

## **Math Supplements Study**

K-12 Practitioner Panel  
Online Journal Complete Findings  
Fall 2023

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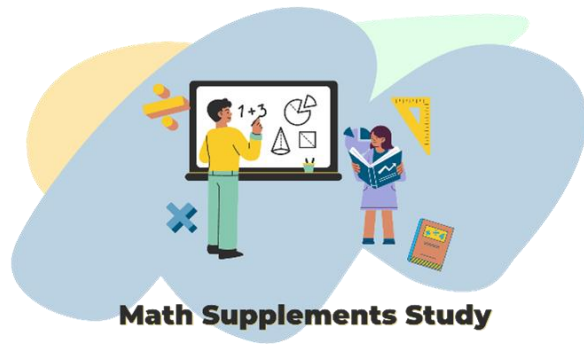
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## Math Supplements Study

# OVERVIEW

# STUDY PURPOSE & CONTEXT

**What are practitioner perspectives on the role of supplemental material in the math classroom, and how can we improve their integration and alignment with core curriculum and standards?**

Previous research on teacher-created materials and student motivation, engagement, and persistence in math suggests that math teachers may put a lot of effort into aligning their core curricula or standards with supplemental instructional materials. Before exploring whether the field would benefit from more support with integrating and aligning core curriculum and supplemental materials, we need to better understand how teachers use supplemental instructional materials.

Findings from this study may be used by the foundation in future explorations of strategies to support math practitioners through supplement and curriculum integration.

Study Goals:

- Understand how teachers currently use supplements and their experiences (ex. pain points, positive experiences)
- Gain clarity on supplement alignment core or state standards, including what combinations of curriculum, state standards, and supplements are most prevalent and why
- Deepen understanding of practitioner preferences on the integration between core curriculum and supplements

PHASE	APPROACH
Pre-Study Work: June 2023	Slack Pulse Check Questions
Online Journal: July 2023	Online journal with voice / video data collection integrated. Instrument distributed to math practitioners, including math teachers and math instructional coaches.

*\*Please see [Appendix](#) for additional methodology details and participant demographics. See [the study plan](#) for more details on how this study was developed to build on existing study findings.*

# PHASE I ENGAGEMENT

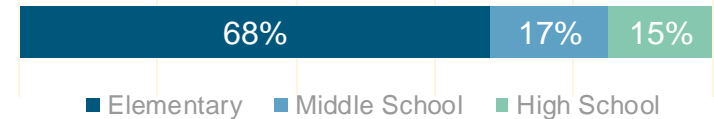


## Who was eligible to participate and how many engaged in Phase I of the study?

In late June of 2023, members of the Community Insights Network responded to open-ended and poll questions on their use of supplemental instructional materials. In July of 2023, pre-study engagement data was used to develop online journal data collection efforts. Then, math coaches and teachers of the K-12 Practitioner Panel working with students in grades 4 -10 were invited to participate in an online journal experience of multi-select questions and open-ended responses on supplements in a survey format.

144 math teachers and coaches submitted complete online journal responses. Online responses took participants on average 45 minutes to complete, for which they received an incentive of \$75 to Amazon or PayPal. After participants completed their online journals, the ResultsLab team asked follow-up questions where further clarification or depth was needed. The following slides detail quantitative and qualitative findings from the online journal analysis.

Participant Grade Bands (n = 144)



What role do study participants have at their school? (n = 144)





## How might the R&D and Solutions teams use these findings to inform their investment strategy around supplemental materials?

### Takeaway

### Support Supplementation By ...

**Supplementing in the math learning context will likely always be part of the teacher experience, despite the quality of curriculum.**

- Investing in digital products as well as physical manipulatives and products that are adaptable and scale difficulty level based on user.
- Funding professional development for practitioners on where to find high-quality supplements that meet their specific needs while championing the expertise and experiences of practitioners.

**Math practitioners most often use supplements for reinforcement and practice of content.**

- Investing in supplements that focus on getting concepts to stick in students' minds—by making content engaging/relevant/fun to motivate students and help them persist.
- Supporting supplements that are easily searchable and that integrate with curriculum to reduce time spent supplementing.

**Practitioners express that better integration between supplements and K-12 materials/products could improve student outcomes and be more time- and cost-effective for teachers.**

- Supporting products that leverage technology to integrate curriculum with other elements of the K-12 instructional materials market, such as tutoring and LMS systems in addition to supplements.
- Investing in the platforms practitioners reported as having positive integration (IXL Math, Zearn, and Khan Academy) or platforms with the highest use (Khan Academy, IXL Math, BrainPOP, Prodigy Math Game, and iReady) to work with curriculum producers that hold the highest market shares (Savaas, McGraw Hill, and HMH).

**Teachers have lots of autonomy in choosing supplements, are often looking for supplements to meet the needs of diverse learners.**

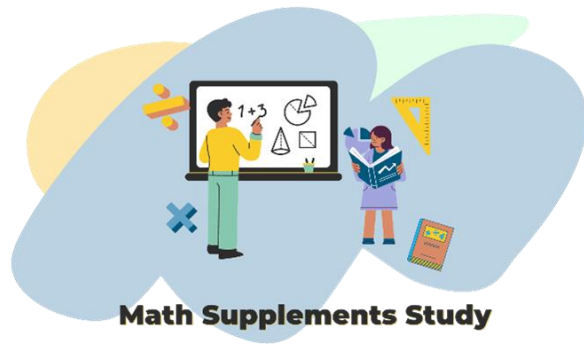
- Investing in supplements that are already aligned with learning standards and have customizable features that enhance the user experience; acknowledge the professional experience of practitioners and their expert knowledge of their own classrooms as they choose and modify supplements.
- Elevating the sharing of high-quality supplements by word-of-mouth and develop or support a platform that helps align vetted supplements to standards and curriculums.

**Barriers to supplement use include challenges with time spent adapting and modifying supplements, supplement cost, and finding high-quality materials that are standards-aligned.**

- Supporting supplements that involve practitioners in the design and refinement of supplements and encourage supplements to develop feedback pathways for practitioners to share the modifications they are making of supplements or recommendations places they would find differentiation useful.
- Reflect on ways to help make supplements that are considered high-quality instructional materials more financially accessible

**Challenges with supplements seem to be systemic and interrelated as funding, access, and mindsets around supplements often require admin / district support**

- Engaging in capacity building work with district leaders to build mindsets around supplementing autonomy, providing funding for high-quality instructional materials, and adding in support structures such as professional development on supplement use for practitioners.
- Advocating for supplement differentiation by language and unique learning needs of special education students.



## **Math Supplements Study**

# DETAILED FINDINGS



# MATH CURRICULUM USE

"The lessons and activities are hands-on and allow for exploration and mathematical thinking practice. The pacing is way too fast though."

- Elementary School Teacher, Florida

## The Following Section Highlights:

- The extent to which study participants use pre-packaged math curriculums by a publishing company
- Curriculums used by publisher and practitioner ratings of quality

## Key Take-Aways:

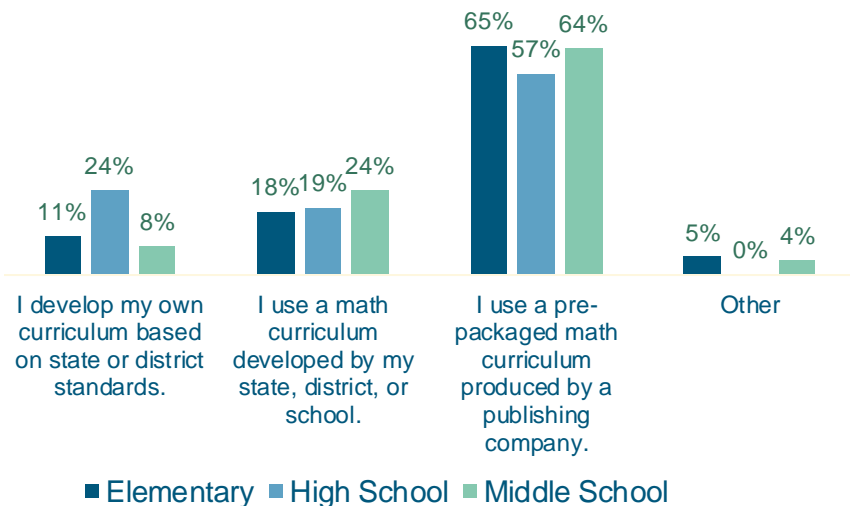
1. A majority of online journal participants use a pre-packaged math curriculum produced by a publishing company.
2. Many participants struggled to name their curriculums used, often confusing this for publishing company.
3. 69% of participants rate their curriculums as excellent or good.



