<ppt1.1>

# To Create is Divine:

# Blind Children in a Postmodern World

by

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Postmodernism and Blindness: From Conforming to Creating

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Abstract: *The ranking of the three curricula for blind children which are, in descending order, the standard school curriculum, the 'additional curriculum' of orientation and mobility and communications skills and the 'hidden curriculum' of social skills should be inverted. All children need to learn to create in a postmodern environment but in the education system there is too much emphasis on transformational or disruptive creativity and this particularly disadvantages blind children whose limited creative scope results from limited access to data.*

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## 1. Introduction

To consume is human; to create is divine. God, in whatever form she takes, is defined by the act of creation and is above the act of consumption; and although the notion of a personal god has become ever more marginalised in our culture - replaced by a lazy, spiritualist miasma - we have not thereby lost our anthropologically fundamental urge to create, to mimic, even metaphorically and incompletely, the divine attribute although, in using the word “incomplete” I acknowledge the Platonic paradigm which I personally reject.

Let me explain. There are two fundamental theories about creativity, <ppt1.2> The Platonic and The Aristotelian

Put simply, <ppt1.3>

*The Platonic theory says that every earthly object is an imperfect representation of a perfect object or archetype, a position which condemns all acts of creativity to inevitable shortcoming.*

<ppt1.4>

The Aristotelian theory, on the other hand, may broadly be summed up in the maxim: ‘the whole is more than the sum of the parts’and, therefore, honours creativity, no matter how halting. In the nature of humankind, it is the Platonic challenge that has goaded creators to aspire to the perfect, to aspire to the divine, and, in doing so they have imposed a massive weight of expectation upon creativity itself. In this sense, creativity is viewed in this titanic, 'Romantic' perspective not as a self-validating act but as a self-conscious representational act where the artist personifies the culture and extends or disrupts the tradition; this might be best summed up in the idea, crystallised by Shelley, that the poet is the ‘unacknowledged legislator of the world’[[1]](#endnote-1). It is the composer living in the shadow of Beethoven that must decide whether to extend symphonic rhetoric or find a new path; it is the novelist after Proust who must decide whether the novel as he wrote it can be extended or whether the only alternative is synoptic; it is the painters after Millet who must decide whether realism has reached such a conclusion that a break out into fundamentalist symbolism is the only route out of the impasse.

It was not always thus. Mediaeval architects and craftsmen did not autograph their work; composers like Telemann, Handel and Haydn thought of themselves primarily as paid journeyman musicians; and even Shakespeare had no aspiration to 'high art'.

It is my over-riding contention that <ppt1.5> Presentation Theme

* The Platonic paradigm of creativity, heroic but tragically flawed, still has an inordinate hold on our culture at the expense of what I might call Aristotelian constructivism

and that

* This, in turn, has exercised undue influence on our education system in general and on special education in particular.

In due course, I want to propose that: <ppt1.6>

* Margaret Boden's classic analysis of creativity is a useful analytical framework
* Creativity, as opposed to data consumption and processing, is the postmodern paradigm
* The breadth and depth of creativity depends on the breadth of consumption and the facility of processing
* There are peculiar difficulties associated with blindness which make consumption narrow, processing shallow and creativity deeply problematic

But before I proceed, I need to spend some time on the curriculum framework for blind children.

Because I want to concentrate on content rather than process, I should say that I am not going to enter the still smouldering controversy about whether blind children should be educated in segregated, special schools as residents or day attenders or whether they should be mainstreamed to be educated alongside their sighted peers; but my own position on this issue will clearly emerge in my fifth and final lecture.

## 2. Conformity and Blindness

The most commonly used framework for defining the tasks which need to be completed by blind children is a separation into three strands or 'curricula':

The Three 'Curricula' <ppt1.7>

* The standard curriculum
* The ‘additional curriculum’ and
* The 'hidden curriculum’.

### 2a) The Standard Curriculum <ppt1.8>

The Standard Curriculum is that which is legislated, regulated or in any other way set down as normative for all children and therefore peer normative for blind children unless specific or haphazard exceptions are made. The more exacting and rigid the Standard Curriculum the less flexibility there is for devoting time to the other two curricula.

Although technologies for learning and authoring have changed radically in the last half century, the basic content of Standard Curricula has changed little. The major change in terms of time allocation has been the priority set for information (and communications) technologies but except for teaching basic programming most of this time has been spent on enabling pupils to develop office skills. Blind children have been largely exempted from these activities until secondary school where they are classified as part of the 'Additional Curriculum’.

### 2b) The ‘Additional Curriculum’ <ppt1.9>

The 'Additional Curriculum' consists of

* Communications skills and
* Orientation and mobility

2bi) Braille

Clearly, the most central activity in this area is the ability to read and write. In most countries the emphasis has been on uniformly teaching blind children, in spite of their varying aptitudes and life chances, to read and write contracted braille where this exists, largely because the teaching of braille is the key professional identifier for specifically qualified teachers of blind children.

