



## Research Proposal

# Exploring the Impact of Multitasking In the Workplace

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## Abstract

*This proposal takes a look at multitasking and its impact on the workplace. As workplace technology evolves, managers need to make decisions in an effort to increase productivity. The review of literature pertaining to the subject indicates that multitasking has been shown to both increase and decrease productivity. This leads to further questions on how multitasking should be implemented. In order to evaluate the impact of multitasking in the workplace, quantitative and qualitative data can allow for analysis of multitasking in terms of impact on the individual and the organization, and give management proper insight to choose the right method to increase efficiency.*

Keywords: Generations, Multitasking, Management, Organizational Behavior, Job Satisfaction

## Problem

We live in a constantly changing environment—a world that seems ever changing as each moment passes—and consequently in a work environment that follows the same dynamic nature. Today's workforce is comprised of different generations. The full retirement age for people born after 1960 is 67 years old (Social Security Administration, 2012), and there is no rule dictating when a person must retire. Thus the workplace is one with people of various ages collaborating to achieve goals together. Also changing is the reliance on technology in the workplace. Between the emergence of smartphones and computers, there seems to be greater ability to get tasks done in a shorter period of time. Being able to conduct research via the internet, or schedule meetings through email, has opened a door to getting things done with minimal constraint. Both age and technology affect the work environment and create tension as managers try to find a balance with these components.

These two components lead to the concept of productivity. The objective of management is to obtain a high level of productivity at minimal cost. One method of doing so is to increase

the amount of work done by an employee in a set amount of time; in other words, utilizing multitasking in an effort to boost productivity. Multitasking is regarded as the simultaneous engagement of two or more tasks (Pairdon & Kaufmann, 2010, p.111). It is this very definition which encourages an exploration of the topic for this paper, as it calls into question various elements: Does multitasking increase productivity? Does age matter when it comes to multitasking? The questions can go on indefinitely.

Addressing the topic of multitasking is important as it directly affects the workplace. If productivity is a desired outcome, then methods should be implemented to maximize it. Before making multitasking a mainstay in the workplace, management must consider any potential consequences that may arise. One particular example would be the effect of multitasking on the employee, such as an increase in stress. If employees take on excessively high levels of stress, there may be the potential for burnout. This could in effect harm the company by inducing a higher turnover rate or negative corporate culture, either of which can impede productivity. Another concern is the ability for employees to adapt to the increasing demands, especially if the components that comprise the multitasking ability are age sensitive. A critical factor here would be whether or not an employee can effectively juggle tasks without experiencing a significant decrease in performance, and if there is a decrease, what factors cause it. If either of these cases turns out to be the result of multitasking, then management should reconsider the training and selection process for employees.

The research presented aims to shed light on this subject. If multitasking is to be used as a method for achieving an increase in productivity, then it must be explored in an unbiased way. In doing so, one can learn to understand the benefits of multitasking as well as the undesirable consequences. Once the topic has been evaluated and its strengths and weaknesses identified, management can decide how or if they should incorporate multitasking into the workplace. Increased knowledge of the subject can affect the hiring and training practices of an organization. By taking into consideration the outcome of our research, we hope employers can find ways to improve job performance and organizational commitment by factoring in the considerations put forth.

## **Objectives**

The first course of action is to find the correlation between multitasking and age. In order to do this, relevant information must be collected. Information using quantitative data exhibiting the results of people of various ages would be useful. The use of statistics can give insight to the extent that ability and age are negatively correlated. Also needed is the breakdown of multitasking attributes, such as cognitive ability. This, along with the first set of information, will give a clearer picture as to whether a link exists between an employee's age and ability.

