

# Myth and Mystery of Shrinking Attention Span

Dr. K. R. Subramanian  
Professor of Management & Senior Consultant – Operations, Credait.com

**Abstract:** Everything is fast today, whether it be the food that you consume, the travel modes, entertainment and in general all walks of life. Never before in the history of humans have we seen such a hurry to get going. This is the consequence of the 'mobile culture' that is progressively afflicting our society. Some people call it digital distraction, but others describe it as the way things are done today. One of the deepest concerns expressed by many scientists and researchers is the attention span that is shrinking, people are jumping from one message to another or speaking to three people at the same time and sometimes they call themselves as multitasking wise kids of the modern age. Well, it is easy to understand that the speed of communication, travel and methods of transfer of speech and data have improved with innovative Technology, but the question is, are we allowing enough time at the receiving or sending end to complete or comprehend a message. But some other researchers are calling the whole thing a bluff. Hence the selection of the present topic to find out the reality of the situation.

**Keywords:** *The hurry to get things done, mobile culture, digital devices and multitasking, innovative technologies, a bane of the 'always on' society. Some myths about...*

## I. INTRODUCTION

In the always-connected world of social media, smart phones and hyperlinks in the middle of everything you read, you can feel how difficult it is to stay focused. And there are statistics too. Some say that the average attention span is down from 12 seconds in the year 2000 to eight seconds now. That is less than the nine-second attention span of your average gold fish. These statistics have been seen in Time magazine, the Telegraph, the Guardian, USA Today, the New York Times or the National Post. You might have heard a Harvard academic citing them on US radio. Or perhaps you read the management book - Brief. But if you pay a little more attention to where the statistics come from, the picture is much murkier. Many people who dedicate their working lives to studying human attention have no idea where the numbers come from. In fact, they think the idea that attention spans are getting shorter is not correct.



Figure 1: A study of attention span of drivers who do multi-tasking all the time.

A study of attention in drivers and witnesses to crime says the idea of an "average attention span" is very much meaningless. "It's very much task-dependent. How much attention we apply to a task will vary depending on what the task demand is." But the idea that there's a typical length of time for which people can pay attention to even that one task has limited value. There's something else fishy about those attention span statistics too. It turns out that there is no evidence that goldfish - or fish in general - have particularly short attention spans or memories, despite what popular culture suggests.

There are many effects from smart phones and the like on the human body which are never mentioned. Information technology (IT) is much more powerful in unrecognized ways than is generally acknowledged. Because these various IT devices are often very close to a person's body, and so they can and do have profound effects on the human bioelectric field. The key factor in this ever-intensifying dynamic between human and technology is the length of time of daily interaction. In other words, picking up a cell phone to make a couple of calls a day is one thing; being tied to your smart phone 24 hour a day, 7 days a week is something altogether different. Herein lies, one of the key causes of the shrinking attention span. Additionally it has been found that constant exposure to cell phones near our heads may be dangerous.

Attention span is connected directly to the presence of mind necessary to sincerely engage in person-to-person interaction. How often do the younger generations give up the focus of personal interaction for the sake of not missing the internet events of the day? Things are now moving so quickly that many within the younger generations do not want to miss out on anything. Consequently, their attention spans are being shortened to accommodate that next "BIG" event which can only be experienced on the internet or by way of the smart phone.

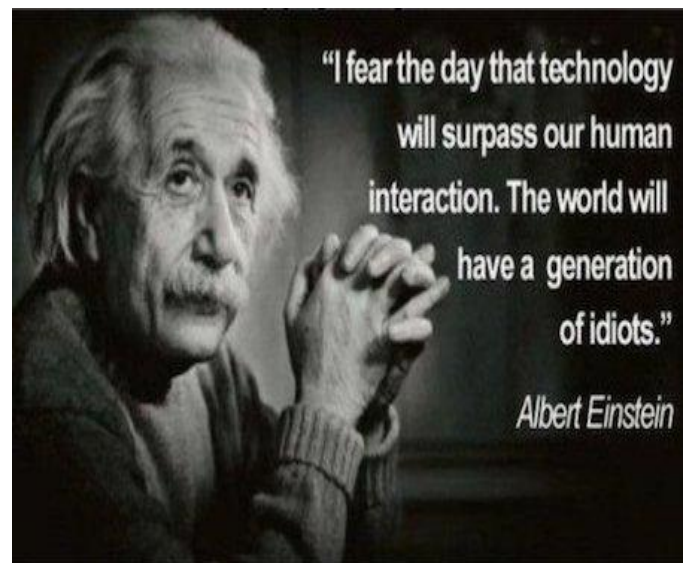


Figure 2: Einstein - was he right?

