the Artificial Intelligence playbook

Time-Saving Tools for Teachers that Make Learning More Engaging

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INTRODUCTION

For many educators, the new technology came as an unwelcome surprise, particularly for those teachers who were suddenly asked to use it. Many teachers complained about the added work the new technology created for them, and some students refused to comply with the new rules established for it. In fact, the new technology sparked a rebellion of sorts. Some students walked out over the policies. Some students were expelled over it. Yes, in 1830, *when chalkboards were introduced at Yale University,* it was a bumpy road to implementation (Green, 2015). A young man named Alfred Stillé, who eventually went on to become a president of the American Medical Association, was just one of the students expelled from Yale, and there were certainly many others.

When television was introduced into the classroom, educators and family members expressed concern. Some even called it the "electronic chalkboard" or "a numbing substitute for real teaching" (Blubaugh, 1999). The controversy was exacerbated with the introduction of Channel One, a news program that included advertising targeted at youth. In fact, 20 percent of the broadcasting time was spent on ads. Although Channel One was banned in many states, the reach was significant, with millions of students watching daily. Technology that exists in society will permeate schools, and we must learn how to use the tools.


✎ **Stop and Jot**

What other types of technology have been introduced into schools, and how have they been received?

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Each innovation in technology requires careful consideration for educators. But, like chalkboards and TV, many popular technological innovations will either be here to stay or will impact what comes down the road. For example, the iPod is no longer widely used but modern smartphones have the features it offered and more. The challenges

associated with advancing technologies reminded us of the technology acceptance model (TAM; Venkatesh & Davis, 1996), which suggests there are a range of external variables—including quality of content, utility, price, and design features—which then impact decisions about technology adoption and use. In education, external variables also include the need for new or better instructional strategies and student needs that are not currently being met.

Figure 1
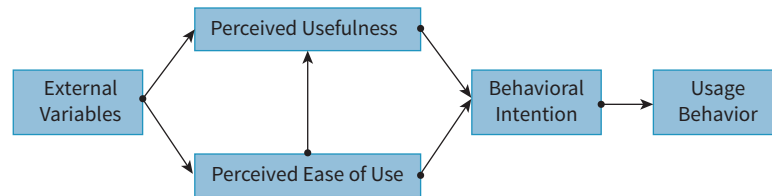
Source: Adapted from Venkatesh & Davis (1996).

The eventual adoption of the technology, whether it be chalkboards, TV, or the internet, is influenced by perceived usefulness and ease of use. In other words, users ask questions like the following: Does it meet a need that I currently have (usefulness)? Can I easily learn how to use it (ease of use)? Is there a reason I must use it (required use)? These variables impact the user's intention, which means the user forms a desire to incorporate the technology because the perception is positive. Our goal in this playbook is to show you not only how to use artificial intelligence (AI) but also how it can meet the instructional needs you have.

ENTER GENERATIVE AI

It should come as no surprise to readers that our world is experiencing an unprecedented technological revolution. Rapidly changing technologies, specifically artificial intelligence, present an undeniable opportunity to reshape the landscape of education. On November 30, 2022, ChatGPT, the most widely known and used public artificial intelligence chatbot, was launched. It wasn't meant to be made public so quickly, but social media heard about it, and the rest is history (Marr, 2023). Every day educators are learning about new AI sites, and the available tools are multiplying quickly. MagicSchool.ai became the fastest platform in history to reach 1 million users (A. Khan, personal communication, 2024). As the industry undergoes rapid changes, this question arises: Is now the right time to embrace the use of AI in schools? The reality is that although platforms will change and sites will likely become more sophisticated, AI is here to stay, and the impact this technological advancement will have on teachers and students will quite possibly be one of the most positive changes the industry has ever seen (Kahn, 2023).

With the overwhelming pressure for educators to manage a growing list of responsibilities and the stress that comes from these demands, change is imperative. Whether teachers are struggling with time constraints, job responsibilities, lack of materials, the uncertainty of what to use and when, or the impossibility of being

an expert in everything, educators face common challenges—and AI is a promising solution. Its ever-growing capabilities and user-friendly interfaces are now making it even easier for teachers and students to learn and grow. AI sites have shown great potential with impressive performance in generating coherent, systematic, and informative content for those who learn to use it effectively (Lo, 2023).

We started exploring the capabilities of some well-known AI sites with fellow educators. Here are some examples of tasks we asked it to manage for us:

- Create middle school–appropriate texts

- Help synthesize student responses into an exemplar essay

- Craft parent communication for conferences

- Generate some games to get eighth graders engaged in math fluency practice

The responses came fast, and the results were impressive. These ideas barely scratch the surface of what AI can offer, but nonetheless, its effective management of these kinds of tasks has left teachers in awe.

It is also important to note that for many teachers, the topic of AI and the pending changes can feel scary. As familiarity and comfort with classroom tools and routines decrease, anxiety increases. It is natural to mourn some of the aspects of the past that have been replaced. When we ask educators to talk about *what was* versus *what is*, they usually identify some of the following changes:

What Was	What Is
Cursive skills	Print and typing skills
Long-division algorithm	Ability to explain math reasoning
Knowing to indent when paragraphing	Proficient with computer editing tools
Familiarity with Shakespeare	Understanding of author's craft and purpose (what authors seek to accomplish and techniques used)
Name and date a page	Submit assignments on a learning management system and independently navigate many digital assessment platforms

That's not to say that handwriting and cursive should be eliminated or that students should not know Shakespeare. It's just that some of those skills that we may have enjoyed teaching in the past, have been evolved into other competences given the technology that exists and the society in which we all live.

