

STRATEGIES FOR CURRICULAR INCLUSION:

Underlying assumption

If one allocates students to classes by age, then in any individual class we would expect to have the normal curve operating: the class will consist of some students above the 90th percentile and even traditionally, students in the 20th or 30th percentiles. This means that 'teaching to the middle' has never been an acceptable strategy as students at the high and low ends of the normal distribution will be missed out. We can see this in national literacy and numeracy data where large numbers of students (up to 80% in the case of indigenous students) are failing to meet acceptable standards. The inclusion now of students in the lowest 20% has just made clear what the reality has been for a century – teachers have to teach to diversity. While teachers can and do much in the classroom to make this happen as outlined below, a great deal of the load can be taken over by good curriculum being made available to the classroom teacher.

What do we mean by diversity? A typical class in the 21st century is likely to consist of:

- + Students from poor families
- + Students from homes with marital conflict
- + Students with labels such as ADHD
- + Students failing in literacy
- + Students failing in numeracy
- + Students labeled as 'autistic'
- + 'Gifted' students
- + Students posing behaviour problems
- + Students who like school
- + Students who strongly dislike school
- + Students with English as a second language
- + Students whose parents come from a non-European culture.
- + Aboriginal students

That is, diversity is not about disability or other similar labels. It is about the range of students found in every class: the challenge is how can we teach such a class so that all students are included academically and stretched to their capacity?

The most exciting developments and what can be considered cutting edge in curriculum design come from the University of Oregon, internationally recognised as probably the leading world institution on curriculum development. The following 6 strategies are directly attributable to that team although many of them have been used by excellent teachers since the beginning of time.

CURRICULAR STRATEGIES

1. Big Ideas

In schools and universities, a block of material is presented within each subject area each year which the students are expected to know and understand. Within that material however, some of the information is descriptive and illustrative whilst other material is core to the understanding of the topic being studied. Indeed within any block of material, there are normally 3 or 4 central concepts that it is essential that all students know and understand in order for the material to make

sense. Another way of thinking about this concept is to think “What is it essential that all students know at the end of term/year in this particular subject to ensure that they have gained the core knowledge?” Again, careful analysis of this question normally yields just a few core concepts around which the course is built. It does not mean that this is all that is needed to understand the subject, but it does mean that with these core concepts all students will have a fundamental grasp of the topic under consideration.

Of course if we have just a few core concepts as the fundamental area of knowledge, this then becomes accessible to all students. The majority of students will be able to expand on the detail and illustrative examples of the core concepts, and the most capable students will be able to take the concepts far by research and individual analysis. Thus all students can gain the core information of the subject whilst all can be simultaneously challenged at their individual level. The alternative of working through a body of material in a systematic fashion depends totally on the skills of the teacher to differentiate for individuals, which is putting undue pressure on an already difficult job.

To give some examples, in literacy the research tells us that to learn the basics of reading, students need to have a recognition that words are made up of repeatable sounds and sound combinations; that these sounds correspond reliably with letters and letter combinations; and have to gain automaticity in recognising these combinations in written text without slowly sounding out every word. Of course teachers can teach this with a large range of individual approaches, but they will always know that these are the three key skills for beginning reading that they have to establish. If a curriculum is established with these key elements as the core of the reading curriculum with lots of examples; logical progressions of learning sounds and sound combinations; graduated opportunities to increase speed and automaticity and lots of guided practice, the research indicates that success at reading is highly likely for most if not all students. The advantage of the core material is that the teacher knows what the bottom line is: all students have to learn these core concepts by the end of the term/year.

For writing, we will need to distinguish between secretarial skills and author skills. For secretarial skills we might have core concepts such as constructing a sentence, constructing a paragraph and constructing a story. For author skills there will be a small range of core concepts such as character development, plot, challenge, resolution etc.

In higher level skills such as curriculum development I would argue that there are 6 core concepts, with *big ideas* being the first (remainder below).

It is clear that there will be expertise needed in the development of the curriculum core concepts for each subject area, and this is most ideally developed in the Curriculum Council where the resources and expertise to carry out such an analysis is to be found.

