Time Scarcity and Student Performance: Instructional Strategies for Busy Adult Online Students

Manque de temps et performance des étudiants : Stratégies d'enseignement pour les étudiants adultes occupés en ligne

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Abstract

Adult online college students often suffer from time scarcity, which results in a drain on cognitive capacity and executive function, thus lowering their ability to plan, reason, and multitask. Busy students often engage in tunneling, ignoring everything but the most pressing concern. To support these students, educators should recommend timelines for task completion and divide larger assignments into smaller tasks. To reduce feelings of time scarcity, classrooms should have a predictable rhythm of regular assignments, a clear syllabus, meaningful assignments, and no busywork. Allocating points for preparatory tasks affirms their value and demonstrates respect for students' time. Educators can help students build slack into their schedules so that they can better navigate disruptions by recommending multitasking strategies, suggesting rules of thumb, highlighting key points in instructions, and distinguishing essential from non-essential resources. Better understanding the challenges of the busy adult online student can help educators more effectively support their success.

Keywords: Online education; Time scarcity; Mental bandwidth; Adult education

Résumé

Les étudiants adultes des universités en ligne souffrent souvent d'un manque de temps, ce qui a pour effet d'épuiser leur capacité cognitive et leur fonction exécutive, réduisant ainsi leur capacité à planifier, à raisonner et à faire plusieurs choses à la fois. Les étudiants occupés s'engagent souvent dans des tunnels, ignorant tout sauf la préoccupation la plus urgente. Pour aider ces élèves, les éducateurs devraient recommander des délais pour l'accomplissement des tâches et diviser les gros travaux en petites tâches. Pour réduire le sentiment de manque de temps, les salles de classe devraient avoir un rythme prévisible de devoirs réguliers, un plan de cours clair, des devoirs significatifs, et ne pas être occupées. L'attribution de points pour les tâches préparatoires affirme leur valeur et démontre le respect

du temps des élèves. Les éducateurs peuvent aider les élèves à prévoir du temps libre dans leur emploi du temps afin qu'ils puissent mieux gérer les perturbations en recommandant des stratégies multitâches, en suggérant des règles empiriques, en soulignant les points clés des instructions et en distinguant les ressources essentielles des ressources non essentielles. Une meilleure compréhension des défis auxquels est confronté l'étudiant adulte en ligne peut aider les éducateurs à soutenir plus efficacement sa réussite.

Mots-clés: bande passante mentale ; l'éducation en ligne ; manque de temps ; l'éducation des adultes

Introduction

She looked over her calendar with some satisfaction, certain that she had plenty of time to complete her workday at the office, drive her youngest to volleyball practice, put supper on the table, and study for the exam due tomorrow in her online class. A flurry of texts later, announcing that her in-laws were coming for a surprise stopover, her oldest needed an emergency dental visit, and that the dog had apparently eaten the television remote, she was no longer sure that she was going to have any time to study. Adult online college students must often juggle multiple demands on their time and navigate time scarcity. On the surface, this is a time management issue; however, being busy is also a significant burden on our mental bandwidth, a term used by behavioural scientists Mullainathan and Shafir (2013) to describe the cognitive load that impairs our ability to focus, prioritize tasks, and think clearly. When we are distracted by a constant hum of things that require our attention and the feeling that we will never catch up, we are not as efficient and capable as when we feel like we have enough time. Understanding this drain on the mental bandwidth of adult online students opens an opportunity for course developers and instructors to shape the learning experience to empower busy students.

In 2020, 7.0 million undergraduate students were exclusively enrolled in online courses in the United States compared to 2.4 million the year prior (U.S. Dept. of Education, 2021). Add to that the millions of graduate students and students taking only some of their courses online, these numbers put into perspective the surge in popularity of online courses during the pandemic. According to statistics kept by the U.S. Dept. of Education, most universities who moved courses online as an emergency measure during the COVID-19 pandemic expect to continue offering online courses after the crisis is over. While the pandemic forced many universities to provide online instruction sooner than planned, it merely pushed forward the timeline on a trend that was already in place. Online education had already become a mainstream mode of instruction and, over the last decade, was "the main source of enrollment growth in American higher education" (Ortegus, 2017, p. 47). In part, this growth occurred because the flexibility of online education appeals to adults who want to work towards their degree while staying in the workforce and/or raising their children.

