Triple R Teaching

There are so many questions when it comes to teaching handwriting, and people seem to feel very strongly about the answers. For example, should we start by teaching kids to write uppercase letters or lowercase? What's the right age to start teaching kids to form letters correctly? What's a good routine for teaching handwriting? Dr. Shawn Datchuk, professor at the University of Iowa and director of the Iowa Reading Research Center, addresses these questions and more. Here we go!

Anna Geiger: Welcome Dr. Datchuk.

Shawn Datchuk: Hi Anna, it's nice to be here. Thank you so much for having me.

Anna Geiger: So you've come on the podcast today to talk to us about handwriting, which people have a lot of questions about. Before we get into that, could you explain your history as an educator and what you're doing now?

Shawn Datchuk: Yeah, I would love to. I sort of fell into being a special education teacher about 20 years ago. I was a lost first generation college student. I was the first one in my family, along with my sister, to pursue a college degree. I took a class, I was a psychology major my final year, and in the class the instructor was talking about evidence-based literacy practices. I had just assumed that teachers just... That teaching was 100% an art and that teachers just trial and errored it through and I was lucky to have some wonderful teachers. But then when he started unpacking that, I was like, "Wow, what is this class?"

He goes, "My background's in special education if you're interested."

So that started my long journey to becoming a licensed K-12 special education teacher. I also have a dual endorsement in elementary education, taught, and I was a district administrator in New Orleans, Louisiana for about four to five years. Then I got my PhD, and I've been a faculty member here at the University of Iowa for going on a decade now.

Recently I was introduced as the new director of the Iowa Reading Research Center. I am absolutely thrilled every day to have the, I consider it a high privilege, of thinking, talking, reading, and writing for a living. My mother is a waitress and a hairdresser, so whenever I complain about a tough day, she just laughs at me. It puts things in a real healthy perspective for me.

Anna Geiger: Yeah, getting to learn for a living is super fun. I feel that's what I get to do too.

Let's get into it. I know you've done special ed as your area and you've done some research on helping kids with disabilities learn handwriting, but just in general, what have you learned about teaching handwriting? What do we know and what do we not know?

Shawn Datchuk: Yeah, that's a great question. I think that there's an old saying in education of reading, writing, and arithmetic. For decades now, writing has been thought of as the Forgotten R and unfortunately, that is probably still the case. If we take a look at different surveys, particularly of elementary teachers, what they report is feeling unprepared to meet the challenges of writing. I think an important part of that is trying to increase teacher knowledge, skill, and practice related to the interconnected nature of reading and writing.

Part of my research line over the past decade has been figuring out what are different evidence-based techniques that we can help teachers adopt related to handwriting, to explaining that interconnection between handwriting and reading and then through that would be figuring out ways of measuring it.

The bird's eye view is what we know from other researchers besides myself, such as Dr. Kim at the University of California Irvine, where her and her colleagues did a wonderful meta-analysis that looked at the interconnection between writing and reading development. What they found is robust correlations between, as a student learns how to read or write, they tend to compliment each other and support each other. They found an even stronger connection at these early elementary grades, specifically for handwriting and spelling.

If I could just zoom in real quick on handwriting and reading, I think that... So I have a 2-year-old at home and he loves getting the crayons out, getting the markers out, sometimes drawing on the walls or maybe the kitchen table. But drawing is such an important aspect of getting that physical coordination, the eye, motor coordination.

I think where that special ingredient that separates handwriting from drawing is going to be handwriting draws upon alphabetic knowledge. So students can draw... My son draws pictures of his family, of different superheroes, of his dogs. But handwriting specifically uses that drawing motor coordination, visual motor coordination skills, and now it's important that students retrieve from memory letter knowledge. So not only letter shape and formation, but the letter name such as M, and then the letter sound.

If you take a look at not only primary studies with experimental or quasi experimental designs, but then also systematic reviews and meta-analysis, what we find is is that if you were to deliver handwriting instruction that again emphasizes letter knowledge, letter formation, shape, name, in as little as 15 minutes a day a couple times a week, what we see is not only improvements in elementary grade students' writing, which is what we want, obviously, but we also see improvement in their reading skills, closely related reading skills, including letter name, letter sound, word reading, and also spelling.

What that tells us just broadly speaking is that in a larger national conversation about the science of reading, it actually probably should be the science of literacy because writing plays such a key role in supporting that early reading development.