2. Primed Background Knowledge

In any learning situation there are always certain pre-requisite skills or learning needed in order to be able to handle the material being presented. Commonly this material has been learned in the previous year or term and an assumption is made that it will be ready to be employed to assist in the learning of the new material. For many students such an assumption is probably true but experience

tells us that many students will fail to establish the link with the previously learned material and so fail to grasp the new material. Hence part of the role of the curriculum designers is to establish what is the key background material that needs to be ‘primed’ in order for the new learning to occur most efficiently. Even if all students have not been able to achieve the necessary pre-requisite skills, by making them known to the teacher, adaptations can be made to the teaching to cover this lack (for example, pre-requisite material might be given in written form or other students might help to cover the missing skills).

Again, to determine the necessary skills to be primed is something that is a high demand on the classroom teacher who is trying to manage a range of subjects (primary) or a range of classes, levels and sub-topics (high school). It would be far preferable for this to be done at the level of curriculum so that the information could be incorporated in lesson planning according to the teacher’s own style.

3. Conspicuous strategies

If we are presented with a problem such as 256×13 to do mentally we see people employ a range of strategies such as:

$$\begin{array}{l} \text{✚} \quad 256 \times 10 + 256 \times 3 \\ \text{✚} \quad 250 \times 12 + 250 \times 1 + 13 \times 6 \\ \text{✚} \quad 2^8 \times 13 \end{array}$$

All of these can be taught, and in doing so we give students powerful means to tackle new problems. Similarly in spelling we can all remember some rules (e.g. ‘i’ before ‘e’ except after ‘c’) that gave us spelling power over numerous words and still serve us to this day (even though they do not always apply (*viz* ‘weird’ and ‘science’)). If we consider almost any body of knowledge, such shortcuts and learning strategies apply, often worked out by creative teachers or students to facilitate the handling of complex material.

Strategies can be thought of as road maps. We can teach a range of alternative routes to a destination and students can discover new ways on their own. Different routes might work better in different situations and some routes may suit some students more than others. If we highlight the main route on the map with a highlighter, all students can find their way. As they become more confident we highlight alternative routes and allow them to choose the ones that fit them best. The more advanced map readers will be off discovering routes using bush tracks, but that is fine as we can pull them back to the highlighted sections if they get lost!

The Curriculum Council is in the best position to develop and collect a range of conspicuous strategies for each subject area so that such additional assistance can be made available to all students. It is likely that as a result previously inaccessible material will become accessible to a wider range of students.

4. Mediated Scaffolding

A child learns many times more in the first five years of life than in any other five year period. This means that we should look to some of the strategies used by parents to accelerate the development of their children. Indeed, one of the most effective strategies for teaching is to design the instruction for an individual as if the child were your own. For example, if we are teaching a child to catch a

ball we start with a large ball, set the child's arms out ready to catch and roll the ball into the child's waiting arms. The chances of success are close to 100% for the child so the opportunity to reward and build confidence is high. Then we gradually move away from the child increasing the difficulty, then move to smaller balls and more skilled catching tasks. At all times we are trying to keep the success rate high whilst keeping the challenge slightly ahead of the child's previous performance.

In designing curriculum, we can set out such sequences for students who are struggling so that the teachers do not have to devise them for all situations. Most teachers are competent at breaking the skills down at a class level but can struggle with the major task analyses for the curriculum material from the 'big ideas' through to detailed material with extensions for the more capable students. These analyses are more correctly the role of the Curriculum Council.

5. Strategic Integration

Knowledge needs to be integrated with other knowledge, both within the subject area and to other areas of the curriculum. Students need to build links, discover relevance and build higher order concepts from the material learned.

Many students will make these connections with minimal or no assistance but for others we will need to scaffold this so that they build the links with increasing independence. These links must be natural wherever possible and not forced links that are hard to substantiate. Note that the intent of integration is to systematically join concepts and information to build more complex knowledge and understanding. The building blocks of the more complex knowledge have to be in place before strategic integration can occur.

To give an example from mathematics, the concept of addition can be strategically integrated with the concept of multiplication, and in turn integrated into the concept of 'powers' (e.g. squaring a number). Hence we can teach that $10 + 10 + 10 = 30$. Once this is firmly established as a concept, we can teach that this is the same as $3 \times 10 = 30$ (three lots of ten). We could then teach that 10 lots of 10 is the same as ten to the power of two (or two tens multiplied together), and $10 \times 10 \times 10$ is the same as three tens multiplied together or 10 to the power of three. At each level, previous material and learning is being integrated into the new learning to produce new knowledge about the links between different forms of mathematics and how one method can be substituted for another. These concepts could also be possibly linked into other subjects (e.g. physics, geography) to show how the concepts have wide validity and usefulness.

