The State of
Technology
in
Education

Promethean

2022: A year of adaptation: How edtech is helping navigate uncertainty and change

After two years of dealing with the fallout of the pandemic, some educators might have thought that 2022 could only get better. Yes, they would need to address the serious social-emotional needs of their students, who were still recovering from trauma and uncertainty. But they likely thought they'd enjoy a year of relative calm after the storm.

Instead, new problems arose that educators hadn't foreseen. Job shifting, high turnover, and increased retirements all conspired to bring widespread staff shortages across all roles. Those who remained in their jobs had to deal with heavier workloads, without the same level of IT and teaching support they had previously enjoyed.

Despite the challenges, there were bright spots in 2022, too. Teachers and IT administrators reported feeling more valued and heard at a strategic level. And many students felt like their social and emotional needs were being met by their teachers and schools.
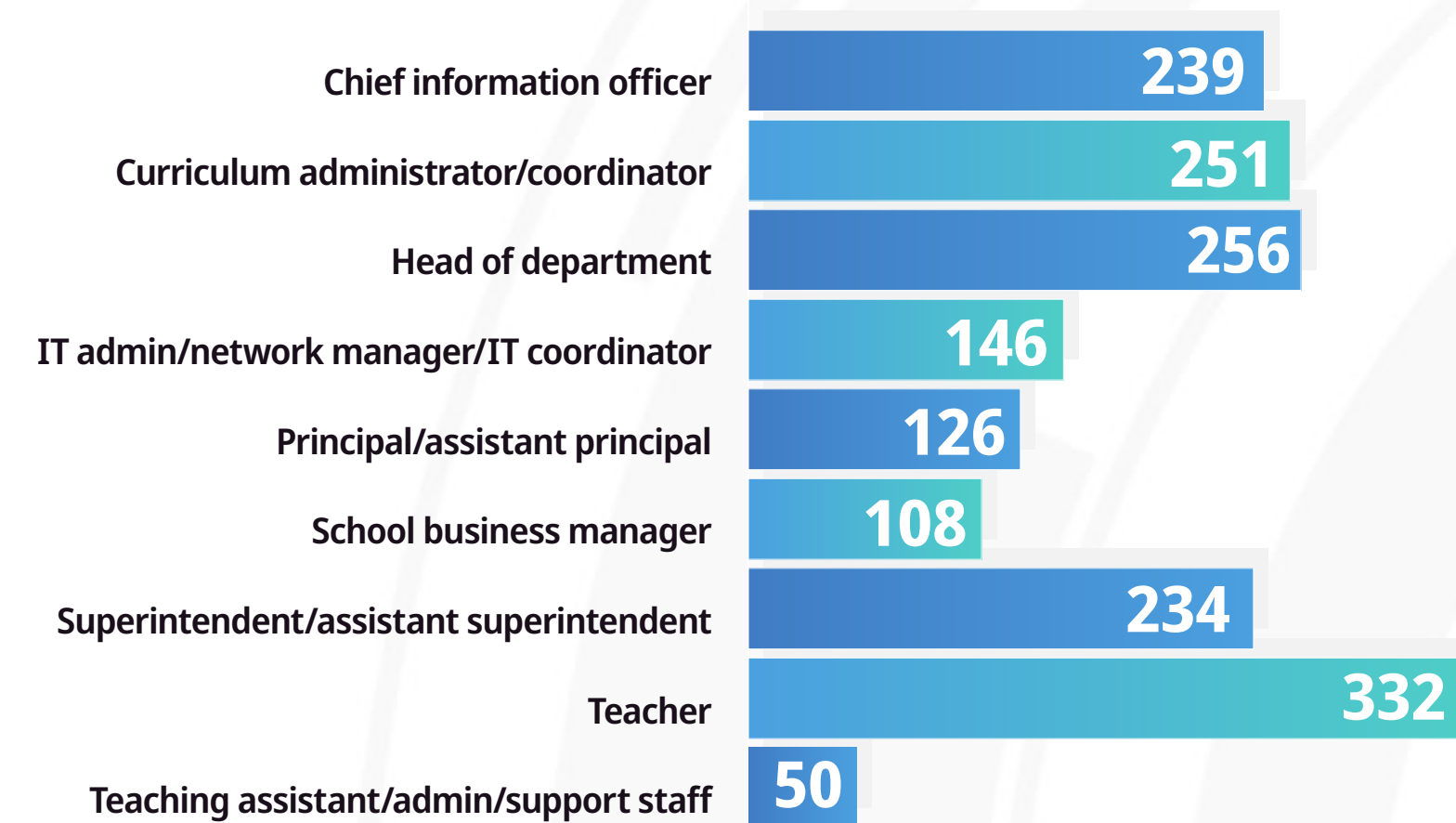
All stakeholders—school leaders, IT staff, teachers, and students—continue to see education technology as critical to addressing the stresses and challenges they face. Tools such as interactive displays and AI digital assistants can alleviate teachers' workload, allow them to focus more attention on their students, and help them create engaging and interactive lessons that help children achieve academic success. For students, these tools not only provide an engaging way to learn, but an avenue for connecting with their teachers and their peers.

About the report

For our State of Technology in Education 2022-23 report, we surveyed more than 1,700 educators across the country to better understand their unique opportunities and challenges, particularly the role of technology in their lives. This year's report also includes the perspectives of students, which adds yet another layer of insight into the educational landscape of the past year.

Read on to discover what our respondents would most like to change about education today, and how they see classrooms evolving in the future.

Who we surveyed:

Role	Count
Chief information officer	239
Curriculum administrator/coordinator	251
Head of department	256
IT admin/network manager/IT coordinator	146
Principal/assistant principal	126
School business manager	108
Superintendent/assistant superintendent	234
Teacher	332
Teaching assistant/admin/support staff	50

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Chapters:

1. Social-emotional learning:
It's now a priority, but more action is needed

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2. Staffing shortages:
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3. The future of education:
Technology and digital fluency are key

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Happy at school, hungry for tech

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Social-emotional learning:
It's now a priority, but more action is needed

The increased focus on students' social and emotional needs that began during lockdown and remote teaching continues to be a top priority. Edtech has helped support the strategic objective of social-emotional learning (SEL)—the development of interpersonal skills including self-awareness, self-management, relationship skills, responsible decision-making, and social awareness—with a variety of collaboration and engagement tools. But not all schools have been able to use these tools to their full potential, and some have not introduced any initiatives to address social-emotional learning at all. So while students' needs are a higher priority than their achievement overall, putting these good intentions into practice has yet to be realized.

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40%

For the second year running, the largest cohort of educators say social-emotional learning is their school's highest priority.

The headlines:

67% **Trust in tech**
Most educators agree that technology is a good tool for supporting students' social-emotional needs.

70% **Strategies falling short**
Three-quarters of educators say their school has implemented some SEL measures, but that still leaves one-quarter feeling their schools are not addressing these issues.

77% **Digital supports social**
According to the majority of educators, technology is a good tool for experiential and immersive learning and student connections.
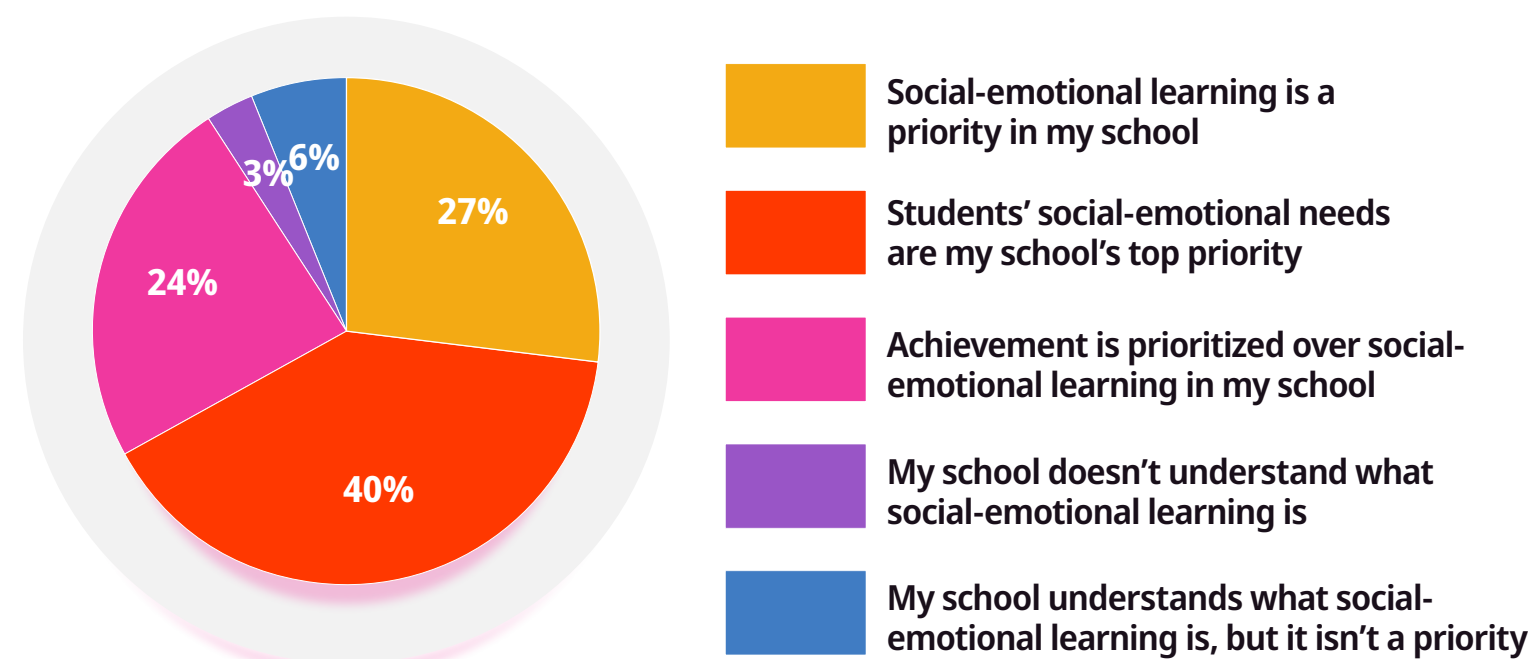
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Social and emotional learning remain essential, but there's conflict and competition

Almost all educators know what SEL is, but about one-quarter continue to believe that academic achievement takes precedence. With **18%** more school administrators than teachers saying SEL comes first, the strategy-setters are more convinced that their school puts students' social and emotional needs first than those who see the reality in the classroom.

Students are also skeptical of how high their social-emotional needs rank with traditional academics. The majority of students **(78%)** agreed that their teachers care about them, but an even larger majority **(82%)** said that their teachers care more about the results they get. So while students feel individually supported, they also feel that their achievement remains a higher priority to teachers.