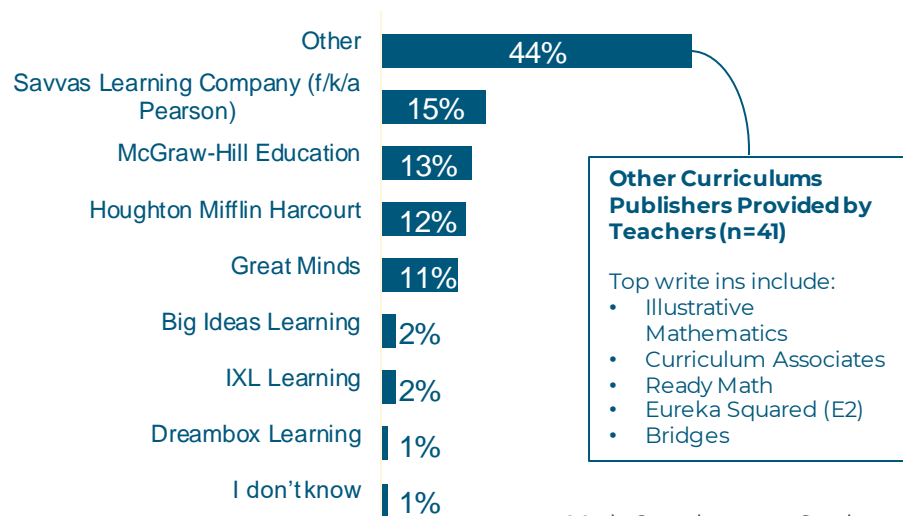


A majority of online journal respondents use a pre-packaged math curriculum produced by a publishing company. Selecting from a list of publishing company market share holders, participants elevated they most frequently use products by Savvas, McGraw Hill, and HMH. Of write-in curriculum publishers, Illustrative Mathematics, Curriculum Associates, and Ready Math were most frequently cited.

### Math Curriculum by Grade Band (n=144)



### Publishers of Teachers' Math Curriculum (n=94)





Many participants struggled to name their curriculums used, often confusing curriculum and publishing company. Others noted they use multiple curriculums or are in the process of switching curriculums. Regardless, 69% of participants rate their curriculums as excellent or good, yet still use supplemental materials in their instructional approach.

Rating	%	How would you rate the quality of your math curriculum? Please provide 1-2 sentences to give context about the rating you assigned.
Excellent	16%	"This has goals and vocabulary to go with each lesson. I also love the interactive workbook and manipulatives that are included." – Elementary Teacher, North Carolina
Good	53%	"I think the math curriculum that we use is good because it aligns with the state's standards and does not require extra work on the part of the teachers to meet those standards." – Middle School Teacher, Vermont
Neutral	19%	"The curriculum has decent real-world examples and provides several good practice problems at multiple depths of knowledge (though mostly procedural). It is lacking in engaging, complex modeling tasks, and also lacks sufficient support for struggling learners." – High School Teacher, California
Fair	12%	"When used with Special Education students, this program is very heavily language loaded and they have difficulty comprehending what they need to do. In addition, these students cannot read at the level of the academic language." – Elementary Teacher, New York
Poor	<1%	"Not enough practice. No spiral review. Quizzes/tests assess more than the skills taught in the lesson. TOO much reading." – Elementary Teacher, Alaska

#### Common Reasons People Cited Curriculums as Excellent/Good:

Real-world applications and lots of practice problems, aligning to state benchmarks, seem to listen to educator feedback, rigor and structure or scope and sequence, meets diverse learning needs, integrated placement testing, interactive, repetition of content, opportunities for student interaction and collaboration, comes with additional videos and support resources for differentiation.

#### Common Reasons People Cited Curriculums as Fair/Poor:

Does not meet the needs of special education students, difficult content for ELL students or those struggling with literacy, assessments don't align with content, lack of engaging content for students, lacks structures for differentiation, not enough practice problems.



# SUPPLEMENT USE-CASES

The engagement piece is huge. If my students are struggling with a concept, being engaged in the supplement is crucial. No one wants to struggle with the skill and also be bored while doing so. "

-Elementary School Teacher, Iowa

## The Following Section Highlights:

- How supplements are used to meet unique classroom needs
- Details on use-cases for top-five most frequently reported supplements used by practitioners
- Contexts in which practitioners look for and integrate supplements into instruction


## Key Take-Aways:

1. Math practitioners reported they use supplemental instructional materials primarily for reinforcement or practice.
2. Khan Academy, IXL Math, BrainPOP, Prodigy Math Game, and iReady were the most frequently employed supplements and were also those most used by elementary school teachers.
3. When supplementing elementary teachers look for hands-on activities, cost, and ease of use for student and teachers.
4. 64% of practitioners reported being able to use their discretion when choosing supplements. On average, practitioners pay for 24% of the supplements they use. 57% of supplements used are physical manipulatives and not digital.



Most frequently, online journal respondents indicated the following reasons for why they supplement: to address learning gaps, reteach concepts, and motivate / engage students. Supplements are least frequently used to build entire lesson plans, facilitate SEL, or foster persistence or a sense of belonging.

## Top 50% of Reasons Teachers Use Supplements (n=144)



**Consider supporting supplemental instructional materials that address learning gaps, help reteach or review concepts, and motivate and engage learners. There may also be potential to make connections between supplements that support motivation, engagement and persistence in the math classroom.**

Of the 22 potential reasons practitioners had to choose from, **least frequently** educators referenced supplementing to: Build entire lesson plans, Facilitate social-emotional learning, Foster persistence, Foster a sense of belonging, Integrate content from other subjects, Increase rigor, and Guiding tutoring.



When considering unmet needs by curriculum, instructional materials or standards, practitioners cited that they rely on supplements to support learners with IEPs and unique learning needs, to make content engaging, and to address learning loss. Such indicates that practitioners desire more integrated supports in curriculum both to meet the needs of learners on their math journeys but also to keep students engaged along the way.


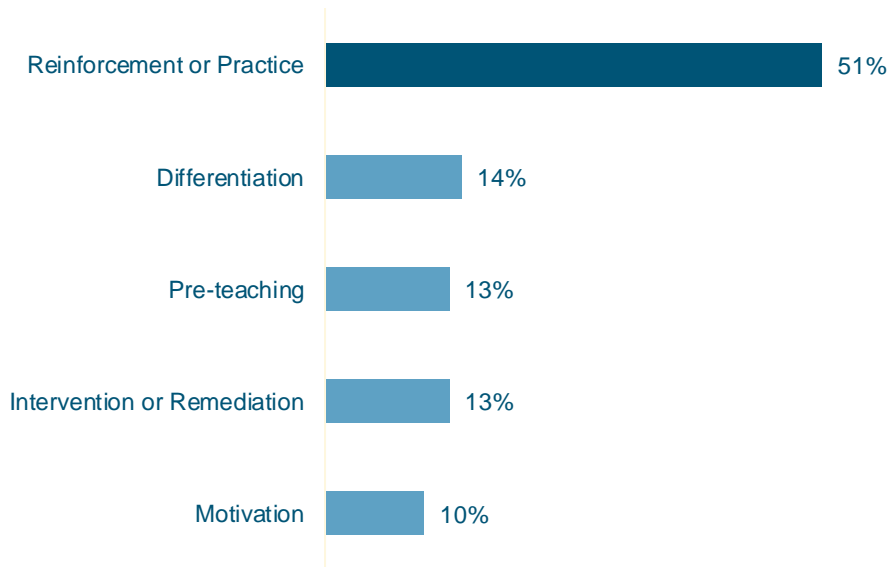
### What needs do you find unmet by curriculum, instructional materials, or standards that can be filled with supplements?

<b>IEP Needs</b>	<p>“As a teacher of students with Special Needs, I find myself often searching for materials that provide practice with the pre-requisite skills of the grade level curriculum that I am required to teach. Unfortunately, my students are often unable to be successful with grade level materials and need instruction and practice in those pre-requisite skills.”</p> <p>– Elementary Math Teacher, New York</p>
<b>More Engaging Material Than Curriculum</b>	<p>“It's not that needs are unmet by the curriculum, it's more that a larger variety of resources helps keeps students motivated and engaged. Students are used to very engaging media, and we have to adapt to that. Not all students can sustain their attention with pencil + paper work, and even the games provided by the curriculum lack that UMPH needed to push and motivate students.”</p> <p>– Elementary Math Teacher, Indiana</p>
<b>Close Gaps in Knowledge/Skill</b>	<p>“Our highest needs in this matter are finding resources to help fill in the gaps. We have great resources in our curriculum to help meet the standards, but we are working hard to help fill in the gaps with students.”</p> <p>– Middle School Math Teacher, South Carolina</p>



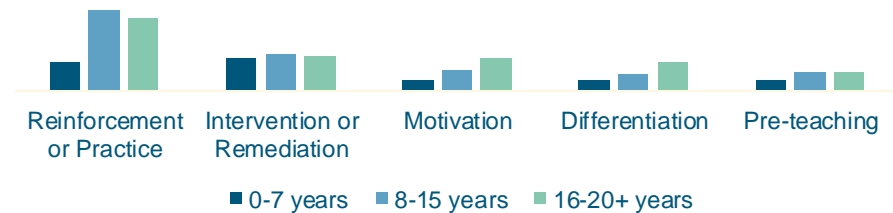
Math practitioners reported they use supplemental instructional materials primarily for reinforcement or practice. When displayed by grade band, reinforcement and practice is the main reason elementary and middle school teachers supplement. By experience, those with 7 or fewer years of experience use supplements for intervention or remediation. Those who rate their curriculum as "poor" also primarily use supplements for intervention or remediation.

