eledao

2023 White Paper

Have digital distractions hijacked classroom learning?

Improve the effectiveness of digital learning through innovation

Student behavior in digital learning environments is a growing concern. As K12 digital learning environments evolve, so do the challenges. It is essential to be aware of the changes happening and ensure that digital learning environments keep up with the latest internet usage trends, challenges, innovative technologies, and how students access and interact with online content.

Digital distractions are the #1 obstacle to increased ed tech effectiveness

Schools expecting to broaden their use of educational technology in the classroom, in many instances, have instead encountered obstacles. A March 2022 EdWeek Research Center Survey of teachers, principals, and administrators revealed that the number one obstacle to more effective educational technology in their districts was not lost devices, inadequate home internet, or overall tech fatigue. Rather, the leading challenge faced by schools was *digital distractions* during instructional time.

> **Research Shows**
>
> It can take students up to 30 minutes to refocus after being digitally distracted.
>
> (Chen, Nath, Tang, 2020)

While many schools utilize content filtering solutions to help manage student online activity, these legacy technologies can often be easily bypassed. Tech-savvy students overcome them and succeed in watching the latest trending YouTube video or playing unblocked video game sites, even if it means doing so during class. As a result, teachers frequently take on the role of digital hall monitors, devoting valuable class time to prevent students from wandering off task when they should spend it supporting and teaching students.

Most would agree that many youths are super-consumers of digital content, spending more time on digital media than any other waking activity (Uncapher et al., 2017), in some cases multitasking on up to 7 devices at one time (Grazzely, Rosen, 2018). Forty-six percent of students say they are online 'almost constantly,' nearly doubling the

amount seen in 2015 (24%), with 43% of students aged 11-18 logging an average of 10 hours and 4 minutes daily (Pew Research Center, 2022).

> **Research Shows**
>
> Students who media multitask during instruction or studying demonstrate:
> - Differences in cognition
> - Negative impact on attention
> - Taking longer time to finish tasks accurately
> - Increased fatigue
> - Decreased reading comprehension
> - Performing worse on various cognitive tests
>
> (National Academy of Sciences, "Digital media and Developing Minds," 2015)

A growing body of research investigating media multitasking has raised concerns among parents and educators alike regarding the impact media multitasking behavior has on students while trying to learn in technology-rich classrooms and completing homework.

Additional findings raise the possibility that media multitasking may impact simple everyday cognition and that chronic media multitasking is associated with cognitive differences even when people perform single tasks (Uncapher et al., 2017).

What options do schools have to improve the situation, stopping short of banning cell phones or pulling school devices? Studies indicate that for many students, it may simply be unrealistic to expect them to detach from the digital world upon entering the classroom.

> **Research Shows**
>
> The data shows a high likelihood that digitally distracted students may negatively impact the learning of other students around them.
>
> (Hall et al., 2020)

Even when provided with proof of the negative impact chronic media multitasking has on their academic progress, many students demonstrate an inability to separate from digital devices (Dontre, 2021). This suggests that K12 digital content super-consumers may very well be incapable of self-regulation in the digital classroom.

Self-regulation is a fundamental component of learning, allowing students to maintain focus, block out potential distractions, and efficiently manage time during instruction. As teachers, we can each identify specific students of ours who may have difficulty staying on task, maintaining focus, remaining seated, or just paying attention. Much like students who struggle with self-regulation in a traditional classroom setting, a student's

inability to find balance in their digital media consumption is often a matter of self-regulation.

Students who succeed in a traditional learning environment are able to consistently demonstrate successful metacognitive self-regulation strategies during digital learning (Ahtnonysamy et al., 2020). Predictably, students who lack self-regulation in conventional learning environments have shown a similar inability to transfer self-regulation strategies from a traditional setting to a digitally-oriented learning environment (Lillian et al., 2021). Unfortunately, if a student struggles to self-regulate in a traditional learning environment, the same lack of self-regulation is transferred to the digital learning environment.

Digital and online learning has its merits in the classroom and is likely here to stay (Schultz, 2021). Nevertheless, digital learning environments that cannot prevent students from accessing digital distractions (social media, videos, gaming) make the acquisition of self-regulation skills in the digital environment extremely difficult for many students to achieve (MDPI, 2021).

Research Shows

The problem with students' self-regulation of time, as it relates to academic success, is exacerbated by digital learning environments.

(Multidisciplinary Digital Publishing Institute, 2021)

In addition, the inability of legacy filtering technologies to effectively manage student activity in digital learning environments is inhibiting many students' opportunities to learn.