A large amount of this strategic integration, particularly across subject areas, needs to be built into the carefully sequenced curriculum described above. As such it is probably beyond many class teachers and is more correctly linked to the Curriculum Council operations.

6. Judicious Review

A well established reality of learning is that students forget material. Indeed if we think of our own school learning, much has been lost in the mists of time. Some of the reasons for this are straight physiological – material takes from 24 to 48 hours to move from short term to long term memory, so repetition in the early stages of learning is essential. There is a range of well known strategies to

increase the likelihood of retention such as linking into new material, physical practice using the information and most important, regular review to ensure the skill or concept is still held. The level of review of material will vary, both over time and with the type of material. Over time, reviews need to be at a higher frequency initially with the frequency reducing over time as the material becomes more firmly stored in long term memory. For the type of skills, some will be practised so frequently as a matter of course that review may be only minimally required or more appropriately carried out in review of more advanced material. For example, while basic numeracy skills need to be reviewed regularly when they are being developed, at later stages those skills are being used in higher level tasks such as physics and economics and so are receiving regular practice. Hence it might be better to review them as part of the higher level skill than as a separate item.

Again, to develop schedules of review appropriate for all material in all curriculum areas is an onerous task for the regular teacher. National data indicate that many students are slipping through without key literacy and numeracy skills which indicates they are not being reviewed effectively in many cases. It is much more appropriate that the review be built into the curriculum and under the control of teachers rather than controlled centrally from Canberra in a blaze of publicity. Building judicious review in as part of the Curriculum Council work could build more control into the local system and teachers.

Overview

Of course all of the above strategies are already employed to some extent in the current curriculum and teaching in schools so the ideas are not new. What is new however is the recommendation to build them in systematically and widely in the published curriculum so the curriculum material becomes accessible and challenging to all students – from the most advanced to the most limited in skills.

CLASSROOM STRATEGIES:

Listed below are a few strategies used in the classroom by teachers to facilitate the inclusion of all students in the curriculum. This list is not exhaustive but is illustrative, and of course the strategies are normally combined or utilised in different ways for different curriculum material.

✚ **Peer Tutoring:** there is an extensive literature showing that peer tutoring increases the academic performance of the child with a disability as well as the students doing the tutoring. Other benefits are shown in the social inclusion of the students with a disability through this experience as well as a decrease in competitive behaviour in the classroom.

✚ **Groups:** Projects are given to groups within the classroom, with tasks allocated within the group based on the educational goals and strengths of group members. For example, in one class the child with a disability was allowed to use a calculator to process numerical parts of an algebraic problem, and her group was the only one where calculators were allowed. This made her a sought after group member, challenged at her level and fully included in the curriculum being taught (algebra) even though her skills were still at basic arithmetic.

In other examples, the strengths of individual students are looked to and roles given out accordingly. For example, with a child with major physical disabilities, full involvement in team sport may be impractical in many situations but other roles such as maintaining team statistical data; looking after uniforms or equipment; organising in the background may be ways that a person can be fully involved in the team and curriculum.

✚ **Valued roles:** A creative teacher will use the child's strengths to be included in many creative ways. A hyperactive child who has problems interfering with others may be given a valued role (e.g. holding the teacher's books) which has the dual impact of raising self esteem as well as massively reducing the probability of idle hands getting up to mischief. It also increases opportunities for rewarding positive behaviour and so establishes a platform for building appropriate social skills.

✚ **Individualising required responses:** For teacher who know their students very well individually, we can see them tailor their questions to different students based on their known capacity and level of learning with the aim of maximising the probability of success for each child but also to challenge each child to their appropriate level. For example, if the teacher asks "What is 13 squared?", there might be only one child who can manage this level of difficulty. When this child answers correctly the teacher rewards this child and then asks a distracted student "What is 13 squared?", and then a child who is struggling the same question, and finally the child with a label. In this way 4 students can be pushed to their capacity and the whole class gets 4 repetitions of the answer so the likelihood of it being remembered increases.

The most common way of individualising responses is for the teacher to ask questions of individuals based on understanding of the students' level of knowledge and comprehension of the subject matter. As a result individuals can be challenged at their level with maximum chance of a correct response occurring.