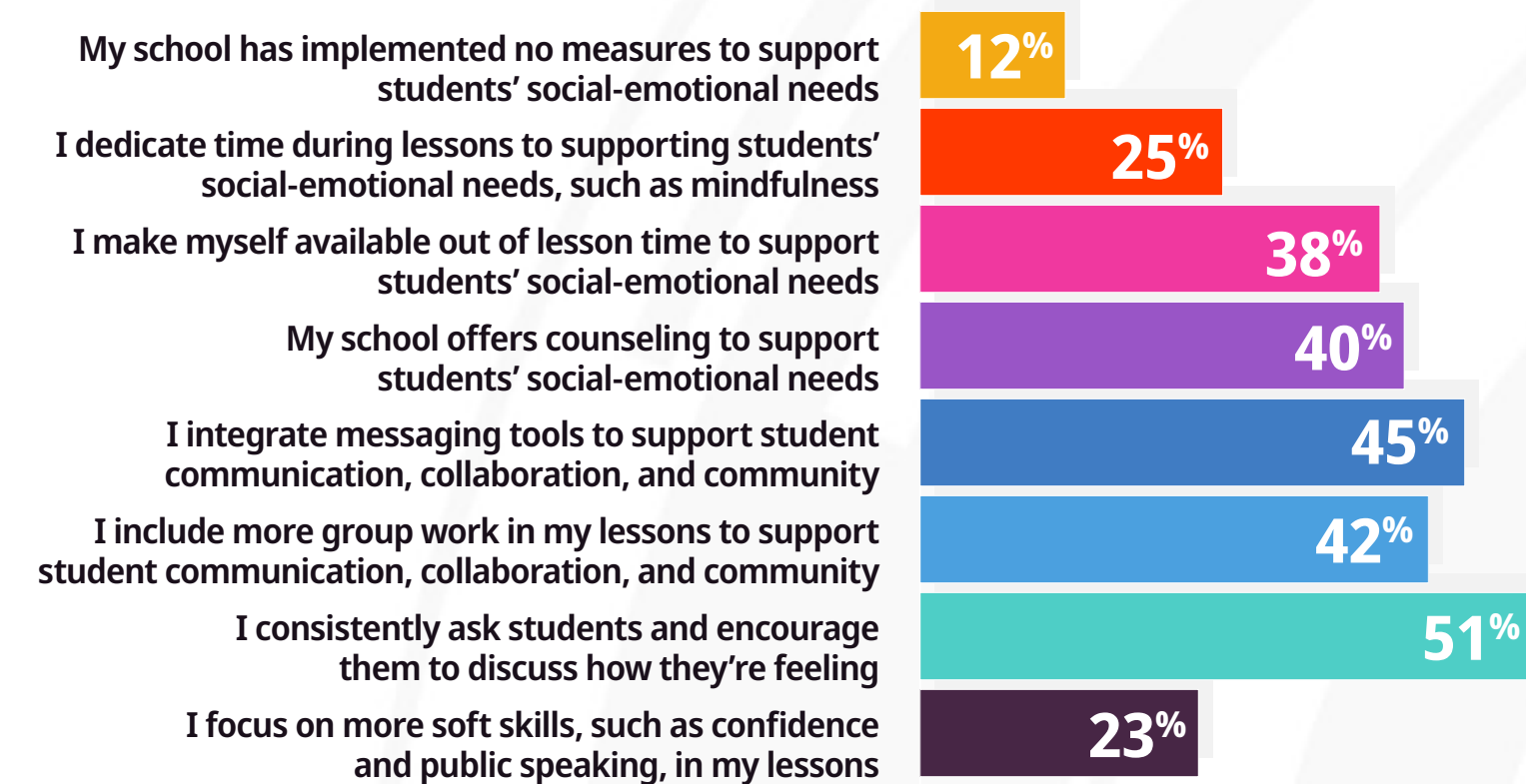### Which of these statements best describes your school's approach to social-emotional learning?

Pie chart:
- 27% Social-emotional learning is a priority in my school
- 40% Students' social-emotional needs are my school's top priority
- 24% Achievement is prioritized over social-emotional learning in my school
- 3% My school doesn't understand what social-emotional learning is
- 6% My school understands what social-emotional learning is, but it isn't a priority

Includes teachers, IT staff, and administrators

Mixed emotions about schools' social-emotional learning initiatives

There are SEL support mechanisms and proactive efforts in place at many schools. Half of educators dedicate time during lessons to support students' SEL needs, such as mindfulness, and almost half of schools offer counseling services. However, nearly one in four educators said their school doesn't have any formal methods in place to support this priority.

How is your school catering to social-emotional learning?

- 12% My school has implemented no measures to support students' social-emotional needs
- 25% I dedicate time during lessons to supporting students' social-emotional needs, such as mindfulness
- 38% I make myself available out of lesson time to support students' social-emotional needs
- 40% My school offers counseling to support students' social-emotional needs
- 45% I integrate messaging tools to support student communication, collaboration, and community
- 42% I include more group work in my lessons to support student communication, collaboration, and community
- 51% I consistently ask students and encourage them to discuss how they're feeling
- 23% I focus on more soft skills, such as confidence and public speaking, in my lessons

Includes teachers, IT staff, and administrators

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The State of Technology in Education

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The State of Technology in Education

Technology builds connections and social-emotional skills

Most educators believe that edtech supports SEL, particularly when it comes to strengthening students' connections with each other and the world around them. Students agree, with **92%** saying that technology helps them connect with their peers. As schools continue to bring their classroom community back together, education technology clearly plays a key role.

To what extent do you agree with the following statements?

Statement	%
Technology is a good tool for helping students connect with and understand the world	**70%**
Technology is a good tool for experiential and immersive learning	**70%**
Technology is a good tool for collaborative and community-based learning	**68%**
Technology is a good tool for improving student behavior	**65%**
Technology is a good tool for improving student engagement	**68%**
Technology is a good tool for supporting students' face-to-face interactions	**67%**
Technology is a good tool for collecting data that allows me to create effective collaborative environments	**69%**
Technology is a good tool for supporting students' social-emotional needs	**67%**

Includes teachers, IT staff, and administrators

"SEL is prioritized and tracked by spreadsheet daily. The counselor and her team closely follow each classroom's weather spreadsheet and talk to students who are having hard days, as do the teachers, of course."

Teaching assistant/admin/support staff, public elementary school, North Carolina

"Technology has proven over and over again to make a big difference in my students' learning, especially those who have social-emotional needs such as selective mutism. It allows them to participate when they feel they cannot orally. This empowerment that technology gives them makes me search for more resources to help them."

Teacher, public elementary school, Florida

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What does this tell us about SEL in 2022?

- The emphasis on experiential learning and its benefits for social-emotional learning has resulted in a greater awareness of edtech's value in providing immersive experiences and supporting students' needs.

- Schools are not currently taking advantage of simple methods that promote SEL. There are many opportunities to implement easy, manageable actions that support students, such as asking how they're feeling.

- Not all educators have the time, resources, or emotional energy to make themselves available outside of class.

- With almost half of schools offering counseling services, it's clear that schools play an important role in students' mental health.

- Emphasis has been placed on creating community between teachers, but students' sense of community in the classroom has suffered. Group work and collaborative learning are ways educators can help build community between their students.

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Staffing shortages:
A challenge surmounted by edtech and leadership

Staff shortages have posed problems for educators in every role, from teachers to IT staff to school leaders. Despite the hardships these shortages created, educators found relief through the use of technology. And many teachers reported that they appreciated the way their school leadership managed the issue.

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57%

The majority of educators say they've had to take on a heavier workload as a result of staff shortages.

The headlines:

64% **Leaning on leadership**
Nearly two-thirds of educators find their school leadership teams to be supportive and effective.

99% **Edtech is essential**
Almost all educators see the benefit of using technology in education.

60% **Nation of innovation**
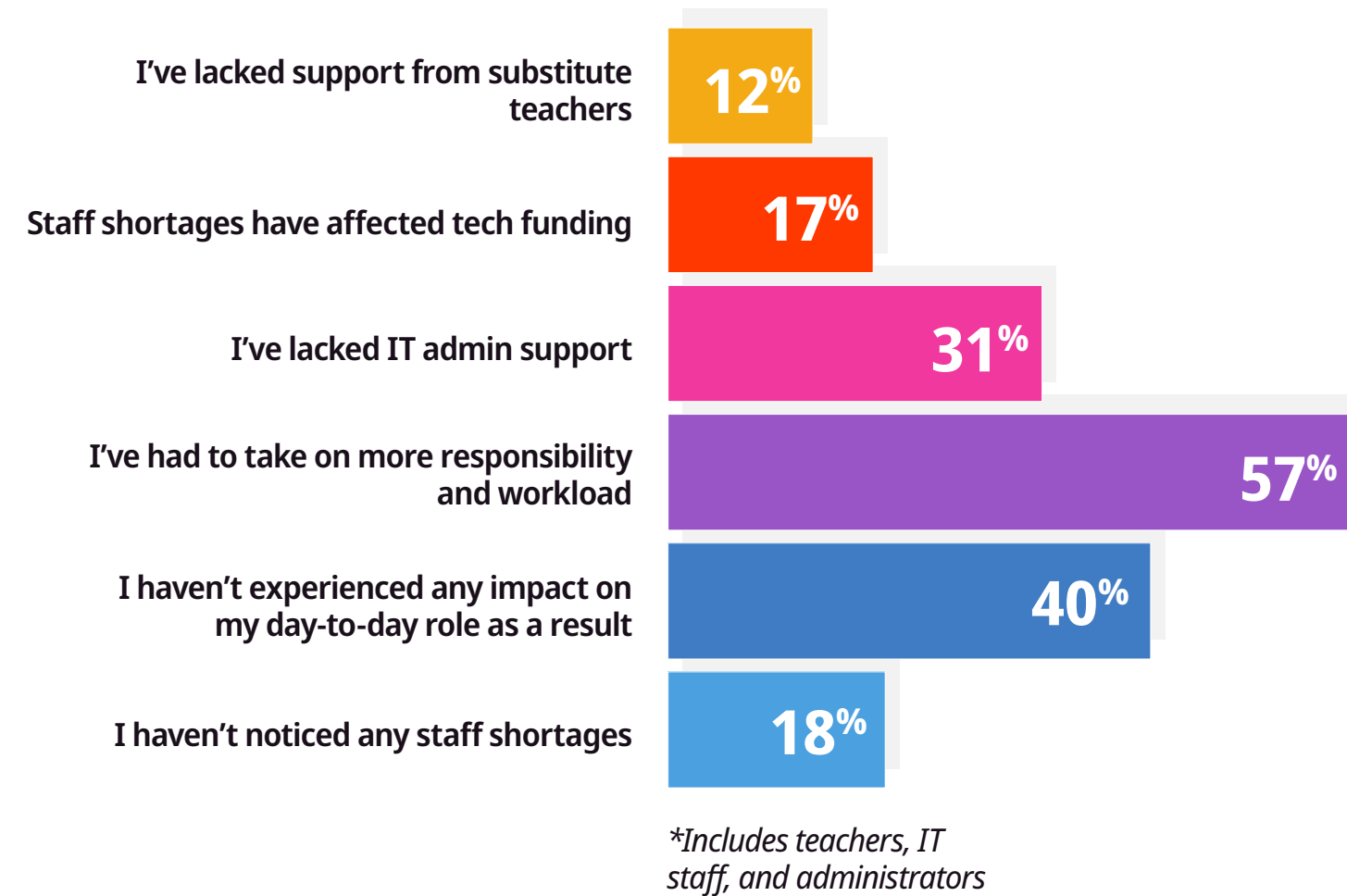Three in five educators constantly strive to innovate with technology.