There is a growing body of thinking that our ability to absorb new technologies is not as fast as the growth of these

technologies. Probably this is what Einstein and other people had forecast!

## II. OBJECTIVES AND METHODOLOGY

Data Processing and transfer has become very fast, thanks to the development of digital and other mobile technologies. But the moot question is whether our abilities to absorb them fully have gone up simultaneously. Human interactions take a little time to absorb what is said. Hence Communications can be effective only if we allow adequate time for the information to be absorbed; if there is a constant and uninterrupted communication, it may be difficult for our faculties to concentrate sufficiently to absorb what is said. In the current business environment, more and more data needs to be transferred continuously and so the attention span is reduced and this is very critical and important. In the current environment of business, multi-tasking is the norm and it needs to be seen how this is achieved. With these thoughts in mind the following objectives have been identified for the purpose of the current research paper.

1. Environmental changes calling for faster work.
2. How digital technologies have been adopted to meet these challenges.
3. Will this work and what are the psychological constraints?
4. Importance of attention span and research conclusions on the same.
5. Conclusions and recommendations.

The Objectives selected above have been considered after a lot of discussion among friends and likeminded researchers interested in the topic of attention span. Since a lot of published research is available on the topic, it was decided to make a comprehensive search of literature and collect Data. The collected information and data were classified to draw conclusions from the same. During the process of research it was found that adequate data from previous research in related topics was available. Then the work of the researcher was reduced to compiling, editing and classifying data to meet the research objectives. This has been done satisfactorily and the conclusions have been made on the basis of the same. This can be seen towards the end of the paper.

## III. REVIEW OF LITERATURE

Our attention spans have not just come down as a whole — we're having trouble focusing in general on what is in front of us. Forty-four percent of one of the study participants said they have to concentrate really hard to stay focused on tasks, and 37 percent said they're not able to make the best use of their time, which forces them to work late or on weekends. The study also looked at how we use smart phones and found that 77 percent of 18 to 24-year-olds reaches for their phone when they are bored, 52 percent check their phone every 30 minutes or less, and 79 percent use their phone while they are watching TV." If these numbers aren't alarming, it is what the future holds for those who come after these groups which may prove to be more negative in societal ramifications.

Living in society has never been so complex and challenging on many levels as before. Something as simple as driving in city traffic has now become a major chore; not because there are more cars and trucks on the roads; rather, because of what people are doing in their vehicles when they should only be driving (multi-tasking with mobile phones!). What's the real point here? **Safety!** In America, in many places it is becoming more and more dangerous to drive down the street when the

other driver is still putting on her makeup while drinking her coffee and pecking out a text message that was unnecessary in the first place. In the man's case, he's tying his tie or cutting his mustache. In any case, the attention is not being placed on that which requires it the most. Particularly when individuals sleep with their smart phones, is this societal challenge becoming a potentially serious problem. Answering calls and text messages throughout the night only further disrupts necessary sleep. Making this a habit will ultimately cause sleep deprivation which will inevitably translate to accidents and poor work performance.

The incidence of both ADD (Attention Deficit Disorder) and ADHD (Attention Deficit Hyperactivity Disorder) have been rising rapidly over the past couple of decades, just as Autism and Asperger's syndromes have seen a marked increase over the same time period. There are several cofactors for this, of which information technology is a primary one. With each passing year, changes in society have been placing greater demands on the teenagers and young children to perform as adults. This pressure to keep up with everyone else is placing inordinate pressures on young people, some of whom are simply unable to cope. Lack of Effective stress management has always been a major contributor to the ability or inability to focus. This in turn affects our attention span. Unavoidably, attention spans will continue to shorten as long as information technology is allowed to intrude on our lives 24/7.