✚ **Modifying at the input stage:** Many students with a disability have difficulty understanding instructions that are too abstract. Particularly with students with an intellectual impairment, the actual impairment includes difficulty in processing abstract concepts. It does not mean that they cannot do this, but they will often take longer to establish the skills in the normal classroom environment unless modifications are made. Such modification may be as simple as putting questions in a more concrete form or reducing the complexity of written material to a reading grade level more attuned to the range of abilities in the class, or using diagrams and pictures in addition to the written text. Note that with national data showing approximately 30% of students are failing to reach literacy and numeracy benchmarks, these adaptations are likely to have wide benefit to all students in the class without harm to the higher performing students. After all, people are not insulted by the level of English in newspapers, even though they are generally written for a reading age between 8 and 12.

✚ **Modifying at the process stage:** There may be parts of a task that are beyond an individual child due to an impairment. For example, a child with a significant physical disability may be limited in many physical activities, a child who is blind will be unable to compete visual tasks etc. However, if the process is adjusted, the child may be able to be included in the same task by (for example):

✚ Adapting the teaching material (e.g. a touching example for a blind child or photo-enlarging for a child with a visual impairment);

✚ Having the child do part of a task cooperating with others doing other parts; giving the student a valued role in the task even though it might be adjacent to the main task (e.g. scoring, keeping records in sport rather than playing).

✚ Providing supports to allow the child to access the material (e.g. another child as note taker; assistive electronic devices).

✚ **Modifying at the outcome stage:** Having different levels of outcome is the normal strategy accepted by teachers as means of inclusion. For example, the more capable students might be expected to research the topic, add pictures and have a high level of presentation. Lesser standards will normally be acceptable for less capable students but they will all still be seen as included in the same curriculum. In a similar way, design of testing approaches can lead to the inclusion of all students from the most to least capable. Some examples are:

✚ All students do the same test but different numbers of questions are allowed for different students. For example, only having to learn 4 spelling words when others have to learn 10 or 20 – particularly if parents can be linked in to help with homework to maximise probability of success.

✚ Give some students the answers, but they have to link the answers to the correct questions (particularly if these are the same for all students at the beginning of the test..

✚ Provide oral tests rather than written.

✚ Using assistive devices to answer questions (e.g. computers).

✚ **Modifying the physical environment:** Reorganisation of the classroom seating; placement of students in relation to the teacher; increasing or decreasing the level of visual and noise stimulation in a classroom for students who are easily distracted; arranging the seating so that it is difficult for a child to get up and move around etc

✚ **Modifying the social environment:** Apart from within class grouping, some deeper consideration of grouping is often dramatically successful. For example, putting the child furthest behind in the *highest* achieving class is normally beneficial. These students normally have fewer esteem problems and are less likely to tease and bully; they are more likely to help and be more sophisticated in their help; they have higher status in the school so the support and protection is more likely to extend to the playground and outside of school; they are likely to come from the more influential parts of society and so have a longer term impact on the idea of inclusion.

✚ **General positivity**

Positive classrooms tend to be more productive classrooms. Even some general strategies to increase the level of positive statements and reduce the number of instructions and criticisms can free up teacher time for more individualisation and decrease the general stress in the classroom for all. For example, bringing in a personal rule that every negative comment by the teacher has to be balanced by 4 positive statements has the effect of dramatically reducing the number of negative statements and building in a much more positive environment. Similarly, working to a goal of 8 positive statements per minute in class (which is achieved by exemplary teachers) can transform even the most difficult class, but teachers normally need some specific guidance on how to achieve these sorts of rates.

✚ **Modifying the use of educational assistants:** Some writers are expressing considerable concern about how educational assistants can decrease social and curricular inclusion. A ‘hovering’ or ‘velcroed’ Educational Assistant tends to keep other students away and increase the dependence of the child on adult support. The role of the Educational Assistant has to be the increased independence of the child with an impairment, and the maximum educational attainment of all students. This means the use of the Educational Assistant as an assistant to the teacher and class, not the child. Within the classroom this can mean the Educational Assistant working with some groups in the class while the teacher works with others or even individuals.

✚ **Including the students in problem solving strategies:** One of the most effective classroom strategies has been the setting curricular inclusion as a problem-solving task for the class. For example “How are we going to include Harry in the calculus lesson?” The class then works in groups to devise strategies. This has advantages of pushing the other students to really think about the subject being taught and so increase their learning; enhances social inclusion and brings in resources that are likely to succeed when adults fail – they have not learned that it is impossible so they assume it can be solved! It also makes them think about the child’s particular strengths and abilities and how we need to focus on these.