

# Critical Mass: Script

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## T0: Introduction to Module

Hi there, thank you so much for tuning in to Pastel Education. We are so excited to bring you a very special module on Critical Mass. This is some leading work that has been done by Dr. Brenda Smith Myles and her team, providing us with some new skills and perspective on how to better support learners with an autism spectrum disorder diagnosis.

This work, centres around the concept of critical mass, a tipping point in which people gain mastery of skills that allows them to apply them in new ways. Gaining critical mass is crucial to generalization, learning new skills, and ultimately, the future success of our students. This is such an interesting topic and cannot wait to share it with you!

All of the information from this module is adapted from their book, *Excelling with Autism: Obtaining Critical Mass Using Deliberate Practice*, and we highly recommend getting a copy for yourself! In this module we will cover:

- What is Critical Mass?
- Critical Mass Framework
- Developing Specific Goals
- Ensuring Focus
- Communicating Outcomes
- Assisting Students Out of Their Comfort Zone

As always, we encourage you to think about this module with consideration of our guiding principles: understanding the individual, empathy, and patience. How can understanding the individual help us develop specific goals for our students? How might we exercise empathy and patience as our students engage in deliberate practice?

Thank you to Dr. Brenda Smith Myles for allowing us to share their work. Thank you for watching, and let's start off the next video by looking at: what is critical mass?

Hope you enjoy this module!

## T1: What is Critical Mass?

Hi there, in this video we will look at the question: what is Critical Mass? Critical Mass is the degree of mastery of a task that allows for generalization and application of these skills in new ways. In other words, critical mass is the tipping point, in which information, behaviour, or skills that have been learned “comes together,” and can be applied. It can be thought of as true mastery, or spontaneous generalization. This is also when a student can begin to learn information for themselves. From Critical Mass emerges new skills.

To help think of this, let's take a look at pre-existing examples of critical mass in general curriculum. Reading is a skill that we explicitly teach and deliberately practice with all students. Once a degree of mastery is gained from this, they are able to apply skill in literacy to gain more information and communicate their own thoughts through writing. Education systems around the world have identified reading, along with other core skills such as basic math, as



essential for a person's future, and created a curriculum in which students achieve critical mass in these topics.

So, why is Critical Mass important? As we know, the brain of individuals with autism spectrum disorder can differ in certain ways from that of a neurotypical individual. Individuals with autism spectrum disorder can be wired for more literal interpretation of information and preference for explicit delivery. People can excel in certain areas, whether that be science, math, logical reasoning, or ability to take unique perspectives, but face a variety of challenges as well.

Among these are differences that lead to increased challenges in social communication and interaction. Individuals with ASD may struggle with learning social skills and necessary life skills to gain independence in the future. However, despite our best efforts in education, the majority of people diagnosed with ASD do not meet their full potential. As educators, we must learn to do things differently if all of our students are to find success in their futures.

Why is this the case? One major difference is that the majority of neurotypical students are able to gain critical mass in social, communication, and basic living skills through implicit learning. They do not need to be explicitly taught these skills, but instead learn through conversation, family, and social interaction.

On the other hand, students with ASD face greater challenges in this type of implicit learning. Not only are their brains wired to prefer explicit instruction, but students that do not have mastery of social skills will have a harder time learning from interacting with others. For example, a student that is just learning to write sentences will learn nothing about writing style but reading a philosophical text.

This begs the question: what if we were to teach social, communication, and basic life skills the same way we teach reading and math? This is one of the central messages from Dr. Brenda Smith Myles and the researchers of Critical Mass. This is a new perspective that we can take to help students succeed in school and life.

Just like with reading and math, we can help students achieve critical mass in other skills through deliberate practice. This is the most important concept and focus of critical mass. Through this module, we will take a look at how we can structure deliberate practice to help students achieve critical mass. This flexible approach can be beneficial for learning skills in subject-specific material, behaviour, self-regulation, socialization, communication, and more! We are so excited to share this leading work with you. In the next video, let's take a look at the Deliberate Practice Framework.