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Staff shortages felt by many, but not all

While **40%** of teachers, IT staff, and administrators reported they have not felt an impact on their day-to-day lives due to staff shortages, the majority of educators reported having to take on greater workloads with significantly less IT support. Their effort has not gone unnoticed: A morale-boosting **84%** of students believe their teachers work hard.

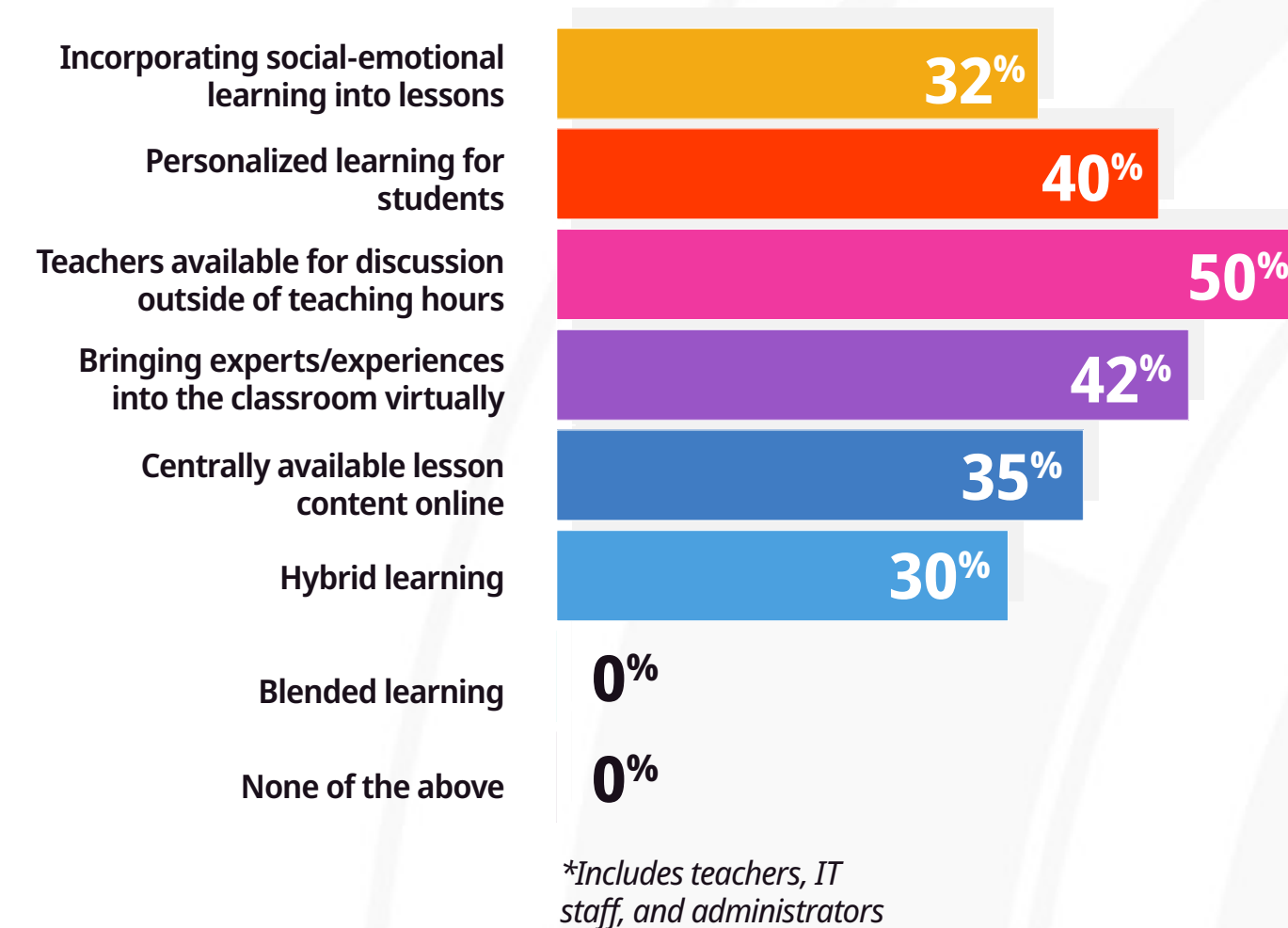### To what extent have any staff shortages affected your day-to-day role?

I've lacked support from substitute teachers	12%
Staff shortages have affected tech funding	17%
I've lacked IT admin support	31%
I've had to take on more responsibility and workload	57%
I haven't experienced any impact on my day-to-day role as a result	40%
I haven't noticed any staff shortages	18%

*Includes teachers, IT staff, and administrators

It's encouraging that the majority of educators overall approve of their leadership during this time. But delving deeper, the data reveals that **29%** of teachers and **40%** of IT managers are unsure that their leadership has effectively managed the challenges of staff shortages. And it's not hard to see why this lack of confidence exists. Of all respondents, **70%** report their schools expect teachers to adapt, and **52%** are left feeling the issue of staff shortages hasn't been discussed or addressed enough.

Support takes time and tech

Educators have tackled these demands in a variety of ways, including providing virtual experiences for their students, offering online lesson content, and creating hybrid learning environments. They've also given more of their free time after school to serve students' needs. While this takes a toll on teachers' mental health and well-being, their commitment to their students compels them to make such sacrifices.

Which of the following strategies have you found helpful for teaching over the past 12 months?

Incorporating social-emotional learning into lessons	32%
Personalized learning for students	40%
Teachers available for discussion outside of teaching hours	50%
Bringing experts/experiences into the classroom virtually	42%
Centrally available lesson content online	35%
Hybrid learning	30%
Blended learning	0%
None of the above	0%

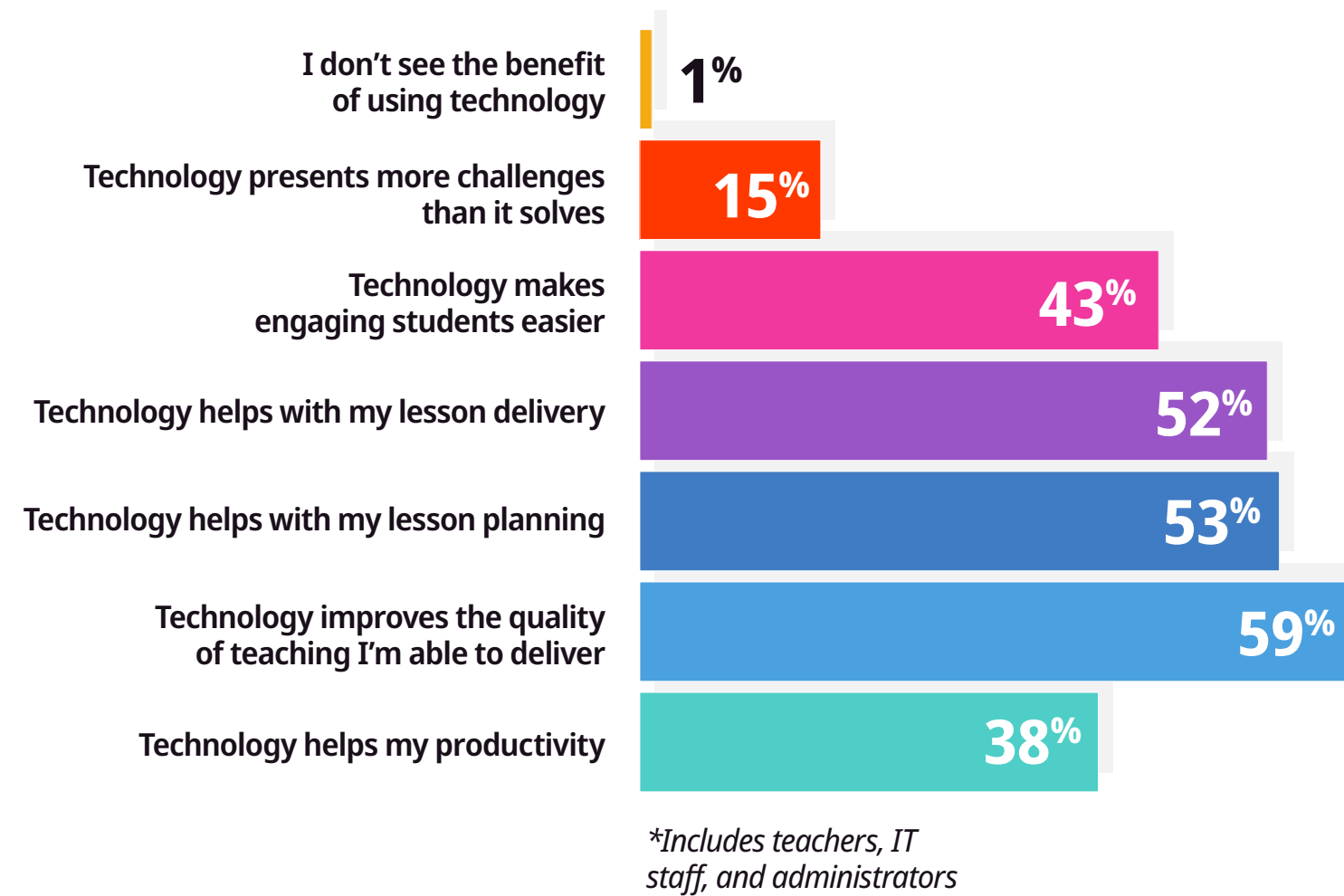**Includes teachers, IT staff, and administrators*

Overall, the majority of educators believe that technology improves their teaching, with some pointing to its help with lesson planning and others noting its importance to lesson delivery. This year, we found that educators are more likely to recognize the benefits of edtech, with **25%** fewer educators than last year believing that edtech creates more issues than it resolves.

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"I have been substituting as a teacher during the pandemic, as well as my regular duties as library aide. This has been very challenging, as well as rewarding."