### Primary Reason Practitioners Supplement (n=79)



**When considering supplemental instructional materials to support, those that are useful for reinforcement and practice of concepts may be of most use to math practitioners. To support earlier-career teachers, support supplements with intervention / remediation features, as well.**

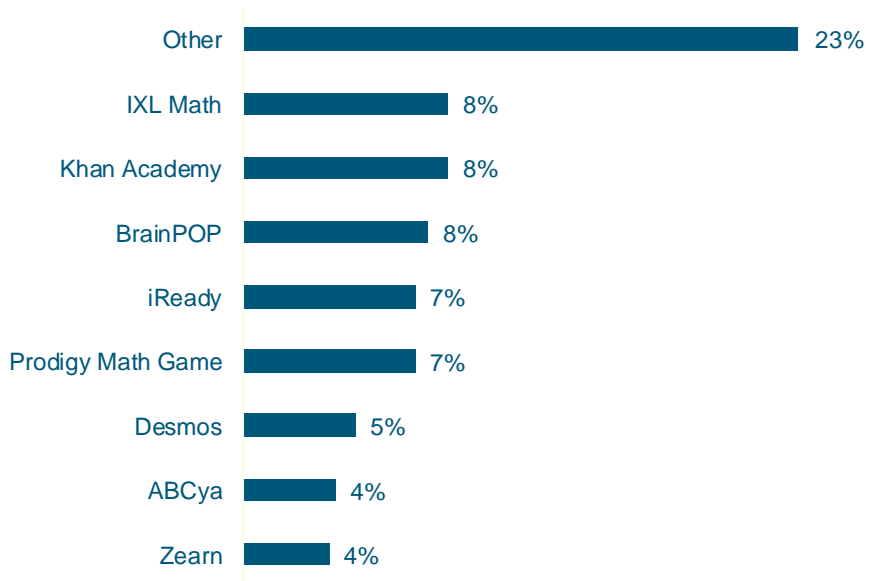
### Primary Reasons Teachers Use Supplements by Experience Level



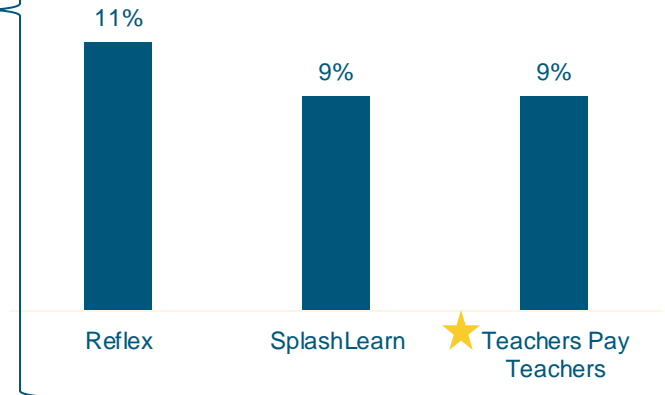


Selecting from a list of publishing company market shareholders, online journal participants reported their top five most frequently used supplements. Khan Academy, IXL Math, BrainPOP, Prodigy Math Game, and iReady were the most frequently employed supplements and were also those most used by elementary school teachers. TeacherPayTeachers was referenced as an "other" supplement used despite being a marketplace rather than a supplement product itself.

### Top Supplements Used by Practitioners (n=144)








### Additional Supplements Frequently Used in the Math Classroom (n = 45)





Details below spotlight qualitative findings around the use-cases of the top five most frequently employed math supplemental instructional materials. Findings include themes around their use by different grade bands and how they are most often employed. Note that insights on other product usage can be provided upon request.

## Top 5 Most Frequently Selected Math Supplements (n=144 participants, n=284 supplements)




 Khan Academy	<p><b>Khan Academy</b> is primarily used by Elementary school teachers as either an intervention/remediation or reinforcement/practice with varying cadence (mix of monthly, once a unit, or weekly). Teachers like the convenience of the videos and easy access for students to review core concepts. They often use this platform to explain skills/strategies in different ways and help students who were absent (n=31)</p>
	<p><b>IXL Math</b> is most frequently used by Elementary teachers, but sometimes used by middle school teachers. This supplement is used as a reinforcer or practice material on a weekly basis, and its alignment with state standards or common core is a stated benefit IXL Math is useful for test preparation, diagnostics, differentiation, and assigning homework. (n=31)</p>
	<p><b>BrainPOP</b> is used often by Elementary school teachers, and some middle school teachers, on a weekly basis, but sometimes monthly or less. It is most often used as a pre-teaching supplement because its engaging videos help introduce math concepts. BrainPOP is useful for informal assessments, understanding checks, and reinforcement (n=28)</p>
	<p><b>Prodigy Math Game</b> is used by elementary school teachers, mostly as a motivation tool and sometimes as a reinforcer of material. This supplement is most often used on a weekly basis, but some teachers reported daily or monthly use. Teachers noted that this supplement does not often fit with their curriculum, but it's a fun game that students enjoy using for extra practice. Prodigy Math Game is useful for differentiation, remediation, motivation, and activities if learners finish early (n=26)</p>
	<p><b>iReady</b> is used by both instructional coaches and teachers in elementary settings and sometimes in middle school. While its usually used as reinforcer, its often also used as a differentiator or for intervention/remediation. Reported as used daily or weekly, teachers noted its strong alignment with state standards and common core and that it is sometimes mandated in their districts. IReady was reported as helpful for catching up students to grade level or allowing students to learn beyond their grade level. Practitioners find i-Ready helpful for teacher assigned lessons, diagnostics, differentiation, assigning homework, reinforcement, and to fill individual student gaps (n=26)</p>





When asked to share use-case experiences on products not highlighted in the pre-populated list of supplements, practitioners most often shared they use Reflex, SplashLearn and TeachersPayTeachers. Reflex and SplashLearn are used primarily by elementary school teachers while TeachersPayTeachers is used across grade bands.

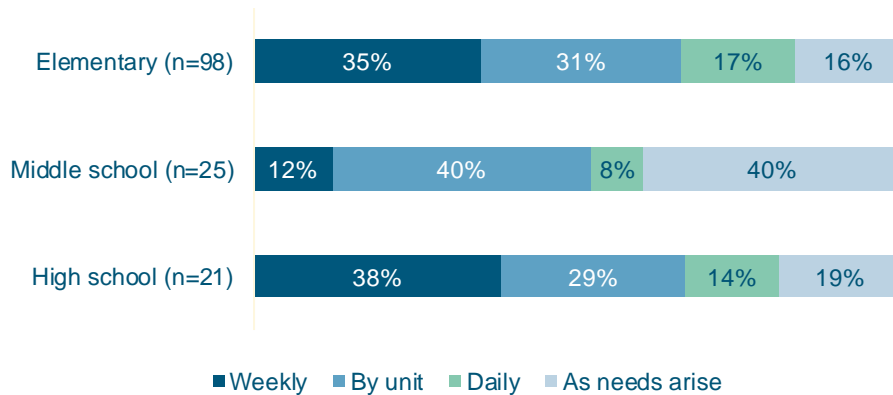
### Top 3 Math Supplements Most Frequently Added to "Other" Supplements (n = 45)

		
<p><b>Reflex</b> is used primarily by elementary school teachers; most reported they use Reflex for math reinforcement or practice daily. Some teachers also reported they use Reflex for fact fluency and spiral review.</p>	<p><b>Splash Learn</b> is used primarily by elementary school teachers; most reported they Splash Learn daily. Some use Splash Learn for math reinforcement or practice. Others use it for math intervention or remediation or pre-teaching. Teachers report that Splash Learn generally aligns with standards.</p>	<p><b>Teachers Pay Teachers</b> and other teacher-created materials are used by elementary, middle, and high school teachers. Teachers reported they used this tool daily, weekly, and monthly for math reinforcement or practice and intervention or remediation. Some teachers also reported they use this resource to keep students occupied during down or transition times and for organization of unit topics. Teachers report that alignment with standards varies based on the materials. Note that TeachersPayTeachers is a marketplace for supplements and not a supplement product itself.</p>

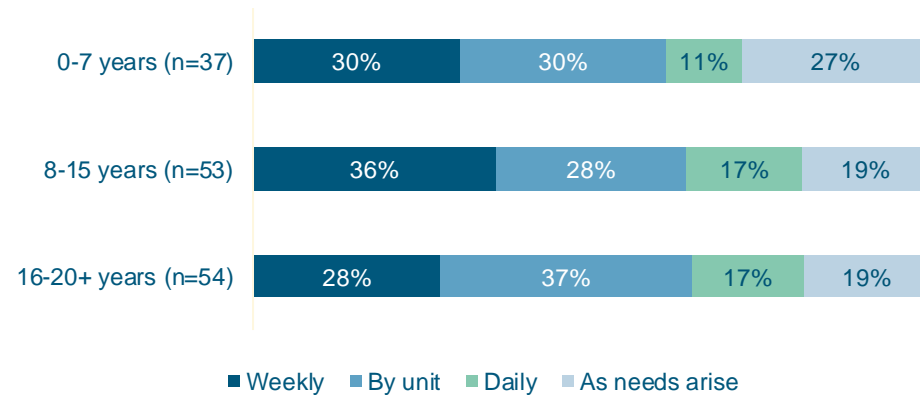


When looking for supplements to integrate into curriculum and lesson plans, elementary practitioners most often search on a weekly and by-unit basis. Practitioners early in their careers and those teaching at the middle school level spend more time looking for supplements as needs arise.