The second course of action is to analyze the impact of multitasking on productivity. To do this effectively requires the acquisition of data reflecting the results of performance. Pertinent information would include studies highlighting how multitasking affects one's ability to carry out simultaneous tasks with respect to completeness and accuracy. Information that emphasizes the level of strain involved in completion of simultaneous tasks would help in assessing the long-term feasibility of performing multiple tasks at once. The costs associated with stress can be great if left unchecked, thus adding to the pertinence of such information. Further needed to assess the impact on productivity is the degree of distraction created by multitasking. In order to maximize efficiency, employees need to stay on task, so exploring distraction is necessary. By

searching for information that directly responds to these objectives, it is expected that a correlation can be identified.

The third course of action relates to whether or not multitasking is more effective than time management. In order to address this accurately the difference between multitasking and time management should be touched on. Clearly defining the terminology will allow further progress of the topic. Secondly, we will need to apply the results relating to productivity. Juxtaposing productivity under multitasking versus that under time management will allow for a more objective comparison of the two techniques. Factoring in the amount of time needed to complete each task under the respective methods would also aid in determining the strengths and weaknesses of multitasking.

The goal in analyzing the suggested information is to facilitate a better understanding of multitasking in the way of benefits and drawbacks. In order for an organization to make a decision in implementing methods to enhance productivity, it should carefully consider the entire scope of the research. Thus by exploring this topic fully, the aim of this research is to aid the decision making process.

## **Literature Review**

The research that has already been collected through experimentation was found to have four main topics that were consistent through all the articles. These include the capacity one has to effectively carry out tasks, multitasking can both increase and decrease productivity, time management is more effective than multitasking, and the higher one climbs in the management structure the more tasks they are to complete, which leads to an increase in multitasking.

According to Paridon and Kaufmann, their research supports the notion that multitasking is not dependent on the age range of the subject but rather the individual capacity that person has to accomplish a certain set of tasks. One case study tested this with two situations. In the first one, the participants were asked to complete a driving simulation while consecutively using a cell phone, a tissue, pulling change from a purse and reading direction. In the second test the participants were asked to complete an office task. They had to spell check words displayed on a screen while listening to a text message that they were to be quizzed on once they finished the simulation. “There were no gender and virtually no age differences regarding the single-task compared to the multitasking condition” (Paridon & Kaufmann, 2010, p. 110). The researchers found that the ability to multitask was based upon the type of tasks performed. If someone was given a task that did not use all of their attention, then they were able to successfully work on another task at the same time. However, if they were not, then they would find that they were unable to complete the tasks they were given. This finding indicates that there was virtually no difference attributed to age. The only difference found was in the ages 41-50, where the ability to multitask was slightly less than the other age ranges.

Another case study “suggests that planning is not a unitary construct, and we identified separate constructs for planning and for online planning during task performance, however, the latter two factors were not uncorrelated” (Logies, Trawley, & Law, 2011, p. 1571). The reactions of the frontal-lobe were the most important aspect of the study. Participants were to complete an Edinburgh Virtual Errands Task (EVET) that would allow the experimenters to calculate the capacity that people can withstand when accomplishing virtual tasks. These results support all people having the capacity to accomplish various tasks. Age is difficult to say that it didn’t play into effect here because the sample was solely comprised of students at the University of

Edinburgh but they seemed to take this into consideration when they were studying individuals frontal-lobe models.

Many researchers have noted that multitasking may not be as successful as time management, as generally believed. Time management seems to be more efficient than multitasking. Multitasking as reiterated from above is the act of completing two or more tasks at the same time and switching from one to the other and back again. An example of time management would be time sharing, which is performing multiple tasks simultaneously by distributing tasks across different group members (Spink et al., 2008, p.103). The idea that a person performs tasks individually or with a different method other than multitasking is more efficient than multitasking itself.