Complicating matters, students have massive amounts of digital content literally at their fingertips 24/7 on any number of devices. To gain a better understanding of the sheer volume of available online content, a review of recent internet statistics could lend perspective:

Internet websites statistics *

- The first internet site went live in 1991; by 1995, there were 23,500 websites (liveinternetstats.com).
- By September 2022, that number had risen to over 1.98 billion websites (liveinternetstats.com).
- 175 new websites go live every minute of every day – that is **252,000 daily new sites** (sitefy.com).

Gaming statistics

- There are 218 million video game players in the U.S., including over 51 million kids under 18 (EAS, 2022).
- **71% of all kids in the U.S. under the age of 18 play video games**.
- A search on 'How to play unblocked games on a school computer' produces more than 5.5 million results (Google, 2022).

User-generated content:

Blogs (source: growthbadger.com)

- There are over 600 million active blog sites.
- 3 billion blog posts are published annually, that is **8.28 million per day** or 5750 every minute.
- Tumblr is home to over 540 million individual blogs with 10.5 million daily posts.

Social media (source: statusbrew.com)

- From Nov. 2021 to Nov. 2022, the number of active social media users increased by over 400 million, bringing the total to 4.55 billion.
- **75% of the world's population aged 13+ uses social media**, including 75% of all Americans (hootsuite.com).
- There are 5.07 billion internet users worldwide, and 6 out of every 10 people on the planet have at least one social network (statusbrew.com).

YouTube (source: wyzowl.com)

- There are 38 million active YouTube channels with over 800 million total videos.
- 95% of teens indicate they use YouTube, with 20% indicating they use it almost constantly.
- Over 150,000 new videos are uploaded every hour = **3.7 million new YouTube videos every day**.
- 694,000 hours of content are streamed every minute, surpassing Netflix at 452,000 hours per minute.
- Launched in 2020, YouTube Shorts attracts more than 1 billion daily views.

* The size, scope, and amount of information on the internet keep growing non-stop, 24/7/365. Therefore, any data presented here will be outdated soon.

Why isn't your school's legacy filter technology effective?

Providing an endless stream of content that is growing by the minute, the internet lets users ask any question at any time to learn about any imaginable topic. It is a remarkably vast and largely untamed resource. Initially developed in the 1990s, Internet filtering technologies were created in part to help libraries and schools prevent computer users from accessing explicit content. This ultimately led to the passage of 2001's Children's Internet Protection Act (CIPA) which required content filters for libraries and schools seeking access to federal funding.

Though there have been minor changes to legacy internet filtering technologies, the core of their functionality has remained essentially unchanged:

> Every online instance on a filtered device is run through a database consisting of categorized domains and searchable keywords; if the instance includes a domain or a keyword that appears on the blocked list, access to the content is more than likely denied. If not, students can view it on their school devices.

When first introduced 25+ years ago, URL and keyword blocking was an effective technology because website content, largely coherent, was almost exclusively company or organizationally owned by the likes of CNN, Macy's, Barnes & Noble, MTV, and similar. By the mid-2000s, as social media like YouTube, Facebook, and Twitter gained popularity and as personal website creation became simplified, allowing anyone to build their own, the volume of new online content exploded.

The influx of user-generated content, social media, continuous scrolling pages, embedded links, and the breadth of content categories generated by a simple Google search greatly diminish the effectiveness of domain and keyword filtering technology, rendering it largely inadequate as a consistent online content management tool. This technology was not designed to manage dynamic content creation nor the exponential growth we're seeing today. In fact, according to a recent Deledao study, domain and

keyword-based filtering technology are only successful in blocking 63% of the inappropriate content students attempt to access.

Consider a common scenario seen in many schools:

Students playing the video game Fortnite may be a common classroom distraction in your school. To prevent students from playing, the IT Department will locate the URLs hosting the game and add them to the school's domain block list, thereby ensuring that students will no longer have access to those Fortnite URLs. Problem solved.

Not exactly. Using free website builders such as Google Sites, tech-savvy students may migrate the content from the blocked Fortnite URL to an easily created Google Sites URL, publishing it often in less than one minute. By sharing the new Google Sites Fortnite URL with friends, gameplay resumes undetected by the school filter.
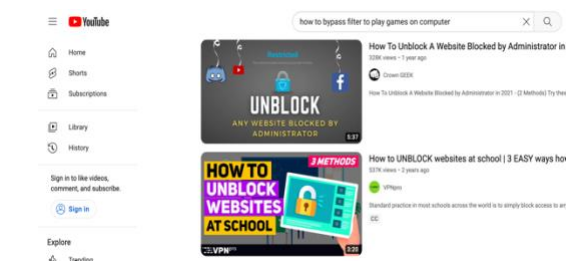
As an added measure, the IT Department may also add 'Fort,' 'Fortnite,' 'Fort Night,' and similar terms to the keyword block list to prevent students from accessing additional Fortnite gaming sites that include some form of 'Fort Nite' in the title. Tech-savvy students, recognizing how keyword blocking works, may title the new page using inventive spelling ('4t nyte', 'Forrrt Nyte,' e.g.) to evade detection.