Teaching assistant/admin/support staff,
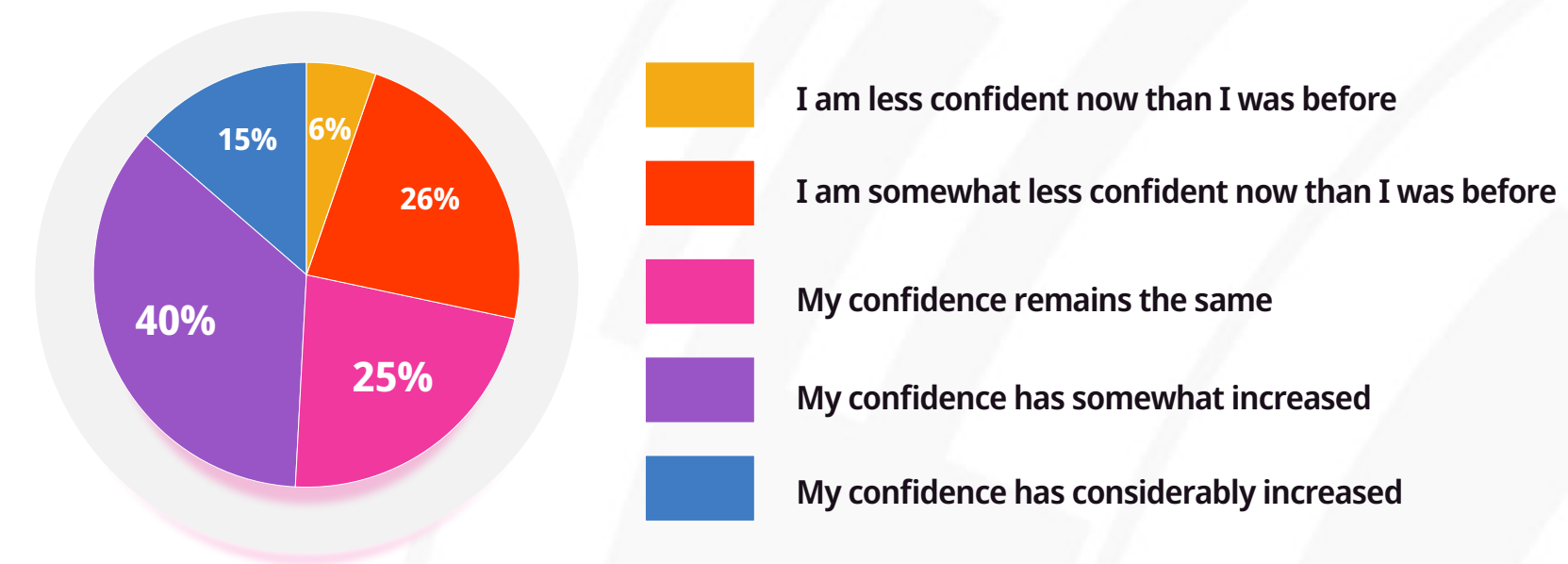public elementary school, Illinois

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How does technology impact your day-to-day role?

I don't see the benefit of using technology — **1%**

Technology presents more challenges than it solves — **15%**

Technology makes engaging students easier — **43%**

Technology helps with my lesson delivery — **52%**

Technology helps with my lesson planning — **53%**

Technology improves the quality of teaching I'm able to deliver — **59%**

Technology helps my productivity — **38%**

Includes teachers, IT staff, and administrators

Increasing tech use increases teacher confidence

Since they've used and benefited so much from tech's assistance, the overall majority of respondents have maintained or gained confidence. As one IT admin/network manager noted, "The more technology I use, the more I am able to learn and teach other teachers." For those who've not made progress, one curriculum administrator said they've lacked the capacity to keep it up: "This year and the last few have felt like I only have resources to maintain what I do. It is hard to find time to grow and learn new skills."

How much has your confidence in using technology in school changed over the past 12 months?*

Pie chart values: 6%, 26%, 25%, 40%, 15%

- **I am less confident now than I was before**
- **I am somewhat less confident now than I was before**
- **My confidence remains the same**
- **My confidence has somewhat increased**
- **My confidence has considerably increased**

Includes teachers, IT staff, and administrators

When it comes to educators who increased their confidence, breaking down the data by job role shows that IT staff have gained the most confidence **(57%)**, closely followed by teachers **(48%)**, and school administrators **(45%)**. This reflects the enthusiasm shown by three in five educators who say they actively strive to make the most of edtech's potential in unlocking the most impactful, modern pedagogy.
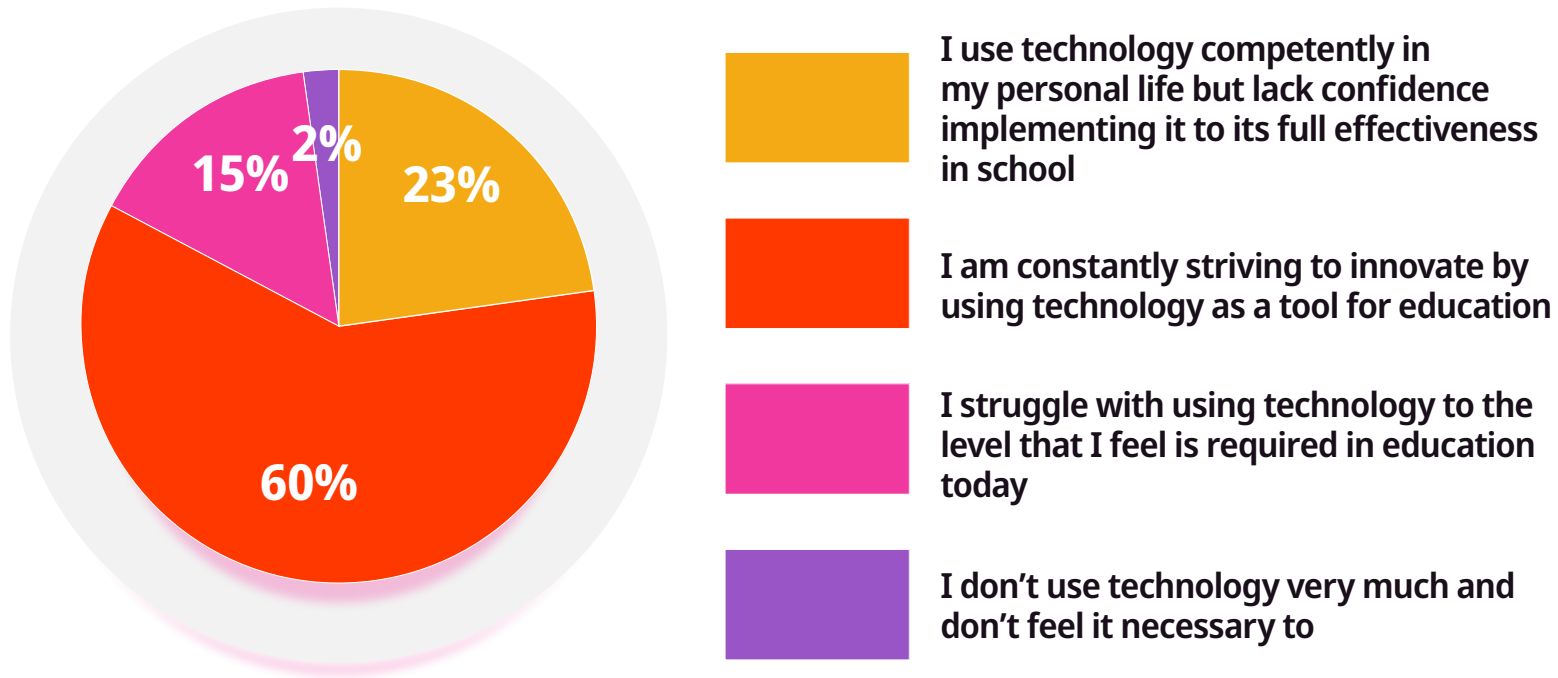
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"Using technology made lessons more engaging and easy. Children like visual presentations—they understand and remember more."

Teacher, private language school, Wyoming

"I am the technology coordinator, so I feel confident in what I do, but there is always something new to learn and I love that about technology and my job."

IT admin/network manager, public pre-K through 12, Minnesota

Which of these statements describes you best?

23%

15% 2%

60%

- I use technology competently in my personal life but lack confidence implementing it to its full effectiveness in school
- I am constantly striving to innovate by using technology as a tool for education
- I struggle with using technology to the level that I feel is required in education today
- I don't use technology very much and don't feel it necessary to

Includes teachers, IT staff, and administrators

"I use technology on a daily basis in my classroom. I try to do more than the "usual" things every day so the students don't get bored. For this reason, I have to learn new technology, and this allows me to feel more confident."

Teacher, public elementary school, Texas

In fact, this year's responses are almost identical to last year's, suggesting the appetite for tech growth and progression hasn't been dampened by another challenging year.

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> *"I participated in the transition of our students' learning to remote and learned to use and create content on that platform. As my school reopened, we worked to continue integrating technology in the classroom, and even now, technology is still utilized as it never was before. I am now comfortable with my school's technology platforms, and often use them, even if I am not subbing. I have enjoyed learning to use them, too."*
>
> IT admin/network manager, public high school, South Carolina

> *"Our staff are very comfortable behind a camera now, recording lessons and publishing them to Google Classroom or Canvas. Our staff are ready to flip the switch and work from home if need be. We have school calendars to make sure everyone knows what meetings the admins are in at any given time. I'm very proud of our staff and students for all their effort on a daily basis to learn, achieve, and succeed."*
>
> IT admin/network manager, public elementary school, Indiana

What does this tell us about staffing shortages in 2022?

- Despite a year of competing priorities, educators' tech skills have increased.

- So many teachers devoting time outside of lessons may indicate that the resources and initiatives available are not adequate.

- While it may benefit students, educators investing more of their own time is not sustainable and threatens their well-being and work-life balance.

- Schools can capitalize on teachers' confidence in tech, but need to ensure the infrastructure and ongoing training is in place to maintain it.

- With educators placing lesson delivery and planning among their greatest benefits, there's evidence of how useful edtech is throughout the year, and especially in times of crisis.

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The future of education:
Technology and digital fluency are key

The pandemic and the disruptions it wrought have left educators feeling uncertain about the future. Even so, the majority believe edtech will be a critical part of the education landscape going forward. After proving its value again, tech will continue to grow in both familiar and innovative ways. There will likely be an increase in both educators' and students' digital fluency, and the use of edtech to promote and nurture social-emotional learning will also expand.

32%
Digital equity and tech access ranked first as the most pressing issue today.

The headlines:

37% **Online on top**
Among edtech tools, online content and resources are predicted to grow the most over the next one to three years.

57% **Flourishing digital fluency**
The majority of educators believe their digital fluency will improve in the future.

46% **A soft touch**
Education will focus mainly on soft skills in the future, according to the largest group of educators.

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Front-of-class tech at the forefront

Interactive front-of-class technology closely follows online content in leading edtech's future, with just over a third of educators predicting these tools will experience the most growth. It goes to show that these well-established classroom staples haven't plateaued but continue to represent long-term potential and upgradeability in educators' eyes. Meanwhile, less versatile tools with fewer applications in the classroom rank the lowest, such as 3D printers, which students identify as their least favorite to use.