One study looked at how students perform in school with work for time sharing and work for multitasking: "This means that dividing attention by multitasking impedes learning and performance in the short-term and may, be underutilizing brain structures necessary for the correct type of learning, affect long-term memory and retention" (Rekart, 2011, p.1). The constant switching between tasks affects a person's ability to stay focused on one task and instead divides the individual's attention. This divided attention affects the stimuli that should be filtered from the brain so the person can focus on the single task. The consequence is that it makes it difficult for the person to stay focused for a long period of time. The time that a person spends focusing on a task is otherwise known as working memory. Another case study found that "working memory turned out to be the most important of the predictors investigated. We found mixed support for a role of attention in multitasking" (Konig et al., 2005, p.260). Each individual has a different capacity to the amount of time that they can focus their attention on a single task. These individual differences make testing the claim tough to replicate. The same study also found that "multitasking might only be an effective time-management strategy for people with a large working memory capacity" (Konig et al., 2005, p.262).

Additionally, the divided attention inhibits the person to work as efficiently as possible. "It has been determined that workers who switch back and forth between two tasks take 50 percent more time than working on them separately, completing one first before starting another task" (Gendreau, 2007, p.192). The inefficiency displayed by the person increases with the complexity of the tasks. The complexity of the tasks increases as someone climbs the company ladder. A study was produced that tested relational contracts, multitasking and job design. It was found that "task splitting will be more frequently preferred to assigning all tasks to one agent" (Schottner, 2012, p.155). This occurs because as detailed above, a person only has a certain capacity for tasks.

Task complexity increases as people try to multitask which leads to technostress. "Technostress is a person's reaction to technology and how pervasive influence of technology changes a person" (Gendreau, 2007, p.193). The stress from the complexity of the tasks has been studied profusely. Despite the limitations, our findings suggest that job satisfaction is dependent upon whether or not a person multitasks. Additionally, it is characterized by time management and the fact that multitasking uses dissimilar skill sets, and works towards unpredictably changing deadlines" (Agypt & Rubin, 2012, p.425). The results show that if an organization allows employees to choose whether they would like to multitask or use time management directly affects job satisfaction. It was proven that people who were not allowed to choose if they wanted to multitask or not had lower job satisfaction levels than the people who could choose.

Multitasking was found in some studies to decrease productivity while in others it was found to increase productivity. The results from the driving and office simulation found that "multitasking led to reduced performance and increased levels of subjective strain" (Paridon &

Kaufmann, 2010, p.110). The participants did not realize that their productivity levels decreased until the simulation was over. This can be shown when the participants are asked to answer the questions from the test that they were asked to listen to. The participant's heart rate increased due to the subjective strain and consequently led to the participants unable to answer correctly. In addition multitasking was looked at through two different lenses: Cognitive Science and Information Science. Cognitive science refers to how people accomplish the tasks they are required to do. Information science is the act of accomplishing multiple tasks while using technology. "Research in cognitive science and human factors sees multitasking as having negative consequences (i.e., producing a slow-down in performance of a principal task and increased errors)" (Spink, et al., 2008, p. 94, 108). This negative consequence in turn influences a person's stress levels.

Conversely, a few case studies have researched multitasking and found that it increases productivity. Multitasking has been proven to enhance performance of individuals during virtual meetings. Virtual meetings are used frequently to organize individuals from different parts of either the country or nation and create various ideas to influence a company's goals. A case study performed by the Department of Anthropology at the University of North Texas researched EDS (Electronic Data Systems) employees' behaviors during face-to-face meetings and virtual meetings. Christina Wasson found "properly managed, multitasking can enhance the productivity of the individual and the organization, while having little impact on the meetings of virtual groups" (Wasson, 2004, p. 56). Their methods suggest that multitasking can be effective once guidelines have been set up to be followed.