Braille is a code of embossed (raised) dots which represents all major scripts, together with punctuation and accent signs. Because its mass production until the late 1970's required hammering symbols into zinc plates, and as personal braille had to be hand transcribed using a stylus or a mechanical braille writer, reducing the characters generated was of vital importance which is why contracted systems were developed.

Here is the basic alphabet, punctuation and numerals for simple, English braille. The letters correspond exactly with other Roman script languages but punctuation and the necessity of accentation cause variations:

English Braille Chart by Rows <ppt1.10>

You will see that the basic unit is six dots in two columns or three rows. The first ten letters of the alphabet are on the top two rows only, with the next ten repeating the first ten but with an added dot in the left hand column of row three. An additional ten signs for the remaining letters of the alphabet and some accents are generated by taking the first ten symbols and adding a dot in the right and the left hand columns of row three. A further ten can be added by taking the first ten and supplementing it with a dot in the bottom row of the right hand column. Punctuation is generated by taking the first ten symbols which only occupy rows one and two and 'dropping' them into rows two and three.

Contractions are generated by: <ppt1.11>

* Using the dot combinations not utilised by letters, punctuation, numerals and accents
* Combining symbols into sequences and
* Interpreting symbols differently according to their context or position in a string

When teaching print to children there is a near identical sign for lower case b d p q which goes against the principle, for example, that a cup with a handle (not unlike these four letters) is a cup whatever its orientation.

But in contracted Standard English Braille the rules for assigning symbols are, as outlined above, much more complex:

A six-dot braille cell is capable of generating 26 minus 1 = 63. This means that combinations of dots not taken up with letters, numerals, punctuation and accents.

This is a problem for readers of one particular Roman script code but even more complexity arises when the same symbol is assigned different meanings in different codes. Because English is an unaccented language it has more symbols left over to use for contractions; so if you look at the right hand end of the third row you will see five symbols, which are, respectively in English and French:

Different Meanings of Symbols (1) <ppt1.12>

|  |  |  |
| --- | --- | --- |
| Symbol | English | French |
| dots 1-4, 6  | and | C with a cedilla |
| dots 1-6  | for | e with an acute |
| dots 1-3, 5-6   | of | a with a grave accent |
| dots 2-4, 6  | the | e with a grave accent |
| dots 2-6  | with | u with a grave accent |

And to take this a little further:

Different Meanings of Symbols (2) <ppt1.13>

|  |  |  |  |
| --- | --- | --- | --- |
| Symbol | English | French | German |
| dots 1, 6   | ch | a with a circumflex | sch |

The following is an illustration from English braille of what happens when we combine symbols into sequences:

Symbols in Sequences <ppt1.14>

Base letter dots 1, 3-5

|  |  |  |
| --- | --- | --- |
| n  | Prefix | Meaning |
| n   | dots 4, 6 | sion |
| n  | dot 5 | name |
| n  | dots 5-6 | tion |
| n  | dot 6 | ation |

Finally, one symbol can be assigned different meanings according to context:

Symbol with Different Meaning by Context <ppt1.15>

|  |  |  |
| --- | --- | --- |
| Base symbol | Position | Meaning |
| Dots 2, 5-6  | Beginning string | dis |
| - | Mid string | dd |
| - | End string | full stop |

That is quite enough of that to be going on with and I have only mentioned literary braille, steering clear of mathematics, science and even braille music and chess notation. But I hope you see my point.

If you compare the scope of this acquisition of symbolic literacy with print reading you will easily see that the braille reader has to spend much more time learning to read and write than the print using peer. But the problem, demonstrated in ppt1.15 goes deeper than that. You will recall that I showed the letters b d p and q as a similar object in different positions being assigned different meaning. That is quite a difficult concept but not as difficult as assigning meaning according to context.

There has been a considerable struggle to simplify braille notation and to teach contracted braille only to those whose secondary education requires it but with little success outside Scandinavia.

Because braille can now be produced from digital print files it is possible to access it through 'soft braille' devices where raised and lowered dots perform the same function as a word processing screen which makes it possible simultaneously to touch a braille symbol, hear its meaning announced and see it enlarged on a screen; but most learners are expected to learn braille solely with their fingers as if there is some merit in the process being made difficult, as if to listen or look is cheating. This screen reader technology would also, incidentally, make it possible for adults to teach themselves the simple braille for letters, numerals and punctuation in a couple of hours instead of taking extensive classes delivered by professionals. Earlier this year I went to one of the richest and most sophisticated countries in the world and found children and newly blinded adult learners segregated in a braille learning environment where they only had access to braille on paper. In the next room their peers were accessing synthetic speech and modified print collaboratively on computers which, incidentally, were equipped with 'soft braille' bars. This strategy associates the exciting tactile medium of braille with loneliness, misery and failure.

