that there are different degrees of multitasking. Missing or misunderstanding what I say, or failing to provide a complete answer to an e-mailer's question might not be important. But I don't suggest you mentally rehearse a speech while strapping a child into a car seat.

The impact of irresponsible multitasking is now so obvious that it cannot be ignored. The *Human Factors and Ergonomics Society* estimates that 2600 deaths and 330,000 injuries are caused each year in the U.S. by motorists speaking on their cell phones while driving. Daniel J Levinson, in his book *The organized mind*, claims that multitasking also disrupts the kind of sustained thought usually required for problem-solving and creativity.

So if you decide to conserve time by working on two tasks at the same time, be sure to consider the impact of making a mistake or missing something. On the other hand, don't be paranoid and sit idly by while a 50-page document is being printed.

6 A time management strategy that is increasing in importance

6.1 Schedule your priorities

The practice of scheduling is becoming more important than ever. Thanks to technology, we are so overloaded with options for using our limited time that it has now become necessary to schedule everything from time at the gym to time for spontaneity. Scheduling is a great way of protecting the time for activities that are important and meaningful to you.

You know you can't do everything; but you can do anything. That's where wise choices come into play. Once you have identified certain projects or activities as being important to you, such as writing a book, learning a new language, developing a new product, exercise, family activities and so on, you can schedule time for those activities in your planner – early in the day or week if feasible. If you run out of time, it is the lesser important activities that lose by default, not the important or critical ones such as those that relate to a healthy body, mind and spirit, including relationships. How tragic would it really be if you didn't tweet this week or failed to check Facebook or didn't watch a YouTube video?

6.2 Use a planner for your scheduling

You can do your planning and scheduling on a high-tech digital device, but scheduling is so important that I choose not to do so. Using a paper planner serves to ground me in reality. I can touch it and feel it and see my scheduled projects the moment I open it. Writing down an appointment solidifies that meeting in my mind; dictating it to a handheld device makes little impact, little commitment, and little chance I will even recall it the next morning. It helps keep balance in my life as well, since I can physically see at a glance how I spent my week – after the fact. Writing things down provides us with a sort of immortality.

6.3 Choosing a planner

Here are five things that an effective planning calendar should include.

1. A place to record your goals since they are an integral part of the planning process.
2. A place to record your mission statement as well since it reminds you of why you your purpose in life and forms the launching pad for your goals.
3. Each day broken into 15 minute increments, including Saturdays and Sundays as well as evenings to facilitate the scheduling of personal as well as business projects and activities.
4. Daily follow-up sections to record deadlines for assignments due, birthdays and other special events, and notes reminding you when to check the follow-up file.
5. Weekly and daily "To Do" sections to record non-priority items that should be done.

Your planner is the most important time management and life management tool, so choose it carefully. For a description and view of the *Taylor Planner*, which I designed over 30 years ago, visit our website at taylorintime.com. There are hundreds of planners on the market, including electronic calendars and Apps. Select one that you will feel comfortable using, and use it.

6.4 Make a commitment, not a "To Do" list

A "To Do" list is a basic form of planning inasmuch as it reminds us of all the things we want to do in the future. Unfortunately, working exclusively from a "To Do" list is like using a manual typewriter for your word processing. It is simply not adequate in today's environment of speed, complexity and busyness.

For one thing, "To Do" lists are only one-dimensional; they tell you all the things you want to do and nothing more. They fail to take into consideration that you may not have time to do them all or that some of them are more important than others or that a few with them may not even be worth doing.

If you went a step further, and prioritized the list, and scheduled time for the high priority items in your planner, you would have a higher level of planning. Although a "To Do" list is a rudimentary form of planning; scheduling is planning expressing itself as action. Scheduled activities are three-dimensional; they tell you what you have to do, when you are going to do them, and how long they are expected to take. Also, if something is scheduled, you know it's a priority. Things that are left on your "To Do" list are either postponed or die a natural death.

"To do" lists are intentions; but scheduled blocks of time in your planner are commitments. "To Do" lists are endless and can get longer by the day. But those things scheduled in your planner are finite; they have a starting time, a working time (with a built-in allowance for interruptions) and a definite ending time. Items that are scheduled usually get done; items on a "To do" list are usually delayed. And what's delayed is frequently abandoned.

6.5 Balance high-tech with high-touch

Why would I ever use a paper planner in a world of digital technology? Balancing high-tech with high-touch can strengthen "executive skills, and technology writer Danny O'Brien interviewed top achievers and found one thing in common that may account for their increased productivity. They all used some sort low-tech tool, such as a written "To Do" list or a plain paper pad.