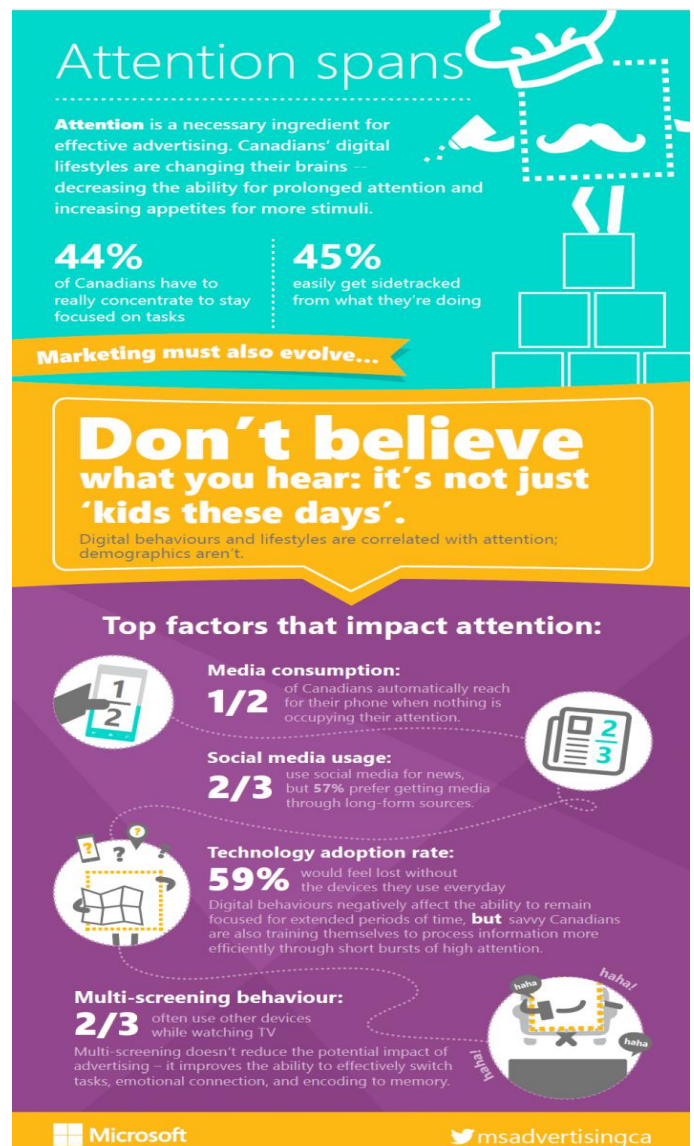


Figure 3: Attention deficiency effects in Canada and the USA.

Handheld devices have become ruggedized for use in mobile management. In 2009 developments in the mobile systems enabled managing parts and scanning barcode systems. Hand held devices were enabled for use in video conferencing, on-screen drawing capabilities and conferencing on real time independent of location. Smart phones, handheld PDAs, Ultra-mobile PCs, Tablet PCs made it possible to watch TV through internet by IPTV on some mobile devices. Progressively these were made available on cellular phones. Strictly speaking, many so-called mobile devices are not mobile; it is the mobile human host carrying non-mobile smart phone devices.

All current computer device technologies are indeed limited by the speed of electron motion. This limitation is rather fundamental, because the fastest possible speed for information transmission is of course the speed of light, and the speed of an electron is already a substantial fraction of this. Where we hope for future improvements is not so much in the speed of computer devices as in the speed of computation. namely, an algorithm. A very efficient algorithm can perform a computation much more quickly than can an inefficient algorithm, even if there is no change in the computer hardware. So further improvement in algorithms offers a possible route to continuing to make computers faster by taking into account some of the quantum-mechanical properties of future computer devices, we can devise new kinds of algorithms that are much, much more efficient for certain computations.

The computer can be made faster by the simple expedient of decreasing its size. Better techniques for miniaturization have been for many years, and still are, the most important approach to speeding up computers. So to make computers faster, their components must become smaller. At current rates of miniaturization, the behavior of computer components will hit the atomic scale in a few decades. Another thing being looked at is software that will better utilize the capabilities of present machines. A surprising statistic is that some 90 percent of the time, the newest desktop computers run in virtual 86 mode--that is, they are made to run as if they were ancient 8086, eight-bit machines--despite all their fancy high-speed, 32-bit buses and super color graphics capability. This limitation occurs because most of the commercial software is still written for the 8086 architecture. Windows NT, Windows 95 and the like are the few attempts at utilizing PCs as 32-bit, high-performance machines.