I have dwelt on this subject in such detail because for most blind children in the world, their primary education is almost totally tied up in this process, regardless of aptitude, prospects of secondary education and life chances. For most children, particularly in areas where they will make their living in agriculture, it is a form of complex, monastic practice totally removed from real life.

It is also important in considering the use of curricular time whether a child should learn how to write braille or whether it would be more effective to teach the child to use a standard keyboard for communicating with peers and keeping notes. Certainly the time required for creating contracted braille is excessive; and while it is vital for sound educational reasons that children should access text rather than using audio, the same consideration need not apply to the choice between writing braille and typing.

We should also remember that the technological environment is now making it possible to use text to speech (TTS) and speech to text (STT) on portable, comparatively low cost, devices such as smart phones. I came across this phenomenon last Summer in Ethiopia where the Government's policy - in line with most of the developing world - was to spend comparatively large funding on braille production and teaching while most blind people were using mobile phones with TTS and some with STT.

In summary, then, the default position for reading and writing should be:

Default Literacy for Blind Children <ppt1.16>

* Simple braille reading, and
* Standard keyboard writing, both
* Supported by synthetic speech and on-screen character enlargement

Finally on tactile media, a few remarks are required on tactile diagrams for science, geography and other subjects that require line drawings. <ppt1.17>

Blind people have to

* Establish an optimal trade-off between the detail they require and the quantity of spatial data they can retain given that
* The greater the detail the larger the area of information

The development of computer graphics that can be simplified and the use of stereoscopic lithographic apparatus (SLA/rapid prototyping/3-D printing) should make things a great deal easier for blind children because it will be possible to customise scale and the depth of the tactile object; but there is still an over-emphasis on making analogue, standard, master copies of tactile diagrams.

Which leads nicely into the need for much more customised print for those blind children who can either read print simultaneously with braille or who use it as their primary reading and/or writing medium. You will have heard of the concept of "large print" which usually describes the analogue production of a larger than standard size of print; but computer technology has allowed us to develop the concept of modifiable print which means that the following basic adjustments can be made:

Adjustable Attributes in Print <ppt1.18>

* Size
* Font
* Weight (density)
* Leading (space between lines)
* Kerning (space between characters and words)
* Justification (removing right-hand justification and proportionate spacing to avoid vertical space and vertical word stacks)

2bii) Orientation and Mobility

The second component of the ‘Additional Curriculum’ is orientation and mobility.

Orientation helps blind children to establish a sense of the relationship between their bodies and the environment: knowing "up" and "down", left and right, gauging available space. Independent mobility can only follow if the orientation is adequate. There is a serious case to be made that the teaching of independent mobility has become a professional identifier in the 'rehabilitation sector' in much the same way as braille has in the education sector. The use either of a guide dog or a long cane for independent mobility will never be the province of more than 10% of the blind population but the whole system is predicated on it. In developing countries it is readily accepted that it is far more important for blind people to be able to persuade their friends to walk with them or give them a ride in a car than to learn to walk unaided but there is a serious hangover in 'the West' from the days when most people used public transport. Nowadays most people use private cars and blind children should have mobile phones and community transport accounts but there is still a quasi-moral obsession with independent mobility just as there is with braille.

Emerging navigation technologies will reduce the need for sophisticated orientation and mobility skills but there is as yet no emerging technology in obstacle and hazard detection to be combined with them.

2c) The 'Hidden Curriculum' <ppt1.19>

Broadly speaking, the 'hidden curriculum' is that area of social interaction which we take for granted, such as

* Using our bodies to self-express
* Reading the body language of others
* Assessing our leverage in social situations and
* Using our resources to achieve individual and collective ends

It is not difficult to imagine how having little or no vision makes these basic operations so difficult. Young children learn by imitation but the blind baby does not see its mother's face. Perhaps this is why there are serious bonding issues between parents and blind children except, as far as I have experienced it, in Latin countries where parents routinely handle and cuddle their children. Ironically, the sense that the child needs to exercise most is touch but that is often denied with parents confining themselves to verbal communication, particularly in 'Protestant' countries where touch has been sexualised.

The absence of the development of imitative behaviour slows down general development particularly in social skills and makes it necessary for blind children to be taught how to play; but educators obsessed with the standard and ‘additional curricula’ and parents worried about the child's functional efficiency tend to dismiss play as a luxury that must be dispensed with. And in many parts of the world shame prevents blind children from socialising; and there are still many countries - and some rich countries - where there are special schools into which blind children are deposited and left to try to learn from each other which is, necessarily, mutually retarding. I once went on an animal safari in Africa with six blind children and they could not discuss what was outside as none of them could see.

The lack of bonding with parents is reflected in a wider social stiffness. Blind children are protected by their visual impairment from seeing a society around them which is frequently violent and brutal but which is also spontaneously joyful. I have noticed that many blind children grow into adulthood with a sense of detachment which makes them appear dogmatic and callous because they never see the physical end point of abstract theory.