There is little data on how time scarcity impacts student success, possibly because educators hold onto the idea that the attention of post-secondary students is (or should be) squarely focused on their studies. However, for many adult online students, being a student must jockey for position against being a parent, spouse, and employee (Ortagus, 2017). These students are taking classes online because

they are already busy. Another common myth is that working students have ample time to study on the weekend, which fails to recognize that family responsibilities surge on weekends. At Leeds Beckett University, two research projects on the learning behaviours of online students demonstrate that

> the study habits of those with families as the dominant contextual factor were characterised by lack of structure owing to childcare and extra-curricular activities . . . The research showed that distance learners with families tended not to study much over the weekends, unless they did not get time to study during the week. (Hewson, 2018, p.4)

Weekend schedules are less predictable for working parents and care responsibilities often take priority.

Cognitive Impacts of Time Scarcity

Managing the time crunch is only part of the solution since busy adults also find themselves weighed down by an involuntary focus on the time scarcity that pulls at their attention and detracts from the ability to focus (Larrson et al., 2017). Just knowing that time is limited generates an internal disruption that prevents someone from fully focusing on the task at hand. As Mullainathan and Shafir (2013) conclude, "scarcity directly reduces bandwidth—not a person's inherent capacity but how much of that capacity is currently available for use" (p. 47). The term *bandwidth* encompasses both cognitive capacity, which are the mental functions related to problem solving and reasoning, and executive control, which includes planning, impulse control, multitasking, and memory. The same person who can function well without time pressure, will lose "between 13 and 14 IQ points" when preoccupied with time scarcity (Mullainathan & Shafir, 2013, p. 52). So, not only does being busy impair adult online students' ability to find time to complete course work, knowing that the schedule has very little slack built into it reduces students' ability to make a plan, remember new information, and reason through assessment tasks, thus putting them at a distinct disadvantage. Even when students are unaware of the tax on their bandwidth, it is impairing their ability to think clearly and function well.

Time scarcity triggers a coping mechanism in the brain that Mullainathan and Shafir (2013) call *tunneling*, ignoring everything but the most immediate concern. Because busy students are tunneling, they are not thinking ahead and do not feel like they have enough time to pay close attention to a lot of information. As Jabs et al. (2007) have observed, busy adults often find themselves reacting rather than thinking ahead, in part because "planning takes time, energy, and forethought and therefore competes with time for other activities and demands" (p. 23). Ironically, tunneling can prevent students from seeing strategies that would help them save time, thus requiring them to spend longer on tasks that are completed more quickly by students who have a larger time-budget (Zhao & Tomm, 2018). From the outside, students who are tunneling might show the same characteristics as students who are procrastinating, namely assignments being submitted for review at the last minute and/or showing evidence of being completed hastily. The difference is that students who are tunneling are overwhelmed by a busy schedule and will take advantage of instructional support that helps plan the week for them. In addition to weekly posting reminders of upcoming assignment due dates (Van der

Meer et al., 2010), educators can support student success by posting a recommended timeline of the interim steps required for completion. For example, if two quizzes, a project proposal, and an article summary are due by Sunday, the proposed timeline might stagger the due dates throughout the week and specify that time should be made to think about the project topic and read the article. Proposing a plan of action for students works with their tunnel vision and directs them towards a path of completion while still allowing them flexibility. Ariely and Wertonbroch (2002) suggest that even when encouraged to make a plan, students do not set self-imposed deadlines optimally, which suggests that all students might benefit from some support in this area.

Mitigation Strategies

In a similar vein, large assignments should be divided into smaller tasks. For people suffering from time scarcity, a distant deadline is easily put aside as more pressing concerns take priority, eventually resulting in last-minute panic when the due date arrives (Lynch & Zuberman, 2006; Mullainathan & Shafir, 2013). Mullainathan and Shafir (2013) conclude that "frequent interim deadlines have a greater impact than a single distant deadline" (p. 172). In the classroom, when smaller tasks build towards a larger project, students will benefit from a checklist that takes them step-by-step through the process, so that they can both see how the tasks support course objectives and they can save the file to take away a solid plan for use in future courses. Having more frequent assignments also opens possibilities for instructors to connect with each student on a regular basis to motivate them, monitor their progress, and guide their learning efforts. Depending on the specific learning needs in each field of study, there might be advantages to allowing students time to think about their submitted work for a few days before receiving feedback (Fyfe et al., 2021). Nonetheless, tunneling makes it difficult to value a distant reward and, particularly at the start of the semester, more immediate feedback will keep students engaged.