These guidelines need to encompass technology and the degree to which employees use technology in their day to day lives. Technology allows people to accomplish tasks easier. This new technology is causing a shift of the culture in the organization. "The findings indicate media exposure influences organizational behavior, the manner of the organization and the structure of work in the organization" (Bott et al., 2011, p. 96). This technology case study was written to see if there were differences in the amount of technology used by various generations. The article found that there was not as much of a difference of the amount of time spent with online media among the generations. Although the results demonstrate differences they were not as distinct as well known stereotypes (Bott et al., 2011). Another way that multitasking may be able to increase productivity is through mastering multitasking. Paridon and Kaufmann say that multitasking is a strategy that can be practiced. "If a task can be automated and therefore needs less attention after some exercise, it can be carried out simultaneously with another task" (Paridon & Kaufmann, 2010, p.121). Attention is characterized as the time taken on an assignment. Multitasking relies on a person's ability to focus and pay attention to the task at hand. Although multitasking can never be completely eliminated it can be presented to management in a way that helps the organization to restructure and adapt to the changing culture.

## **Hypotheses**

Multitasking is a broad topic. We selected four hypotheses that best suit our claim: (I) the ability to multitask reduces with age, (II) multitasking in the work environment leads to a decline in productivity, (III) time management is more effective than multitasking, (IV) and multitasking is a common task among upper management.

The notion that the ability of a person to multitask reduces with age stems from the idea that the brain's reaction time in switching from task to task decreases as a person gets older. If there is a negative correlation with age and productivity then it can be concluded that Generation

Y, who are younger in age, will have an advantage in today's workforce. To test this, the X variable will be age and the Y variable will be performance when multitasking.

The idea that workplace multitasking leads to a decline in productivity spurs from an employee's stress of being over worked. A person who is over worked may suffer in performance because the time pressure may prevent them from completing all the tasks. In testing this hypothesis, the X variable will be the amount of multitasking and the Y variable is productivity.

Our third hypothesis states that time management is more effective than multitasking. A worker who manages their time effectively may not need to multitask, thus resulting in increased productivity without the strain induced by multitasking. They would not need to multitask because the person will have set aside the proper amount of time to complete each task eliminating having to complete the tasks at the same time due to time pressure. To test this hypothesis, we will compare and contrast the results between people who utilize time management and people who multitask, with the X variable being method of task completion and the Y variable being efficacy or productivity. This would inform the researchers of which is more effective.

Our final hypothesis claims that multitasking is a common task among advanced management. The most advanced one is on the corporate ladder the more often multitasking appears. It appears because there are more responsibilities and more tasks that must be cleared by management. In this case the X variable would be position and the Y would be frequency of multitasking.

## Methodology

In order to test the hypotheses, a variety of qualitative and quantitative methods will be used. To test hypothesis one, the ability to multitask productively in the workplace declines as an employee ages, we will first conduct interviews with different aged people from a number of different industries. We will ask each employee a uniform set of questions which serve to investigate how often these employees find themselves juggling multiple projects and activities at once, whether different ages *choose* to multi-task or are *forced* to multitask, etc., and also find whether or not the employees feel they are being most effective when they multitask. Interviews will also be conducted with each of the chosen firm's managers to see whether or not multitasking is valued at the company, encouraged by upper management, and whether or not the perceived ability to multitask and be productive by the employee is actually accurate in the eyes of the boss. These interviews will be reviewed to find similarities and differences in multitasking with regards to age. If our hypothesis is correct, we should see many young employees, currently the Generation Y-ers, both enjoying and being more productive when they multitask. Older employees would be less inclined to multitask and less apt at doing it successfully.

To test hypothesis number two and three, (the stress from multitasking decreases productivity and that time management is more effective than multitasking, respectively) we will conduct an experiment to test whether time management or multitasking is more efficient in the workplace. In this context, time management is defined as setting/planning specific times to complete one project before moving on to the next. Multitasking would imply working on multiple projects at once instead of only starting one project after successful completing another. For this hypothesis we will stratify a sample of twenty employees from each of the firms chosen from various industries by their age (to insure one group does not have older/younger employees) as well as their gender and put them into two groups of ten, the control group and the