Anna Geiger: We know that handwriting is one of those foundational skills that's important because when kids can write automatically, then they can be thinking about what they're writing. It's the same with decoding, we want to be able to decode words so we can think about what we're reading.

I know people have a lot of really picky questions about teaching handwriting, just like we do about reading, and a lot of them we don't have answers to, but I'm going to fire them off and you can let me know if there's any research and maybe what your opinion is if there isn't.

Shawn Datchuk: For sure.

Anna Geiger: One would be, when do we start explicitly teaching kids to write letters properly? Because in kindergarten or in preschool or the toddler age, kids will attempt to write letters, but they're writing them upside down or they're writing them from the wrong place. When do we say, "Let me actually show you how to write this properly"? Do we do that from the very beginning or do we wait until they are a certain age? Those are questions people have.

Shawn Datchuk: That's a wonderful question. I wish that there was clear-cut developmental guidelines on that. What we see, at least for the students who are typically included in well-designed studies on this, it tends to be starting in pre-kindergarten going through kindergarten and first grade.

That being said, I think if we again take a look and think about the larger interconnection between drawing and handwriting, all these physical, motor, visual coordination activities, those need to be built up across a child's life. My 2-year-old right now, he would find it very difficult just from a physical coordination, visual motor coordination perspective, to neatly write a letter. But in order for him to get to that physical maturity and visual motor coordination maturity, he needs to have practice and repetitions with drawing.

There's a lot of really interesting research out there that looks at what those early stages of writing look like. There are stages such as what we'd call scribbling, estimated spelling, coloring, et cetera, to where students will draw a picture and tell wonderful stories about it. Those are all very important. But where the rubber tends to meet the road in terms of where that physical maturation, visual motor maturation, meets letter knowledge, that tends to start to come together right at pre-K.

Most studies have included pre-K, kindergarten, and first grade students. There has been some on second grade and certainly older students, but most of the research looks at that early elementary stage.

Anna Geiger: So you're saying the year before kindergarten caregivers and teachers can feel comfortable teaching kids proper letter formation. What might be a sign with a particular child that they're not ready for this, that we have to back up and do more hand strengthening or something?

Shawn Datchuk: That is such a great question. If you were to take a look, there have been specific studies that looked at providing instructional procedures related to motor movement, things like finger dexterity, activities where they may be tracing in sand, et cetera.

What we see if we were to... The more that we isolate to a specific motor activity outside of writing, so outside of getting a pencil or crayon or marker in their fingers, isolating those motor activities, unfortunately we don't see really robust gains from isolating that. What tends to happen is that we tend to see the most gains the closer we get to handwriting.

That is not to say that all those activities are not important. I think they result in a gradual buildup of that maturation.

At least from a research-based recommendation would be that if you do see... Let's say if you start... So my two-year-old is going to be going into pre-K here in about a year and a half. He's two and a half years old, so in about a year and a half he starts going to pre-K. I think right then that's a completely appropriate time for him to start that letter knowledge, because again, what separates drawing from handwriting is committing to memory the letter shape, the formation, the name, the sound. Those aspects will only help as he's picking up these, what we consider more sort of legibility aspects of it.

Anna Geiger: So if a preschool teacher were to say, "Okay, I'm teaching letters and sounds in a playful way, but I'm teaching them," would it make sense to you to tie in the handwriting instruction at that age also?

Shawn Datchuk: For sure. Oh, yeah. When you think about what handwriting is, that it is... So in that decoding, encoding, the decoding would be students are looking at text and decoding it. Encoding is drawing on a related knowledge set of letter name and letter sound. When students are encoding it, they have to pull that from memory so they aren't seeing it anywhere.

I think personally when we think about why... If we ask ourselves as a society, if handwriting's important, why is it specifically important to reading? What are the causes there? And I think that that... I would argue that's probably the underpinning thing, is that we're basically giving students opportunities to retrieve from memory, to build up that cognitive muscle, so to speak. This is what the letter M looks like, this is... Oh, yeah, it goes this way. This is what the letter B looks like. Oh, and the letter B also makes the /b/ sound. It just keeps giving them those opportunities to strengthen their overall writing.

Then I think there will be instances where students may struggle with legibility. I'm in my forties, and when I went to the doctor as a kid, I can remember getting doctor's notes to where I couldn't tell what they were writing. So I don't think it's... Legibility is certainly important. We want to have legible letters, but I think we also need to have a healthy recognition that we won't get everything 100% legible. There needs to be some sort of threshold. We can't let the perfect be the enemy of the good, so to speak. We just can't say, "If a student is not making the majority of their letters exactly crisply, then..." I think there is still benefit in engaging in handwriting instruction.