Implementing strategies that work with tunneling can help students find their footing in the online classroom. However, they should also be nudged away from tunneling. The first step towards reducing feelings of time scarcity involves helping adult students feel more in control of the time they have available. Award-winning educator Sarath A. Nonis (1997) goes as far as saying that instructors should do "everything possible" to make students believe that they are in control of their time and no surprises are going to appear during the semester to derail their progress (p. 31). To that end, the syllabus should include course objectives, required course materials, weekly tasks, due dates for all assessment tools, and the relative weight of each assessment towards the final course grade. Instructors should avoid pop quizzes or changing due dates once the semester has started. Ensuring that there are regular, consistent due dates for assignments helps students plan their week more easily around them. Nonis (1997) suggests that requiring students, particularly those who struggle to manage their time, to keep up with a steady, predictable workload of weekly shorter assessment tasks rather than infrequent large assignments "may result in higher levels of perception of control over time" (p. 31), which ultimately results in higher success rates. Providing realistic time estimates on how long each task should take allows students to budget enough time to complete them and helps them avoid belabouring

minor assignments at the expense of time that should be spent on major assignments (Kapoor et al., 2021). Even if the information is in the syllabus, students might not judge that reading through the syllabus is a good use of their time, either because they are too busy or because they have been in previous courses where the syllabus was less well-organized. So, instructors should consider ways to walk through the information in the syllabus with students to show them how they can use it to prepare for the semester, how assessment tools work together to accomplish course goals, and how to evaluate the relative weight of assessment tasks towards the final grade. Having this information helps students see the big picture and place value on their time and effort. Ultimately, students who feel in control of their time are less stressed, more productive, and stronger academic performers (Nonis, 1997; Kapoor et al., 2021).

Adult students benefit from knowing that their time is respected. In academia, there is an understandable reluctance to treat students as consumers; nonetheless, in choosing to add coursework to an already full schedule, students are making a high-risk choice in how they are going to spend their time. According to Hewson (2018), there is a "high opportunity cost of time if the student makes the wrong choice; failure means wasting a year, other opportunities not taken" (p. 10). Adult online students make sacrifices to make time for their studies. Thus, course developers and instructors should demonstrate respect for students' time. Avoid assigning busywork, tasks that have limited value towards accomplishing the course objectives. Provide robust lessons and do not rely on the textbook to do all the teaching. As one of the graduate students in Firm Faith Watson's study of effective instructional strategies said, "Provide structured guidance rather than textbook assignments. I don't need to pay [tuition] for someone to tell me to read a book" (Watson et al., 2017, p. 424). Engagement with the instructor is at the heart of learning, even more so when students are online; they want to know that they are not alone on their educational journey, and they value an instructor who is "available and responsive" (Watson et al., 2017, p. 424). Instructors should provide meaningful and affirming feedback in discussions and on assignments. Identify both strengths and weaknesses in student work and offer concrete feedback on how students can strengthen their skills. When determining how much weight to give assignments towards the final grade, instructors should set students up for success by assigning enough value to preparatory work so that students do not "make a strategic decision to forego those marks and instead focus their time on other pieces of assessment" (Cook & Babon, 2016, p. 26).

Many adult online students have been out of school for a while and might not feel entirely confident in their ability to succeed. A lack of confidence compounded with time scarcity negatively impacts students' coping abilities; their subsequent use of maladaptive coping strategies puts them further behind and increases their frustration. Additionally, "poor decision making or impulsivity caused by scarcity's depletion of cognitive resources" and increased feelings of self-blame negatively impact their ability to regroup and recover (Mitsui, 2022). Guiding students towards effective time management and academic success will increase their confidence and further reduce their stress, thus resulting in a positive cycle of achievement. In some cases, this will involve placing value on tasks that the instructor recognizes as a wise use of time, but that students might dismiss as unnecessary. Thus, enough points must be allocated towards these tasks that students recognize their importance. For example, it might not feel intuitive for our online student to take notes when all the information is