One of the chief drawbacks of this lack of social interaction is the difficulty of social negotiation - if I need a friend to read a page of print to me what do I have to offer in return? - but the greatest deprivation is the loss of subtlety and beauty so that blind children are largely confined to ergonomics and functional efficiency.

## 3. Curricular Discussion

Not surprisingly, perhaps, my conclusion in the light of the above discussion but also taking into account the vital postmodern factors I will explore later, is that current almost universal practice should be reversed.

In terms of time, the Standard Curriculum dominates, the ‘Additional Curriculum’ eats up huge swathes of social time leaving little or no capacity for the 'hidden curriculum' which, as a consequence, remains hidden. For reasons which I will come to in due course,

Reversing priorities <ppt1.20>

The hierarchy of current priorities should be inverted so that

* Social interaction is paramount
* Communication skills are ranked second and that
* These are necessary preconditions for any successful interaction with the standard curriculum

But that, in any case, children's needs should lead the apportionment of time.

By and large, standardised curricula have damaged the development of children with disabilities but their teachers and carers and, even more significantly, policy makers, have been paralysed from making the case for intense personalisation because this would appear to fly in the face of the ideology which requires disabled children to be treated "the same as" their sighted peers. This, it seems to me, confuses two aspects of the way we consider each other:

Equality and difference <ppt1.21>

* First, we owe each other equality of concern and respect regardless of any set of attributes but
* Secondly, having said that, we treat people differently according to their attributes and aptitudes

Just as we would not subject a brilliant pianist to a standardised curriculum, nor should we subject people with different disabilities to a standard curriculum.

A final thought on the 'hidden curriculum'. With respect to the particular needs of blind children, the situation is relatively clear compared, say, with that of children on a broad spectrum of learning disabilities. Blind children cannot read facial expression and find it difficult to de-code ironic behaviour where our speech and facial expressions contradict each other or which are, at the very least, ambiguous. We can let this example stand for a general problem of physical gestures except for touch where in many cultures now, as I have just noted, touch has become so sexualised that it is deepening the isolation and consequent aberrant behaviour of blind children. At one time educators from the 'west' used to deplore the faith-based taboo on touch in developing countries but only Mediterranean Catholicism and its Latin American cousins and South East Asian Buddhism still offer tactile experience to children without embarrassment.

Which brings me back to the standard curriculum with all its variations.

All over the world educators are questioning the use of the standard curriculum. Specifically with respect to our topic, in 'Western' countries it is proving problematic for children with a wide variety of special needs; in the UK, for example, 20% of the primary school population is in receipt of some kind of special provision. More generally, the acquisition of information passed on by hegemonic teachers is anachronistic; increasingly in some subjects such as information technology, children know more than their teachers. The world market in skills questions the need of every country to be self-sufficient in every subject. The area of greatest failure is that which requires, as we shall see, most success, and that is in self-expression and creativity which leads me into a discussion of the work of Margaret Boden[[2]](#endnote-2).

## 4. Creativity and Blindness

Boden divides creative output into three kinds: <ppt1.22>

* Novel combinations of familiar ideas - collage
* Exploration of the potential of already inhabited spaces - variation
* Transformations - disruptive development

The first classification - novel combinations of existing ideas - which, in musical terms, would involve devising a medley from a pool of all known tunes - is fundamentally non-Platonic and the assembling of fragments of already imperfect objects into a new object (what our contemporary culture calls bricolage) is a very Aristotelian idea; and it is one that is now very much part of our culture. In the digital age we are increasingly seeing creative artefacts as work in progress rather than as end products. Indeed, throughout the 20th Century many famous poets, composers and painters came to see all their work as provisional. The difference between then and now is that then the provisional works were still reserved for the creator's revision; but now we take other work and enhance it, comment on it, impose ironic inference and, in the elements we chose, use external material to make a public statement about our own personality.

Boden's second classification - exploring inhabited spaces - is easiest understood in terms of jazz. The chosen theme or space provides a framework, there are rules (in this case the available notes) which dictate what material can inhabit the space but the author is free to improvise the arrangement. This, too, is inferior in Platonic terms because the initial space is imperfect and so nothing perfect can emerge from its exploration. Again, however, in Aristotelian terms it is perfectly acceptable because the new whole is clearly more than its initial parts; we only have to think about the very different outcomes produced by Duke Ellington and Miles Davis from the same 'standards' material to see the point.

Boden's third classification, which involves effecting transformations, is, of course, the real thing in Platonic terms although still ultimately doomed compared with Aristotelian constructivism.

Let me now go back to my opening statement and develop it a little before making some positive proposals about creativity and the education of blind and visually impaired children.

