Inclusion

Computing

Quality Inclusive Pedagogy

Everybody learning!

When we use the phrase 'Quality First Teaching', we refer to key principles that underpin best practice. In this section, we will focus on the principle of **inclusive pedagogy**, addressing the values, attitudes and approaches that ensure mainstream classrooms are geared towards supporting those who find learning difficult.

Inclusive pedagogy is an approach to whole-class teaching that is accessible to **all learners**. It should enable learners to keep up, feel included, progress and be successful. This approach should foster an open-ended view of each individual's potential to learn and recognises the difference between individuals as a given and a strength. It challenges deterministic approaches that exclude certain learners from a positive classroom experience because of adverse labelling by ability, or by diagnosis.

As teachers we can feel disempowered by the expectation to teach learners with such a variety of needs.

However, we do not need to become experts in every SEND diagnosis to succeed. We do need to seek to know each learner, to find out how they learn best, and then seek to create classroom strategies that maximise their learning. By thinking about quality in this way, mainstream classrooms can become environments where teachers can plan, teach and assess for **all** their learners with equal confidence.

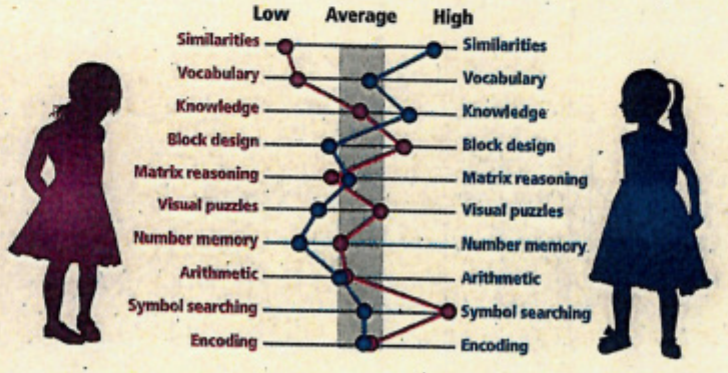
The notion of inclusive pedagogy is not a call for a return to a model of whole-class teaching where equality is notionally addressed by providing identical experiences for all. Instead, it advocates an approach whereby the teacher provides a range of options which are available to everybody. Human diversity is seen within the model of inclusive pedagogy as a strength, rather than a problem, as children work together, sharing ideas and learning from their interactions with each other. The inclusive pedagogical approach fosters an open-ended view of each child's potential to learn.[1]

Why Inclusive Pedagogy is prerequisite for Quality First Teaching

We are moving away from an approach that views learners with SEND as outliers that always need to be catered for and taught differently. Separating learners with SEND out for numerous interventions or over-relying on teaching assistants to deliver teaching to a group of learners with identified SEND, can in fact be detrimental. Evidence tells us the most important contribution to improved outcomes for learners with SEND is quality teaching.[2]

We are also seeing an increase in the co-occurrence of needs exhibited by children and young people. Research tells us there are increasing numbers of learners in mainstream who demonstrate complex SEND profiles due to a number of factors (e.g., better neonatal care and more complex conditions affecting neurodevelopment).[3] More and more learners have what might have been described as spiky or jagged learning profiles.

The new Education Inspection Framework (EIF) reflects this shift too. It no longer looks at SEND as a department or additional provision within the school, but reviews teaching of learners with identified SEND within each subject area and every classroom. It requires evidence of SEND teaching that permeates curriculum delivery, 'built in' not bolted on.



There is a new generation of children with complex learning needs, who do not fit neatly into an understandable category.[4]

Professor Barry Carpenter

What do we need to change?

We need to focus on academic engagement for learners with SEND to achieve genuine inclusion and strengthen learner achievement. Learners with SEND need access to the best teachers and the strongest teaching. Currently, many mainstream school processes focus on the social and emotional aspects of inclusivity rather than zooming in on the teaching and learning process.

Inclusive pedagogy can improve this. Responsibility for effective teaching and assessment of learners with SEND should not be the isolated preserve of the SENCO. Teachers are the key to progress. Teachers are generally supportive of the principles of inclusion, yet anxious about working with an increasingly diverse range of learners. Adopting an inclusive pedagogy offers a way of thinking about effective whole class teaching and meeting the needs of individual learners. Research has helped highlight the reliance on planning and teaching for the majority of learners who learn typically, and then doing something slightly different for the outliers: those at the top or bottom of the distribution curve (who are sometimes described as lower or higher attainers). Inclusive pedagogy highlights the flaws in this teaching, that default thinking of planning for most of the class and then doing something additional or different for some. 'Most' and 'some' thinking risks limiting our belief in what young people can achieve. Inclusive pedagogies encourage us to build in, not bolt on.