### How much time do you spend looking for supplements (by grade level)?



### How much time do you spend looking for supplements (by experience level)?



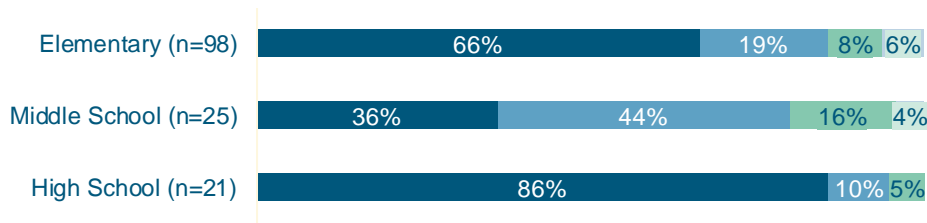
**Supplemental instructional materials that can be searched daily, weekly, by unit, and as needs arise have the most potential for wide use cases. To support early-career teachers, supplemental materials that can help anticipate needs may help reduce time spend looking for supplements as needs arise.**





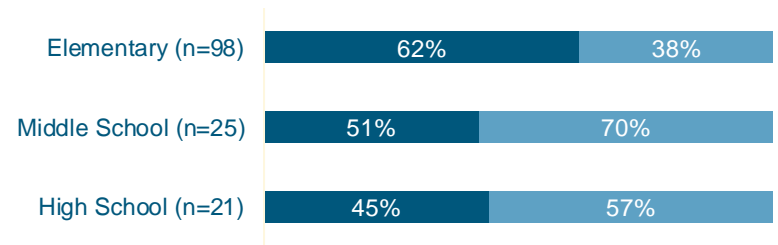
64% of practitioners reported being able to use their discretion when choosing supplements, although elementary and high school teachers have more autonomy over supplement selection than middle school teachers. On average, practitioners pay for 24% of the supplements they use. 57% of supplements used are physical manipulatives and not digital. Qualitative nuance emerged around supplement use and power dynamics with administrators or other leaders.

### Which most closely aligns with the level autonomy you have to choose your own supplements? (n=144)



- I choose most of my supplements using my own discretion to meet specific needs of my students.
- Most of my supplements are from a platform or interface that is strongly encouraged by my district, school, or department.
- Most of my supplements are from a platform or interface that is mandated by my district, school, or department.
- Other

### Supplement Format by Grade Level (n=144)



- Physical manipulatives (games, worksheets, printables)
- Digital tools (online games, videos, individualized instruction)

**Other:** "I choose my own based on the needs of my students and my style of teaching, however, there powers that be are beginning to try to mandate the sources of supplements materials more." - Elementary School Teacher, Illinois



In reflecting on their experiences with time inputs around supplement implementation, practitioners modify on average 45% of their supplements to meet specific student / class needs. 46+% also say they spend more time than feels ideal or way too much time on searching for, tailoring, and infusing supplements into lessons.

### Totaling 100%, the percentage of supplements I use that are... (n=144)

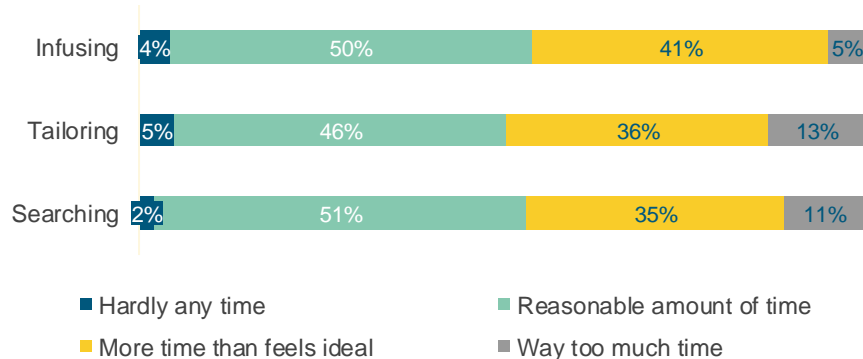


- Fine as is and require no customization to use in my classroom
- In need of customization to meet the specific learning needs among my students

There may be an opportunity for supplement producers to learn more about the ways that teachers tailor products and then provide differentiated or versions of supplements that teachers can choose from. Supplementers may also explore ideas for ways to support how teachers search for and infuse supplements in lessons.



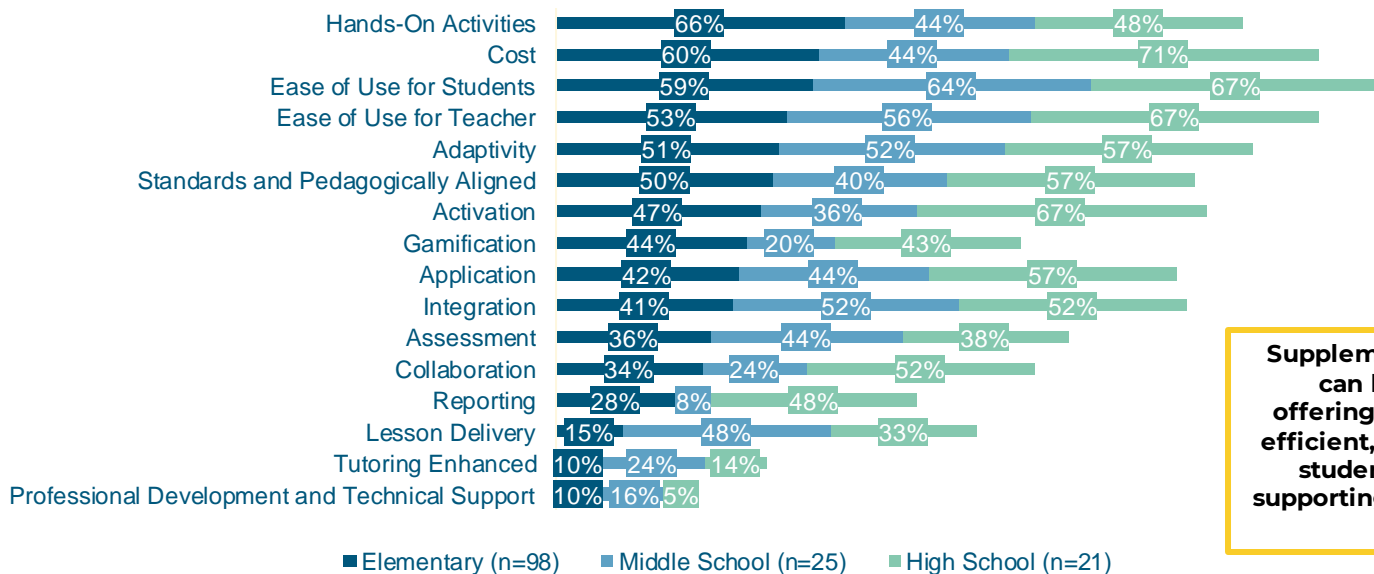
### How much time do you spend doing the following with supplemental instructional materials: (n = 144)





When looking for supplemental materials, elementary teachers prioritize hands-on activities, cost, and ease of use for student and teacher while middle school teachers look for ease of use for students and teachers, adaptivity, and integration.

