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A report from the
Deloitte Australia Centre for the
Edge and Geelong Grammar School



GEELONG GRAMMAR SCHOOL®
EXCEPTIONAL EDUCATION



The digital-ready worker

Digital agency and the pursuit of productivity

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Learned helplessness versus digital agency

IMAGINE THAT IT'S Friday, just after lunch. The new college graduates you hired have had a busy week, so you've decided to host an after-work social event so they can unwind. You give one of the graduates some money and ask them to procure drinks and nibbles, confident that they will solve this open and somewhat underspecified problem. Later, during the event, you pause, reflecting that the same graduate who so easily arranged for the drinks and nibbles was unable to engage, and even balked, when you asked them earlier in the week to create a status page for their project on the company's internal wiki—a similarly scoped problem that you thought they should have been able to solve.¹

This inability to engage with a digital problem in the workplace—where an intelligent, otherwise competent worker proves strangely unable to use digital tools to address workplace needs—can be thought of as a form of *learned helplessness*.² The worker has learned, through many interactions with digital tools and technologies, that these tools are only to be used in particular ways to solve particular problems. Experimenting with different ways of using them often leads to unfortunate consequences: confusion, failure, or even a “bricked” device.³ This reinforces the natural tendency to stick to known, habitual, “safe” tools and methods of use. After accumulating many such experiences, a worker may come to believe themselves incapable of navigating the complexities of a new digital tool, or even the digital workplace in general, without being explicitly taught how to do so—and, consequently, give up even trying.

LEARNED HELPLESSNESS

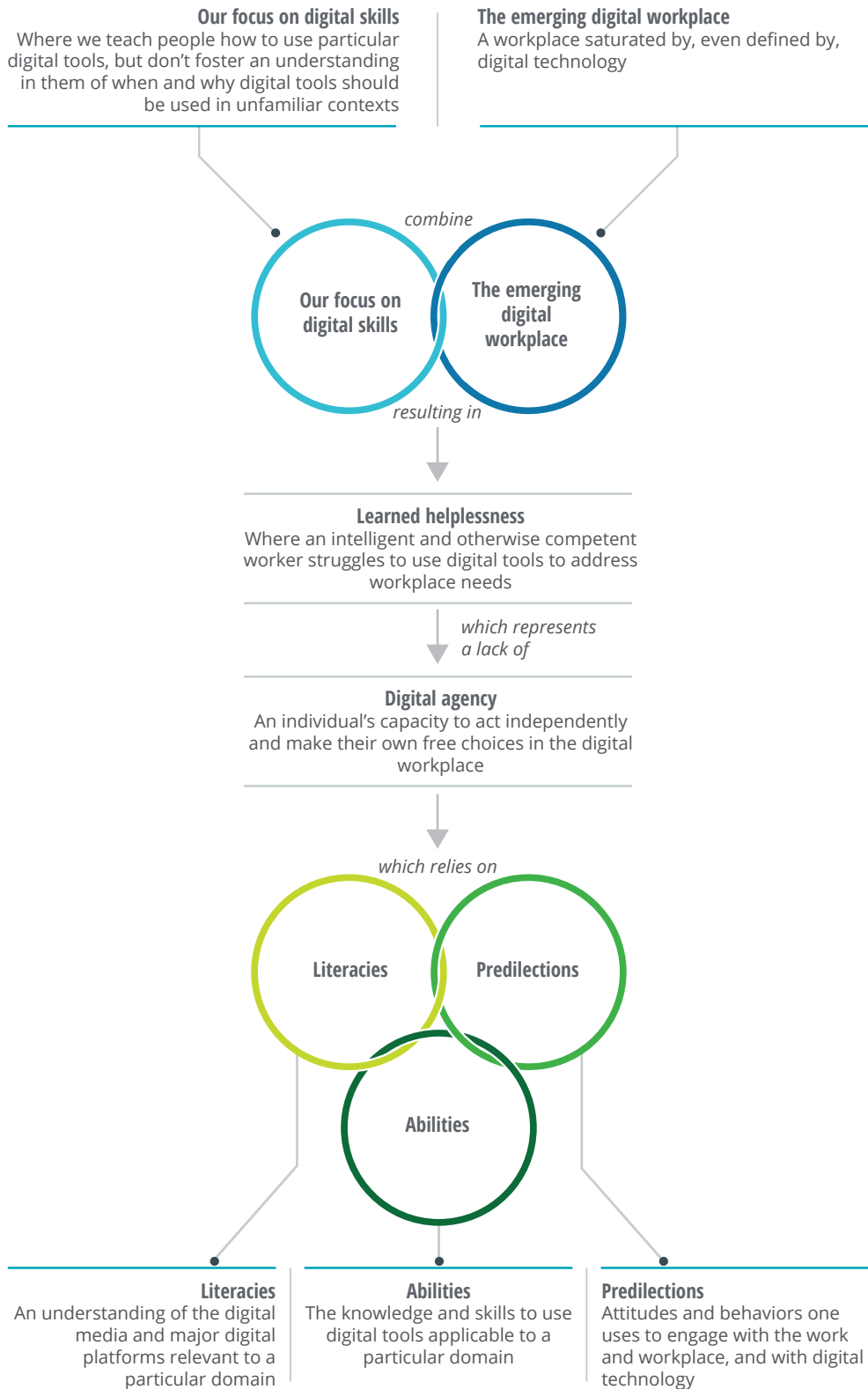
A condition in which a person suffers from a sense of powerlessness arising from a persistent failure to succeed.⁴