Which technologies do you see experiencing the most growth in education in the next 1 – 3 years?

Technology	%
Collaboration platforms	11%
Communication/virtual conferencing tools	17%
3D printing	20%
Remote learning and teaching platforms	24%
Virtual learning environment	24%
Robotics/coding	23%
Smartphones	23%
Apps	28%
Artificial intelligence (AI)	26%
Virtual reality / augmented reality (AR/VR), including the metaverse	30%
Tablets	21%
Cloud-based lesson-planning and delivery tools	33%
Interactive front-of-class technology	36%
Online content and resources	37%
Online assessments	26%

The most popular edtech tool varies depending on whom you ask. Most school administrators choose interactive displays as their frontrunner **(34%)**, while teachers opt for online content **(52%)**, and IT administrators lean towards virtual conferencing tools **(78%)**. However, front-of-class tech ranks second for both teaching and IT staff. Even more novel edtech innovations like AI are welcomed, with AR/VR increasing by **10%** from last year, and just **2%** feeling unsure about how AI would be used.

> *"With the progress of technology, it's no longer complicated for teachers to prepare lessons and write on the board, but they can cope with teaching in a relaxed way."*
>
> Principal/assistant principal, private high school, Colorado

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Which of these features and uses of AI will benefit education the most?
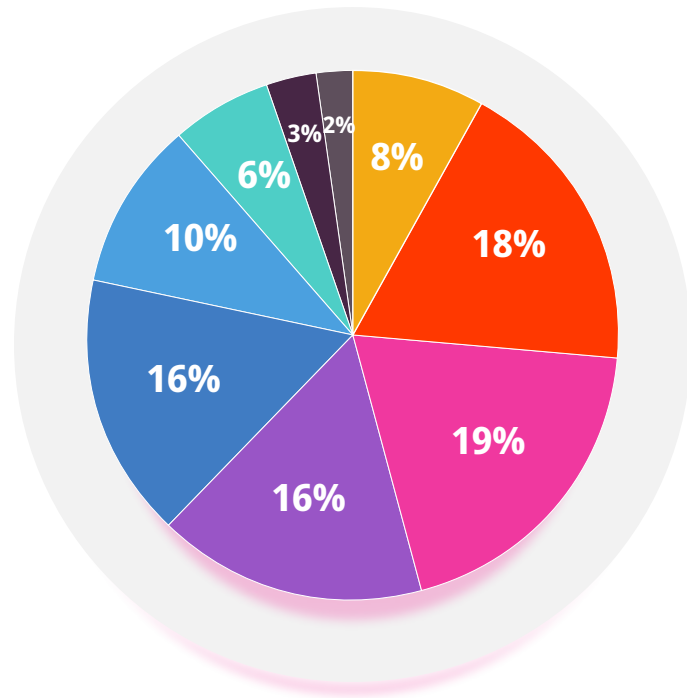

- **Voice control and commands**
- **Responsiveness of the tools and technology**
- **Performing and automating administrative tasks**
- **Serving as a virtual assistant, such as Merlyn Mind**
- **Generating and processing data**
- **Adaptive personalization**
- **Objectivity and lack of human bias**
- **I don't believe AI will benefit education in the future as it will pose a threat to educators**
- **I don't believe AI will benefit education in the future as I don't know how it would be used in school**

Full steam ahead for digital fluency

The question of whether educators can keep up with edtech's growth is often asked. But this year's answer is a firm "Yes." While digitally native students are inherently immersed in the technological world, the educator community is less predisposed to pick it up so easily. Competence comes naturally with continued use, but one teacher noted how it also requires conscious effort to not fall behind: "I work hard to always be learning and growing as the field is ever expanding."

How do you think educators' digital fluency (i.e., a person's competence and proficiency with tech) will change in the next 1 – 3 years?

- **Will be worse**
- **Will remain the same**
- **Will improve**
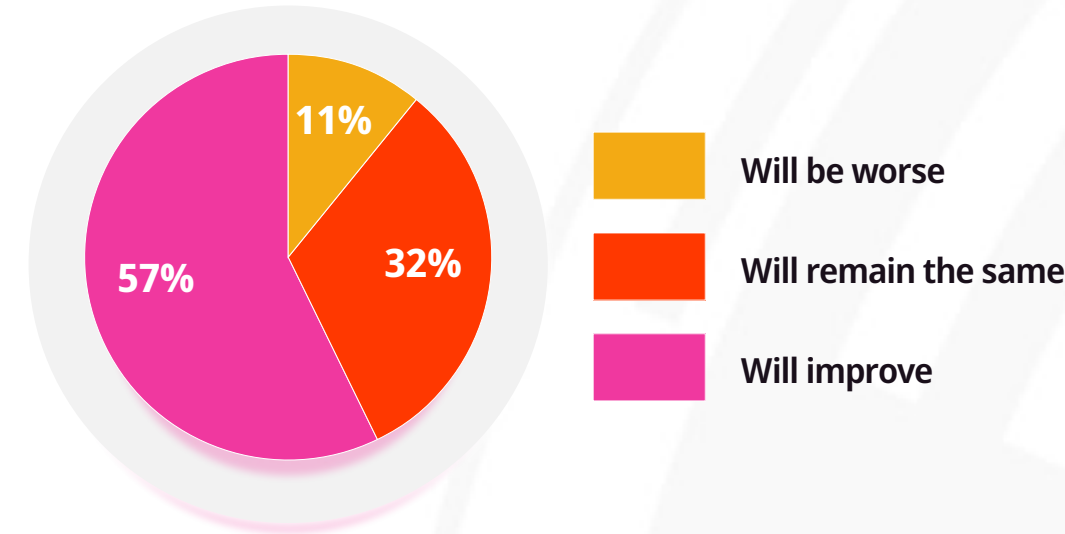
How do you think students' digital fluency (i.e., a person's competence and proficiency with tech) will change in the next 1 – 3 years?

- **Will be worse**
- **Will remain the same**
- **Will improve**

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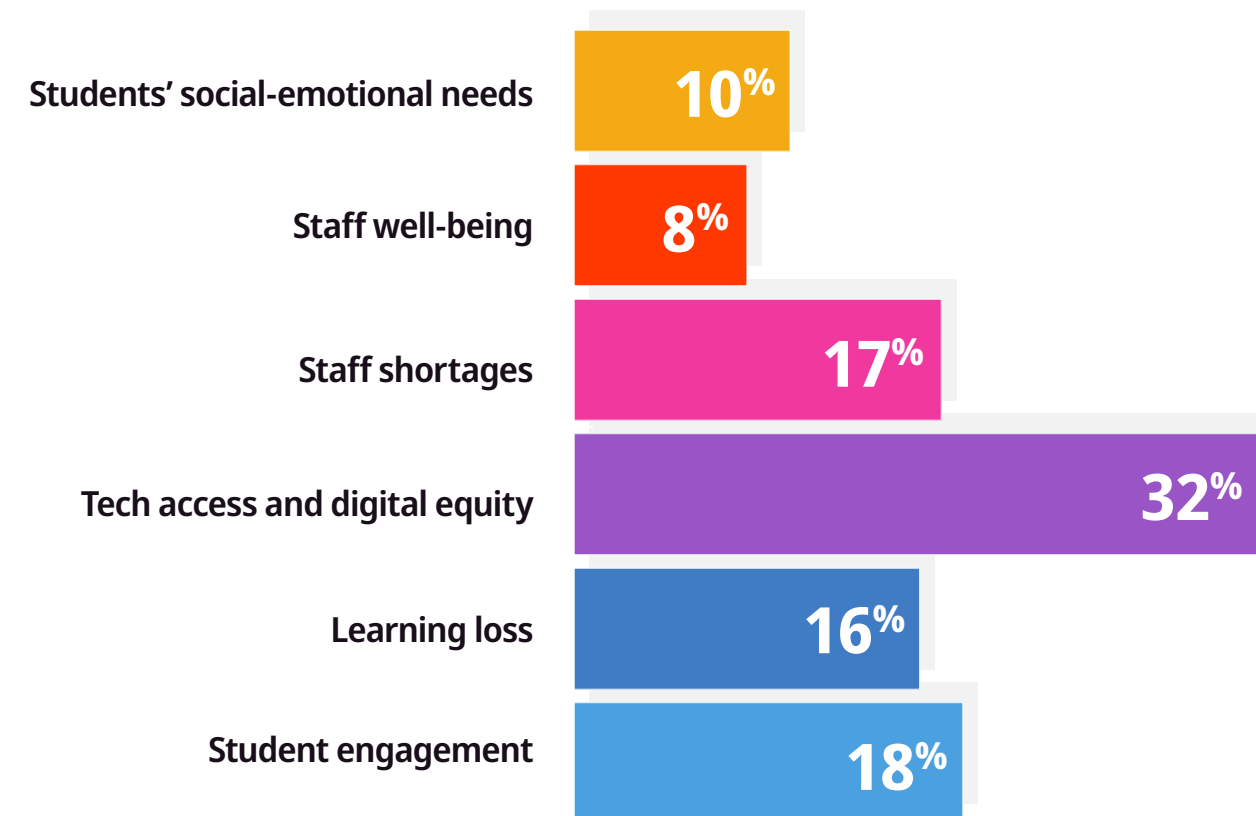**Education**
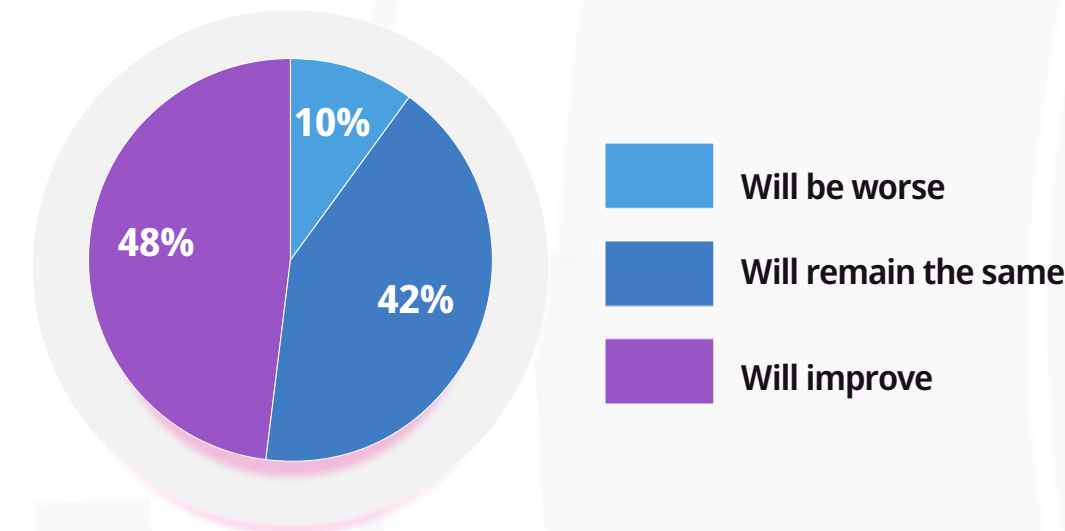
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"I think the technology is developing very fast and everyone is making progress, and the students understand modern things, so I am very confident."