### When you're looking for a supplement, what features feel most important? (n=144)


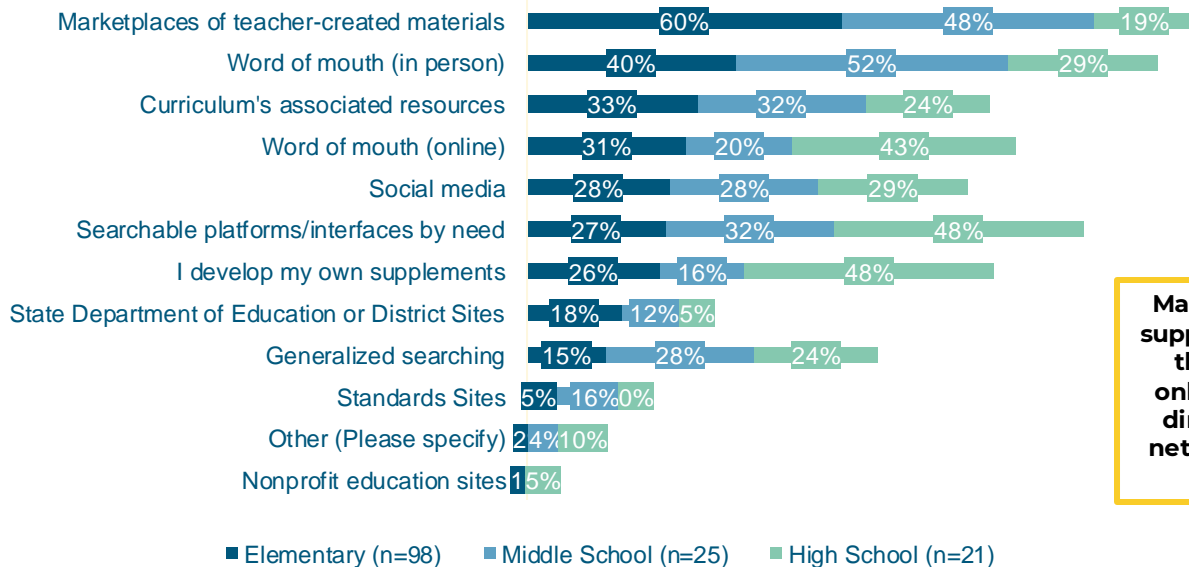


**Supplemental instructional materials can best support teachers by offering hands on activities, are cost efficient, and center on ease of use for students and teachers. Consider supporting supplements that center on these offerings.**



When asked how they typically find supplemental materials, elementary school teachers look for supplements through marketplaces of teacher-created materials, in-person word of mouth, and their curriculum's associated resources. Middle school teachers find supplements through in-person word of mouth, marketplaces of teacher-created materials, and platforms/interfaces searchable by need.

### Select up to three sources that best describe how you typically find supplements for your math instruction. (n=144)

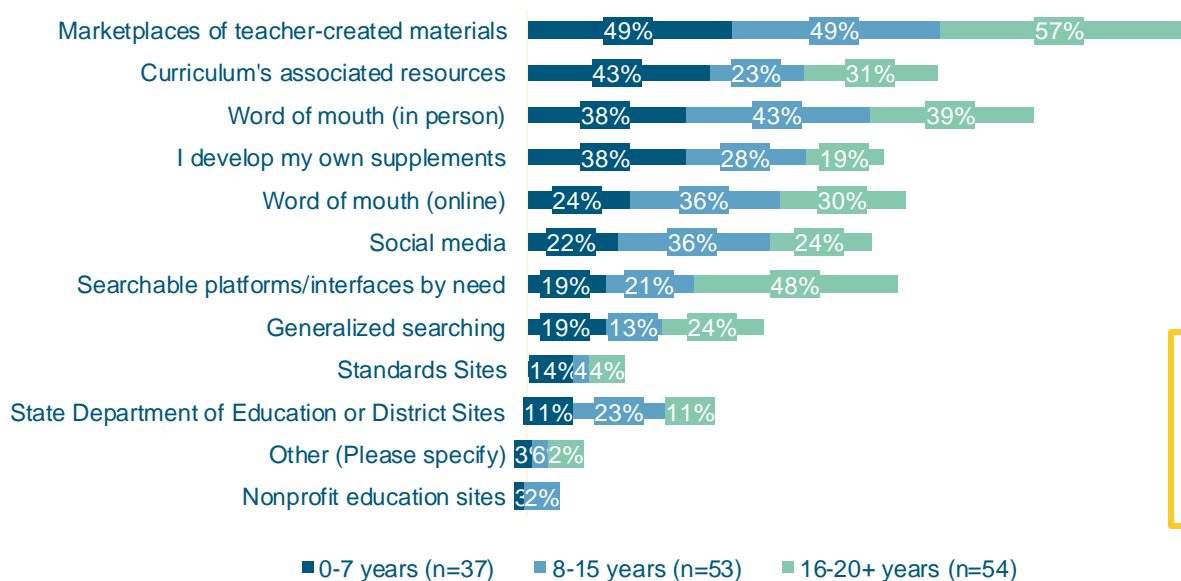


**Many teachers report having autonomy in supplement selection and find supplements through word of mouth (in-person and online). Consider promoting supplements directly to teachers through their shared networks to increase their exposure to and use of certain supplements.**



When analyzed by professional experience, practitioners with 0-7 years of experience supplements through marketplaces of teacher-created materials, their curriculum's associated resources, and in-person word of mouth. Comparatively, practitioners with 8-15 years of experience turn to marketplaces and word of mouth before they look to their curriculums

### Select up to three sources that best describe how you typically find supplements for your math instruction.




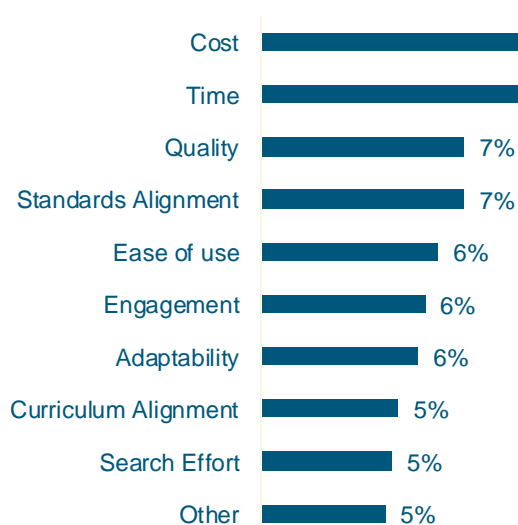
With new teachers relying more heavily on their curriculum's resources, there is an opportunity for supplemental developers to partner with curriculum producers to integrate and provide wraparound supports for this demographic.





Practitioners cite cost as the primary pain point to supplement use, noting that teachers often pay for access or schools / districts lack funds for quality supplemental materials. Practitioners also cite barriers of time inputs necessary for finding, prepping, and adapting resources. They also struggle with finding supplements that are good quality and with assessing whether resources are standards aligned.

## Top Ten Pain Points with Supplement Use (n = 417)



When developing a strategy for supplemental materials, consider how to help alleviate the barrier of cost. There may also be further supports for practitioner supplement use that help reduce the time spent finding quality materials, having differentiated versions based on needs and engagement approaches, and easier ways to tell their alignment to standards.

**Cost:** “Many high-quality math supplements can be expensive, and schools or students may face budget constraints in acquiring them, limiting access to additional learning resources.”

– Elementary School Teacher,  
South Carolina

**Time:** “Nothing is ever good ‘out of the box’ I always have to put in time to modify or make it work.”

– Elementary School Teacher,  
Colorado

**Quality:** “They are sometimes too easy for the students and don’t help with difficult concepts.”

– Middle School Math  
Teacher, California





# SUPPLEMENT PAINT POINTS AND SOLUTIONS

"Working with ELL or IEP students, they need the curriculum tailored to their needs. Supplements are essential in achieving this. Sometimes the administration does not understand this."

-Middle School Math Teacher, Massachusetts

## The Following Section Highlights:

- Challenges practitioners experience with supplement use
- Systems and structures that affect the supplement use context
- Perceptions of curriculum-to-supplement integrations

## Key Take-Aways:

1. Top pain points with supplement use center around cost as a barrier to use based on how teachers often pay for access or schools/ districts lack funds.
2. Databases, more advanced tech, and curriculum integration could make supplementing more efficient. Teachers want autonomy to choose supplements and to be involved in their creation.
3. Factors that support supplement integration include student and teacher ease of use, curriculum/standard alignment, and consistent supplement use on a cross-school/district basis.
4. Better integration between supplements and K-12 materials/products could improve student outcomes and be more time- and cost-effective for teachers.



In sharing solutions to supplement pain points, practitioners spoke about interrelated systems such as the need for funding, access, and affordability, which often requires admin / district support. Databases, more advanced tech, and curriculum integration could make supplementing more efficient. Teachers want autonomy to choose supplements but also to be involved in their creation and selection on a school/district level.