As students begin to use AI systems more and more frequently, they will still need to think about the information generated. In fact, critical thinking skills will become increasingly valued as students receive an increasing number of synthetic texts generated by AI systems. They will still need to engage in analysis and interpretation,

but inferencing, verbal reasoning, problem solving, and decision making will become major aspects of the curriculum. Reading skills will remain a critical necessity, and students who struggle with this access ability will be increasingly placed at risk as generative AI produces more and more things for them to read and understand. Writing original texts will also be highly valued. In fact, skills for writing prompts for the AI systems, a skill we will address in Chapter 2, are already being taught in schools.

Ask a Bot

To show how quickly users can obtain information using AI tools, we asked ChatGPT (the free version) to provide a one-sentence summary for third graders about the life cycle of a plant. Instantly, the system responded: *Plants start as seeds, grow into seedlings with leaves, mature into plants with flowers and fruits, and produce seeds that can grow into new plants, completing their life cycle.*

The key is that students must understand the information that is generated. We'll talk about functions and tools of AI later in the playbook, but for now, please note that while searching for information is still a function that we engage in, the tools we use have changed from encyclopedias to search engines on the internet to AI. In this case, the information was customized to the designated audience, third graders, which would not have been possible with an encyclopedia or a generic internet search.

Of course, discerning between effective and less effective ways for teachers and students to use this life-changing technology is essential. The premise of this book is to support educators in the adoption and use of AI by offering practical and impactful strategies for making it a valuable tool in the classroom. Our goal is simple: By engaging in the various interactive components, you will explore the possibilities of AI and get practical ideas on how to use it immediately in your classroom and the classrooms you support.

McKinsey & Company (2020) surveyed more than two thousand teachers in four countries to find out how educators spend their time. As is evidenced in Figure 2, teachers spend a lot of time preparing for lessons, engaging in evaluation and feedback, performing assessments, and completing professional development. On average, according to this data, more than half of the time, teachers are not directly interacting with students.

This playbook is designed for educators, with the specific intention of lightening the load for teachers. In this spirit, we invite you to consider AI as a virtual teaching assistant that can provide support to you. We hope that the tools in this playbook provide teachers with more opportunities to directly interact with their students, which not only is the reward of teaching but also is irreplaceable by a computer.

Figure 2 • 50 Average Hours' of Working Time per Week for a Teacher

Only 49% of time is in direct interaction with students.
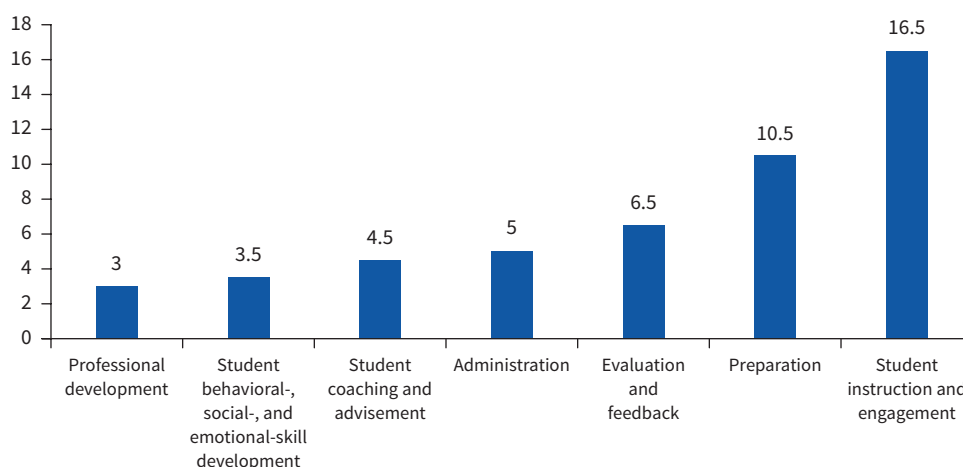
Source: Adapted from Bryant et al. (2020).

To accomplish our goal of increasing the amount of time teachers can spend with students by using AI to accomplish other time-consuming tasks, we have organized this playbook into specific sections that align with the major functions that teachers must accomplish each day:

- Chapter 1 provides an overview of AI in K–12 education.

- Chapter 2 focuses on the issues of plagiarism and citation, which are ethical challenges confronting educators and policymakers; we also share how to create AI prompts that generate useful information.

- Educator Function #1 begins the exploration of functions that AI can assist with by attending to the content that students access based on the standards they are expected to learn.

- Educator Function #2 addresses the issue of student engagement and offers tools to increase relevance and motivation using AI to create and modify learning experiences.

- Educator Function #3 looks at the ways in which teachers can use AI to meet the instructional needs of students, essentially differentiating the experiences without lowering expectations for students.

- Educator Function #4 explores the ways in which teachers can provide feedback for students using AI.

- Educator Function #5 considers the uses of AI in terms of assessment and how evidence is collected from students.

- Educator Function #6 focuses on the need for teachers to engage in continued learning and development as professionals throughout their career.

We generated these topics from the questions we have been asked by thousands of educators about the potential of AI to support teachers to accomplish their work. Importantly, while AI has the potential to reduce the workload for educators, it is not replacing teachers. The growth-producing and caring dynamic between teachers and students remains central to the work we do. It's our *why*. But as you will see in the pages that follow, AI can help with the *how*.