Inclusive teaching and learning approaches

Let's move away from stereotyping and fixed-ability thinking about what learners with SEND can achieve. Where differentiated lesson planning leads to learners recognising, they are forever stuck on the red table for low prior attainers, or consistently given the bronze activities for in-class completion never the gold, (or the 'mild' never the 'spicy' or the 'hot') then we limit expectations of what these learners can achieve. Consideration of learners with SEND who find learning tricky must be core to planning and teaching, not peripheral.

It is tempting to talk about the challenge of SEND as a specific and distinct issue. Yet, far from creating new programmes, the evidence tells us that teachers should instead prioritise familiar but powerful strategies, like scaffolding and explicit instruction, to support their pupils with SEND. This means understanding the needs of individual pupils and weaving specific approaches into every-day, high-quality classroom teaching – being inclusive by design not as an after-thought.[5]

1. Ban the average

Banning the idea of 'average' is an important step towards adopting a more inclusive approach to teaching. Instead of quickly categorising learners with SEND as 'below average', the successfully inclusive teacher realises the notion of an average, above average or below average learner **is not helpful**. The inclusive teacher challenges that mindset that seeks to predetermine the capacity of each learner, replacing it instead with a **curiosity** about what the learner can achieve.

As teachers we should approach teaching with a sense of openness, looking to be surprised by our learners and what they can achieve. We cannot develop quality teaching unless (and until) we challenge this oversimplification.

2. Think about transforming learners' lives as the job

Reframe how you approach your role as teacher. It is one that transforms lives, rather than simply 'topping up' knowledge. Plan and teach based on the belief that futures are not predetermined by innate ability, and that every learner can make progress given the opportunity. Work with learners as co-agents in learning. Commit to nurturing trust between you as the teacher and your learners.

'Success for all ...depends in large part on a belief that children learn to high levels'.[6]

3. Difficulties in pupil learning are a professional challenge

As teachers we can be influential change agents in transforming schools if we regularly reflect on our pedagogical practices. Look for improvements that will help all learners reach their full potential. Barriers to learning simply present an opportunity to develop new ways of working, rather than a 'problem with the learner'. A complex learner presents a professional opportunity to learn!

4. Learners are pilots, not passengers

A study of 4000 fighter pilots to identify the 'average size' for cockpit design discovered that on a ten-point criteria, not a single one was the same on every dimension. These 'jagged profiles' are applicable to learners in the classroom. Difficulty with maths does not mean a struggle in literacy; poor working memory might not mean poor articulation. When you recognise these spikey or jagged profiles, there is less risk of labelling and a greater opportunity to identify learner potential.

5. Less deficit labelling, more ability profiling

Good teaching requires adopting an individual, holistic view of each learner. Be wary of labelling learners with their diagnosis or behaviour trait, or by assumptions of what they cannot do, particularly learners with SEND. Such labels reinforce stereotypes and lower expectations of what they can achieve. Instead of describing learners with autism as having difficulties making friends, or dyslexic learners as reluctant writers, profile learners by what they **can achieve** and how they **can learn**.

Catch yourself quietly if you label or limit a learner by the language you use, but positively reinforce yourself and your colleagues when remarks are made about what a learner can do (rather than what they cannot).

6. Ask better questions (be a detective in classroom)

Adopt an inquiry mind-set. This is about asking investigative questions around the learner. What do I know about how this particular child or young person learns? What are their strengths in maths and how do they differ in geography? What are successful hooks to get them interested? What motivates them to learn? What aspects of their learning behaviours need to be developed? This helps break the cycle of starting with questions about what we know about a learner's diagnosis or condition.

7. Catch your learners doing the right thing

Notice a learner's strengths and build on these, however small.

Planning Inclusive Lessons

Tasks

Incorporate learning materials that are accessible for learners of all abilities. For learners with special educational needs and disabilities, specific resources or approaches may be required to enable them to access the curriculum. Ensure you have considered what barriers learners may have within a lesson and embed support strategies to help them overcome these.