Learned helplessness in the digital workplace is an increasingly serious problem not only for frustrated workers, but also for the organizations for which they work. Today's workplaces are saturated with—defined by, even—digital technology. Much, if not most, of an individual's work requires interacting with digital tools, and these tools are becoming ever more prevalent. The thoughtful use of digital tools can often not only make the work easier, but also yield a superior result. But the more complex the digital environment becomes, the greater the danger it will evoke learned helplessness—even as the technology becomes more and more crucial to organizational success.

It's tempting to frame learned helplessness as a problem stemming from a lack of knowledge and skills. However, this is not always, or even usually, the case. Instead, it's more accurate to think of it as a problem of *unknown knows*.⁵ Most reasonably competent workers do in fact know how to use the digital tools at their disposal—or at least have enough knowledge and skills to be able to figure them out. However, when learned helplessness comes into play, a worker cannot make the connection between the problem in front of them and the tool's ability to help.⁶ It's not that they

FIGURE 1

A guide to the concepts in this report



Source: Deloitte analysis.

When learned helplessness comes into play, a worker cannot make the connection between the problem in front of them and the tool's ability to help. It's not that they don't know *how* to use the tool; it's that they don't see *why* they should use the tool *now*.

don't know *how* to use the tool; it's that they don't see *why* they should use the tool *now*.

To highlight the distinction between knowing *how* and knowing *when* and *why*, consider the catchphrase “*Why remember what you can google?*” In a world where (more or less) all the world's knowledge is at our fingertips if we just know how to ask for it, why try and remember everything that we might need to know? Why not treat the internet as an extension of our own memory?

For many of us, across a range of work and personal situations, “googling” can indeed be a productive strategy for finding information we don't know or can't remember. Most of us think that we know how to use internet search engines,

as they're one of the first things we encounter when we discover the internet. Furthermore, if someone doesn't yet know how to use a search engine, it's easy to teach them how to take a question and transform it into a search query. However, what we don't—and perhaps can't—teach so easily is *what questions to ask*, for *what purpose*, and *when it is*

appropriate to ask them. We can show workers *how* to use a search engine, but we can't remain always by their side to point out *when* and *why* they could or should use one.

It's this failure to recognize the *when* and *why* that characterizes learned helplessness. What the worker with learned helplessness lacks is *agency*—or, more precisely, *digital agency*: the capacity, as an individual, to act independently and to make their own free choices in the digital workplace.

DIGITAL AGENCY

An individual's capacity to act independently and make their own free choices in the digital workplace.

The art of understanding *when* and *why*

EARNED HELPLESSNESS IS difficult to recognize in ourselves, though it can be easier to see in others. Many of us—especially digital natives who have grown up with digital technology—are comfortable around digital tools and believe that we are skilled at using them. Our familiarity breeds confidence, and we assume that we have a sophisticated relationship with the technology.

Familiarity, however, does not guarantee competence. Often, our understanding of the technology is not as good as we assume. When pressed, we cannot explain how our digital tools work, why we use them the way we do, or if there is a better way of using them.⁸ Interestingly, it's the digital natives who are most notable in this respect. Studies have shown that digital natives neither use technology more often nor are they more proficient at using it than digital immigrants. Indeed, many digital natives are prone to overestimating their digital skills: In one study, twice as many digital

natives rated themselves “digitally proficient” as actually were digitally proficient.⁹

The point is that mere familiarity with digital technology does *not* inoculate people against learned helplessness.¹⁰ Whether digital native or digital immigrant, experienced worker or graduate, people of all stripes are equally prone to the phenomenon. Similarly, familiarity with digital technology does not prevent people from using digital technology when it is not appropriate.