In addition to the planner I use a hard copy *Telephone & E-mail Log* in which to make notes when I talk to people on the telephone or review my email. I find more people are using this as we get further into the digital age – probably because it prevents multitasking while on the telephone, improves concentration, shows co-workers you are actually busy and not available to them, and most important, insures that you don't forget that you have to do something as you switch from call to call and interruption to interruption.

I'm not advocating a return to paperwork; but I do advocate the merging of high-tech and high-touch. There should be no embarrassment in using paperwork when it actually serves you better and improves your efficiency. It's even more important to have an organized mind than an organized working environment – although they do complement each other.

The *Caveman Principle*, as explained by Michio Kaku, professor of theoretical physics at the City College and City University of New York, says that given a choice between high-tech and high-touch, we opt for high-touch every time. For example, would you rather see a celebrity performer sing at a concert or watch a DVD of the same performance? Or how about a live sporting even vs. a re-run on TV?

Perhaps that's why some predictions about the future were wrong – such as the "paperless office." There is actually more paper since the advent of computers. People trust concrete evidence more than they do electrons on a computer screen that disappear when you turn off the screen. That's probably another reason I still prefer to use a paper planner.

7 To control the use of technology you must first control your brain

7.1 Increase your focus in spite of interruptions

Most of us are ill-equipped to deal with the onslaught of interruptions introduced by technology. Our brain's natural inclination is to react to them. We coped with this in the old days by isolating ourselves from interruptions – by closing our office door and having our calls screened or intercepted – or by going to a coffee shop where no one could contact us.

With the advent of the smartphone, e-mail, texting and portable devices, interruptions now follow us wherever we go. We are at the mercy of our own ability or inability to resist the urge to answer our smart phones, check incoming e-mail or respond to text messages.

Removing the source of temptation could involve turning off your handheld devices while you work on priority projects, and keeping the paperwork, to do lists and other distractions out of sight while working on a specific task, and leaving your cell phone at home if you decide to work in a coffee shop. You could also do all your priority work in the same place – one devoid of distracting scenery, pictures or paraphernalia so your brain gets to associate that space with work.

Resisting temptation might involve not going online or replying to e-mail before 10 a.m., ignoring a ringing telephone when you're talking with family and friends, and resisting any urge to buy electronic devices that you really don't need. (After all, who really needs a smart watch when they already have a smart phone? It's much more important to have a smart brain.)

But even if you could block out all external distractions, you would still have to contend with your tendency to interrupt yourself and let your mind wander and daydream. It is a function of our "reactive brain," which is always on the alert for unusual or sudden motion, sound or sightings. It's a built-in safety factor for our own good. After all, regardless of what you are doing, you wouldn't want to ignore a threatening shadow appearing in your peripheral vision. Depending on your level of interest in the task and its duration and complexity, you will always have a few distractions that you cannot avoid. Accept them, and don't sweat the small stuff. But continual distractions, either internal or external, that seriously impede your personal productivity, must be eliminated. And they can be.

The Gorilla Experiment, originally conducted about 18 years ago, and described in the 2009 book, *The Invisible Gorilla,* involved subjects watching a video of two teams of three people passing a basketball back and forth among their team members. A person dressed in a gorilla suit walked onto the playing court during the exercise, paused for a few seconds, and then walked away. Before showing them the video, the subjects were asked to count the number of passes made by the team wearing the white shirts and to ignore any passes made by the team in the black shirts. The psychologists showed the same video to everyone. Half the viewers never noticed the gorilla.

They coined the phrase "illusion of attention" to describe the fact that we are unaware of how much we are really missing in our visual world. But it also illustrates that if we are focusing intensely on a task or project, we are able to ignore interruptions or potential distractions – even if they are within our field of vision.

Self-discipline or self-control, focus, attention, and planning are essential if we are to remain effective in this digital age of speed. These are all functions of our executive center in the prefrontal cortex area of our brain. If the executive skills, such as sustained attention, controlling impulses and goal-directed persistence are weak, you will find it difficult to concentrate. The ability to focus is one of the most critical brain functions according to Barbara Strauch, author of *The secret life of the grown-up brain* That's why I claim that the battlefield has shifted from the office to the brain, and why it is so important to strengthen our brain-based executive skills. But how do we strengthen these skills and ignore the beckoning distractions?

7.2 You can ignore distractions and break bad habits

if there's anything worse than being a slave to technology, it's being a slave to your own brain. We are at times the victims of our own habits, and find ourselves doing things we really don't want to do.