Anna Geiger: Right, because like you said, any parent who is teaching preschoolers to write knows how wobbly that is at first, but how important that is.

Is there any research or recommendations that you would have in terms of tools for the first writing experience? Do we want to use short pencils? Do we want to use markers? Do we need to have a slanted surface? What would you recommend for preschoolers just getting started?

Shawn Datchuk: Yeah, so I think that certainly student motivation, particularly at an early grade like pre-K where students... I think a large part of pre-kindergarten and kindergarten is just students getting used to what we consider student behaviors, just sitting down in one space for more than five minutes attending to a task.

I think that there's certainly something to be said for making the selection of different pens, pencils, colors. I can't tell you how excited... So last year I was a substitute teacher in my local school district because I think it's just so important for me to keep in contact with that, and I can't tell you the excitement that would pop up with different erasers or different pencils that have a different....

So I think there is something to be said for that that engaging and then making it fun, it can only help I think, particularly if you're a caregiver interested in helping your child prepare for the school year.

If we were to take a look at research, there isn't a whole lot out there that would suggest that... Some companies and then some curricula will call for a huge pencil, or a golf pencil, or they'll call for bumpers on pencils. They'll say, "Stay away from mechanical pencils until X number of years." What we see is is that what it really boils down to is actually comfortability with the student, so they aren't being put in position to where their hand is being fatigued.

There are certainly different recommendations in different studies that suggest that modeling for your student, putting your feet on the floor, having your chest and your face point towards the writing surface, slightly putting your elbow at an angle, and then different ways of holding the pencil, those all play important parts. But I think overall from our ability to look at differences, if a student holds a pencil one way or a different way, we really don't see that much impact on their overall legibility or writing output.

Anna Geiger: That was where I was going to go next. So when you think of... Obviously

there are some wrong ways to hold a pencil, like when a one year old grabs it with a fist and scribbles. At what point should a parent or a teacher say, "Okay, now we're going to start moving into an appropriate pencil grip"? I'm guessing there's not a number, but is there some kind of cue, or how would they make that judgment for an individual child?

Shawn Datchuk: Yeah, I think early on, certainly if we're talking with caregivers or early elementary teachers, I think modeling appropriate pencil grip can be a key part in making sure that student handwriting fatigue doesn't become an issue, that they are comfortable with this important process. I would encourage anybody working with early elementary kiddos to model that and give feedback based off of that.

I think it starts to become a slightly trickier question when we talk about older students. I know you're not supposed to have a favorite student, but one of my favorite students ever in sixth grade, I'll just call him Tony, when he would write it would be in that fist grip, and he would press down so hard that I can still... My teeth hurt when I start thinking about it. But that's how he wrote. So as a sixth grader, I would give him feedback on, "Let's hold it on that." But this worked for him, so he was able to get things on the paper. He was able to concentrate on his ideas.

I think that from that perspective, if we're talking about older students past early elementary grades, I think that... I wish I had a more solid answer there, but I think it's just part of that calculation, for lack of a better word, that teachers and caregivers will just have to do in terms of, "How much time should I actually spend on giving feedback on this before they just tune me out"?

Anna Geiger: Right. Picking battles.

Shawn Datchuk: Yeah, exactly. At least from what the research suggests is that we don't really see that much detrimental effect if a student is holding their pencil in a slightly unorthodox way if they're older.

Anna Geiger: That's interesting. You see lots of people... So like the tripod grasp, that's the one that's... I think I use, is it the quadra? I'm not sure how you say it, but I typically have two fingers on my pencil in addition to my thumb, and then some people have the pencil in between their middle and third finger. I see a lot of adults do that. What's your opinion on those different grips?

Shawn Datchuk: Yeah, I would again go to comfortability. If we take a look at things

on changing students' pencil grip, how they hold it, what angle their arm is, et cetera, we don't see much movement on that. I think, again, it would just boil down to the larger issue on whether or not...

So this pen, I know for an audio format you really can't see this, but the pen that I'm holding in my hand has one of those built-in rubber bumpers around the bottom. That can feel nice, that feels comfortable, but in terms of whether or not as a caregiver you should go on Amazon and buy 100 of these things with the rubber bumpers, or as a teacher buy a classroom set, I would say that there's no need probably to spend your money. We aren't really seeing an improvement from those things.