DISCERNMENT

The ability to identify opportunities and limitations in a particular context (such as the digital workplace), and to anticipate the impact of one's actions on problems arising within that context (for instance, whether using a digital tool would help or hinder a desired outcome).



If we're to foster digital agency in our workers, then what we must cultivate is not familiarity, but *discernment*. Discernment can be understood as a worker's ability to identify and evaluate the opportunities and limitations of the digital workplace, and to anticipate how their actions will affect this workplace, for good or bad. Or, put another way, workers need to be sensitive to *when* and *why* digital technology could and should be used—and when it should not.

Discernment is learned rather than innate, but it is not developed through simple familiarity with or

enthusiasm for digital technology. Rather, it requires people to explore various problems in various contexts to discover, for each problem and context, how introducing digital technology changes the nature of the solution. This importance of context makes discernment domain-specific. People strengthen their discernment in a particular domain by accumulating experience in that domain; pairing this contextual understanding with their experience with digital technology's current capabilities and shortcomings; and by learning from their experiences in applying digital technology to the domain's problems.

Discernment goes beyond the mere ability ("knowing how") to use digital technology to solve a problem. Before the question of "how" even arises, discernment's greater value is that it enables a person to frame the problem in such a way that they can understand digital technology's potential uses and impacts, evaluate whether those uses and impacts are actually helpful, and only then decide which, if any, of the available tools to apply.

Consider public elections, where the gold standard is a paper-based process despite broad community support for digital (online) voting.¹¹ If we frame elections as an algorithmic problem, a digital

problem, by focusing on the voting process, then the benefits of digital voting are obvious: improved accuracy (no hanging chads¹² or lost ballot boxes) and greater efficiency (avoiding endless counts and recounts) through automating a manual process. But the most significant challenge with running an election is not inaccuracy or inefficiency. What is most important is enabling citizens to vote anonymously and secretly, so they cannot be coerced or sell their vote; ensuring that each citizen only votes once, by recording that they have voted; and convincing the losers that they have indeed lost, by validating that each voter's intention was correctly recorded and counted. This combination of requirements cannot be met with current digital technology.¹³

The realization that digital technology is *not* an appropriate tool for elections can only come with the discernment, the sensitivity to context, to understand what the problem really is. Conversely, a lack of discernment when applying digital technology can easily result in negative outcomes, either by the failure to use technology where it might help (as in learned helplessness), or the use of technology in situations when it causes more problems than it solves.

Four types of digital worker

WHAT EXACTLY DOES a worker with digital agency look like? Discernment is surely one of their attributes, but are there others?

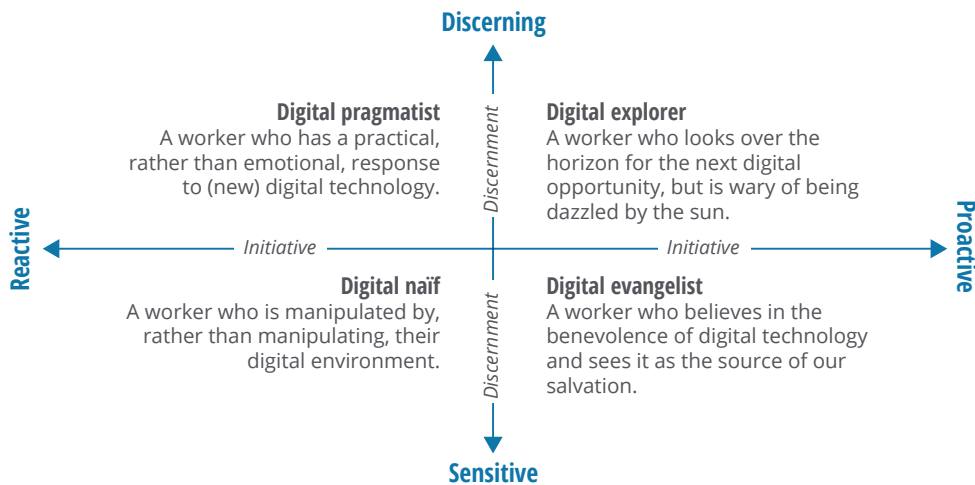
One approach to understanding workers vis-à-vis their relationship with the digital workplace is to frame their attributes in terms of two dimensions (shown in figure 2). First, on the vertical dimension, we can consider how *discerning* the worker is—how sensitive or insensitive they are—when applying digital technology to their work. A worker’s level of discernment points to their sophistication in exploring and evaluating the context—the work and the workplace—when using digital technology. A digitally sensitive worker appreciates the potential impact of digital technology on their work, and ensures that the digital tools they introduce improve their work

process and outcomes. A digitally insensitive worker, in contrast, does not have the same appreciation of digital technology in their work. While they may be cognizant of the new opportunities digital tools create, they are unlikely, due to their insensitivity to context, to consider whether those tools are suitable for the particular task at hand.