## **T2: Critical Mass Framework:**

The key to achieving critical mass is through deliberate practice. We can conceptualize this as a hill, in which deliberate practice is the effort to climb to the very top. Critical mass is the tipping point in which we can then ride our momentum down the hill, applying our newly mastered skills in different ways.

So how can we structure deliberate practice for the success of our students? Dr. Myles and her team discuss a 4-part framework that has been adapted from Ericsson & Poole 2017. Deliberate practice consists of:



- Developing Specific Goals
- Ensuring Focus
- Communicating Outcomes
- Assisting the learner to move out of their comfort zone.

Through this module, we will go through each one of the steps in depth, looking at suggestions and considerations each step along the way. We will draw upon existing critical mass examples in math, science, and reading to assist our understanding, and then apply these same concepts to skills that are not implicitly learned by individuals with ASD, such as social and communication skills. Although much of our focus will be on these skills that are often less developed for students with ASD, this same teaching perspective can be applied to all types of learners, developing all kinds of skills.

Not only can critical mass help us understand the learning of our students, but also serves as a framework to integrate the other skills and concepts in inclusive education.

For those who have viewed our other modules, we challenge you to think of how our understanding of functions of behaviour, differentiated instruction, and universal design for learning can help students achieve critical mass.

For those who are new to our platform, we encourage you hope this module can serve as a starting point to learn other great skills and concepts in inclusive education.

Thank you so much for watching, and let's get started by discussing Developing Specific Goals.

### **T3: Developing Specific Goals:**

Hi there, to begin our deep dive into the components of deliberate practice, let's take a look at the developing specific goals, looking at the importance of goals, components of a good goal, and determining what to teach.

#### *Importance of Developing Specific Goals:*

Deliberate Practice requires a long-term commitment towards a certain goal. For our deliberate practice to be effective, we need to set good goals to guide our students. Without goals in place, learning and practice becomes aimless, discouraging for students, and our approach becomes disorganized. Goals support student motivation, are better for child development, and ensures that we prioritize learning to address the needs of a student. Let's take a look at what makes a good goal.

#### *Components of a good goal:*

The first component of a goal is that it is specific. We want ourselves and the student to know exactly what they are working towards, for example, learning to tie shoelaces. The second component is that it is meaningful. This means that it has value for the student and will support student motivation. As we will discuss later on in this module, it is also very important that goals are achievable. This is not only important for motivation, but also for student development. Lastly, a goal should support independence. Upon mastery, the learner should be able to apply the skill of interest independently and across multiple situations.



Meaningful and specific goals should take into account the student's previous challenges, skillset, and successes. As the student develops and progresses, so should our goals. By progressively adapting learning goals, we can help students achieve critical mass.

Now that we have discussed components of specific and meaningful goals, let's move on to most important part of goal setting: determining what to teach. The great thing about deliberate practice is that it can be used for learning almost anything! This critical mass perspective can be applied to specific subject areas, such as math, as well as communication and social skills.

For children with ASD, we can focus on skills that are not implicitly learned by students with ASD that are important for life success. These can include Social skills, Communication, Behavioural skills, Self-regulation, and Basic life-skills. For example, a student may require explicit instruction and deliberate practice to learn about recognizing facial expressions. Some ideas of skills that are not implicitly learned by individuals with ASD are categorization, cause and effect, patience, and teamwork. Dr. Myles's book *Excelling with Autism* has an extensive list of skills that are important for individuals with ASD to learn.

When determining what to teach, it is important that we are able to prioritize learning goals. This is important to ensure goals make sense to students, to prevent students from becoming overwhelmed, and ensure that students are able to dedicate the appropriate time to achieve learn the skills most important for them. Determining what to teach can be guided by our information gathering. Assessments, teacher & parent concerns, classroom observation, and learner interest can all provide insight into what and how goals should be set. Sometimes, we can think about areas that seems to be limiting a student's academic success. For example, a student may have very strong skills in art but has challenges working with groups. For this student, developing teamwork skills in turn-taking, or communicating ideas might be very valuable.