Fiber-optics and light systems would make computers more immune to noise, but light travels at exactly the same speed as electromagnetic pulses on a wire. Optical computing could, in principle, result in much higher computer speeds. Much progress has been achieved, and optical signal processors have been successfully used for applications such as synthetic aperture radars, optical pattern recognition, optical image processing, fingerprint enhancement and optical spectrum analyzers. Many problems in developing appropriate materials and devices must be overcome before digital optical computers will be in widespread commercial use. In the near term, at least, optical computers will most likely be hybrid optical/electronic systems that use electronic circuits to preprocess input data for computation and to post process output data for error correction before outputting the results. The promise of all-optical computing remains highly attractive, however, and the goal of developing optical computers continues to be a worthy one.

A myth that has captured the imagination of the managerial class is that our attention spans are shrinking in this digital era.

Last year, the BBC carried a story, "Busting the attention span myth", which showed that the oft-quoted statistic of the average attention span being down from 12 seconds in 2000 to eight seconds now is not based on any real research. This particular number was from a 2015 report by the Consumer Insights team of Microsoft Canada, which surveyed 2,000 Canadians and also studied the brain activity of 112 people as they carried out various tasks, the report said. The intriguing part is that the figure itself was not from Microsoft's research; it was a citation from another source called 'Statistic Brain'. The BBC reporter contacted two of the sources cited by Statistic Brain — the National Centre for Biotechnology Information at the U.S. National Library of Medicine, and the Associated Press — and neither could find any research that backed up the numbers. Statistic Brain chose not to speak to the BBC reporter, and other specialists who spoke to the reporter had no idea where the numbers came from either. However, the mythical statistic gained traction.

The focus in this digital age has moved from in-depth reporting to real-time tweeting and single-line news scrolls on television screens. Exhaustive reports have given way to information tit bits that are often without a proper context. The emergence of click bait journalism, which is far removed from the purpose of journalism, is one of the biggest disservices of the digital age. Debate has given way to personal slander and interrogation to bubble filters, inquisitiveness has been replaced by echo chambers, and dialogue has got trapped in algorithmic silos.



Figure 4: Long-form reports thrive in a time of click bait journalism

During this phase of searches for digital revenues and a reductionist approach to journalism, it is heartening to see *The Hindu* (a popular daily newspaper in English, in India) providing an answer to the media's existential question: how can we stay relevant in this digital avalanche of information? It did not opt for click bait journalism, but opened up its pages more for long-form journalism. Today, it can be said with utmost certainty that *The Hindu* is the only paper in India which has about 20 pages dedicated to rigorous, long-form journalism a week.

It is all the rage to say that the modern attention span is decreasing because of the online world. It is simply a way of blaming the audience for your failure to communicate. The latest reason for rolling out the shorter attention span excuse for poor communication has been based on an unreferenced non-peer reviewed marketing report (PDF) by Microsoft that didn't even manage to clearly define what attention span was, although it did categorize three types. While the report made some good, self evident, marketing points, it talks more about how attention shifts more quickly between technologies, not that attention span per se is declining. In fact, the effort to

multitask seems to be the real problem here. And no matter what we may like to believe about ourselves, science says nobody can multitask effectively.

The whole mess about attention span in this report came from a factoid in a balloon diagram (below) that was then used as a headline and lead sentence by multiple news outlets. The balloon diagram stated that human attention span was less than a goldfish – down from 12 sec in 2000 to 8 sec in 2013. Its reference was - The non-peer reviewed, relatively unscientific Statistic Brain.

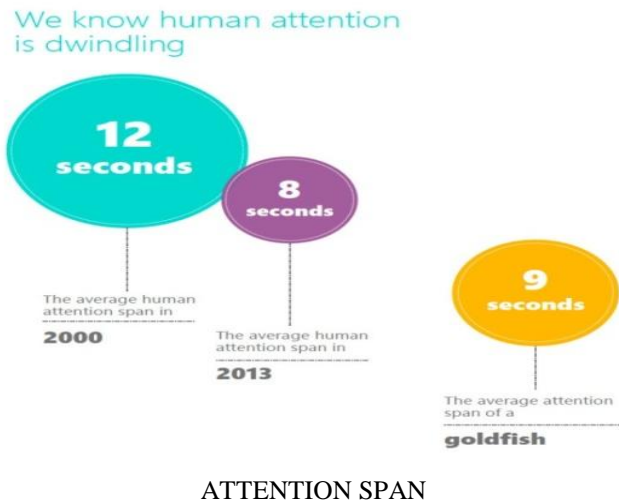


Figure 5: The much publicized gold fish Story (illustrated)

It also claimed a goldfish’s attention span was 9 sec. That last fact should have been an alarm bell to a half decent reporter. How do you measure the attention span of a goldfish? The media have a lot to answer for, after failing to check the source of their headlines and spreading this rubbish far and wide.