The second dimension, *initiative*, captures a worker’s sophistication in exploring and evaluating digital technology—that is, how reactive or proactive they are in integrating digital technology into their work and work habits. A reactive worker appreciates the benefits digital technology can bring to their work, but they will only seek out new digital tools when they find that their current tools are insufficient for the task. In contrast, a proactive worker both appreciates the benefits that digital

FIGURE 2

Digital workers classified by discernment and initiative



Source: Deloitte analysis.

technology can bring to their work, and actively looks for new digital tools that will enable them to be even more productive.

Categorizing workers along these two dimensions yields four digital worker archetypes (figure 2).¹⁴

In the bottom-left corner, we have the *digital naïf*.¹⁵ A digital naïf's narrow grasp of digital technology limits their ability to use it in their work: They only know how to use particular digital tools in particular ways and in particular contexts. There is the tribal knowledge of someone who might have grown up with the technology and is overconfident in their skill in using it. Learned helplessness is a common problem for the digital naïf when they find themselves in an unfamiliar workplace or confronted by unfamiliar problems.

On the bottom right, we have the *digital evangelist*. They are likely a digital naïf who, at some point, became enamored with technology. While they are enthusiastic (though possibly mistaken) about the opportunities that digital technology provides, they are insensitive to how it affects their work. This puts the digital evangelist in the perverse position that their interest in the technology may actually be destructive.

A *digital pragmatist*, top left, has the discernment needed to determine when digital technology can add to or detract from their work. They do not typically suffer from learned helplessness around digital tools, but neither do they tend to seek out new opportunities to apply them. They place the work at the center, only pulling in new digital technologies when they realize that the tools they have at hand are insufficient.

At the top right is the *digital explorer*. Like the digital pragmatist, they have the discernment required to understand the benefits and problems of digital technology. Unlike the digital pragmatist, however, they actively seek out new digital technologies and tools that may make them more productive, or that may create new opportunities.

We should note that digital pragmatism and digital exploration are equally valuable, though different, ways to approach digital technology. Ideally, work groups would include a balance of pragmatists and explorers. Too many pragmatists, and new digital tools—and new opportunities to use digital tools—will tend to be ignored. Too many explorers, and the team may spend too much time chasing after new digital technologies or experimenting with digital tools that provide only a modest improvement at best.

Productive and unproductive predilections

IF WE WANT digital pragmatists and explorers, and not digital naïfs or evangelists, in our workplace, it behooves us to understand how to increase workers' discernment so as to shift them toward these top two quadrants. How can an employer, educator, or community do this?

Cultivating discernment is not merely a matter of teaching a worker more about the work or the technology. Simply increasing a person's level of knowledge does not necessarily help them develop the sensitivity to problems, technologies, and contexts that will enable them to discern when and why a digital tool might be useful. Discernment also does not comfortably fit into the concept of *skill*, which might be defined as “the ability to do something well.”¹⁶ Nor is it exactly a *competence*, “the application of a skill in a particular context.”¹⁷ Knowledge, skills, and competencies are insufficient on their own.

A different, temporal view of discernment can clarify what else a worker needs to become more digitally sensitive. Consider the *Why remember what you can google?* example. Ideally, when faced with a problem that a search engine could help them solve, a person will draw upon a mental library of questions and strategies that they could deploy in their efforts to solve it. Obviously, in the present moment, they must *access* this library, when they discern that it is worthwhile and appropriate to tap into the potential questions and strategies the library contains. But equally, something must have occurred before the work to *build* their library of questions and search strategies (in addition to the time they spent

learning the skills involved in using a search engine). And if the overall quality of questions and strategies in the library are to improve over time, then something must also occur after the work to *curate* the library.

It's our view that a worker's ability to build, access, and curate their personal mental libraries is becoming more important to their “digital readiness” relative to simply increasing their knowledge, skills, and competencies. If this is so, the question then becomes: What attributes does the worker need to be able to build, access, and curate a personal library of appropriate questions and strategies—before, during, and after the work?

Rather than focusing on knowledge and skills, our research has led us to focus on attitudes and behaviors.¹⁸ If a worker is to do something before, during, or after the work, then they must value the outcome of their actions enough to invest the required time and effort (attitudes)—as well as actually take those actions (behaviors).