Scaffold learning so that learners benefit from support during initial phases of learning. Adapt tasks to make the curriculum accessible to all. For example, tools such as *CodeJumper* and *Blocks4All* can be used for learners who are visually impaired.

Problem Solving

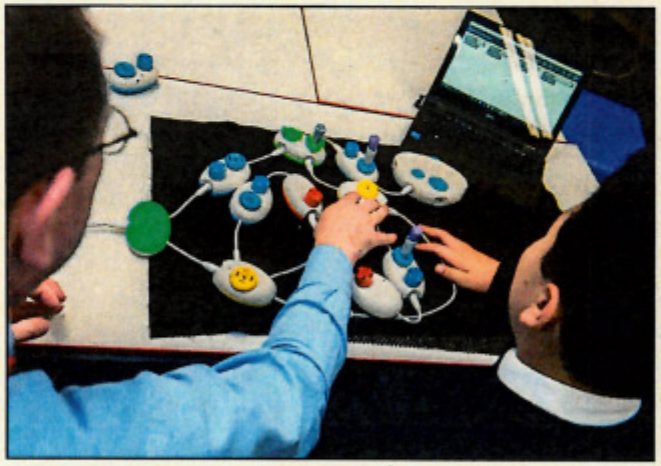
In computer science, there can be multiple solutions to a problem. Focus your instruction and encouragement on solving problems and the problem-solving process, rather than finding a single right answer. Emphasize guided inquiry, designing learning opportunities where learners can ask questions, explore, try different approaches and challenge their own and each other's ideas.

Encourage learners to take ownership over their learning, strategies such as the 'BBBGBs' (Brain, Board, Buddy, Google,. Boss) and expert learners are effective ways to embed this into lessons. If a learner struggles with complex, multi-step problem-solving, give them additional support in the beginning, then slowly remove the support once learners build their skills and confidence.

High Expectations

One of the largest subject barriers we face is learners' own belief systems about who can succeed in computer science. If a teacher holds lower expectations of a learner, it can have a negative impact on a learner's achievement in the subject.

Encourage learners to reflect on their perspectives and potential biases and challenge yourself to do the same. Build relationships with learners to identify opportunities to connect learning to their personal experience. Look for stories and experiences about using computer science that will be meaningful and relatable to your learners.



Creating an Inclusive Environment

Vocabulary

Whilst you model the skills and understanding required to develop a rich vocabulary knowledge, consider your use of words within a lesson. Familiarise learners with Tier 2 words by embedding them into classroom displays and lesson activities. It's important that you find ways for learners to encounter these terms, as this will empower them to access a higher level of language with which they can communicate and understand ideas across the curriculum.

Vision Impairment

At Key Stage 1 and 2, coding is primarily taught using block-based programming languages such as Scratch. Carefully consider what inclusive practices are appropriate. For example, embedding the use of braille, allowing learners to orient themselves to the classroom space, careful selection of colours within resources, installing a screen reader and magnifier aids. Together these approaches support learners in solving complex challenges.

Space

The learning environment is important in making learners feel included. Incorporate visuals that will appeal to a wide range of learner interests and backgrounds. Include examples of learners and professionals with disabilities, the representation of a diverse range of figures in computing can send a powerful message to your learners.

Arrange the learning space to promote collaboration and hands-on activities, whilst also being mindful of how learners will access their workstations. Arrange aisles and workstations so that learners with mobility aids can get to all the areas they need to access to participate fully.

Consider what assistive technology devices could be embedded into practice to give opportunities for all learners to fully access lesson content.

Curriculum Considerations

Computing equips learners to use computational thinking and creativity to understand the digital world we live in. Computing has deep links with mathematics, science and design and technology, and ensures that learners become digitally literate, offering the opportunity to learn in different ways.

Key Stage 1

At this stage, learning should be focused on the concept of computational thinking and equipping learners with the skills to tackle challenging problems using logical reasoning. Practical activities that encourage them to get hands-on with problems can help them visualise solutions. Giving learners the opportunity to predict behaviour of simple programs can also develop their problem-solving skills. It's important to use and to teach learners the correct technical terminology within lessons, to ensure that misconceptions are not embedded early into their computing education.