In the digital age, it seems the ability to stay focused is now considered a superpower. A weaker attention span could be the side effect of the brain having to adapt and change over time in the presence of technology. However, there are ways to improve our attention span amid the ongoing texts, tweets, and other interruptions. A 2012 study published in *The Journal of Nutrition* found mild dehydration can cause you to lose concentration. It is imperative to stay hydrated even when you don’t feel thirsty. Men should drink 13 cups of total beverages a day while women should drink nine cups, according to the Mayo Clinic. A 2013 study published in the journal *PLOS ONE* found increasing your fitness level can do wonders for your attention span. Men who were part of a Spanish cycling team responded seven percent much faster than the less fit group in a computerized task. Exercising the body is exercising the brain. The same study found an office worker gets only 11 minutes between each interruption, while it takes an average of 25 minutes to return to the original task after an interruption. It’s better to give a task a dedicated time slot to solely focus on your work and ignore the irrelevant. Technological devices that are within reach can easily lure you in to decrease your attention span.

Traditionally, training was delivered in instructor-led workshops that lasted from two hours to two weeks. (Indeed, research suggests that the majority of training is still delivered in this way). But today’s audience has little tolerance for this these behemoth sessions and companies are asking whether these extended sessions are delivering an effective return on the investment. There is a growing movement toward replacing tortuous training marathons with brief learning experiences

that are delivered, as needed, where needed, via the internet. These brief training experiences have been referred to in a variety of ways including micro-training, short-form training, as-needed training, and my favorite: “burst training.” I like the term burst training because it correctly suggests that the learner is receiving a quick jolt of knowledge. The ideal burst training can be defined as “Ten minutes of training, within five minutes of its need, to an audience of one.” In the next few months, we are going to look carefully at brief training experiences and we will examine what can and cannot be taught this way, the best training media for bursts, the special power of “video bursts,” and most importantly, how using bursts affects retention and transfer.

Contrary to popular belief, students don’t have short attention spans. They can focus for hours on a single project. But it has to feel relevant and meaningful to them and they need to have the time and the space to accomplish it. It’s not easy in a world of school bells and curriculum maps. However, it’s something we should strive for. We should draw students in to the deeper, slower work of creativity — because when that happens, learning feels like magic.



Figure 6: The myth of shortening attention span of kids

So, there are many truths and a few myths about the shrinking attention span. This is situational, for example children are not distracted by anything when they watch comics or other programs of interest. It is for us the grownups from an earlier generation to understand these social changes and adapt to the new realities.

#### IV. DATA ANALYSIS AND CONCLUSION

There is no two opinions about the fact that working environments in organizations are changing with every innovation in technology. Humans have adopted technological changes as a way of progress, and these technological changes have been accelerated by the digital proliferation of mobiles and other aids. One of the critical changes has been that the work needs to be performed faster and faster to cope with the speed of flashing messages across continents and among younger and adventurous people. People seem to exhibit a tendency for undue haste and hurry to complete tasks and find solutions to their problems. Marketing and product manufacturing companies seem to be aware and exploiting the current environment

Digital Technologies have been adopted as a means of coping up with the speed with which work needs to be accomplished. Learning and Training are greatly enhanced by the two way process of interactive media. This interactive feature is the distinctive feature of current business, industrial and

educational environments. Whether digital technologies have been thrust on us or not is not a question or matter for debate. These technologies have definitely improved the quality of our lives and the younger generation is already adopting it. Every invention or new technology is a challenge, starting from the invention of the wheel. The only logical and practical way forward is to accept the realities of a changing world.