Anna Geiger: So basically you're saying it's not as complicated as we might try to make it. There are not a lot of straight answers, which is always what we're looking for, but may not find.

Shawn Datchuk: Yep.

Anna Geiger: Is there anything that you would say, again, for those beginners in terms of... People have disagreements, especially preschool teachers, about whether we should be teaching kids to write their name in capitals because that's easier, or seems easier, versus right away teaching them with the upper and lower case? Is there any research on that?

Shawn Datchuk: Yeah, so the research that is out there would take a look at... Again, if we're thinking about handwriting's overall role in reading development, there is a clear connection between students committing to memory common letter shapes, names, and sounds. So if we start from that premise that what drives the connection between handwriting and reading is that there's overlap between the encoding and decoding.

From that perspective, if we take a look at research studies that have looked at how often are upper versus lowercase letters encountered by students, roughly 80% of letters that students encounter will be lowercase letters. That makes sense. Uppercase letters you really only see at the beginning of a sentence, proper nouns, acronyms, et cetera.

What that means is that if a teacher really wanted to drive that connection between writing and reading very efficiently and have more bang for the buck, so to speak, is that research recommendation would be to prioritize lowercase letters first and then to

weave in uppercase later on. There's nothing wrong with weaving in uppercase. You won't harm kids, you won't decrease their reading skills at all by any means. But at least from an efficiency perspective, if 80% of the letters students will be encountering in their reading are lowercase, then to help them improve their writing and their reading skills more rapidly, the priority should be lowercase.

I have talked with plenty of preschool teachers specifically who have mentioned, "Isn't uppercase easier from a motor movement perspective dexterity?"

And I say, "Yeah, I'm sure that there are instances of that."

My seven year old's name is Misha, and I vividly recall him writing the uppercase M, and that was just easier, just solid, solid lines, there are no curves.

I don't think that there's anything wrong with that. We should help students learn how to write their name starting with an uppercase letter. That is one of the key early indicators for early literacy, is that a student can not only recognize their name, but also write their name.

But at least from a scope and sequence on if you're looking at a curriculum that matches up to what students are learning to read, the lowercase would probably be the more efficient way to go.

Anna Geiger: Okay, thanks for your feedback on that.

What about when teachers and parents are starting handwriting in their primary grades, do you have any preference for style or letter formation? Typically, we talk about starting from the top and going down. I think in some classrooms they actually teach cursive first to really little kids like in Montessori. Any thoughts on that?

Shawn Datchuk: Yeah. At least the research that's been out there would suggest, again from an efficiency perspective, thinking about that connection between writing and reading, that if you can teach students how to print letters first, that tends to be what they'll encounter in reading. I know that there are some books out there written in a more cursive font, but again, to make it unambiguous for students teaching them to print first as that K, first, and second grade.

Many states have started to introduce, including the state of Iowa this year, cursive handwriting starting at around grade two or grade three. At least when I look at the research, there isn't a whole lot out there to suggest when is the developmentally appropriate age to do that.

I will say that from the perspective of many students unfortunately struggle with writing, many students, let's say approximately a third, if we go based off of statewide assessment scores, or National Assessment of Educational Progress, roughly a third of students at fourth grade can struggle with reading. From that perspective, I think it would be to our benefit to really hone in on print first.

In terms of the exact formation and the sequence, there are several studies out there that use something called visual cues. Visual cues would be things on the materials such as dotted lines to show students where they need to trace. It would also include arrows that show the direction. If you look at studies and curricula that use visual cues, most of them do go from the top down.

Then there's also sequence. There are dotted lines showing the shape, arrows showing the direction, and then there are numbers next to each arrow that show the sequence. For example, with the lowercase D, there's an arrow pointing down with a number one, and that would indicate the first vertical stroke down. Then there's a curved arrow and a number two that shows the curved line. Visual cues tend to be one of the consistent patterns across handwriting curriculum that have evidence of improved student writing and reading.

Anna Geiger: Would you say that the cues you use aren't so much important as consistency of cues? Because there are a lot of different programs that offer different cues.

Shawn Datchuk: Yeah, there's really no... I would be interested in finding that question out experimentally, but right now, there's really no distinction made in studies behind which set of cues are better, what direction, et cetera.

I think the big reason, at least in my viewpoint, on why visual cues tend to work is, again if you've ever worked with particularly younger kiddos, this won't come as a shock to anybody who listens to your podcast, but they might not be looking at the teacher 100% of the time. So when the teacher is modeling, "Okay, this is how you form the letter D, or the letter B, or the letter T," if they're looking away, those visual cues provide them additional prompting on, "Okay, oh, here's the arrow pointing down."