We can group together these two sets of concepts—*attitudes* and *behaviors* together with *building*, *discerning*, and *curating*—and call the resulting construct a *predilection*.¹⁹ If we arrange the concepts along the two dimensions of attitudes and behaviors vertically, and building, accessing, and curating horizontally, figure 3 is the result.

Predilections can be either productive or unproductive, depending on an individual's attitudes and behaviors. As an example of a productive predilection, consider how a worker

FIGURE 3

A predilection describes attitudes and behaviors that can either help or hinder one’s ability to build, discern, and curate

Predilection

| | | | |
|----------------------|--|--|---|
| [A descriptive name] | | | |
| Attitudes | Building | Accessing | Curating |
| | Does the worker value investing their time <i>before</i> the work, to prepare? | Does the worker value investing time <i>while</i> they’re working, to experiment with and evaluate alternative approaches? | Does the worker value investing time <i>after</i> the work, to consider how effectively they used digital technology? |
| Behaviors | What actions, processes, and strategies does the worker use to prepare for the work? | What actions, processes, and strategies does the worker consider to best engage with the work? | What actions, processes, and strategies does the worker use to evaluate how effectively they used the digital technology? |

Source: Deloitte analysis.

with a strong sense of digital agency would actualize the *Why remember what you can google?* concept (figure 4). Before any particular problem even arises, this worker must have valued investing time and effort—as well as actually have invested time and effort—in discovering new questions and strategies for search engine use. This can come in the form of simple behaviors: watching a TED talk over lunch, reading books or journals, chatting over dinner with colleagues, or even just asking a coworker to explain a search strategy they

just used. It doesn’t much matter what behaviors the worker adopts, as long as, collectively, they enable the worker to populate their personal library.

Then, during the work, while the worker is figuring out how they will use a search engine to solve the problem at hand, they must have the attitude that it is worthwhile to consider new and different approaches to solving the problem. When strapped for time or unable to connect to the internet, they might merely make a note to search on a question that has come to mind, planning to do so when they have more time and better access to a search engine. The next day, when they’re back at their desk and they have more time, they might execute that search. Again, it doesn’t matter exactly what they do as long as their behaviors are collectively productive.

Finally, after the work, the worker would ideally reflect (if only briefly) on what they did. For instance, they might decide to learn more about

PREDILECTION

Attitudes and behaviors that influence an individual’s ability to build, access, and curate a library of strategies for solving a particular problem. Predilections can be either productive—helping the individual effectively and efficiently solve the problem—or unproductive—leading to ineffective or inefficient solutions, or even no solution at all.

FIGURE 4

A productive predilection for “Why remember what you can google?”

Predilection

| Why remember what you can google? | | |
|-----------------------------------|------------------|--|
| Attitudes | Building | I want to build a library of questions and strategies that will help me integrate search engines into my work. |
| | Accessing | A search engine can help me find insights into the problem I'm working on, and what parts of the problem would benefit from a different approach. |
| Behaviors | Building | <ul style="list-style-type: none"> ▪ Watching TED talks over lunch ▪ Attending conferences ▪ Reading blogs and books ▪ Open discussions with colleagues ▪ Asking a friend what they did |
| | Accessing | Varying the phrasing of a query and exploring how this changes the results provided by different search engines. |
| | Curating | Reflecting on the queries and strategies I used helps me improve how I integrate a search engine into my work. |
| | | Taking notes on which search queries (and maybe even which search engines) yield the best results. |

Source: Deloitte analysis.

the topic to better prepare themselves for future problems in the domain. They may make note of their most successful search strategy (such as searching for the name of a digital tool coupled with a description of the problem), and plan to use that strategy first the next time a similar problem arises. Taking the time to reflect enables them to improve both the contents of their library and their ability to put the library to good use.

What might characterize an *unproductive* predilection? The clearest examples may come from the past. Consider, for instance, the transition from landlines to mobile phones. Historically, telephones have represented places, as landline technology tied them to particular locations. These telephones gave us the ability to easily communicate with distant people at specific locations, and our habits—our predilections—evolved to integrate them into our lives. We might call a friend at their home before attempting to visit them, for instance, to make sure they were there and available. We might also collect the

numbers of our friends and others we might want to call, and write them down in a book we keep beside our own home phone, ready to be used.