IT admin/network manager, private elementary school, California

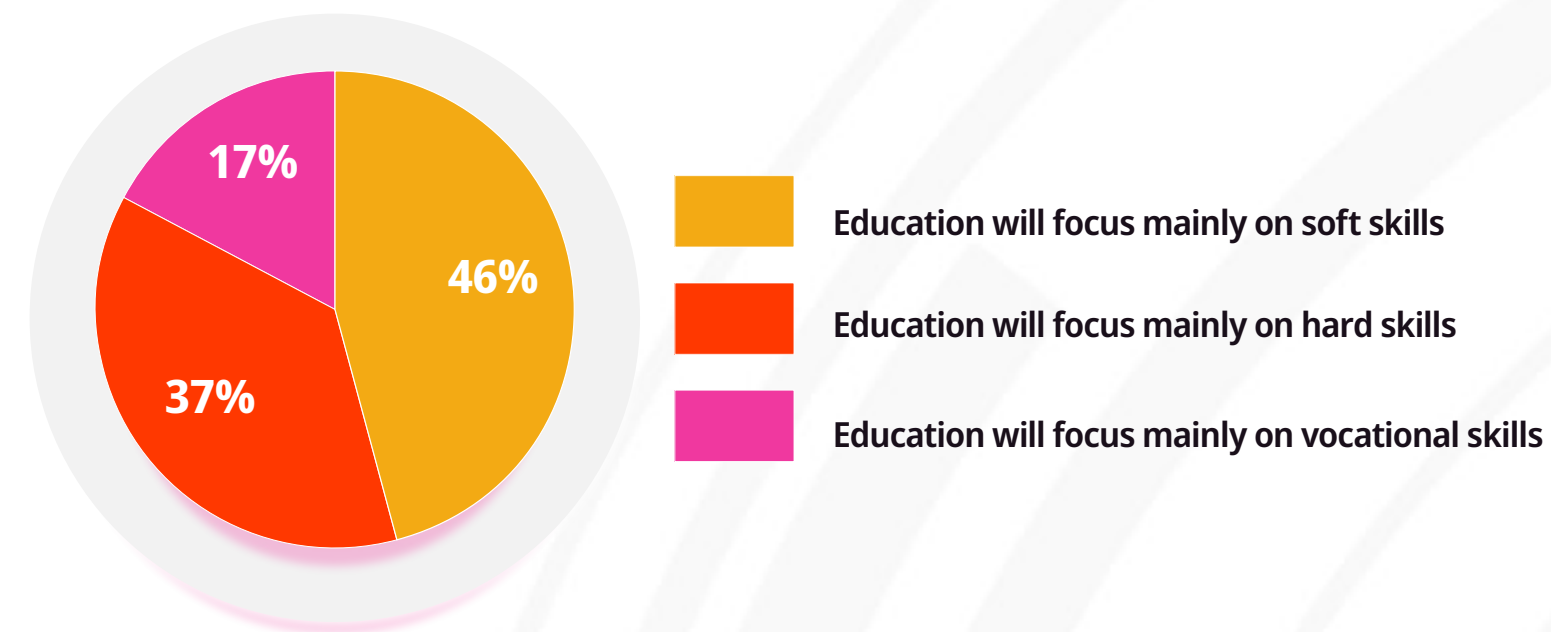## Building edtech equity and soft skills are chief concerns

Educators rank equitable access to technology and digital tools as their biggest concern, even before the challenges of student engagement, staff shortages, and their own well-being, which is ranked as their lowest concern.

Which of the following is the most pressing issue faced by education today?

| Issue	%
Students' social-emotional needs	10%
Staff well-being	8%
Staff shortages	17%
Tech access and digital equity	32%
Learning loss	16%
Student engagement	18%

Most educators believe that the primary focus of education is to help students gain the interpersonal skills they need to become well-rounded, emotionally intelligent citizens. However, the reality is that only **12%** of schools currently focus on soft skills.

How do you think the purpose of education will change in the future?

- 46% Education will focus mainly on soft skills
- 37% Education will focus mainly on hard skills
- 17% Education will focus mainly on vocational skills

"Infrastructure is the main issue in our region. It's great to have teachers learn a new tool, or have students fully implemented in 1:1, but, overall, internet connectivity remains an issue."

IT admin/network manager, charter school, Arizona

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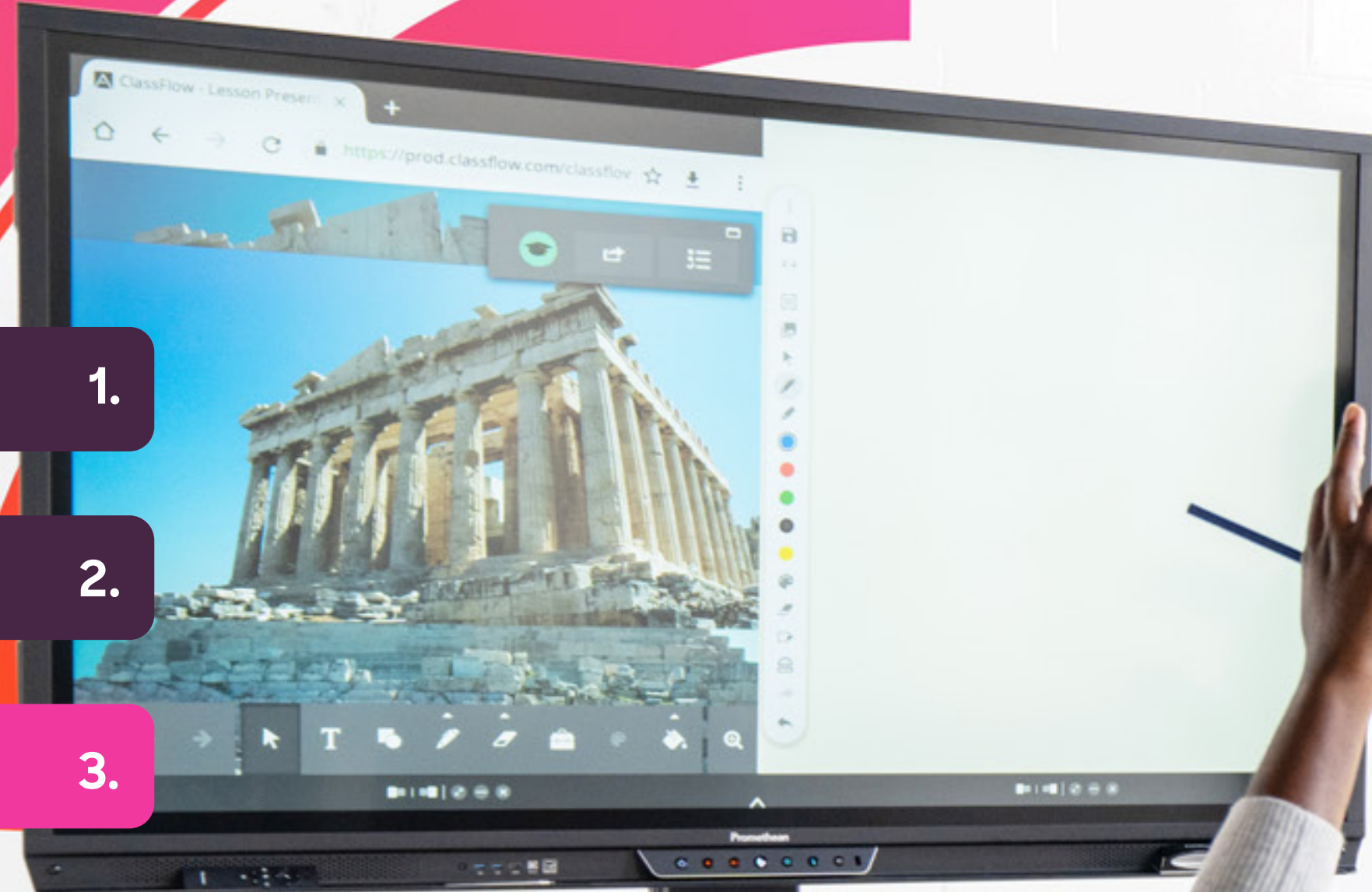
What does this tell us about the future of education?

- The data shows that the digital fluency of students and educators will grow. Students, who are digital natives, currently outpace their teachers. But the rate of growth in the tech fluency of educators is expected to outpace that of students.

- The continued disruption to education has reaffirmed the need for students to be as resilient as possible, leading soft skills to rise to the top of the agenda.

- With the well-being of staff ranking as such a low concern among respondents, there's a risk that teachers and IT staff won't be able to offer the highest level of instruction and support without adequate care for themselves—especially after a particularly trying few years.

- The year's general tech advancements, such as the explosion of the metaverse, have likely contributed to the predicted growth of VR/AR.

- While it hasn't been in the limelight in previous years, the arrival of innovations such as Merlyn Mind have shown the capability of AI in the classroom, winning confidence of the education community.