“To consume is human; to create is divine”, I said, but there is a much more mundane formulation of which we ought to be aware. In a market economy, survival depends upon an individual balance between production and consumption; we need income in order to buy things. In an information-based economy, by extension, to consume content is not enough, we need to contribute by using the creative process.

Along with my initial contention that the education of our children has suffered from the Platonic paradigm, I also want to add an observation to be explored in detail in my Fourth Presentation, on Technology, that since the advent of the world wide web and other digital technological developments, we have concentrated far too much on accessing and processing information and not enough on creating it.

Now let us return to Margaret Boden's classifications and see how far we can go.

First of all, to generate collage is the core creative activity of the lives of most people; we do not aspire either to be jazz musicians or composers but we can assemble a bunch of our favourite tunes, put them in some sort of coherent order and, say, download them into our iPod. Some of us might then be able to invent simple bridging passages to string together tunes with a common theme, using autobiography, geography, language or a star's discography as a framework; for example, tunes that remind me of different periods of my life, tunes about water, the history of the drum, French in English popular music, Frank Sinatra. Collage and bricolage are in tune with the postmodern zeitgeist.

At another level we might take different fashion items from different cultures - a black velvet frock coat, a West African embroidered shirt and a pair of designer blue jeans - and put them together as an outfit. Of course, much of this kind of activity is imitative or repetitive but it is the basis for exploration. What it involves is a keen and subtle sense of sameness and difference that goes beyond rigid rules such as: "You never wear jeans at a formal dinner” or "You never wear a black velvet frock coat on informal occasions".

In other words, if people can get a firm grasp on sameness and difference and how the collage they assemble reflects themselves, either as conformist, heterodox, untidy or anarchist, we can begin to create. It is my suspicion that we do not explore this idea with blind children as fully as we should. If, for example, we take three typefaces and emboss each of them in stone, wood and brass, there are two kinds of sameness and two kinds of difference: the sameness of the material or the sameness of the typeface; and the difference of the material and the difference of the typeface. We can then ask a child to assemble a string from: <ppt1.23>

* The same typeface in the same material
* The same typeface in different materials
* The same material but different typefaces
* Different materials and different typefaces

The last of these is the most challenging and important because it can either involve the deliberate breaking of rules or the statement that there are no rules. It also enables the creator to perform structurally significant tasks, such as assembling the material to reflect syntax and content or Make aesthetically pleasing patterns.

Turning now to the second of Margaret Boden's classifications - exploring inhabited space - I have always thought that this plays to the real strength of blind and visually impaired people. Collage partly depends for its effect upon the range of available material and blindness limits access to peer normative range whereas exploration depends upon an intensity of understanding of the inhabited space. On this basis I have always been surprised by the small number of blind and visually impaired musicians who play jazz rather than simply learning consumed works by rote which is much more difficult and less creative. The intense exploration of given form also, as I have implied, reduces the need for the assemblage of resources.

In the media, for example, this kind of activity covers most of the main money-making genres:

Media Variations <ppt1.24>

|  |  |
| --- | --- |
| Soap opera | Phone-in |
| Sit-com | Criticism |
| Chat show | Reality TV |

In other words, any form which is relatively fixed and where the key element, once the genre or theme is understood, is variation.

There is a contested territory between this form of creative variation and what Boden would classify as transformative, exemplified in the late symphonies of Mozart or the Beatles in *Rubber Soul* and beyond. This raises an interesting point about the necessary ecology for transformative creativity which almost always arises on the solid base of explorative enterprise: Shakespeare in 16th Century England; Beethoven in 18th Century Vienna; Proust in late 19th Century France; and perhaps, above all, Leonardo da Vinci in 15th Century Italy.

For almost all of us, our creative lives will be confined to Boden's first two classifications and we should not be ashamed of this; this is where almost all creative life is lived; and it is also where most money is made.

Let me, then, even in advance of setting out a more general framework, explore some creative solutions for blind and visually impaired children in addition to the simple analysis of sameness and difference I have already used as an illustration.

4a) Heterodoxy. The one thing we most urgently need to do is to engineer an environment in which blind children can be heterodox without doing themselves undue - and I use that word advisedly - harm. When seeing children learn to read they do so in the recognition that this is the road to rebellion; it will give them access to forbidden material, from rude words in The Bible to information on drugs. Whatever the content of magazines, seeing children will opt for those aimed at children older than themselves. They also recognise very quickly that visual imagery is subversive and that multimedia, such as television, can be ambiguous and contradictory (as the man tells the woman he loves her while his eyes tell the camera he does not). The development of the internet has made this heterodoxy ever more amenable.

For blind children, on the other hand, learning to read is an act which reinforces conformity and therefore widens the gap between them and their peers, condemning them either to naiveté or anger.

Given the duty of care of teachers and care workers this is a difficult area; but my acid test would be something like this:

Self-awareness <ppt1.25>

A child must be able to:

* Protect herself from abuse
* Make an evidence based decision on drugs
* Make deliberate statements about conformity and heterodoxy.