readily available to them in digital form (Morehead et al., 2019). Cook and Babon (2016) conclude that although students understand the value of studying and being prepared for class, "this is generally insufficient motivation . . . particularly when balancing competing demands on their time" (p. 25). Nonetheless, research suggests that taking handwritten notes encourages more effortful processing of course materials, resulting in more rewarding in-class discussions, higher test scores, and improved feelings of self-efficacy. Peverly et al. (2003) determined that "college students typically have a poorly defined metacognitive sense of how prepared they are for an examination" (p. 343) but taking notes can help students understand the material and identify when they would benefit from extra research. In fact, between allowing more time to study or requiring students to take notes, Peverly et al.'s research determined that having extra time was not a good predictor of success, but notetaking was. Liles et al. (2018) determined that medical students who earn C grades often rewatch online lectures as part of their study process, but students who earn A's rarely do; instead, they rely more on their handwritten notes. To ensure that students are reviewing preparatory materials, Cook and Babon (2016) recommend weekly quizzes with timely feedback from the professor be used to incentivize learning so that students are "more engaged in the learning process," "more fully understand the course material," and feel "pride in their achievements" (p. 26). Peverly et al.'s research suggests that requiring notetaking can also accomplish these goals, and technology has advanced so that even handwritten notes are easy to scan and submit for assessment by tablet or smartphone. Requiring students to take handwritten notes teaches valuable study skills, fosters mastery of preparatory materials, improves grades, and boosts student confidence, which ultimately assures students that they are making good use of their time.

Supporting Effective Time Management

In conjunction with helping students feel more in control of their time, instructors can recommend strategies to use time more efficiently and help students build slack into their schedule. Having some slack, "a buffer for the unexpected but predictable crises that vex our lives" (Loxterkamp, 2014), reduces stress and empowers students to handle minor disruptions to their plans. However, busy students often fail to consider whether there are better ways to accomplish their tasks. A study of students who were combining academics with intense athletic training to prepare for the Beijing Olympics revealed that when the athletes had to make difficult choices about how to manage their time to balance multiple goals, they did not carefully consider various options or assess alternatives; they acted based on how they had handled similar situations in the past (Macquet & Skalej, 2015). Using this strategy, first-year students were at a considerable disadvantage because they had not yet learned effective strategies to manage the sudden restrictions on their time that came from being an elite athlete. Effective multitasking can be a helpful strategy, and numerous examples are provided across the literature. Jabs et al. (2007) explain that busy parents frequently mention juggling competing activities and trying to accomplish more than one thing at once. Hewson (2018) notes that some students "listened to course-related audio recordings over their tablet or phone while cooking" (p. 4) and Farrell and Brunton (2020) explain that one of their study participants was a mother of 5 who kept books in her car so she could study while she waited at football practice. As long as one activity

requires little focused attention, it is possible to also use that time for studying or reviewing course materials. Providing electronic materials for students makes it even easier since most students carry a phone with them. Depending on the subject matter, courses might also provide audio books or podcasts to allow students to listen to the course readings while they do something else with their hands like folding laundry or loading the dishwasher. Attentive listening is a learned skill, so students should be reminded that they might need to practice before it begins to feel comfortable. It might also be worth a reminder that "effective multitasking" does not mean watching the latest streaming miniseries while attempting to study for an exam or listening to a podcast while operating heavy machinery. There are tasks that require focused attention. Media multitasking (like interrupting study time to post on social media or send a text) should be strongly discouraged as it has a negative effect on "GPA, test performance, information recall, comprehension and note-taking" (May & Elder, 2018). Multitasking works best when applied with a healthy dose of common sense.