### Top Ten Suggestions For How Supplement Pain Points May Be Addressed: Themes 1-5

Theme	Detailed Findings
<b>Funding / Affordability (21%)</b>	Practitioners want to see more funding for supplemental materials possibly provided by the district or that materials be made more affordable to begin with. Funding should also be directed towards knowledge management of the supplements and use so teachers don't always have to be looking for them. Funding could also go towards allowing teachers more planning time.
<b>Involvement of Teachers (9%)</b>	Participants expressed wanting to be involved in the creation of supplemental materials and to have a voice in decisions around use. They want to see more products made in collaboration with teachers and for developers to ask teachers what they need.
<b>Admin / District Support (9%)</b>	Math practitioners need more support at the district level with access to supplements, having a positive culture around supplement use, and professional development on how to use and finding quality supplements.
<b>Differentiation (9%)</b>	Participants desire supplements that allow students who grasp the concepts to move along while allowing those needing additional support to keep building understanding. They also want to be able to implement these differentiated approaches without lots of planning needed. Differentiation should also consider diversity of lived experience as well as abilities.
<b>Better Technology Use (8%)</b>	Math teachers are looking for better use of current technology with supplements such as using Artificial Intelligence, integrating supplements with curriculum and grading, easier logins, and access to digital tools that support teacher to student ratios.

**To support the supplemental instructional material space, consider ways to invest in funding for supplements such as cost reduction, or paying for supplement access. There is also potential to support teacher involvement in supplement creation and professional development for school / district leaders around building a positive supplement culture.**



## Top Ten Suggestions For How Pain Points With Supplements May Be Addressed: Themes 6-10

Theme	Details
<b>Standards Alignment (8%)</b>	Practitioners are interested in supplements that align with multiple state standards. Some even suggested having materials organized by standards and supports to ensure that districts are purchasing materials that are aligned to standards to begin with.
<b>Searchable Database (8%)</b>	To support with time spent looking for applicable supplements, practitioners want a searchable database or clearinghouse with content organized by grade/topic/standards etc. Such a site could include an automatic review process so practitioners know that supplements are of high quality.
<b>Curriculum Integration (6%)</b>	Math practitioners elevated that if curriculum providers automatically integrated supplemental materials, they would not have to spend time looking for relevant and quality materials. If not provided by the curriculum, supplements should be selected based on their ability to integrate well with a curriculum.
<b>Access (5%)</b>	According to math practitioners, they want products that are accessible in terms of being usable at school and home, integrating multiple languages, and ready for student use.
<b>Teacher Autonomy (5%)</b>	Math practitioners want access to materials and databases for where to find them but ultimately want to have the autonomy to choose which supplements they use and how. This builds on a respect for their professional experience and a willingness to meet the needs of individual learners.

"Districts should allot more funds to the acquisition and/or creation of supplements so that teachers don't have to be constantly looking for them." - Elementary School Teacher, Texas

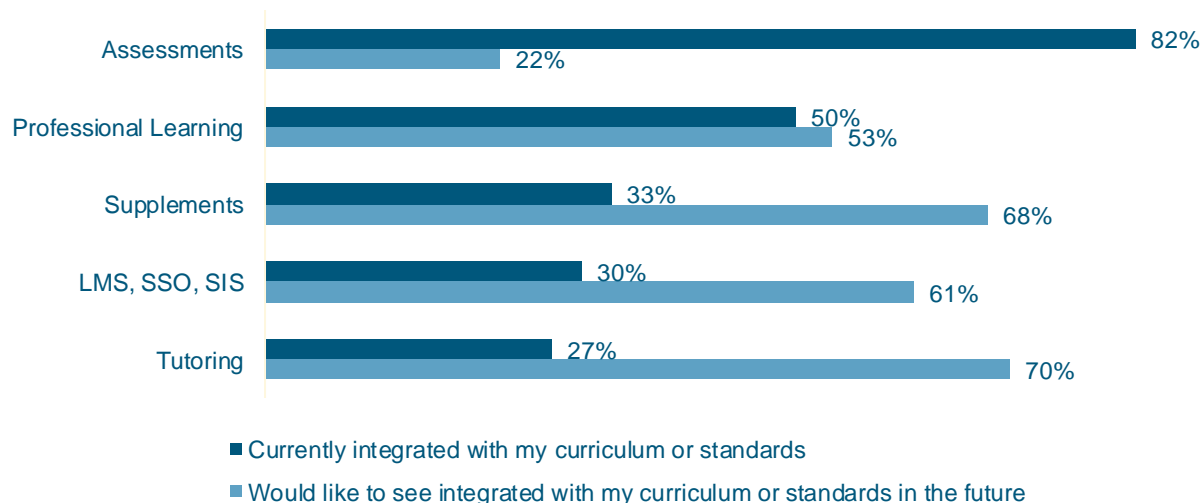
"Having more funds allocated for updated technology, allowing teachers to choose how they address their own classrooms' learning needs outside of district-mandated curricula, and getting districts to try other non-committee appointed supplementary materials approved by current classroom teachers rather than board members and administrators no longer in the classroom settings." - Elementary School Teacher, Tennessee

"If the district has a menu of supplemental materials that could be used it would help ease these pain points because the resources would already be paid for and other teachers would be familiar with them." - Middle School Math Teacher, Vermont



Practitioners were asked to reflect on the integration of curriculums with other K-12 instructional materials. Practitioners reported that their curriculums already integrate with assessments and professional learning. They would like to see more integration between curriculums and supplements, tutoring supports, and LMS systems.

### Integration with Curriculum or Standards: Actual Vs. Desired (n = 144)



**There is an opportunity for supplement producers to increase use of their products by providing greater alignment with standards.**

**There are also unmet needs in the LMS, SSO, SIS and tutoring space, which could be an opportunity for growth and expansion into new areas of product development for producers.**



57% of practitioners reported that the supplements they use integrate seamlessly with their curriculum and standards, with a subgroup specifically identifying IXL, Khan Academy, and Zearn.

### Of the supplements you use, do any seamlessly integrate with your curriculum or standards?




(n = 142)



■ Yes ■ No ■ Some ■ Other

As data was disparate and made for small subgroups, consider gathering more robust data on this topic to get a better picture of which currently available products are perceived as aligning with standards in priority states at multiple grade levels.



	<p>"IXL does a good job of integrating with standards"</p> <p>- Middle School Teacher, New Jersey</p>
	<p>"Yes for my district, ZEARN and KHAN Academy has integrated products."</p> <p>- Elementary School Teacher, Louisiana</p>
	<p>"Only the digital platform Zearn that is used for tutoring."</p> <p>- Elementary School Teacher, Texas</p>



Practitioners state that better integration between supplements and K-12 materials / products could improve student outcomes and be more time- and cost-effective for teachers. However, existing technology and systems, training needs, and cost and time considerations could be barriers to integration.

**What benefits, if any, would come from better integration between supplements and K-12 materials/products?**

(n = 140)

- Increased student growth, learning, and engagement
- Less time for teachers
- More cost effective
- Increased use of supplements
- More accessible for students
- Consistent use of supplements
- Greater efficiency
- Meeting individual student needs
- Easier to locate supplements
- Greater ease of use
- Greater student autonomy

**“Less teacher time spent on researching, creating, or editing materials.** More time spent on other critical areas of teaching.”

– Elementary school teacher, Florida

**What issues, if any, may arise from such integration? What needs to be considered?**

(n = 136)

- Issues with technology access
- Integration with existing systems
- Need for training
- Cost
- Time
- Alignment with state standards
- Student accessibility and access
- Differentiation
- Supplements not engaging or rigorous
- Supplement publisher buy-in
- Overuse of supplements

“Technical compatibility and cost. To avoid these issues, it’s important to **consider starting small, be flexible and get feedback.**”

– Middle school teacher, Texas

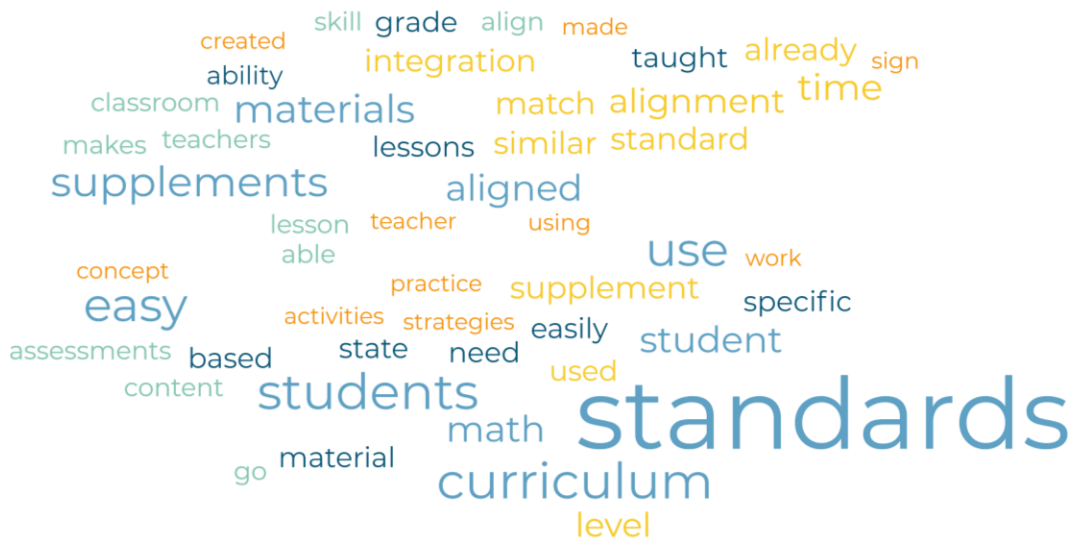
**Best support supplement use by working with product developers that are aware of potential issues integrating supplements with existing technology and other software systems. In addition to supporting particular supplement products, consider investing in practitioner training on product use .**





According to math practitioners, factors that support supplement integration include student and teacher ease of use, including the ability to implement without much intervention for student clarity. Practitioners also state that easy integration is enabled by curriculum / standard alignment and consistent supplement use on a cross-school / district basis.