Will this work and what are the psychological constraints? This is the vital question that organizations and consultants are trying to find answers to. However this hurried way of doing business may not be compatible with the human psyche. This is because of 'the attention span' that varies depending on the task and the natural inclination of the doer. A lot of attention has been paid and continues to interest researchers how generations of humans can cope with. It is not only the skill sets needed to complete a task but the motivation to do so is more important. That is why a lot of research is being done in this field to find solutions.

While the concept of attention span is receiving a lot of attention from researchers and academicians, organizations have to be guarded against opinions which are self serving in nature, even if coming out of multinationals with a lot of 'fanfare' through media channels and web pages. Companies and organizations should independently assess the value of new technologies and the impact on customer views and how they are influenced by digital distractions through the media of mobiles and network of web pages and messages through friends and opinion makers. In the current environment where the medium has become the message, companies need to evaluate their media policies for advertisement!

As the technology is marching with giant strides, the skill sets and ability to exploit the same have to be developed. This is where the concept of attention span makes a halt. Digital technologies assume that there is no halt or pause before adoption; but practically this is not true. New knowledge and skill take time to sink and this time period is what is meant by attention span, giving a breather to individuals to understand new ways and means. By training and development of employees, organizations cope with these developments. But to assume that there is no GAP in time before new technologies are absorbed is incorrect. Digital technologies and the younger generation try to absorb the changes by visual and graphical modes of speed training

### RECOMMENDATION

We need to recognize that 'change is the only constant in Business'. The success of any business will depend on the speed with which they recognize the need and adopt change. The concept of attention span is not for the psychologists alone to understand, but for all of us as business managers as well. In fact organizations, instead of deliberating on whether there is reduction or increase in attention spans due to new Technologies, must get on with the fulfillment off their organizational purposes through training and re-training of employees. As mentioned in the review literature, this has to be done by adopting new methods for training that may involve shorter attention spans, but very effective means to achieve organizational results.

Marketers will have to contend with the reality of shrinking attention spans to modify and adjust their product campaigns and promotions. This is very nicely depicted in the figure 7 given below:

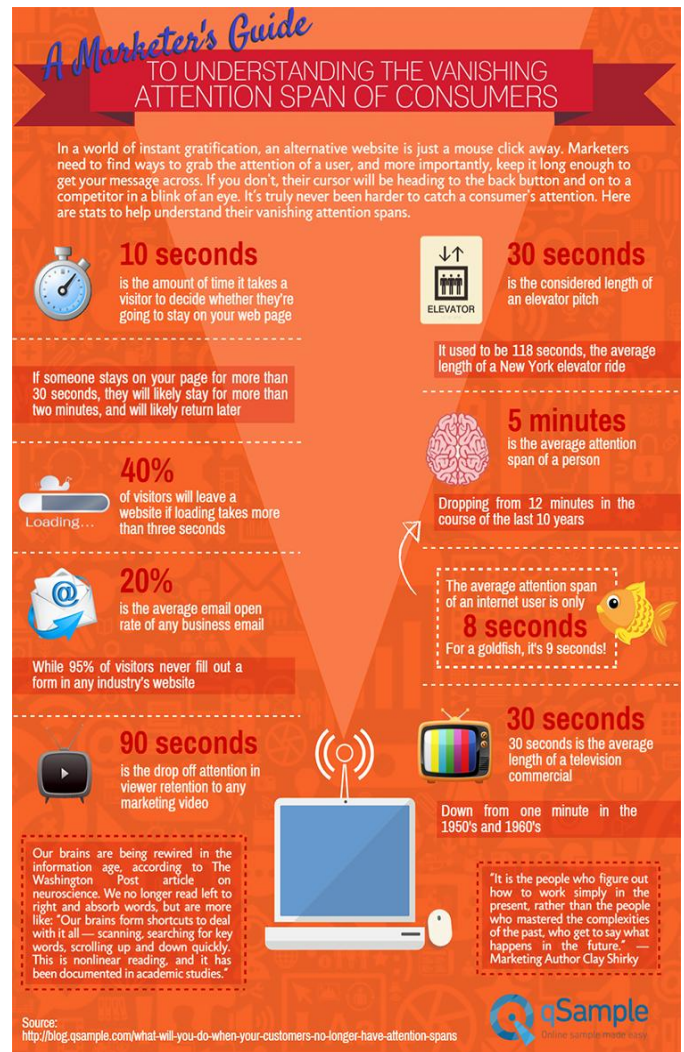


Figure 7: How marketers contend with the attention span

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