Some people have a harder time focusing, while others have a harder time ignoring distractions. Our ability to willfully focus attention is physically separate from our ability to ignore distractions vying for our attention. Earl Miller, a neuroscientist at MIT, led a 2007 study that discovered that willful concentration and unintentional attention are not the same, and are not controlled by the same region of the brain.

In either case, you can change your brain. Your brain simply responds to how it has been wired – either by you, others, or circumstances. You are not what you are; you are what you decide you will be. You – or at least your mind – must take control. If you don't, your brain takes control by default. It switches to autopilot, based on the original course it was programmed to follow. As Michael Harris expresses it in his book, *The end of absence*, "We are hardwired to always default to fast-paced shifts in focus."

Jeffrey Schwartz and Rebecca Gladding, authors of the book, *You are not your brain*, say that the mind's ability to change the brain is referred to as self-directed neuroplasticity. They claim that your mind can veto any action taken habitually by the brain.

So gaining control of your technology and your life requires taking control of your brain through self-directed neuroplasticity.

7.3 Strengthen your executive skills

Research shows that the Internet and digital technology can have a negative impact on our ability to learn, focus, pay attention, memorize and relate to others on a personal basis. It can also gobble up our time, encourage busyness and multitasking and stifle creativity.

With strong executive skills, however, you can more effectively resist the incessant interruptions and distractions of today's environment, focus on your important tasks, and continue to get the important things done. Sometimes referred to as "habits of the mind", a person's "executive skills" are those brain-based skills required to execute tasks – that is, getting organized, planning, initiating work, staying on task, controlling impulses, regulating emotions, and being adaptable and resilient – the very skills needed to stay focused and productive in today's environment.

You can strengthen these executive skills if you have the motivation to practise what I have suggested in this chapter, and I have also included other ways to both strengthen and cope with weak executive skills in two of my previous Bookboon books, *A brain's eye view of time management* and *Time management strategies for an ADHD world.* But it's one thing to know how, and another thing to actually do it.

Your energy, willpower and mental strength will increase as you get adequate sleep, exercise and diet, manage stress well, and balance high-tech with high touch, remain socially active, control your working environment and manage the technology in your life.

But there is one missing ingredient – motivation.

7.4 Motivation is all in your mind

Researchers have already shown that musicians, athletes and others can expand the brain areas associated with those skills by mental activity alone. The brain can also change in response to messages generated internally by our thoughts and intentions. The problem is it takes effort. For neuroplasticity to work, you'll have to stick with the new behavior until you can do it effortlessly. Practice until it becomes a habit. John Arden, in his book, *Rewire your brain*, claims that by considering possibilities instead of limitations on a regular basis, you'll rewire your brain. You can train yourself to change the way you think.

The key is to get started, which means doing what you don't feel like doing and continuing to do it. To do this you will have to overcome the initial inertia, which requires motivation. Motivation is a critical component of neuroplasticity. You must want to change, and believe that it's possible to change, before you can actually change.

That's how placebos work. Patients want to get well. Their desire to get well is strong. And since they think that they are taking a new drug that will help them, the expectancy that it will work is high. Motivation is the product of desire and expectancy.

Someone who is disorganized, for example, can become organized if they willingly buy into a routine of practising organizing principles again and again with the expectancy that it will help them become organized. Charles Duhigg, in his book, *The power of habit*, says that for habits to permanently change, people must believe that change is feasible. He suggests that when people come together to help one another change, that belief becomes even stronger. So in forming any new habit, it is usually easier to do so when you have the support and encouragement of others.

You are not what you are; you are what you decide you will be.

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9 About the author

Harold Taylor, CSP, CEO of Harold Taylor Time Consultants Ltd., has been speaking, writing and conducting training programs on the topic of effective time management for over 30 years. He has written 18 books, including a Canadian bestseller, *Making Time Work for You.* He has developed over 50 time management products, including the popular *Taylor Planner*, which has sold in 38 countries around the world. He has had over 300 articles accepted for publication.

A past director of the *National Association of Professional Organizers,* Harold Taylor received their *Founder's Award* in 1999 for outstanding contributions to the organizing profession. He received the CSP (Certified Speaking Professional) designation in 1987 from the *National Speakers Association*. In 1998 the *Canadian Association of Professional Speakers* inducted him into the Canadian Speaking Hall of Fame. And in 2001, he received the first *Founder's Award* from the *Professional Organizers in Canada*. The award has been named the "Harold Taylor Award" in his honor.

Since 1981, when he incorporated the original time management company, he has personally presented over 2000 workshops, speeches and keynotes on the topic of time and life management.