Fast-forward to the present day, when near-ubiquitous mobile device use means that phone numbers often represent *people* rather than places. Sooner or later, we will come to realize that writing telephone numbers in a book that we keep beside our (landline) phone is no longer the most productive way to store this information. Instead, it's more useful to store the numbers on our mobile phone so that they are always available, no matter where we are. How we go about collecting these numbers—through word of mouth, from printed business cards, or even from looking at our call history—doesn't matter, as long as we see the value in collecting them and execute the behaviors needed to do so.

The problem of learned helplessness emerges when an individual comfortable in one environment moves to another, such as when they move from a

FIGURE 5

An unproductive predilection for recording phone numbers

Predilection

| <i>Saving contacts' phone numbers</i> | | | |
|---------------------------------------|---|--|---|
| | Building | Accessing | Curating |
| Attitudes | Phone numbers are tied to physical locations. | Phone calls are "supposed" to be placed to and from landline phones. | Any effort I put into making phone numbers easier to find assumes that I'll be looking them up while physically at my landline phone. |
| Behaviors | Write down people's telephone numbers in an address book. | Keep the address book next to my landline phone. | Put the phone numbers I use most often on a sticky note above my landline phone. |

Source: Deloitte analysis.

world of landlines to mobile phones (figure 5). If they still consider phone numbers tied to places rather than people, they may leave their mobile phone off, only turning it on when they want to place a call (and preventing their friends from calling them when they're on the go). Even then, they might not see the value of storing their friends' contact details in their mobile phone, continuing to rely on their old telephone book. The upshot is that they may, one day, find themselves stranded,

mobile phone in hand but unable to call any family or friends for help, as they don't remember anyone's mobile numbers (as only home numbers are considered worth remembering) and they don't have their phone book with them (it's beside the home phone). They may, in fact, not even consider calling a friend or family member's mobile number, as they haven't made the association between mobile phones and people.

The attributes of digital agency

PREVIOUSLY, WE ASSERTED that workers with learned helplessness lack *digital agency*. It's now time to weave together the concepts of learned helplessness, discernment and initiative, and productive and unproductive predilections to understand what “digital agency” actually means.



A productive, “digital-ready” worker—the digital pragmatist or digital explorer who neither suffers from learned helplessness nor uses digital technology in inappropriate ways—has several distinguishing attributes. Clearly, they must have a suitable set of productive digital predilections (the judicious combination of attitudes and behaviors), as these will determine how they integrate digital tools into their work habits. But productive

predilections, in themselves, aren't all that's needed to be productive in a digital workplace. Two more elements are necessary.

For our worker to engage with digital tools at all, they must have a suitable set of digital *literacies*. In this context, digital literacy is analogous to literacy in the traditional sense of knowing a language and its major works (such as Spanish and *Don Quixote*).²⁰ The digital equivalent would be knowing how to use, say, a tablet or smartphone—the “language” we use to interact with a touch device—and the platforms that can be accessed (such as common Web applications) from this device. Without digital literacy, a worker may not even know that such things as search engines exist—and therefore be unable to develop either the ability or the predilection to use them productively.

DIGITAL LITERACY

A basic understanding of the digital media and major digital platforms relevant to a particular domain.

On top of this, our worker must have a suitable set of digital *abilities*—the knowledge and skills required to accomplish particular tasks with the relevant digital tools. The ability to find information using an internet search engine, for instance, relies on the ability to take a question or strategy and convert it into a search query. Without this ability, a worker's online searches will come up empty no matter how strong their predilection to

use search engines to find answers to workplace problems.

DIGITAL ABILITY

The knowledge and skills to use digital tools applicable to a particular domain.

Listing these characteristics in a more natural order, we can describe the productive digital worker as having three essential attributes:

- 1. Digital literacies:** A basic understanding of the digital media and major digital platforms relevant to their domain.
- 2. Digital abilities:** The knowledge and skills to use digital tools applicable to their domain.
- 3. Productive digital predilections:** Attitudes and behaviors that allow them to appropriately apply their digital literacies and abilities to effectively solve work problems.

Possession of these three attributes is what ultimately gives an individual *digital agency*. If a worker's digital literacies are lacking, they will be unable to engage with the discourse of work. If they lack digital abilities, they will be unable to contribute to the work. And if they lack productive digital predilections, they will find themselves limited, lacking agency in a digital environment, and suffering from learned helplessness.

The emerging digital workplace

LET'S NOW BROADEN the discussion to what all this could mean for the many organizations that are desperately trying to build a “digital-ready” workforce.