### What factors make integration easy? (n = 140)



**Ease of Use:** “Easy clicks, easily connecting, not having to go through a lot of interfaces to get where one needs to go.”

– Middle school teacher, Ohio

**Standard Alignment:** “Some of the tech components are prepopulated with the standards that have to be learned”

– Elementary school teacher, District of Columbia

**Consistent Use:** “Similar language, similar exercises, activities, and assessments. Kind of a universal language for all math in the school”

– Elementary school teacher, California



When asked how supplements make math more relevant to students' lived experiences, practitioners highlighted how they are useful for introducing real-world applications of content. Similarly, practitioners elevated how supplements can demonstrate the use of math in situations students can see themselves using immediately or soon. Finally, supplements are useful for adding cultural relevance to lessons and helping students feel connected to their communities.

### How do you use supplements to make math relevant to students' lived experiences?

<b>Real World Application &amp; Scenarios</b>	<p>“<b>Math manipulatives using real world scenarios that students may encounter daily</b> with manipulatives to explore and use to solve the problems. Teachers spend a lot of time coming up with these scenarios and creating or locating manipulatives to use. Having some ready to go kits as supplemental materials would be beneficial.” – Elementary Math Teacher, Florida</p>
<b>Math With Easy Connections to Use</b>	<p>“I just love the idea of real-life hands-on practical experience. <b>A student store, field trips, grocery shopping trip</b> something engaging and interactive...<b>them able to earn rewards they can spend on things they need in everyday life (food, drinks, clothing, family, pets, housing)</b>” – Middle School Math Teacher, California</p>
<b>Culturally-Relevant Examples and Visuals</b>	<p>“Math supplements can play a crucial role in making math more relevant to my students' lives. The <b>examples can be drawn from the cultural backgrounds and experiences of my students</b>. By using familiar contexts and scenarios they can relate to, <b>such as daily life activities, community interactions, and traditional celebrations</b>, students will be able to connect their experiences with mathematics and gain a deeper understanding of its relevance. By <b>showcasing diversity in terms of race, ethnicity, gender, and cultural backgrounds</b>, students will see themselves positively reflected in the math curriculum... In order for students to feel ownership and relevance in their learning journey, it is important to <b>offer them opportunities to explore math topics that match their passions, talents, and cultural backgrounds</b>.” – Elementary Math Teacher, New York</p>
<b>Community-Based Projects</b>	<p>“Let's <b>take the math beyond the classroom and into our community</b>. Give the students opportunities to explore how we can transfer our math skills and use them in real life experiences.” – Elementary Math Teacher, California</p>





According to math practitioners, an improved, streamlined, futuristic, and efficient supplementing experience would include access to materials that acknowledge unique pathways for individual students, have a low barrier to entry for teachers and students, are grounded in engaging content, and utilize innovative technologies.



Improved	Streamlined	Futuristic	Efficient
<ul style="list-style-type: none"><li>• Differentiated</li><li>• Engaging</li><li>• Provides feedback</li><li>• Hands-on</li></ul>	<ul style="list-style-type: none"><li>• Fits with curriculum</li><li>• Aligns with standards</li><li>• Affordable/low-cost</li></ul>	<ul style="list-style-type: none"><li>• Uses innovative technology</li></ul>	<ul style="list-style-type: none"><li>• Easy to use</li><li>• Easy to search for</li></ul>

**Ease of Use:** “I can teach the same rules and directions to the whole group then divide the class based on abilities.”

– Elementary school teacher, Pennsylvania

**Curriculum Alignment:** “Supplement is part of curriculum and set up automatically for teachers by the school district.”

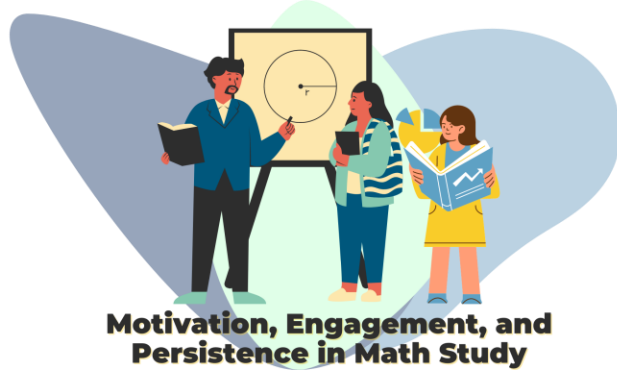
– Elementary school teacher, Texas

**AI Use:** “Supplement could use AI to provide student with feedback that is specific, actionable and personalized.”

– Middle school teacher, Texas

**Clearinghouse:** “School or district clearinghouse so new teachers would not need to start over to locate supplements.”

– Elementary school teacher, Colorado



**Motivation, Engagement, and  
Persistence in Math Study**

**NEXT STEPS**



## How might the R&D and Solutions teams use these findings to inform their investment strategy around supplemental materials?

### Takeaway

### Support Supplementation By ...

**Supplementing in the math learning context will likely always be part of the teacher experience, despite the quality of curriculum.**

- Investing in digital products as well as physical manipulatives and products that are adaptable and scale difficulty level based on user.
- Funding professional development for practitioners on where to find high-quality supplements that meet their specific needs while championing the expertise and experiences of practitioners.

**Math practitioners most often use supplements for reinforcement and practice of content.**

- Investing in supplements that focus on getting concepts to stick in students' minds—by making content engaging/relevant/fun to motivate students and help them persist.
- Supporting supplements that are easily searchable and that integrate with curriculum to reduce time spent supplementing.

**Practitioners express that better integration between supplements and K-12 materials/products could improve student outcomes and be more time- and cost-effective for teachers.**

- Supporting products that leverage technology to integrate curriculum with other elements of the K-12 instructional materials market, such as tutoring and LMS systems in addition to supplements.
- Investing in the platforms practitioners reported as having positive integration (IXL Math, Zearn, and Khan Academy) or platforms with the highest use (Khan Academy, IXL Math, BrainPOP, Prodigy Math Game, and iReady) to work with curriculum producers that hold the highest market shares (Savaas, McGraw Hill, and HMH).

**Teachers have lots of autonomy in choosing supplements, are often looking for supplements to meet the needs of diverse learners.**

- Investing in supplements that are already aligned with learning standards and have customizable features that enhance the user experience; acknowledge the professional experience of practitioners and their expert knowledge of their own classrooms as they choose and modify supplements.
- Elevating the sharing of high-quality supplements by word-of-mouth and develop or support a platform that helps align vetted supplements to standards and curriculums.

**Barriers to supplement use include challenges with time spent adapting and modifying supplements, supplement cost, and finding high-quality materials that are standards-aligned.**

- Supporting supplements that involve practitioners in the design and refinement of supplements and encourage supplements to develop feedback pathways for practitioners to share the modifications they are making of supplements or recommendations places they would find differentiation useful.
- Reflect on ways to help make supplements that are considered high-quality instructional materials more financially accessible

**Challenges with supplements seem to be systemic and interrelated as funding, access, and mindsets around supplements often require admin / district support**

- Engaging in capacity building work with district leaders to build mindsets around supplementing autonomy, providing funding for high-quality instructional materials, and adding in support structures such as professional development on supplement use for practitioners.
- Advocating for supplement differentiation by language and unique learning needs of special education students.

# NEXT STEPS | Ongoing Use of This Data Set



The above slides offer insights into a few places we dove into the data. We encourage readers to consider findings as just one crosscut and to return to this data set as new inquiries about strategy arise.

There is a wealth of insights in this data set that can be further explored and we hope that this data set continues to be useful for supplement-focused strategy. If you find yourself wondering about further nuance or would like deeper insights on a particular supplement, please reach out to our team via Caitlin McAteer or Kimberly Byrd to discuss further analysis of findings that may support strategy decisions. We also encourage readers to return to the [emerging takeaways document](#) to review potential strategies around supplement investment.