To quickly summarize, Developing Specific Goals is extremely important in helping students achieve critical mass. Learning goals should be specific, meaningful, achievable, and support independence. This approach of deliberate practice can be used for all skills, and for students with ASD, we can focus on developing skills in areas of communication, behaviour, social skills, and more! As students progress and learn, these goals should be changed accordingly to help students achieve critical mass.

Thank you so much for watching, and in the next video, we will take a look at Using Levels of Learning to Set Goals

#### **T4: Using Levels of Learning to Set Goals**

One helpful tool that can guide us in goal-setting is the Levels of Learning. When we set specific and meaningful goals for students, we should take into account what level of learning they are at with a skill, and how goals progressively change as the student develops mastery. This also helps guide the degree and types of supports that will can be utilized to support student learning.



### *What are the levels of learning?*

Let's take a look at the different levels of learning. The first and most basic level of learning is awareness. This is the foundational level in knowing that an item or topic exists. For example, a student knows that addition is a math skill. At the awareness level, the focus is on understanding function and definition. If we were to look at an example of facial expressions, we could focus on helping the student understanding that facial expressions exists, that they have meaning, and that similar expressions may have different meanings. We can help teach this by using statement with blanks, such as people us \_\_\_ to \_\_\_\_.

Once a learner has developed awareness of something, they can progress to the next level of learning, recognition. At this point the learner can discriminate an item from others, but cannot generate original knowledge. For example, a student might be able to identify facial expressions from a facial expression book, but might not be able to describe what someone looks like when they are happy. Activities that students can use to develop recognition are to underline, point to, match, select from a list, true/false, and multiple choice.

The next level of learning is Recall. This is the ability to independently retrieve information without the help of response options. A recall activity could be to fill in the blank within a statement, or to answer a short answer question.

Following mastery of recall is application. This is the use of information in a simulated or real-life setting. At this point the learner is able to utilize the new information and skills in ways that are beyond the original context it was learned. Examples of how we can help teach this is through role play or other application opportunities. For example, a student that is learning to greet people, we can have an application activity of going to the school librarian and practicing greeting skills. These activities are often done in the presence of an educator or mentor. If we go back to the example of learning facial expressions, we could demonstrate various facial expressions and have the student identify each one, along with the meaning of each expression. This allows them to apply what they are learning through a facial expressions book to real people.

Once students are able to master apply their knowledge, they begin to generalize their learning. This means the student is able to naturally and functionally use their new skills in different situations. Our learner can now identify and appropriately respond to facial expressions of their family, friends, peers, and strangers! Individuals with ASD may struggle with generalization of skills and educators often try to move to this stage too quickly. Remember to patient with our learners, and we can work through various application activities, categorization, and tailored instruction for our student to help them reach this stage in learning.

The final level of learning is maintenance. This involves periodic practice and check to make sure they retain the skill. If maintenance is lost, students can revert back to the application stage. We are all too familiar with lost skills in math, chemistry, art, music, and language in our daily lives! We can help students maintain information and skills through our instruction, practice, and learning activities, but, maintenance can be as simple as asking a student "do you remember \_\_\_?" or "can you tell me about \_\_\_?"

When we apply the levels of learning to specific goal setting, we can consider where our student is in their level of learning, and what types of instruction, activities, and tasks can help



them move to the next stage. For example: “Johnny’s learning goal is to develop mastery of recall of ways to greet people.” Identifying fill in the blank, short answer, and verbal responses as tasks he can work on. As our students learn and progress, we can utilize the levels of learning to guide the appropriate change in goals.

That concludes this video on levels of learning. Thank you for watching and in the next video, we will discuss Ensuring Focus.

### **T5: Ensuring Focus & Motivation: Motivation**

In order to achieve critical mass through deliberate practice, students must put in the time and stay focused in their practice. Focus “is hard work and generally not fun” (Poole 2017) but is essential to learning and mastering a skill.

Intuitively, we all understand the importance of motivation: it directs us towards our goals, leads to increased effort and energy, helps us stay persistent, and enhances performances. Everything we do requires some bit of motivation, otherwise we wouldn’t do it.