Key Stage 2

At this stage, learners begin to apply and build upon the skills learnt at Key Stage 1 through designing and writing programs that accomplish specific goals. Learners should be able to detect and correct errors in algorithms. When teaching learners to solve various problems, encourage them to be resilient and think outside the box.

Learners should also be shown how to use technology safely, respectfully and responsibly. Learners need to be able to identify unacceptable behaviour and know how to report concerns.

Key Stage 3

In Key Stage 3, learners are required to design, use and evaluate algorithms that model the state and behaviour of real-world problems. Expand learners' understanding of computational thinking through modelling and explore the different tools which can be used to efficiently solve more challenging problems. Learners will explore both block-based and text-based programming languages and will develop the difficulty of the program through using a wider variety of programming techniques. The ability to highlight and correct errors will be challenged further as learners are introduced to a wider range of errors. They will explore various software applications to undertake creative projects and practise selecting, using and combing multiple tools.

Key Stage 4

In Key Stage 4, learners will begin to develop their capability, creativity and knowledge in computer science, digital media and information technology. Learners need to focus on developing and applying their analytical, problem-solving, design and computational thinking skills. They should be able to use a wide range of technical vocabulary and be aware of how technology evolves in the world around them.

Strategies to Scaffold Learning

How can I support learners who struggle to access lessons because of literacy difficulties?

- Model the correct use of vocabulary. Show examples of common errors/misconceptions and work with learners to improve literacy within given text.
- For those with appropriate access arrangements, encourage the use of a reader to support learners in reading and interpreting large sections of text.
- Chunk key information and create clear, easy-to-follow checklists. This can help your learner focus on one section at a time and have a clear set of goals.
- During classroom discussions, listen to the answers given and when re-iterating points, rephrase sentences to include key vocabulary.
- Consider your classroom display and how you can promote the definitions and use of Tier 2 words.
- Provide learners with a glossary of key terms which they can refer to during the lesson.

How can I support learners who struggle to retain vocabulary?

- Embed opportunities to recall key terms within lessons. Memorisation techniques such as tracked retrieval practice can give learners the opportunity to revisit topics across the curriculum.
- Provides learners with a glossary of key terms which they can refer to during the lesson.
- Use rephrasing techniques to strengthen learner answers with correct vocabulary.
- Introduce new terms slowly and rehearse news words. Get learners to interact with the key terms in various ways such as writing, speaking, mini games, questioning and more.

How can I support learners who need additional time to develop conceptual understanding?

- Model answers and get learners to look at and discuss completed examples.
- Assess and use learners' prior knowledge to create links between old and new content.
- Walk through examples together, giving learners the opportunity to ask questions.
- Address misconceptions early.

How can I support learners who struggle with attention?

- Learn what hobbies or topics the learners are interested in. Find ways to incorporate this into lessons and questions. Use learners' names in written questions to further engage them in text.
- Give clear instructions within the form of a checklist. This will break down the task into more manageable chunks.
- Praise learners on their contributions and for targets met, encourage them to continue and to have a growth mindset.
- Consider the learning environment and potential distractions and make appropriate arrangements to remove these barriers.
- Ensure instructions are clear and signposted.
- Be concise in teacher-led delivery. Chunk material in larger topics so learners can complete a range of engaging activities.
- Check in with the learners throughout the activity, initially to check they have understood the task, to praise work completed and to challenge them further.

Case Study

A learner in Year 9 with ASD, articulate and passionate about computing, was anxious about change and new environments.

Transitioning into a new year, class or seating plan were changes they found particularly difficult. The learner did not like group work, sitting next to others, sharing or learning new content. The teacher embedded the following strategies into lessons to support this learner:

- *Spoke with the learner to discuss their interests and friendships. Worked with them in structuring a seating plan in advance. The learner often wanted to sit on their own and at times when this wasn't possible, the teacher spoke with them about what other options were available and gave them ownership of the appropriate solution.*
- *Pre-warned the learner about any assessments, topic changes, teacher/room changes. Pre-warned the learner about group activity, discussed with them alternative ways they could get involved.*
- *Gave the learner time out when needed.*
- *Incorporated learner's hobbies and interests into lesson content.*
- *Used praise to motivate and support the learner.*
- *Allowed the learner to work independently.*
- *Built strong positive relationships with the learner, which had the biggest impact on their engagement and willingness to try something new.*
- *Provided the learner with a topic list, glossary and revision slides in advance of each term.*