Many commentators on technology’s impact on the workforce frame the future in terms of a digital skills gap—the disparity between the skills employers demand and the skills workers actually have. According to this narrative, the introduction of new technology results in new tools, which in turn require new skills—skills that make existing skills (and the workers that hold them) redundant. Thanks to the inexorable advance of technology, the digital skills gap is perceived to be growing despite our best efforts. The proper response is assumed to be to focus on teaching students and workers more, and more relevant, digital skills. We elevate the importance of digital literacy and coding in student education and workforce training; we continuously add newly created (or newly important) skills to competency wheels, positioning these as key skills for the future; and we tout lifelong learning and reskilling, encouraging workers to periodically return to formal education to replace their old, outdated skills with new, shiny ones.

It’s true, of course, that technology is inexorably advancing, and that new digital tools and techniques are constantly emerging to supplant those that workers currently use. But a relentless focus on reskilling and retraining may not be the entire answer to this phenomenon. The reason is that changes to digital tools doesn’t necessarily mean that a worker’s old skills are no longer relevant. Often, it just means that the old skills need to be expressed differently, or applied in a

new context. The graduate described at the start of this article, for instance, may well have had all the skills they needed to do what was asked, to set up a status page on their company’s intranet wiki. Their problem likely wasn’t that they didn’t know how to use a tool like a wiki—which is, after all, primarily a collection of interlinked documents that anyone can edit. They may simply have been stymied by the unfamiliarity of the environment—the corporate intranet and its particular wiki—and been unable to navigate from what they knew how to do to what needed to be done. Another graduate, one with a stronger sense of digital agency, might have been able to make the leap.

Digital agency makes people much more likely to be able to adapt to a constantly evolving digital environment, using their existing skills to figure out new solutions with different tools in different contexts. What can we—as employers and as a society—do to help workers acquire it?

One obvious approach is to help workers eliminate their *unknown knowns*, helping them to make the connection between what they know from their last workplace and what seems unfamiliar in the new workplace. Simply acknowledging that one’s level of digital agency drops with a change in workplace means that something can be done about it. For instance, a new hire in the finance function might discover that their new organization’s invoicing solution, while similar in functionality to their previous employer’s tool, has been customized in a way that makes it difficult for someone without local experience to navigate. Pairing the new hire with an experienced colleague for a few hours of training can help the new hire discover how to accomplish the same tasks with different tools.

Better yet—from the perspective of encouraging digital agency—the instruction could be integrated into the tool itself, helping the worker to help themselves. This latter approach not only brings the learning to the worker at just the moment they need it, but also rewards the worker for exploring and experimenting with the tool on their own—which reinforces the desirable attitude that efforts to “help themselves” are likely to pay off.

More generally, employers should seek to foster in workers a productive set of predilections—attitudes and behaviors that will enable them to effectively integrate digital tools into their work habits. Organizations can provide workers with opportunities to engage with tasks in their *unknown known*, such as an unfamiliar invoicing tool, and encourage them to explore the environment around them, both digital and social, for possible solutions. The organization is then responsible for creating a supportive environment in which to do this. Digital agency depends on the workplace’s attributes as well as the worker’s, and organizations with complex and opaque work environments—where the pressure to be seen as competent prevents workers from admitting any confusion, or where digital tools lack any built-in guidance—can be fertile ground for learned helplessness. Rather, employers should encourage the attitude that it’s okay to not immediately understand how to do something as long as one is actively working toward it. Workers should feel empowered to reach out to more experienced

colleagues to learn what they need when they need it, and employers should tweak HR and management frameworks to create the space for these more experienced colleagues to respond.

Finally, from a broader societal perspective, employers can benefit by working with educators—both K–12 and postsecondary—to help develop an educational journey that leads to digital agency in the workplace. With individuals’ digital journey beginning at an increasingly young age, educators have a duty to cultivate productive attitudes and behaviors toward digital technologies at key stages in the education journey. The extent to which our future workers possess digital agency will have profound impacts upon society’s development, making it increasingly important to inculcate the discernment needed to navigate the digital universe from a young age.

Attempting to deal with the reality of the evolving digital workplace by teaching workers more and more new skills is akin to running on a continuously accelerating treadmill. So many new skills will eventually be needed, and will need to be updated so often, that an organization risks being unable to keep up. Instead, as the digital workplace grows in complexity, so must our level of digital agency, with richer literacies, skills, and predilections. Only then will we be able to equip our workers—and our organizations—with the adaptability and abilities they need to thrive in a digital world.