*Components of motivation: (Huitt 2011, Locke et al. 1981, Vroom 1964)*

When we look towards what impacts motivation, there are two key factors: perceived probability of success and value/meaning of goals.

Let’s discuss perceived probability of success first. When we looked at setting specific goals, one component to goal setting was to ensure goals are achievable. If a student does not perceive a goal as achievable, they will not be motivated to work towards it. Imagine if I tried to motivate you to try to win the 100m dash Olympic gold medal. I would assume for almost everyone on this platform, this goal would not be very motivating for any of us as it is completely unrealistic.

The second key factor impacting motivation is the value of achieving goals; students need to understand the importance of achieving a goal. Why a skill is important varies from person to person and is also dependent on how the information is presented. For example, explaining how teamwork skills will help a student better collaborate with their peers and create better work is much more meaningful than “because I said so.” Utilizing reinforcers can also add value to goals, and the student should be aware if they will receive a reinforcer if they engage in a task.

Because the neurology of individuals with ASD is different, when learning social and communication skills, the same implicit reinforcement that neurotypical individuals receive through social interaction is not as effective for individuals with ASD. Because of this, external reinforcement is often necessary.

When we organize all of this into a framework, we should help a learner understand:

- How will this skill help me today?
- How will this skill help me in the future?
- What type of reinforcement is available?

When we understand the motivators for a student, we should pair them with learning. The student should be able to see at each step of their learning the benefit of the tasks they are



engaging in. One example of this could be the use of a First-Then Card for a student receiving an external reinforcer. First: Practice ways to greet, then: snack time.

Unfortunately, students with ASD and other exceptionalities may be viewed as unmotivated in their learning, when in reality, this is due to the frequency of failure they have experienced within their education. Although an educator may view a goal as achievable, the perceived probability of success for a student may be coloured due to their past experiences. A failure cycle can occur, where students may not put effort into a task because they believe they are already destined to fail. It is our responsibility as educators to set appropriate goals and help prop-up our students to understand that they can be successful.

As students engage in tasks, we should try our best to ensure that the student is learning in their zone of proximal development. This is level of difficulty in which a task is not too easy, and not too hard: the optimal amount of challenge for student learning. This balance ensures a task is achievable while still being meaningful in developing their skills. Learning supports are often used to support learning in this area.

Just as failure can impact future motivation, success breeds success. The experience of success and the ability to see potential success can increase willingness and drive to take on new challenges. One way we can help with this is to design instruction to begin with easy-wins.

For example, if we go back to the example of learning to greet, an easy win could be identifying which words are greeting words in hello, goodbye, hungry, flower, hi, and corn. Celebrate the success and help the student see potential success in their learning. Most individuals with ASD understand some form of logic, and we can use logical reasoning to show how learning comes together to achieve their goal. The use of visual supports, such as social narratives, mapping, and T-charts can also be helpful in supporting student success.

That concludes this video on Ensuring Focus/motivation. In the next video we will take a look at some strategies for ensuring focus. Thank you for watching and see you in the next video!

## **T6: Strategies for Ensuring Attention**

Hi there, in the last video we discussed the ensuring attention in deliberate practice by addressing motivation. Now that we have an understanding of motivation, let's take a look at three different strategies we can utilize to help with attention and motivation.

The first is to maintain a strong student-teacher relationship. Benefits of a positive student-teacher relationship goes far beyond motivation, and as we all know, positive relationship with students greatly influences all aspects of learning. As the work of scientists Aspy and Roebuck found, there are 5 teacher behaviours that are strongly related to student success. These are that teachers accept students feelings, use praise, uses student ideas, provides instruction, and justifies authority. As we will continue to discuss, reinforcement is crucial to learning new skills and behaviours; using praise and displaying student work proudly are great ways to further reinforce improvements students have made.

If the learning environment is fun, supportive, respectful, and focused, students will be more motivated to work towards their goals. Students with ASD that have positive relationships with



their teachers have more success in social inclusion, making friends, and experience fewer behavioural challenges.