experimental group. Each member of both teams will be assigned five tasks to complete in one quarter. Because this is an experiment and the firms will have already agreed to participate in this study, the five tasks required will be exactly the same for all participants. The experimental group will be told they must work on all tasks simultaneously and report to the manager when they have completed all five tasks during the quarter. Progress for each project will be reported each week to ensure these individuals are juggling all five at once. The control group will be instructed to tackle one assignment at a time and report to the manager each time they complete a task. Periodically, both groups will be surveyed about their mental health and level of stress when completing these tasks. They will be asked to answer as honestly as possible, for the results of these surveys will not be revealed to their managers. At the end of the quarter, the body of work submitted will be evaluated, as well as the amount of time it took each individual in the multitasking and time-managing groups to get done with all five tasks. If our hypothesis proves to be correct, the control group, those who set aside time to complete each task separately will be more productive and produce a greater quality of work than those who were required to complete the task one at a time.

To test hypothesis number four, that the frequency of multitasking increases as a person acquires higher leadership status, we will first interview individuals from different tiers of leadership within the predetermined firms included in our study and ask them how many hours they spend multitasking (working on multiple projects at once) each day and how this has changed since they first began working at the company. From the responses collected from these interviews, we will be able to see if there is a general positive correlation between rank in the company and number of hours spent multitasking. In addition to these formal, structured interviews, we would create an hours log for the CEOs, CFOs, Senior Managers, General Managers, Supervisors, and employees to document and monitor the number of hours spent multitasking each day for a month. From this log we will be able to find an average number of hours per week for each individual and graph these results on a bar graph. The X variable would be ranking in the company, and the Y variable would be the average number of hours spent multitasking per week. If our hypothesis is correct, would expect the bars for the CEOs and CFOs to be taller than those of the supervisors and employees, with managers somewhere in between the two.

Limitations of these methodologies stem from the size of our sample compared to the entire body of the workforce. We will be experimenting on and interviewing three firms from different industries; however, there are hundreds of industries we are not accounting for with our sample which may invalidate our results. This will keep us from being able to generalize our results for the entire workforce.

We also cannot control every step taken by the employees during the quarter the experiment takes place, nor can we control all outside variables that affect a person's productivity and stress levels. If a person in the control group has a family member die while the experiment is being completed, their results most likely will reflect their ability to cope with traumatic experiences at work, not their ability to multitask. We will do everything we can to try and control extraneous variables by monitoring such during our experiences and disclose any events that may skew our results. Careful monitoring of the employee participants will be by our assistants throughout the experiment to strive towards accurate results. When experimenting with humans it is always difficult to control all environmental and situational variables and represent the population being tested accurately.

## **Data Collection**

The data will be collected from various places along the pacific-time zone including Arizona. We will choose five hundred people to be interviewed with seventy-five of those people holding a management position. This will give us a diverse group of people from different markets with various sized companies (small, medium, and large). The different markets will include people working in the finance industry (Bank of America), the aviation industry (Boeing), and the information technology industry (Google). The participants will be randomly selected to avoid a bias in the results. Each hypothesis will have a unique set of questions; however each interviewee will be asked the same set of questions within a given hypothesis. In addition, having the experiments located in northern California would not be cost prohibitive if we were to have participants travel to our location.

Incentives will be offered for participants during the interview process since they will most likely be missing work to participate. We will disclose to the participants and the company that we will be responsible for any revenue that is lost while the experiment is in process. If there were any travel cost accrued from the participants they would be refunded. Lastly to benefit the company the studies would be available for the company once the results have been documented.

Once the companies agree to the terms we would immediately start the interviews and tests. The terms used in the experiment must be defined and the differences need to be addressed. Once this is clear the results will be compared and contrasted to conclude which is more efficient. Tests will be set up to declare if our hypotheses are correct or incorrect. Throughout the tests, the participants will be monitored for subtle changes that could ultimately decide the result of our test. The data would then be filtered to help us understand how multitasking affects employees in the working environment.



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