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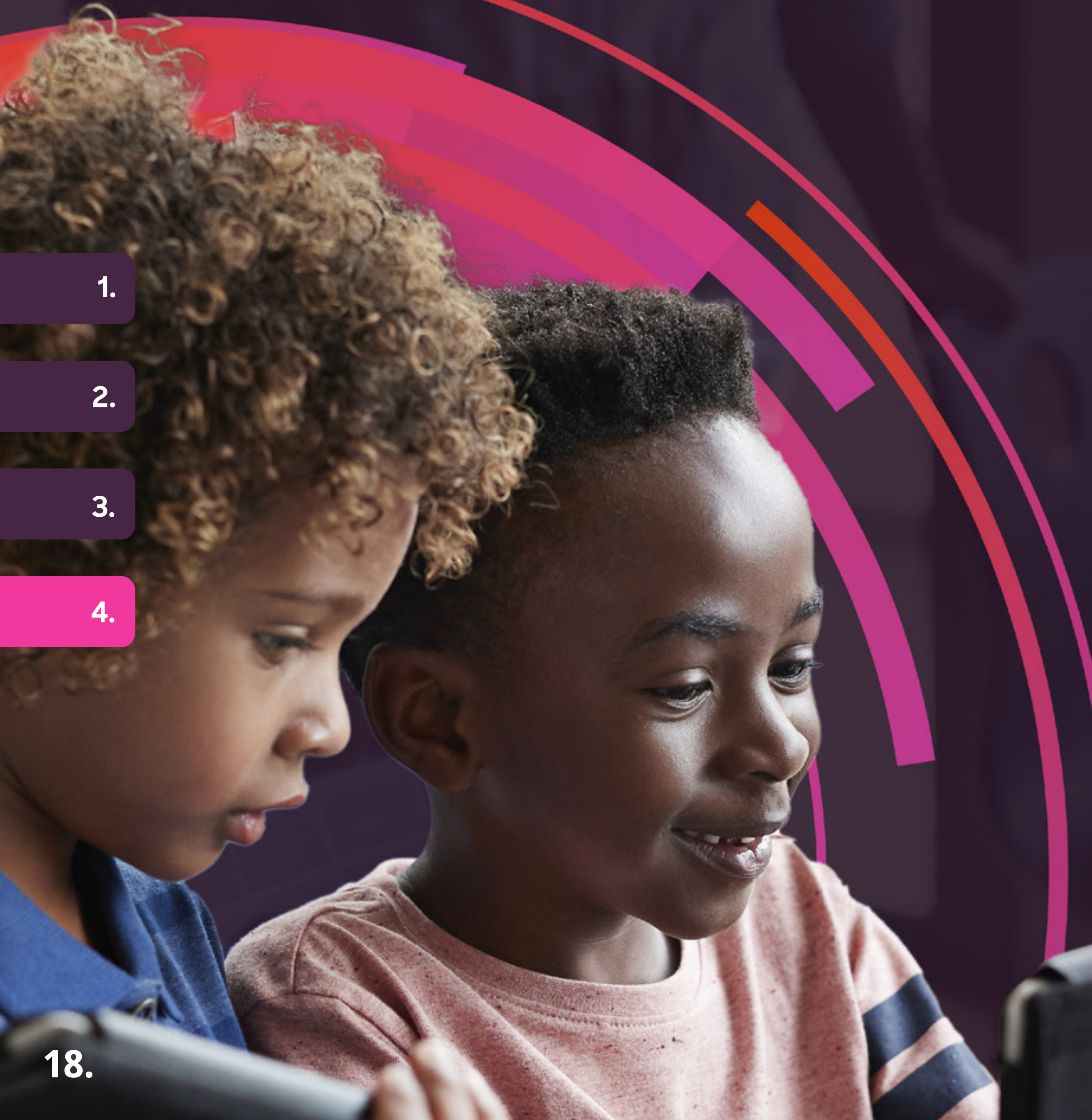
The student experience:
Happy at school, but hungry for tech

One of the most encouraging findings of our survey is that students are overwhelmingly positive about their school experience and have a favorable view of their teachers. Students reported that they have a strong learning environment and positive teacher relationships but would like more interesting lessons and more technology in the classroom.

78%
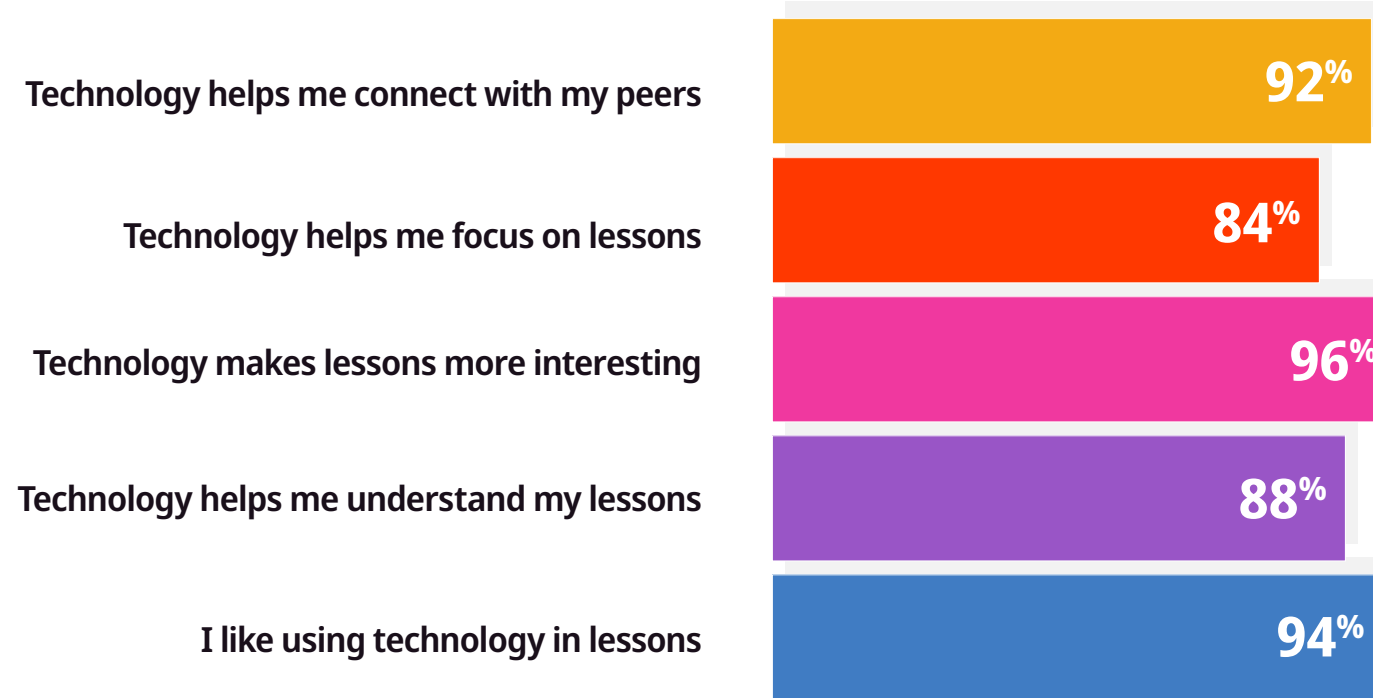*Most students say their teachers make them happy.*

The headlines:

96% **Stimulating screen time**
Almost all students agree that technology makes their lessons more interesting and enjoyable.

84% **Admiring educators' efforts**
Eight out of 10 students say their teachers work hard.

60% **Eager to engage**
If students could change anything about their school, the most popular choice is more interesting lessons.
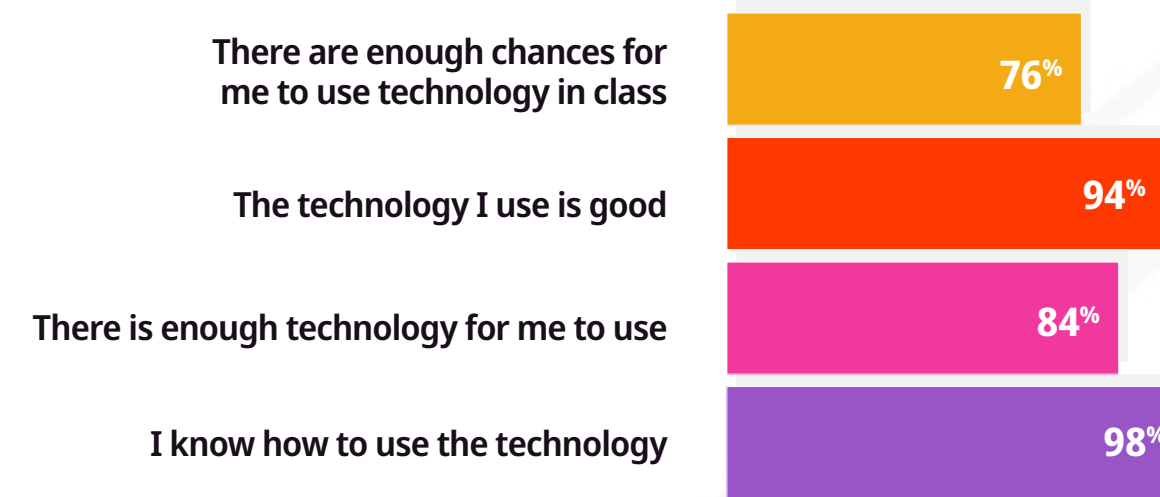
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Technology is a help, not a hindrance

It's no surprise that tablets are students' favorite tools, considering how much these devices are used outside of the classroom.
But remote learning platforms and online content also scored high, suggesting students appreciate having their content more widely accessible. Those who are concerned that tech can be a distraction should be reassured to learn that most students say it helps them focus on their lessons.
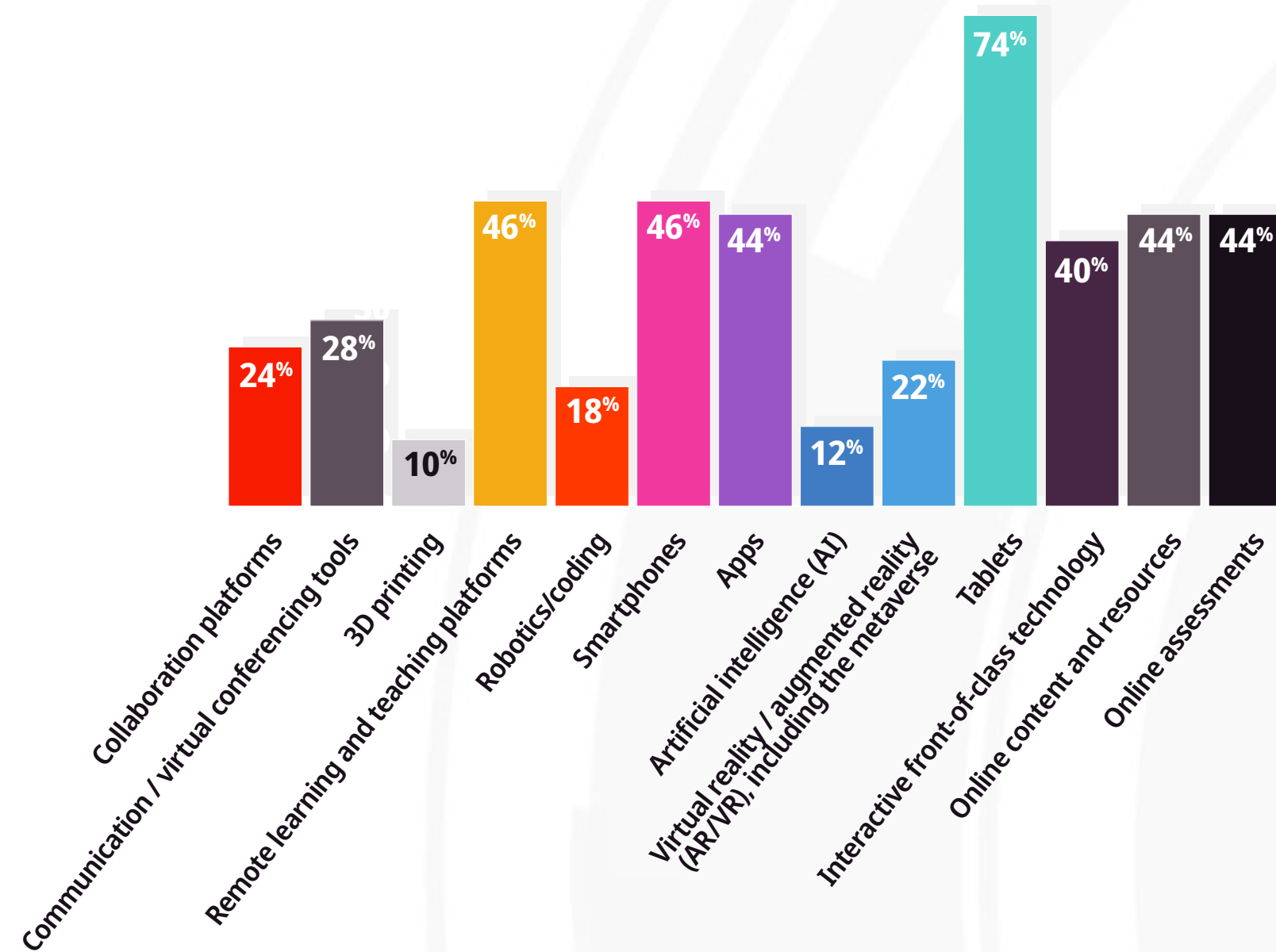
How important is technology in school for you?