At root, we cannot conform or rebel unless we know about sameness and difference; and in spite of highly idealistic statements, most of the way we reach self-understanding is through comparison; but, more fundamentally for our purposes, we cannot create without a deep understanding of keeping and breaking rules; and we spend too much time on the first and not enough on the second. There is a certain amount of money to be made out of producing rule-based products but increasingly these are being made by machines.

4b) Objectivity. One of the problems if you cannot see is that it is difficult to see yourself from the outside. By this I do not mean that blind children should conform to outside expectations, not least because these are usually stereotypical and domineering, but that assigning objective value to what we are and do is a necessary precondition for creativity. Achieving this can be terribly painful and it is particularly difficult if you have limited or no vision; but the venture must be undertaken with firmness and sensitivity, leading people to play to their strengths and keeping some kind of control (no more than that) over their weaknesses.

4c) Collaboration. Standard curricula which place such emphasis on the autonomous achievement of standard tasks is a disaster for disabled children who can only survive, like most of the rest of us but, to an even greater extent, as collaborators. This involves an understanding of other people which allows us to negotiate. My major criticism of mainstreaming strategy - which educates blind children alongside their sighted peers - is that it does not put enough emphasis on empowerment and negotiating skill but is too mechanically oriented; is it more important to learn independent long cane mobility or how to ask for a lift in a car? Most of our lives, from the bedroom to the board room, involve trading and collaboration and this is a fundamental part of modern, democratised, mass cultural creativity but too often these skills are not developed until children leave school for further training.

4d) Self Esteem. At root, at the very foundation of my thesis, however, is the concept of developing self-esteem. We cannot collaborate, develop objectivity or even be constructively, as opposed to negatively, heterodox, without self-esteem; and one very strong element of self-esteem is the ability to create. So here we have a symbiotic, dynamic relationship between self-esteem and creativity, we cannot have one without the other.

## 5. A New Framework for Education in a Postmodern Context

Let me now pass on to look at how I think the curriculum should develop in a postmodern context before looking at how this will particularly affect blind and partially sighted children.

I am going to cover four topics: <ppt1.26>

* Searching
* Synthesising Design
* Marketing and
* Publishing

These may look rather odd subjects for a school curriculum but I am simply using commercial terms for familiar ideas to give them a little more edge; traditionally I might have used the terms: <ppt1.27>

* Teaching
* Synthesising
* Producing

Before I go any further, however, I just want to mention what I have left out:

<ppt1.28>

* Arithmetic and mathematics
* Fact based subjects, e.g. basic science, geography
* Second languages.

I am not saying that these are not important but that they should be optional. Children should be obliged to handle the basics I have outlined but other subjects are not core; indeed, if we look at what I have outlined we will see that the items are all processes, not core subjects at all.

The main controversy will be around arithmetic and mathematics. Most children will naturally opt for arithmetic but very few will bother with mathematics and this is understandable because it is a difficult subject made up of a compound of skills some of which are much more salient in women and others in men. If we taught spatial mathematics separately from symbolic language mathematics we would achieve better results; but the world does not need all that many mathematicians; and, for that matter, the world only needs enough arithmetic to check whether the machines are correct. We have to know the processes for getting answers but we do not need to undertake long multiplication and division. In any case, my experience of those who are traditionally classed as innumerate can count their change and work out how their football team will be ranked vis a vis the opposition given a wide set of variables! Conversely, we cannot ever have enough creators and designers in all three of Boden's categories because that is not only where humans are fulfilled but where economies gain strength.

Let us look at my four topics:

### 5a) Consumption/Searching

The difference between searching and acquiring is that the first is open and the second is closed; the first is always available and the second is time limited. I other words, searching in open systems is a wholly different experience from sitting in a classroom with a subject teacher and a single textbook being 'taught' a subject. In teaching the teacher decides the content and the sequence; in searching the data floods in in a random order of relevance and quality, largely dictated by commercial concerns.

Evidence so far suggests that people are not particularly good at evaluating information: they are excellent in clear-cut cases such as, say, weighting the reliability of the BBC versus a blogger, but they are not very good at evaluating sources which look the same. The other really vital but absent skills are the ability to get past preliminary assessment to weight and then rank. Our postmodern culture is singularly poorly equipped for weighting and ranking because of its suspicion of grand narrative and hierarchy and its insistence - against all common experience - that all opinions are of equal value, excepting one's own which are naturally superior!

But to refuse to weight and rank is not only a great waste of time but it leads to deeply flawed analysis. What this means in essence is that we need our teachers to be wise advisers on data selection rather than being powerful monopolists. We have already seen in our discussion on heterodoxy that this has particular relevance to blind children.