Because legacy filtering technologies aren't designed to recognize content or contextual nuance, students attempting to access educational content containing iterations of 'Fortnite' that should be allowed, like 'Fort Sumter' or 'fort building in the 1800s' will more than likely be prevented from accessing the content until the IT Department adds those sites to their allowed list.

It is no one's fault that schools sometimes struggle to prevent students from accessing distracting content on school devices. School district IT teams do the best they can with the resources they have. Instead, it is simply a matter of the increasingly dynamic internet surpassing the legacy filtering technology's ability to manage it consistently.

Deledao Knows

Detailed instruction providing students with steps to bypass legacy filtering technology are available from various sources online.

Real-time AI is the key to defeating digital distractions

Nationwide, student behavior in K12 digital learning environments is a growing concern. As digital learning resources continue to evolve, so do the challenges schools face in improving the effectiveness of educational technology initiatives. Today's dynamic internet warrants technologies that are able to recognize content, understand contextual nuance, discern keyword ambiguity, and decipher newly created inventive spellings students frequently use to evade filter detection.

Deledao knows that digital distractions are getting in the way of expanding or enhancing educational technology initiatives in schools. Representing an entirely new architecture in filtering technology, the **Deledao ActiveInsights™ solution** uses patented InstantAI™ technology that allows teachers to create distraction-free digital classrooms. Not dependent upon domain classification or search keyword recognition, every piece of content, video, and page on the nearly two billion available websites are analyzed the very instant a student attempts to access it.

Our **InstantAI™ technology** provides schools with a powerful tool that views web content as a human does, instantly analyzing each piece of content as it renders in the browser. Uniquely recognizing contextual ambiguity of commonly blocked keywords such as 'weed,' InstantAI™ recognizes contextual nuance allowing student access to

search results on 'How to weed my garden,' yet blocking results from 'How to grow weed in my garden.'

Beyond the unlikely option of adding Google.com to the block list, IT Departments generally need help to prevent access to Google-hosted gaming sites. In addition to context recognition, InstantAI™ blurs

inappropriate images and videos students may access via unblocked social media, shared Drive files, or Google Images. It even recognizes mouse and keypad movements indicative of gameplay, thereby stopping off-task behavior before students venture down distracting rabbit holes.

Most importantly, ActiveInsights™ works! A study of over 1000 students from school districts across the U.S. showed that **42% of students completely stopped their attempts to access distracting content after just four weeks of use.**

The significant drop districts have seen in attempts to access distracting content indicates that students who may have previously engaged in time-wasting media multitasking during class are changing their behavior by demonstrating self-regulation on school-issued devices. Deledao improves the effectiveness of digital learning by ensuring that school devices remain used by students as intended – for learning.
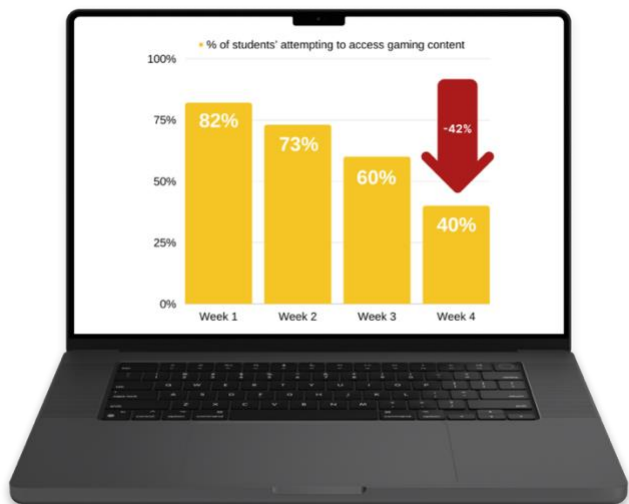
Contact us today to learn how your school can stop students from going down YouTube or Google rabbit holes and return digital learning environments back to teachers.

Kevin Kuckkan, M.Ed.

Vice President of Channels and Alliances at Deledao

A former mathematics teacher, Kevin has served educators for over 30 years via a variety of training, sales, and product-focused support through his work in educational publishing, educational technology, and PD-related services. Among other roles, Kevin conducts research on K12 topics, authors timely education-related articles, and cultivates Deledao partner relationships.

The Deledao Difference

ActiveScan™ - Web Filter

Guaranteed to reduce student digital distractions allowing you to ditch your keyword and URL blocked lists!

ActiveInstruct™ - Classroom Management

Delivers built-in teacher and student engagement and classroom management tools like no other.

ActivePulse™ - Student Wellness

Actively monitors student online activity, instantly flags concerning posts, and alerts school administrators and parents.