The second strategy is to incorporate special interests. As we know, individuals with ASD may have specific and restricted interests that they are very passionate about. We can use this interest to increase motivation for learning tasks. If you have watched our instructional communication module, you know all about this! We can incorporate a student's interests in a variety of ways during learning. For example, if someone has a deep interest in telephones, we can utilize examples of microscopes in their learning tasks: "how could you ask someone to borrow their phone?" We could even role-play as Alexander Graham Bell, the inventor of telephones to motivate a child to apply their skills.

Although it is a straightforward concept to utilize special interests in instruction, we often miss opportunities to utilize this strategy. We must realize that when students with ASD are unmotivated in a task, this could be due to our failure in understanding their motivator and coupling that with learning. These are situations where we can look towards special interest as the primary motivator, and of course, hopefully this strategy can be used earlier to prevent these situations from occurring. Apart from boosted motivation, utilizing special interests can increase confidence and help students approach learning with a more positive outlook.

The last strategy we will look at in this video is priming. As we have discussed in our other modules, students with ASD can have challenges with uncertainty, and one way to help support students is to use priming. Priming is a strategy where we show a student what is going to happen, or prime them, before the activity. No learning is occurring during priming, we are simply informing students of what will occur in the future. It helps students be more comfortable in the learning environment and allows them to better focus on their work.

One example of priming could be going over today's schedule to help students know what is going to happen for the day. We could also use priming in more specific ways, such as, helping a student understand what a group activity that the class is about to engage in will look like. The student could look over the learning materials for the activity and familiarize themselves with the activity. This helps decrease stress that might be associated with a less structured groupwork environment. The more predictable the situation, the easier the interaction.

Priming can also be used for non-academic scenarios as well. For example, we can prime a student about an upcoming assembly, going over where we sit, who will be speaking, and where the stage is. Reinforcement can also be worked in to priming, reinforcing the student after priming and/or engagement in the activity. We can be as explicit in our priming as telling student: "I will prime you." Over time, we can teach students to prime themselves – individuals can look over materials or schedules on their own!

One area of priming that requires a bit more care are changes in schedule. We do not want students to be primed for one activity and have them engage in another. Post these changes directly on the schedule, and communicate changes early on to student. "I need to re-prime you. Instead of X we will do Y." During this, give students reinforcers as each aspect of information is presented.



With that, we have taken a look at three different types of strategies that can help students stay focused and motivated. Now that we have an understanding of the importance of ensuring focus in achieving critical mass, let's look at the next component to deliberate practice: communicating outcomes. Thank you for watching, and see you in the next video!

## **T7: Communicating Outcomes**

Imagine you are in a math class and get your name called upon. You are asked to solve a question, but you have not been paying attention. When you struggle and are unable to answer the question, this is met with discontent from the educator, feelings of embarrassment, and potential judgement from peers. These outcomes of your learning have been communicated in a negative way, making it less likely for you to want to answer questions in the class.

Now replace math with social interactions, and remove the teacher, because most neurotypical individuals learn social skills implicitly, and you begin to understand the feelings of isolation that students with ASD experience. To make matters worse, unlike math, where people are often willing to explain the areas that need better understanding, in social situations, these challenges in socialization are often met with statements like "because that's the way it is", or often just side-glances.

These are often the types of scenarios that individuals with ASD are put in. Such negative interactions can contribute to social isolation, and communicating outcomes during deliberate practice can be a way to change this pattern.

Within communicating outcomes, the two areas we will focus on is providing feedback and reinforcement. Let's begin by looking at the importance of feedback.

### *Power of feedback*

In deliberate practice, feedback is purposefully chosen and delivered to support student progression towards achieving critical mass. Feedback is one of the most important factors to enhancing student achievement, whether that is subject specific material or social skills. As we monitor the progress of students, identification of problems and successful habits can help guide future practice to support student success. There are a few things that we can do to make or feedback more effective. Dr. Myles and the critical mass team have identified 8 components to successful feedback, and we will be sharing a few key points here.