### 5b) Synthesis

The only term that is in both lists is synthesising. As the quantum of data is now almost unlimited it presents an acute problem of synthesising. In the modern era the data set was relatively small but it grew out of a tightly knit complex of cultural, ethical and occupational paradigms with their associated taxonomies. In modernism the synthesis was objective; in postmodernism it is personal. This may sound both egotistical and gratifying but it is in fact a massive shift of responsibility. In modernism data, methodology and outcome were tightly tied together leading through formalist education systems to higher levels of education and to employment. If we look at my short list of standard curriculum items we will see, as I have already noted, that it consists of highly generalised skills and promises nothing. The individual has to become involved in a permanent dialectical process between envisioning and acquiring. There will continue to be some parts of the world where the old modernist system will be maintained because the political dynamic is monolithic and because key opportunities will be in mass production but 'The West" will steadily move away from these concerns. Again, quoting from experience, the current situation in Russia which is poised between these two dynamics is a fascinating case study.

### 5c) Marketing/Publishing

My list puts marketing and publishing up against producing and this is not insignificant. In the modernist era of formal education pupils produced for a highly particular purpose; they wrote essays and examination papers for teachers and examiners as a necessary precondition for writing reports on the elegance of process and the attributes of mechanical design. But today with our digital technology we produce a basic artefact and then consider how we might customise it for a variety of end users. On the whole we are not as good at this as we might be because of our eccentricity. One of the characteristics of contemporary publishing is its sheer self-indulgence, its lack of focus and self-control, its abandonment of the attractions - and they are attractions - of formal elegance; we have raised the stakes in graphics design but lowered them in the design of language.

In summary, then, what happens in schools is about to change radically in countries with dynamic democratic political systems and economic ambitions to operate in the digital economy. I now turn finally to the implications of these developments, in the context of the three curricula, for blind children.

## 6. The Education of Blind Children in a Postmodern World

In this final major section of my presentation I want to take up two theses which I stated at the beginning, namely: <ppt1.29>

* The breadth and depth of creativity depends on the breadth of consumption and the facility of processing
* There are peculiar difficulties associated with blindness which make consumption narrow, processing shallow and creativity deeply problematic.

At first sight, the first thesis is so obvious that it hardly needs discussing. All but a few very specialist creators - mystics, hallucinators, people on that fascinating cusp between genius and madness - a group even narrower than Boden's transformative creators, is creatively naive, innocent of the conscious processes of data consumption, processing and publishing. Boden's transformers, far from being rootless revolutionaries, are absolutely steeped in their inherited milieu: Shakespeare's lexicography, Beethoven's classicism and Titian's formative technique all bear witness to a broad and deep understanding of the soil out of which their transformations grew. We might argue that transformation requires a deep and subtle understanding of what is in order to know how to break the rules in a way other than complete negation. Beethoven's transformation of language in his middle period symphonies, Joyce's projects in *Ulysses* and *Finnegan's Wake* and Picasso's *Les Demoiselles d'Avignon* are all bursting with knowing subversion.

We might further argue that those who confine themselves to exploring known space and authoring variations on a given theme need less depth of understanding but they still need to grasp the mechanics of the process. In their case the vital ingredient is the broadest possible range of material: A writer of light romantic fiction requires enough knowledge of, say, China, Caracas and Constantinople in order to sketch in just enough backdrop and mores to make the narrative credible; a rock musician needs a basic understanding of harmony and structure in order to modulate from the known to the unknown and needs to know enough of the current musical vocabulary and contemporary oeuvre to avoid plagiarism; and painters require visual stimulus in landscape, structure and the nature of light. Having acquired material it is respectively recognised that the writer will need facility with syntax, the guitarist will need to play the guitar and the painter must be able to draw and paint.

There are four major obstacles to the blind child's acquisition of peer normative material: <ppt1.30>

* Fundamental - inability to see visual data
* Intermediary - inability of peers and teachers to describe
* Interpretive - problems with assigning weight and significance
* Quantitative - limited access to data

### 6a) Fundamental

The chronology and symptoms of limited vision have a direct effect on visual perception: at one end of the spectrum is the child born totally blind and at the other the child who suffers limited visual loss late in her education. The nature of residual vision is so diverse that it is impossible to go into detail at this point but we can make a few helpful generalisations: <ppt1.31>

* Congenitally totally blind children face acute problems because they have no understanding of colour outside normative frames of reference - i.e. the grass is green, the sky is blue
* Many children with residual vision find it difficult to distinguish their perception from peer normative perception
* In many parts of the world the situation is aggravated by a 'zero sum' analysis which treats sight like money (the more we spend the less we have) rather than love (the more we spend the more we have)

### 6b) Intermediary

It is one of the great scandals of the blindness and visual impairment sector that professionals (and parents) who work closely with blind children are not taught to describe even the simplest of objects concisely. Thus, the initial setback of not being able to see visual data or being able to see it less distinctly or extensively than is peer normative is compounded by a lack of intermediate facilitation.