Another way to maximize time is to provide tips on how to use 10 or 15 minutes if students have a break in the day or if the hour they had hoped to have for course work has been downgraded to a shorter time frame. Giving that extra boost of confidence to assure students that they can accomplish something useful in small segments of time motivates students to take advantage of all available moments. Jabs et al. (2007) suggest that those with more confidence in their abilities might feel that there is enough time to accomplish tasks at the end of a rushed workday whereas for those with low self-efficacy "time may have been a major barrier" (p. 23). Their research points to the intersection between fatigue, discouragement, and lack of time. The problem is not only that students are busy; it is that being busy often comes alongside other drains on their energy and motivation. As one student explains, the experience of scarcity prompts "mistrust within yourself as far as what you know, what you can accomplish, what you're capable of knowing, learning, doing" (De Sousa et al., 2018, p. 70). In these moments, having a short assignment or task that can be completed, helps students feel productive, encouraged, and motivated. Some of these tasks might involve spending a few minutes thinking about essay or project topics and jotting down ideas, so that students are prepared to jump right into larger assignments when they have more time. Video lectures might also be divided into 15-minute segments, which has the added benefit of aligning with research that suggests student attention begins to decline between 10 and 15 minutes into a lecture (Bradbury, 2016). Instructors should consider how students can best use 15 minutes of focused attention and help them make good use of that time. This is not to say that all course materials should be chunked into 15-minute segments; students will still need to find larger spans of time to focus on lengthier tasks or tasks that require more sustained attention. However, identifying some tasks that require less time can keep students engaged in the classroom even when they are busy, and accomplishing those tasks boosts confidence and works with the time constraints of the adult online student.

Time and Bandwidth

The flip side of making available time more productive is that there is slack in the schedule that gives students greater ability to manage disruptions. When students are "time poor," things like illness, weather events, and holidays can derail their progress and have "a domino effect on participants' ability to keep on track with their studies" (Farrell & Brunton, 2020). Supporting students by anticipating such events (when possible) and putting a plan in place to work around the disruption bolsters student success. Instructors should be mindful of weather events or natural disasters that might impact students and offer a plan to work around the disruption. Since many online colleges and universities work through holidays, remind students at the beginning of the semester of upcoming events and encourage them to plan ahead to make time to celebrate with friends and family. Additionally, providing help at the right time "can serve to purchase peace of mind. And that peace of mind allows the person to do many more things well and to avoid costly mistakes" (Mullainathan & Shafir, 2013, p. 179). In the classroom, help at the right time might include offering a late pass that students can use when it is needed (Schroeder et al., 2019) or dropping the lowest quiz score. Research suggests that simply knowing that there is an option to alleviate scarcity changes perception and increases our sense of personal agency. We perceive endeavors as less risky, believe that negative outcomes are less likely, and become more patient even though "nearly all individuals with greater agency do not exercise it" (Gneezy et al., 2020). Keep in mind that though an extension for one student facing a specific time constraint can be helpful, blanket extensions on deadlines are not uniformly helpful as they introduce uncertainty about the course schedule and encourage students to defer task completion. Ideally, course developers and instructors should create a steady, regular pace that promotes cumulative learning and allows space for flexibility and rest.

Many instructional strategies that save both time and bandwidth are already part of best practices like providing "clear instructions for completing coursework; criteria for assessment of assignments, exams and quizzes; and evaluation of overall performance" (Watson et al., 2017, p. 424). When course materials and assessment activities are organized effectively, students can easily identify the tasks that need to be done and understand how best to complete them. Mullainathan and Shafir (2013) note that we are relatively comfortable working with a budget when short on cash, but we are not as accustomed to budgeting with limited available bandwidth. They note the "impulse to educate" where we throw a lot of information at people and then wonder why they are not acting on this information (p. 174). Busy adults often have many obligations and worries on their minds. Though some never reach the limits of their bandwidth, others know the feeling of having reached the end of their mental energy for the day. For someone who has maxed out their available bandwidth, their fingers might be clicking through the digital classroom, but they are struggling to absorb complex information through their mental fatigue.

One way to economize on bandwidth is to bolster more complex calculations with good rules of thumb. These might be shortcuts that are well-known in industry practice though less often discussed in academic settings. For example, in composition courses, instructors recommend roughly verifying the organization of an argument by using a small font size to see the whole essay at a glance. If paragraphs

are of approximately equal size, the organization is likely to be balanced. If not, students will need to invest time into organizing their argument more effectively. When researching, we encourage students to look in the introduction and the conclusion for the thesis statement in the research articles. A quick look at the thesis statement will help them determine if the article is relevant for their research needs. These rules of thumb provide efficient short cuts for busy students. Mullainathan and Shafir (2013) discuss changes made for a financial literacy course given to microentrepreneurs and the dramatic success when the standard training module was replaced by a course built around good rules of thumb: "Revenues—actual business sales—went up for the rules-of-thumb graduates, especially in bad weeks when improved practices can matter most: they had 25 percent higher revenues in those bad weeks. Traditional financial literacy training, in contrast, had no impact" (p. 175). These tips are even more important to pass on to online students because this is the kind of information that is often conveyed to in-person students as asides during lectures or in conversation after class. Building them into online lessons adds value for students.