Then if your student is picking up number skills, they could go, "Okay, I'm supposed to start at one, two, and three." I think it almost provides the safety net for if the student isn't looking and they don't see it from the teacher, they can also now look at the materials and see, "Oh, okay, this is how it's supposed to go."

Anna Geiger: So you know that some schools teach instead of the more print Zaner-Bloser type style, they do D'Nealian where the letters are slanted. When I was in grade school, that was how I was taught to write, and I hated it. I thought it was so ugly. I hated the K's, and thought, "I just want to write like normal!" I really wanted to be a teacher, but I thought, "Oh, if I have to teach this kind of handwriting, I don't know if I want to be a teacher." Which is very funny.

As a teacher myself, I didn't have to do that. I'd use the ball and stick. But I'm just wondering, because people that do teach that way sometimes feel very strongly that that's more effective. Is there any research on that?

Shawn Datchuk: Fortunately, not that I'm aware of. If you look at the different font styles, different prints, what we see is that just providing a focus on handwriting instruction, that would be the key research-based recommendation and if you are providing these evidence-based techniques such as visual cues.

There are also a couple other ones including memory retrieval. This is where you're allowing students opportunities to retrieve from memory where they see the model of the letter, they cover it up, they try to write it from memory, and then they compare how close they were. Giving them those opportunities to retrieve it again is building up that brain muscle, so to speak on, "Okay, that's what the letter looks like."

Then the studies also tend to follow an explicit instruction format where there's a teacher model, there's guided practice where teachers can provide feedback, and then there are opportunities for students to independently perform these.

Those tend to be, I think, the special ingredients on successful recipes to help students learn that important skill of handwriting.

Anna Geiger: So it's less the particular style, and more the instructional routine.

Shawn Datchuk: Exactly.

Anna Geiger: Could you go through those routines one more time?

Shawn Datchuk: Yeah. Yeah, so visual cue. You would want to look for materials that have visual cues. They provide paper-based, I've also seen it on tablet screens, on computer screens as well, but you want the materials to show visual prompts for students on the letter shape. That tends to be in dotted lines, the arrows that show the direction of different letter strokes, and then numbers that show the sequence.

Now, it's not incredibly important again that students follow each sequence and stroke exactly how it is. I think overall, if they're producing a legible letter that they can read back to you and that you can read, that's the key.

Use those visual cues, and a fading of those visual cues. So overall, perhaps the initial introduction of a letter has dotted lines, arrows, and numbers. Then eventually the arrows and numbers fade away, and it's just the dotted lines. Then after that, it's just, here's a blank margin. That's where you need to produce the letter. So you want visual cues that are systematically faded.

Number two would be these memory retrieval activities. There are different ways of structuring this, but one common way is called Cover-Copy-Compare. You see a representation of the letter. You not only say the letter name, but also the letter sound, and then you cover that up. I've seen different cute activities or teachers do things where they'll get a manila folder and cut a horizontal line that creates a flap so that a student can put the flap over so they're covering. But basically they're seeing it, they cover it, and now they need to try to copy that representation from memory.

Again, that's just providing them that volley, that opportunity to try to commit that letter shape, name, sound to memory, then produce it, and then finally they need to compare their letter to that modeled letter. Those sorts of repetitions have been found to be effective.

Then lastly is again that the lessons follow a structure of more guidance upfront where teachers are not only modeling it, but they also have materials that have the prompts on it. Then in that model, the feedback slowly fades until at the end of... Let's say, at the end of a lesson, or it tends to take several lessons.

If you take a look at how these letters tend to be spaced out, they tend to be clustered into no more than chunks of two to three letters at a time. So if you introduce, let's say the letter L, you would have activities for L, and then perhaps the next day you would continue activities for L, and then now here's a letter I. But you really wouldn't expand past those two to three letters throughout the week, 15 minutes a day, a couple times a week.

What we see is that in as little as several weeks, two months, we see an improvement in student legibility, writing output for letters, and then that is closely connected to a student's ability to engage in spelling.

It makes sense because if a student is learning not only the letter name, the letter sound, and how the letter is formed, that should give them a leg up on now turning these individual letters into words.

Anna Geiger: What about tracing? How much tracing is okay? How much is too much? I've heard that you don't want to overdo it.