For additional support, please contact:

- Caitlin McAteer, ResultsLab Lead: [caitlin.mcateer@resultslab.com](mailto:caitlin.mcateer@resultslab.com)
- Kimberly Byrd, ResultsLab Project Support: [kymberly.byrd@resultslab.com](mailto:kymberly.byrd@resultslab.com)

## Emerging Takeaways

Nov 1, 2023

### Purpose

This document aims to share emerging insights from the Math Supplements Study analysis in preparation for a data use session with the R&D + Solutions Teams on Nov 1st, 2023. Key takeaways highlighted in this document orient around the framing question we will be discussing in the data use session: How can we use findings from this study to inform the supplements strategy and investments of the R&D and Solutions teams to best support student motivation, engagement, and persistence and increase access to high-quality instructional materials? Prior to our data use session, we recommend attendees review the takeaways and ResultsLab's interpretation of potential applications in the spaces of R&D and Solutions.



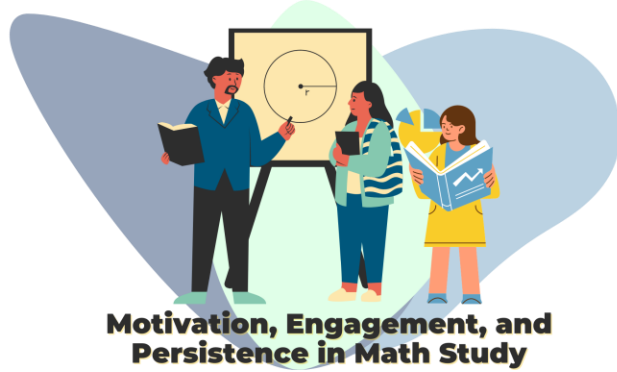
### Takeaways and Potential Applications

How can we use findings from this study to inform the supplements strategy and investments of the R&D and Solutions teams to best support student motivation, engagement, and persistence and increase access to high-quality instructional materials?

Takeaways	Potential Applications
<p><b>Supplementing in the math learning context will likely always be part of the teacher experience, despite the quality of curriculum.</b> Practitioners enjoy having a sense of autonomy in choosing supplements and see this autonomy to make content engaging, meet unique learner needs, and motivate students through real-world, culturally relevant, and useful examples of math, which may change from year to year and group to group. Teachers who supplement (entire study sample) rate their curriculum as excellent or good 69% of the time.</p> <p><b>Math practitioners most often use supplements for reinforcement and practice of content.</b> Math teachers also report they use supplements to address learning gaps, teach concepts, and motivate or engaged students. Practitioners frequently cite a lack of additional practice problems and resources to help make content engaging and relevant. Teachers use multiple supplements in their classrooms, depending on their current need and the strength of the supplement in that area. It is important to note that with a large elementary sample size 57% of supplements used are physical.</p> <p><b>Teachers have lots of autonomy in choosing supplements, are often looking for supplements to meet the needs of diverse learners.</b> They mostly find supplements through marketplace and word of mouth (entire or in-person). While they want freedom of choice they note needing access to materials to choose from. Practitioners desire supplements that are ready to implement, don't require much effort to plug and play, and enhance student comprehension, while still allowing their own customization as needed.</p>	<ul style="list-style-type: none"> <li>• To support teacher autonomy and flexibility in supplement usage, invest in digital products as well as physical manipulatives and products that are adaptable and scale difficulty level based on user.</li> <li>• Reflect on potential methods for supporting professional development for practitioners on where to find high-quality supplements that meet their specific needs while championing the expertise and experiences of practitioners.</li> <li>• Instead of supporting supplements that teach the material, consider investing in supplements that focus on getting concepts to stick in students' minds - by making content engaging/levant/fun to motivate students and help them persist.</li> <li>• Using data on how teachers supplement, determine a target group that the foundation wants to support and tailor supplement investment strategy accordingly. For example, to support elementary school teachers in math instruction, focus on supplements that address learning gaps and teach or review concepts through reinforcement or practice.</li> <li>• Support supplements that are easily searchable and that integrate with curriculum to reduce time spent supplementing.</li> <li>• Consider supporting supplements that are already aligned with learning standards and have customizable features that enhance the user experience; acknowledge the professional expertise of practitioners and their expert knowledge of their own classrooms as they choose and modify supplements.</li> <li>• To improve use of high-quality instructional materials, especially by elementary school teachers and early career teachers, promote vetted and standards-aligned supplements in teacher marketplaces, find ways to elevate supplement sharing by word of mouth, and contribute to the vetting of supplements on searchable platforms. An investment strategy could entail development or support of a platform that helps align vetted supplements to standards and curriculum.</li> </ul>



THANK YOU!



**Motivation, Engagement, and  
Persistence in Math Study**

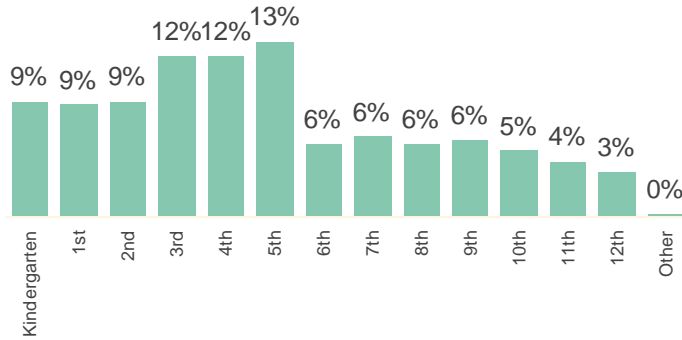
# APPENDIX

# STUDY APPROACH | Phases

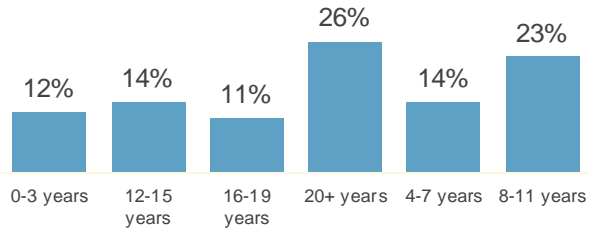
Phase	Approach	Participants	Deliverable(s)
<a href="#">Pre-Study Work</a>	Slack Pulse Check Questions	Math educators in the K-12 Practitioner Panel Slack workspace	Verbal update in a routine Gates connect; Using findings to shape language and question approach in Phase I data collection
<a href="#">Online Journal</a>	<p>Online journal distributed to math practitioners including math teachers and math instructional coaches</p> <p>Data Validation Work: Sharing emergent trends with all math practitioners in a real-time town hall format to validate that we heard them correctly and allow facetime among practitioners</p> <p>Mutual Value Element: Participants in online journal submit “advice for other practitioners” in one open-ended question that is synthesized and shared out with the network</p>	<p>Math teachers and coaches who engage with students in 4<sup>th</sup>-10<sup>th</sup> in all states.</p> <p>There will be a higher proportion of participants from Gates priority states (CA, TX, NY, and FL) and participants working at schools with 51+% of students who are Black/African American, Hispanic/Latinx, or eligible for free or reduced lunch in alignment with these populations making up a larger portion of the network.</p>	<p>Online Journal: Deck organized around applications and high-level takeaways</p> <p>Data Validation: Insights integrated into Phase II deliverable</p>

# STUDY APPROACH | Participant Demographics

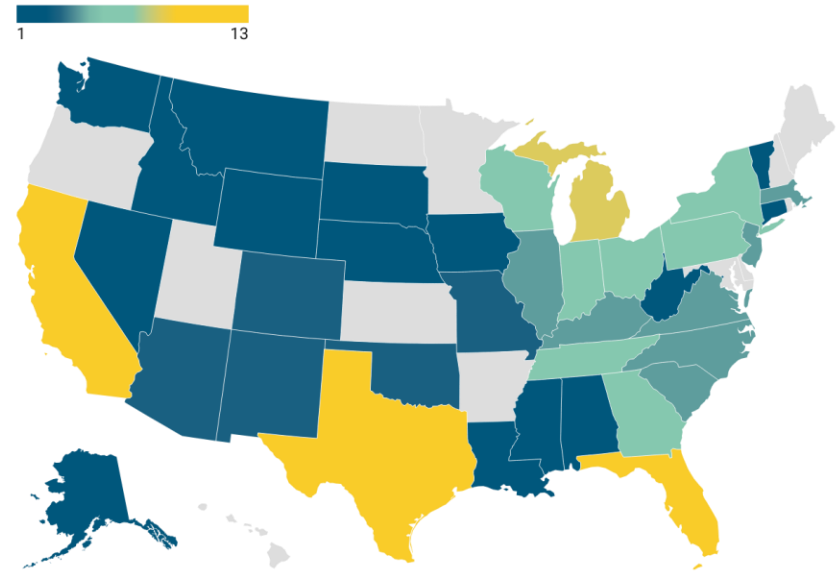
Grade Levels of Students Most Frequently Worked With (N = 144)



Years in Current Role (N = 144)



Supplements Analysis Study Participants by State





# STUDY APPROACH | Participant Demographics

**Participants working with student populations at or above 50% in the following demographic groups (n = 144)**