The first point is to reference the goal. Students should know their goals and why they are working towards them. "Great job learning facial expressions! You have gotten much better at recognizing different facial expressions from our book." Since our deliberate practice is guided by specific goals, consistently making this connection for students helps direct learning, bring relevance, and highlight progression. Students can also help develop their goals. This ownership is good for commitment, and can help students stay motivated.

We should also try to make our feedback explicit, descriptive, and actionable. Feedback done in this way is more valuable "Great job working using your teamwork skills in the group project. You have improved in turn-taking skills and collaborating with your classmates. Next time, try asking for help from your teammates before asking the teacher." Explicit and descriptive feedback helps students understand what tasks you are addressing, and helps to reinforce specific behaviours. Statements like "next time, try..." provides an actionable next step for



students to work towards. Remember, we can communicate feedback in a number of ways, classroom discussions, private talks, written, or even drawn out. Find the best ways to communicate feedback to your students.

Another important component of feedback is to be timely. When something happens, follow-up as soon as possible. Feedback and reinforcement is more powerful the sooner it is received. Telling a student, they did a great job a week later means much less than directly after the task. Reinforce every increment of improvement in a timely way, students with ASD require continual feedback, evaluation, and reinforcement to reach critical mass. These are just some of the many components of feedback covered in *Excelling with Autism*. For the full framework of feedback please refer to the book!

The next component of communicating outcomes is reinforcement. Since reinforcement is covered in our functions of behaviour and many other modules, we will go over some key points regarding reinforcement.

Learning does not occur without reinforcement, and a high level of reinforcement is needed to learn a behaviour. As discussed previously, reinforcing student engagement, use of learning supports, efforts in learning, and all increments of improvement all help students reach critical mass. Not only does it increase the likelihood of students demonstrating positive behaviour, but draws attention to student actions that they might not be aware of. Even once a behaviour or skill is learned, intermittent reinforcement is necessary for maintenance.

For neurotypical individuals, learning implicit skills is typically reinforced implicitly as well. A smile, laugh, or pat on the back are all implicit reinforcers that can be missed or unappreciated by individuals with ASD. Natural consequences may not be sufficient for a learner with ASD, making it all the more important to utilize external reinforcers and praise.

With that, we have covered how feedback and reinforcement are essential to communicating outcomes in deliberate practice. Thank you so much for watching, and in the next video, we will discuss our last step of deliberate practice: Assisting students out of their comfort zone.

#### T8: Assisting Students out of their comfort zone

Hi there, in this video, we will take a look at the last step to deliberate practice: Assisting students out of their comfort zone. To understand the importance of this, let's look at this from the perspective of: Why do we not like being out of our comfort zone?

The first is that moving out of comfort zones requires energy. When we are comfortable, we have less incentive to practice new skills as that requires change, and change requires extra energy. Instead, it is human nature to move back to our comfort zone, even if it is not as effective. For learning to progress and for students to achieve critical mass, we must be able to support students in moving out of their comfort zone.

For all students, including those with ASD, uncertainty is a big barrier to moving out of comfort zones. We are not sure about the new context we are applying or learning skills, and are uncertain about the consequences of our actions. As we know, students with ASD are greater impacted by uncertainty, which can impact their learning of important communication, social, and basic life skills.



For example, we discussed previously about the example of having a student practice their greeting skills by going to the school librarian and greeting them. This is an application of skill into a new scenario, and the uncertainty around the interaction, setting, and outcomes can hinder students from stepping out of their comfort zone.

So how can we assist students in moving out of their comfort zone? We will focus on three strategies: creating structure, balancing task demand and learner ability, and balancing group size to learner ability.

Let's start by creating structure. Our goal is to reduce uncertainty, and make success more achievable. This involves utilizing learning supports, guidance, environmental accommodations, and organizing learning to be highly structured. By decreasing the number of things a student must focus on, and decreasing uncertainty, we can make it easier for students to move out of their comfort zone.