Shawn Datchuk: Yeah, I think the proof is in the pudding in that respect. There are different ways that caregivers or early elementary teachers can monitor student progress related to handwriting.

One of the easiest low cost ways of doing this is actually called an alphabet task. You will have to model this the first time it's done, particularly if you're with early elementary kiddos. You basically say, "Okay, here's a pencil" or whatever the writing utensil is. "Here's a pencil and a piece of paper. What I want you to do is I'm going to give you one minute to try to write the alphabet in lowercase as many times as you can. If you come to the end of the alphabet, start over again." You might have to model that, and then you give students a minute, and if they come to a letter they don't know, that's okay, just tell them to keep going.

Afterwards, you collect it as a teacher, and what you can do is score that for legible letters. How many of these letters are legible? You can also look for the alphabet sequence.

When I did this as a teacher, there was always a cluster of students, particularly at early elementary grades, where when it came to L-M-N-O-P, it just became this monster mash of a letter. Then we go, "What letter is that?"

And they go, "Oh, L-M-N-O-P." They're thinking about the alphabet song, where LMNOP, it's just all one large letter.

It highlights for you, "Oh, okay. They will need help on the alphabet sequence."

It also helps you to pick out things like reversals, like the B/D reversal is an ongoing issue usually, or different shapes that can be easily confused. Some students when they write the letter A it can look like the letter E and vice versa.

If you were to do that, engage students in an alphabet task, as little as once a month, that's going to give you concrete data to help drive, "Okay, do my students need more support? Do they need to stick with the visual cues longer?" Because I would argue then if you're making a data-based decision based off of, "Oh, these students are having difficulty with this letter," then I would say visual cues are needed. But if you see in your classroom or for your student that, "Oh, okay, they're picking up these letters," then I would say that's a strong case to then remove those visual cues.

Anna Geiger: Yeah, thanks for sharing that thinking about doing monthly assessments for handwriting. I don't know if we think about that so much. It's not on our universal screeners, but it's so valuable and also fun for the kids to see what improvement they've made.

Shawn Datchuk: Oh yeah, for sure.

Anna Geiger: We've talked a lot about getting started with handwriting and what research says and doesn't say. It doesn't say a whole lot, so a lot of this is the art of teaching, of course. Then we talked about good instructional routines for getting started.

What about, and I know you've studied this a lot, older kids whose handwriting is very poor to the point that it's slowing them down? I know that at some point we say, "It works for them," but in other areas this is a problem. They're not automatic with their writing or they're forming backwards or whatever. When would a teacher intervene, and how would they do that, especially if it's a classroom teacher who is not the interventionist? What should they do?

Shawn Datchuk: Yeah, that is such a... Those types of decisions can be extremely difficult, particularly for the secondary age kiddo, a high school age kiddo. As a former K-12 special education teacher myself, when we would have students in 11th grade, let's say, struggle with writing output... Unfortunately, when you get towards those later grades, you always having to really think through, "Okay, how much time can I spend on handwriting compared to these other important skills they'll need for their transition?"

What I can say broadly is that if you do notice a student who's struggling with handwriting, it can be worthwhile to get more information regarding their overall writing output.

So it could be something like the alphabet task, but you can also take a look at other writing fluency measures where... For instance, Written Expression Curriculum-Based Measurement, WECBM. I know special education and education can become alphabet soup, so I'll try not to talk too much in the acronyms. The Written Expression CBM is where you just give students a prompt to where they can pick different ones, such as a story starter or perhaps an essay on, do you think students your age should be allowed to use cell phones in class? You're giving them a choice on picking something to write about.

Then what the research suggests is that in as little as three minutes, so if you just take a snapshot of their writing, you don't have to have them write for an hour, it could just be as little as three minutes where they can't possibly finish this, but it's giving you a temperature check.

You can take a look at that and see, how much did students actually write there? Are we seeing things related from writing fluency issues to handwriting? Then as a teacher, that can allow you to sort of make some decisions.

I think certainly if a student's in middle school grades, perhaps there's an easier decision there to be made to where you can do supplemental handwriting activities such as using visual cues, providing explicit instruction, doing Cover-Copy-Compare.

If you are looking at students not only in middle school, but certainly in high school, there are other activities that you can do that have been shown to improve students' speed in producing text.

One of them is called performance feedback writing intervention where each week, you

just engage students in these timed practice trials on, "Here is a writing prompt." You give them a writing prompt to pick, and then you give them as little as 3-10 minutes.