### 6c) Interpretive

Difficulties with the functional do not rule out facility with the interpretive but there is a clear connection. Meaning is adduced from evaluating a particular experience against all previous related experiences. Over and above the high probability that the range of related experiences will be lower than peer normative the interpretation of any specific instance will be influenced - and almost certainly narrowed - by the difficulty of capturing the basic data at a functional level. There will be exceptions but it is fair to say that in general terms the poorer the vision the less likely it is that an accurate interpretation will be adduced. Paradoxically, perhaps, although this leaves the totally blind child worst off at least people know how bad the situation is, but even professionals find it difficult to know how to evaluate the interpretive output of children with residual vision.

Overall, however, it is safe to conclude that interpreting the relevance of visual data presents problems for children with limited vision and, as might be expected, this problem is exacerbated by visual ambiguity, irony and paradox, all saliently postmodernist phenomena.

### 6d) Quantitative

The quantitative limitation breaks down into three components: <ppt1.32>

* Limited data
* Limited search time
* Limited intermediary time.

6di) Limited Data

Over and above problems of perception in interpreting graphical data to which we have referred, there is also the additional limitation of access to symbolic language, primarily written script. I will deal with this in more detail in my Fourth Presentation on contemporary information technology and its implications for blindness and visual impairment but a few points will give us enough material to make the argument hold:

* Increasingly, script is being made available through graphical media which are not 'readable' by a screen reader; even the pdf format presents many screen readers with some difficulties
* Even if the only text that is taken into our calculations is manipulable - excluding information from the previous point the quantity makes searching slow and difficult
* Data rendered by screen readers lacks clues as to provenance and authenticity.

6dii) Limited Search Time

Paradoxically, of course, search time limits access to the much smaller pool than that available to sighted peers. While a person with normal sight can rapidly scan a massively complex web home page, a screen reader must laboriously access the material line by line.

6diii) Limited Intermediary Time

Accurate description, particularly by inexperienced intermediaries, consumes massive amounts of time. Compare, for example, the time it takes you and me, both avid art lovers, to grasp the significance of a photograph of the street outside this university: will take in all the features on offer and might edit your recollection to coincide with your interest in architecture, history, the weather, social mores, urban sanitation, pretty girls or an unusual happening. For you this takes an instant, for me it takes minutes. Then think about more subtle visual objects and you will immediately infer that the more complex and subtle a visual object the longer it will take to render an audio realisation.

We can now see an emerging picture which I will summarise before drawing conclusions: <ppt1.33>

* Data consumption is peculiarly problematic for blind children in terms of its quantity and its authenticity, its proximity to the authorial intention
* The data gap between blind children and their sighted peers widens proportionately as the quantity of data increases (regardless of any absolute increase for blind children)
* Modernity's tendency to 'impose' a data set has been superseded by postmodernity's tendency not to impose a data set
* Postmodernity calls primarily for an individually published reaction to the global data set of personal and received experience.
* Postmodernity is lax in its rules on the distinction between objective and self-identifying phenomena and between physical and virtual objects

## 7. Conclusions

Before reaching some fundamental conclusions, it would be as well to summarise some basic points: <ppt1.34>

* All professionals working with blind children should be taught how to describe objects and situations clearly and richly
* all blind and partially sighted people should be taught to exploit their residual vision
* Skills development should be peer normative and based on life chances which, by and large, means that
* The 'hidden curriculum' must be laid bare and given priority both over the ‘additional’ and regulated curriculum.

It will emerge in my final Presentation that I think that formal education has changed very little since its expansion to meet the challenge of the need for a basically literate working class. Techniques for teaching children to read, write and calculate have been the subject of constant research and controversy but the basic modernist assumption of a fixed dataset processed autonomously and competitively is still ferociously championed by a middle class which quite correctly recognises that this particular paradigm favours its children.

Compounded with this - the calculation is a multiplier not an addition - we have the fundamental conservatism of special education which, for very good ethical reasons, recognises that its children must be nurtured and protected with minimum risk. Then we must also factor in the self-identity of the professional with specialist techniques related to the sector such as braille and independent mobility.

With this somewhat bleak situation in mind, the necessary precondition for change is to recognise the situation in which we find ourselves. Once we recognise how entrenched the modernist curriculum is, we can begin to pose ourselves the critical questions: <ppt1.35>

How should we strike a balance between learning about the world and creating our own identity in it?

* How should we, therefore, balance directed learning and the space for serendipity? and
* How should we - paradoxically - cultivate heterodoxy?

If we can answer these questions we will be able to establish a way of moving forward. <ppt1.36> contact details

1. Shelley (1792-1822): A Philosophical View of Reform (1819-20), unfinished [↑](#endnote-ref-1)
2. Boden, Margaret A.: Creativity and Artificial Intelligence, Artificial Intelligence 203 (1998), 347-356 [↑](#endnote-ref-2)