Remember that this is not a one-time quantum leap students are taking in their learning. Deliberate practice is an ongoing process, and as students progress, they can become more independent in their learning.

The second strategy is to match task demands to learner ability. This all comes back to the zone of proximal development, ensuring students are engaging in learning activities that are the right challenge. For example, if a student is still in the recall phase of their learning, we should not push a student to application, as they may not be ready to engage in these tasks. Learning supports and creating structure are part of helping students find the right challenge, and we can also decrease demands of the task through various adaptations. Many skills that we exercise in this area are part of our Differentiated Instruction and Universal Design for Learning modules.

The last strategy is to match student readiness to group size. Similar to task complexity, students need to be placed in appropriate group activities that will support their learning. If you are less confident in a skill, you are less likely to feel comfortable engaging in that task in front of your peers. This is no different for a student on the autism spectrum.

For example, a student that is in the application stage of learning turn-taking may be ready to work in a group setting. However, if this is the first time applying these skills in teams, a smaller group size may be beneficial. In addition, we should try to select tasks that the student has a higher degree of comfort in, to balance the increased cognitive burden socialization will occupy.

If you remember one concept in this video, it is that we can assist students to move out of their comfort zone by setting them up for success. This momentum can then carry them to further progress towards critical mass.

Just as uncertainty can impact application, uncertainty can pose a barrier to generalization. It is impossible to control all scenarios our students will engage in, and we can teach students that uncertainty is not bad. We can teach that there is always clarity to situations, and draw upon previous successful experiences to explain this. Generalization can be a big step out of the comfort zone, and might take more deliberate practice to achieve.



That concludes this video for assisting students out of their comfort zone. This was the last step in our Deliberate Practice framework to achieving critical mass. Thank you so much for watching, and in the last video we will summarize everything we have learned.

### **T9: Summary**

Thank you so much for watching this module on Critical Mass. We began this module by learning about what is critical mass – the point of mastery in which we are able to generalize our skills and learn new information.

Although the critical mass perspective can be effectively applied to learning all types of skills, children with ASD can have challenges in learning the social, communication, and basic life skills that neurotypical individuals implicitly learn. Not only are their brains wired to prefer explicit instruction, but students that do not have mastery of social skills will have a harder time to learn from interacting with others. This impacts academic performance, but also greatly affects the future success and independence of these individuals. For students with ASD to be successful, we have to consider how we can help students reach critical mass in these crucial skills.

Deliberate practice is the key to achieving critical mass, and as we learned, consists of 4 steps: setting specific goals, ensuring focus, communicating outcomes, and assisting students out of their comfort zones.

Regarding goal setting, we discussed both the components of a specific and meaningful goal, and the importance of determining what to teach. We learned about the importance of prioritizing goals to ensure students do not become overwhelmed, and setting specific goals in social, communication, and basic life skills.

When it comes to ensuring focus, one of the key components is addressing motivation. We learned about the use of specific interests, and ensuring that goals are meaningful for students. We should always help a student understand:

- How will this skill help me today?
- How will this skill help me in the future?
- What type of reinforcement is available?

In communicating outcomes, we outlined key factors to effective feedback and the importance of reinforcers. We learned that feedback and reinforcement needs to be timely, and continuously given to help support students in reaching critical mass. We discussed how implicit reinforcers that neurotypical individuals receive might not be effective for students with ASD, necessitating the use of external reinforcers.

Lastly, in assisting students out of their comfort zone, we focused on how uncertainty can pose barriers to student progression. Uncertainty can impact individuals with ASD in stronger ways, and to help, we can look towards creating structure, matching task demands to learner ability, and matching group size to learner ability.

Thank you so much for watching. This content of this module was based off of the exceptional work that Dr. Brenda Smith Myles, Dr. Ruth Aspy and their team in Critical Mass. We would like to extend a big thank you for making this module possible. For more great information on



critical mass and supporting learners with autism, I would highly recommend their book: *Excelling with Autism*. I got my copy of the book from Autism Awareness Centre's bookstore, and have linked it below.

Thank you for tuning in, and thank you for supporting Pastel Education.