Then as a teacher, you just simply count the number of words. You want to have a discussion with them on the ideas that they're writing about, but you just simply count the number of words and that's it. You show that to students, so you go, "Okay, last week in that three minutes you wrote 85 words. How about this week you try to write a little bit more than that?"

It's just that simple activity of showing students this is how much they wrote, and see if you can try to beat it. That type of practice tends to be beneficial to where students are making measurable improvement on their writing output.

Now, it won't be... I'm not suggesting that doing those short burst activities are going to turn students' writing into the next great American novelist by any means, but I think what we can say is is that students' writing output, just getting them comfortable in that practice of having to generate output in a sustained amount of time, has been shown to improve students' overall writing output.

Anna Geiger: At what point do you say explicit handwriting instruction for this older student is probably not worth our time and we're going to focus instead on keyboarding? Or do we always say we're working on keyboarding or do we never give up on handwriting?

Shawn Datchuk: I would argue that we shouldn't give up on handwriting. I think from not only the benefit that we see with handwriting in terms of its reading development, but also if you take a look at studies that have been done with college-age students when they take handwritten notes versus on the computer. There are different results out there, but there is certainly a cluster of studies that suggest that those handwritten notes can lead to better recall, to higher retention, to increased exam scores at the college level.

I think there are lots of reasons behind that, but I think one of them is that when you're writing something, you can't really keep up word for word with how fast somebody is saying something. You really need to almost talk to yourself and summarize and synthesize the information, so I think there's some cognitive benefits there.

But I think also there is something to be said for... Handwriting puts us on a level playing field, so to speak. Some schools have one-to-one initiatives where every kid has

a tablet, every kid has a Chromebook. My son goes to a school where he has a Chromebook. I can't tell you how many times something has happened to my son's Chromebook, whether computer keys were broken, the charger was misplaced, or somebody's borrowing the Chromebook charger cart in a school. When those instances happen, it's difficult to just replace that. If a student breaks a pencil, there's a pencil sharpener, here's a five cent pencil.

When we talk about making that important when writing/reading connection, even though we are surely increasing, we are in a technological age, the rapid advancement of computer technology I think will only increase, but I find it hard to believe that handwriting would completely go away.

I think the portability, the efficiency, the cost-effectiveness, the meaningfulness of handwriting too I think there's something to be said. I think we need to ask ourselves as a society why do we value a handwritten note more than an email or a text, I think it is because the amount of time it took us to develop our individual letters.

So Anna, when you write your name, the A, and then when I write the S in my name, I'm in my forties, so I've shaped that letter S across four decades. That is almost our individual thumbprint, as it were, that we're sharing with people when we share with them our handwriting.

Everything from, again, the cost efficiency, the emotional connection, its ubiquity. I think that handwriting in general should be a priority, but I do fully appreciate the limited time, resources, and personnel that are playing into secondary level students.

Then there have been instances, even in my own personal experience working as a teacher where in a high school I had to make tough decisions like, "Okay, we can't really fit in this handwriting right now. Your career goals are to work at an auto dealership where you're going to be doing computer inputting." Then in that case, that probably makes more sense in that instance.

Anna Geiger: Yeah, that was a really good summary that we probably could have put at the beginning of the podcast, but that's... As we're nearing to the end, a summary of why handwriting is important is great.

We're going to talk about your Literacy LIFTER tool in a minute, but I want to go back to a question I forgot to ask.

When I'm thinking about kindergarten and first grade teachers teaching beginning reading, and we're learning now that, or we've known that, letter of the week is not ideal because it takes a very long time to get to words. Instead, kids can learn multiple letters in a week. And we know that it makes sense, when they're teaching the letter names and sounds for reading, to also be practicing the handwriting.

When we think about the order for teaching those letters, what we're typically thinking of is what letters maybe have continuous sounds, which can be grouped together to make words, and we're thinking less about the strokes. Is it important to group letters by strokes? Is that just a nice-to-have? What happens when something else is primary, if that makes sense?

Shawn Datchuk: Yeah, and I think that's one of the reasons why we developed... So at the Iowa Reading Research Center, we developed this free application called LIFTER that stands for Letter Identification, so that reading aspect, Formation, so that writing, Transcription and Early Reading - LIFTER.