Clear Direction

Another way to help students budget their bandwidth is to clearly distinguish essential information in the classroom. Course developers should avoid flooding the weekly lessons with extra, optional readings, or tabs linking to interesting (but non-essential) information. Make it easy for students to identify the information they need. Place optional resources in a separate area and clearly identify their purpose so that students can see at-a-glance how those resources might be relevant to their learning goals. Van der Meer et al. (2010) note that "extra," "optional," or "recommended" readings can be a significant point of confusion in the classroom because instructors might say that readings are optional and then test that material on the exam, or they might recommend materials for interests' sake that prove to be unnecessary for the completion of assessment tasks. Making the value of these course materials explicit means that students do not waste mental energy guessing what they are supposed to do with them. If there are learning support measures such as tutoring, podcasts on using library resources, or meetings with academic advisors that are strongly encouraged, consider registering students automatically unless they choose to opt-out. Doing so sends "a strong message to all students about the importance of using these services" (Serventy & Allen, 2022).

In assignment instructions, provide both full explanations of how to complete the task and a succinct overview of the key points. Adult online students are likely to be in and out of the assignment multiple times while they work on it. Highlighting the key points allows students to have the benefit of the full explanation and a quick reminder of the assignment requirements when they return to the task after a break. Encourage community so that students see one another as helpful resources (Covelli, 2017) and the professor as engaged and supportive (Nonis, 1997; Watson et al., 2017). Research by Shaikh and Cruz (2022) suggests that when people are feeling time constraints regarding task completion, they are more likely to turn to digital technologies for quick help, even when they are told those technologies are unreliable, and they are less likely to communicate with members of their team. The use of technology was perceived as a "type of mental shortcut" though using such assistance

generally resulted in underperformance on creative tasks. Emphasizing the reliability and utility of support from classmates and the professor helps students find more effective solutions. Even when students choose not to take advantage of extra support, knowing that they have options to ask questions, get another opinion, or discuss their ideas can reduce the drain on their bandwidth and help them feel more empowered. To some extent, supporting busy and overwhelmed students means reducing the number of decisions they must make or making those decisions easier. Dubey's research (2019) has determined that mental fatigue has a direct correlation to the number of decisions that must be made each day in addition to the number of hours worked. He suggests that cognitive overload can be reduced for working professionals taking online classes with a simple user interface in the digital classroom and clear explanations from the instructor. A student who knows exactly where resources are and how to complete an assessment task does not have to waste time and mental energy trying to figure it out. With limited bandwidth available, it should be focused on mastering course objectives, not puzzling through confusing instructions or getting lost in a sea of information.

Conclusion

Working with students to effectively use the time that they have is a better option than holding out hope that our students will consistently find hours of quiet, uninterrupted time to complete their course tasks. Students who feel pressed for time will tunnel, which reduces their ability to make a good plan, think clearly, and reason effectively. Instructors can work with this tunneling tendency and help students feel more in control of their time by providing a steady predictable schedule and breaking larger assignments into small tasks. Doing so reduces student stress and increases their academic performance. Instructors and course developers can be students' allies by demonstrating respect for their time and giving them the tools they need to be successful. Help students build slack into their schedule through effective multitasking and making full use of even short spans of time so that they have time to rest and can also handle disruptions to their schedule. In addition to time management skills, the busy adult online student benefits from strategies including clear instructions, easily accessible resources, rules of thumb, and an uncluttered digital classroom. These strategies reduce the drain on their mental bandwidth and help them focus on accomplishing course objectives. When we, as instructors and course developers, have a better understanding of the kinds of pressures faced by our busy students, we are in a better position to support their efforts and help them flourish on their academic journey.

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