Endnotes

1. This article is based on a collaborative research project between the Deloitte Australia Centre for the Edge and Geelong Grammar School. The project began in 2015 amid a groundswell of public opinion in Australia that “everyone should learn how to code.” However, the authors observed that different stakeholders seemed to read different meanings into the phrase “everyone should learn how to code.” The ensuing project (described in Peter Evans-Greenwood and Tim Patston’s *To code or not to code: From coding to competence*, Deloitte, 2019) sought to unpack the diverse meanings of “coding,” develop a framework to unify the meanings, and then construct a definition for a new phenomenon that, it was hoped, would address the common aspiration behind the catchphrase “everyone should learn how to code.”
2. The term “learned helplessness” is borrowed from the psychology literature, drawing upon the work of Martin Seligman and many others. See, for instance, Martin E. P. Seligman, “Learned helplessness,” *Annual Review of Medicine* 23, no. 1 (1972): pp. 407–12.
3. A “bricked” device is a digital device that is so broken that it cannot even power on, making it an expensive brick. A bricked device cannot be fixed through normal means.
4. Adapted from Lexico, “Learned helplessness,” accessed September 11, 2019.
5. As opposed to *known unknowns* or *unknown unknowns*.
6. In this article, we define *work* as any activity, paid or not, in pursuit of an outcome, where the desired outcome may be the journey rather than the destination; *worker* as an individual who undertakes work; and *workplace* as the physical and social context within which the work takes place. By using these terms, we are not implying a sole focus on paid employment or contractual arrangement. *Work*, *worker*, and *workplace* can refer to an architect using a virtual reality program to model a building; they can also apply to the same architect tending their garden on the weekend as a hobby, where the desired benefit is primarily relaxation.
7. Peter Evans-Greenwood, *Why remember what you can google?*, Deloitte Australia, February 28, 2019.
8. This brings us to the converse of “*Why remember what you can google?*”: the illusion of explanatory depth, where we feel that we understand complex phenomena with far greater precision, coherence, and depth than we actually do. For instance, we assume that we have a good understanding of something after we’ve googled it, incorporating what we found on the internet into our own understanding. More often not, this is not the case, and we are, in fact, overestimating our understanding; when pressed to explain our knowledge, we come up short. The phenomenon is much stronger for explanatory knowledge than other types of knowledge. See Leonid Rozenblit and Frank Keil, “The misunderstood limits of folk science: An illusion of explanatory depth,” *Cognitive Science* 26, no. 5 (2002): pp. 521–562.
9. Nathaniel Scharping, “There are no digital natives,” *Discover*, July 27, 2017.
10. On the other hand, it can be hard to avoid some degree of existential angst if we rely on the internet too often to retrieve information. If we need to google something, we may wonder if we really understand it. So far from experiencing the illusion of explanatory depth, our natural impostor syndrome kicks in, and we question if our hard-won knowledge and skills are really our own.
11. For a good discussion on the limits of technical solutions to voting, with a focus on blockchain, see Yael Grauer, “What really happened with West Virginia’s blockchain voting experiment?,” *Slate*, July 11, 2019.
12. The recount of the 2000 United States presidential election involved debate over the validity of a punch-card vote where the punch failed to punch a hole completely through the card, leaving a “hanging chad.” See Wikipedia, “2000 United States presidential election recount in Florida,” accessed September 6, 2019.

13. While old, a 2004 blog post by Bruce Schneier, a widely respected computer security expert, provides a good summary of the challenges of digital voting. Bruce Schneier, “The problem with electronic voting machines,” Schneier.com, November 10, 2004.
14. This 2x2 figure is based on the findings from workshops held in 2019 for the “Should everyone learn how to code?” research project described in endnote 1.
15. Digital naïf is not a particularly pleasant term, but then, it’s not a pleasant place to be.
16. Paraphrased from “skill,” Apple OSX dictionary.
17. This definition synthesizes several definitions of “competence” in common use. A dictionary definition of “competence” is “the ability to do something successfully or efficiently (“competence,” Apple OSX dictionary). The OECD’s Learning Compass 2030 project defines “competency” as “a holistic concept that includes knowledge, skills, attitudes, and values”, (OECD, “OECD Learning Compass 2030 frequently asked questions,” accessed September 6, 2019).
18. This approach is at least partly inspired by Bratman’s planning theory of intention. See Michael E. Bratman, *Intention, Plans, and Practical Reason* (Cambridge, Mass: Harvard University Press, 1987).
19. The term “predilection” was chosen because it both suggests a bias toward particular attitudes and behaviors and also implies that these attitudes and behaviors can be acquired and modified (and can therefore be learned). That is, predilections are *not* some essential and unchangeable attribute of the individual.
20. This contrasts with the way popular usage of the term “digital literacy” tends to gather together all manner of otherwise unrelated attributes to become a suitcase term that we pack with our anxieties about a digital future.

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