One of the large reasons why myself and my colleague Dr. Derek Rodgers here developed it is that when we work with schools, and we talk about the importance of handwriting, we had teachers and caregivers go, "Okay, yeah, we absolutely want to do that." But they kept running into this problem that their early reading curriculum followed one scope and sequence, and then a handwriting curriculum would follow a drastically different scope and sequence to where students could be learning three letters in their early reading curriculum, such as M, A, T, but M, A, T in the handwriting curriculum wasn't going to be introduced for weeks later. So what happened is that they would have a classroom full of confused kiddos where they're trying to juggle now not only learning these three letter names and sounds, but now a whole different set of letter names and sounds.

One of the things that we wanted to focus in on is that we said, "This is a solvable solution to where LIFTER," if you go to our website, iowareadingresearch.com. There are also variations of iowareadingresearchcenter.com, et cetera. But if you go to that website and click on the LIFTER, teachers can go in and select activities that align to their early reading curriculum.

For instance, again, if the early reading curriculum is M, A, T, you can go on to LIFTER, select M, A, T, and it will create custom evidence-based handwriting activities that specifically align to the early reading curriculum.

When you take a look at research studies, the key here is connection. So again, if we know that to make the incredibly complex task of reading easier for students, there needs to be a scope and sequence that specifically hones in on not only when they're learning the letter name and the sound, but how to write it.

One of the best things that we can do is to reduce that confusion, reduce that scope, and allow teachers the flexibility to select, based off of their tested and true curriculum, and here are handwriting activities that accompany it.

The flip side of that is that if your student is okay with letter sounds, they're okay with that added complexity, they've already picked up a lot of these skills, then there is a suggested scope and sequence for handwriting that is going to be slightly different than an early reading curriculum. That's where the letters are grouped together based off of similar strokes and sequences.

For instance, if you look on our LIFTER web tool, there's a toggle switch there where you can select a systematic scope and sequence or an alphabetic scope and sequence. The systematic is based off this research by Karen Harris, Steve Graham, and colleagues that looked at how to group similarly structured letters together to ease that introduction. For instance, L, I and T all start with the vertical line, and then there are just slight variations on a dot and then a crossover for a T.

From that perspective, if you're working with students, particularly early elementary grades, that are learning a scope and sequence from an early reading curriculum, the recommendation there would be then to teach the handwriting and use that sequence because it leverages that connection.

The other recommendation would be is that if your students aren't following a scope and sequence, they might've already learned that, and you're trying to build up handwriting in general. Then using that more systematic based off of similar letter strokes would be a good idea.

Anna Geiger: Maybe in preschool for example, if you're not necessarily focused on sounding out words, that might be another thing to think about.

Shawn Datchuk: Exactly. Yes. Yep.

Anna Geiger: You answered so many questions. I think I'm going to be sending people to this episode a lot because I do get these questions all the time, so that was wonderful.

I did look at the Literacy LIFTER tool, and it looks to me like you put in the letters that you want and then it prepares set of materials for you that you print. Is that all correct?

Shawn Datchuk: Exactly.

Anna Geiger: And that does include a video that shows letter formation. Is there anything else that you can share about that, about how you developed it and how teachers can use it?

Shawn Datchuk: Yeah. The Literacy LIFTER, if you go on and log on, it's meant to not only be a website that teachers can use before the students get there to download PDFs and print them out, but it's also meant to be used with students actually in the classroom.

As you mentioned, Anna, for each letter, there are animations that we created. We have some wonderful staff members here that created them. That shows animations that highlight how to make each letter and the recommended formation. It also does the letter name, does the letter sound, and then it contextualizes that letter into a word.

There are also instructional scripts on there with suggested language that's clear, consistent, and concise. There's also fidelity checklists where, as a teacher, you can print that out and then use that as a starting guide.

Besides that Literacy LIFTER tool or application, there's also a free E-learning module that will unpack each area of the research underpinning how this was designed, and then there's also different animated videos showing cartoon characters as teachers, "This is what this would look like in practice."

We're very excited. We were thrilled to be able to offer that.

Anna Geiger: Thank you. I know that's free for teachers, and I love that you've got the learning in there as well, because we know that's so important that teachers understand why they're doing what they're doing and that this is available for free.

We'll definitely link to that in the show notes and any other articles and things that you've shared online. I know there are many of them.

Thank you so much for taking your time to join us, this was super helpful.

Shawn Datchuk: Yeah. Thank you, Anna. I really appreciate it.

Anna Geiger: You can find the show notes for today's episode at reachallreaders.com/episode181. Talk to you next time!

Closing: That's all for this episode of Triple R Teaching. For more educational resources, visit Anna at her home base, reachallreaders.com, and join our teaching

episode of Triple R Teaching.