- Technology helps me connect with my peers — **92%**
- Technology helps me focus on lessons — **84%**
- Technology makes lessons more interesting — **96%**
- Technology helps me understand my lessons — **88%**
- I like using technology in lessons — **94%**

How do you feel about the technology you can use in school?

- There are enough chances for me to use technology in class — **76%**
- The technology I use is good — **94%**
- There is enough technology for me to use — **84%**
- I know how to use the technology — **98%**

Which of these do you like using in school?

- Collaboration platforms — 24%
- Communication / virtual conferencing tools — 28%
- 3D printing — 10%
- Remote learning and teaching platforms — 46%
- Robotics/coding — 18%
- Smartphones — 46%
- Apps — 44%
- Artificial intelligence (AI) — 12%
- Virtual reality / augmented reality (AR/VR), including the metaverse — 22%
- Tablets — 74%
- Interactive front-of-class technology — 40%
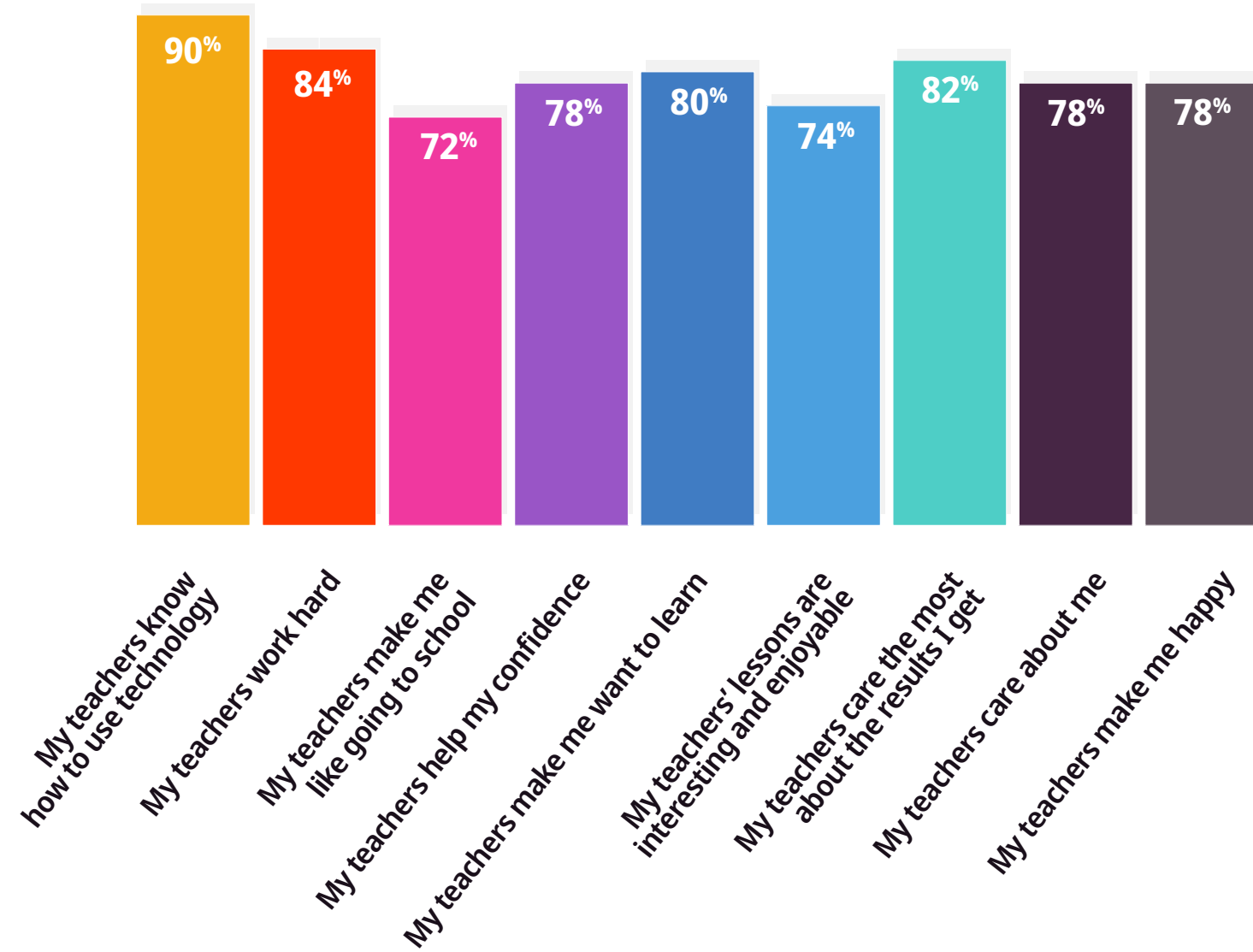- Online content and resources — 44%
- Online assessments — 44%

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Top marks for teachers

After working so hard to create engaging lessons and meet the needs of their students, teachers will be pleased to see so many positive responses from students about their classroom experience. They'll also feel encouraged that most students have faith in their teachers' tech proficiency.
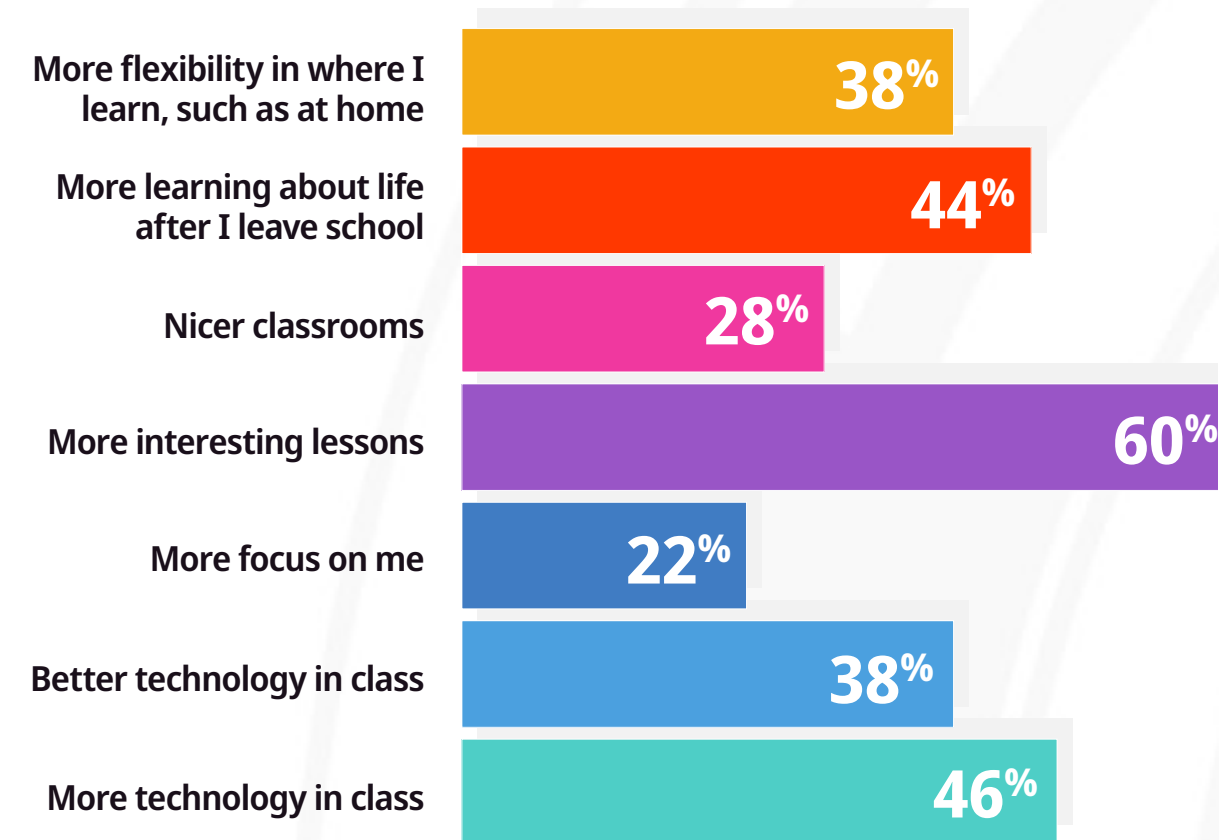
How do you feel about your teachers?

Category	%
My teachers know how to use technology	90%
My teachers work hard	84%
My teachers make me like going to school	72%
My teachers help my confidence	78%
My teachers make me want to learn	80%
My teachers' lessons are interesting and enjoyable	74%
My teachers care the most about the results I get	82%
My teachers care about me	78%
My teachers make me happy	78%

More interesting lessons and more tech, please!

Increased attention to social-emotional learning and student well-being has paid off, with the smallest cohort reporting they'd like "more focus on me." Students also appear to be eager for the in-person classroom experience, with most ranking flexibility in where they learn last. Most students say more interesting lessons is the thing they'd most like to change about their school, and many also want more and better technology.

What would you most want to change about your school?

Category	%
More flexibility in where I learn, such as at home	38%
More learning about life after I leave school	44%
Nicer classrooms	28%
More interesting lessons	60%
More focus on me	22%
Better technology in class	38%
More technology in class	46%

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What does this tell us about the student experience in 2022?

- Teachers are not yet making the most of front-of-class displays or the tools and resources available on them. By taking greater advantage of these assets, teachers can create lessons and learning experiences that are more dynamic and immersive.

- Almost half of students want more tech, but will they get it? Nearly 20% of educators say staff shortages have affected tech funding, which is limited even in the best of times.

- One in four students say there aren't enough chances to use the tech that's currently available. The most likely culprits behind this are impacts on tech funding and staff shortages leaving teachers without IT support.

- More than 70% of students say their teachers make them enjoy coming to school. In the coming year, educators should build on that by developing stronger relationships with students, creating community in the classroom, and enriching their lessons with interactivity and engagement.

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