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Meeting the educational needs of multiple birth children

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KEYWORDS

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Abstract There has been a significant increase in the number of twins and higher multiples so that one child in 33 is now a multiple. It is therefore not unusual for schools to have several sets of twins, as well as triplets and even higher multiples. By being the same age and in the same school year if not class, twins and higher multiples are not like brothers and sisters born closely together. Teachers and parents need to be aware of particular issues that may affect the physical, intellectual, personal, social and emotional development of multiple birth children, and to ensure that school policy and practice include this special group of children and parents. These issues include: preterm birth catch-up and implications for starting school; the balance of competition and cooperation among multiples; separation in school and the evidence from recent longitudinal studies; legislative and other initiatives on the development of school policy; the particular needs of higher multiples.

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1. Introduction

Being a multiple is not a disability, although the children may need special consideration. Some of the advantages of being a multiple are:

- a unique and special relationship that is not available to singletons;
- an understanding about sharing and waiting for adult attention from early in development;
- having a companion and friend available, particularly when experiencing new situations such as starting school;
- having a competitor who can spur his or her sibling(s) to do better.

However, as Thorpe [1] points out, the closeness of twins may actually impede aspects of their language development. The present paper addresses the following key issues

1. What are the areas at school where twins and singletons may differ for biological or psychosocial reasons?
2. Is there a model for optimal relationships between twins both in primary and secondary school?
3. Unique to twins and higher multiples is the issue of whether or not they should be in the same class. Should there be a formal school policy, teacher training and (coming now from the USA) legislative initiatives?
4. What are the particular issues of higher multiples where disability is more common?
5. What further research is needed, especially around why twins are separated and which pairs benefit from separation or being kept together?

2. Differences between twins and singletons

What are the areas at school where twins and singletons may differ for biological or psychosocial reasons?

While the distinction between biological and psychosocial aetiology may seem contentious, there are actually two quite separate considerations here. The first concerns the consequences of a purely biological issue, namely gestational age. Many multiple birth children are born preterm and the combination of gestational age, low birthweight and intrauterine growth retardation [2] may affect their development. The actual date of birth may be extremely important where school areas use rigid age cut-offs, with preterm children being forced into the school year above their 'correct' year if they were born extremely early. When assessing such children, it may be helpful to compare them with the year group below, to see if their development and performance is more in line with that group. Parents and teachers may consider delayed school entry if that is possible, or additional time in the early years setting in order to allow such children further time to develop.

However, there are two significant obstacles. The first is a lack of good norms on the rate at which preterm twins and higher multiples catch-up in their development. Buckler [3] provides some data on physical development and also makes some very salient points about how being small (especially relative to one's twin) can result in disruptive behaviours. Data on behavioural development are much less adequate.

While the main source has been the Louisville Twin Study where the main cohort were born in the late 1960s and hence may not be typical of more recent multiples, data from more recent longitudinal studies such as the Twins Early Development Study (TEDS) should help redress this issue [4]. The most recent summary of the Louisville Twin Study [5] suggests that the ability for twins with birthweight <1750 g to catch-up in IQ by age 6 was closely associated with parental socioeconomic status, a result echoed by the Swedish SLU Study [6].

As well as having limited data on how and when multiples will catch-up, there is also a question of whether exposure to other children will help them. Thorpe [1] summarised some of our earlier work [7], which showed that twins may not benefit from the preschool environment if they are so "closely coupled" (a concept expanded upon later) with each other that they do not interact with the other children. Thus, the decision whether or not to postpone the start of school must be based not only on the degree of immaturity of the multiples, but on a realistic appraisal of what such a postponement may achieve. Our website www.twinsandmultiples.org [8] provides a downloadable checklist, which parents and teachers can use in discussing school readiness.

The issue of pre- and perinatal insults on behavioural development in twins is complicated even further by differences between behaviours, with larger effects found for speech and language than for attentional problems [2]. Attentional problems may contribute to the long-debated effects [9] on IQ of being a twin and whether the loss of a twin at birth leads to IQ being no different from the singleton norms. This would argue for a psychosocial explanation of any twin-singleton difference, though it does seem unlikely that the events such as very preterm birth that lead to the loss of one twin would have no biological impact upon the other twin. The issue has been reignited with the recent analysis by Ronalds et al. [10] of data on twins and their siblings born in Aberdeen, Scotland between 1950 and 1956. There was a difference in IQ of 5–6 points at ages 7–9, which could not be statistically accounted for by socioeconomic or family variables but which was associated to some extent with birthweight and gestational age. Going on as they did to explain prenatal growth and preterm birth as being major contributors to the IQ difference has statistical problems, given the group differences between twins and singletons and is totally confounded with any twin-singleton differences in rearing style and practices. Furthermore, obstetric management and success rates of multiple pregnancies are of course very different now than 50 years ago.

Although this study [10] may have little to say about twin-singleton differences in IQ, it is a useful exemplar of using routine school datasets collected for unrelated purposes to examine twin-singleton differences. In 1975, the first Australian National Survey of Literacy and Numeracy asked if the children were twins and this was the basis for our extensive study of twin-singleton differences in reading [11]. Both female and male twins were on average significantly behind the basic milestone of "mastery" in the younger cohort aged 10 years but in the older cohort aged 13–14 the twin girls had caught-up, leaving the twin boys far behind—less than half had adequate literacy compared with over 70% of the singletons and the twin girls. Examining

the data on individual items, the boys were clearly making simple mistakes misreading digits and letters, consistent with problems with attention or impulsivity rather than reading disability per se.

The findings of this study led to a more targeted approach to attentional problems in twins and the finding [12,13] of higher rates of ADHD in twins, but not of any other externalising behaviours. ADHD symptomatology was associated with delays in speech and language development but not with any pre- or perinatal complications, except in the very small group of MZ twins discordant for the inattentive type of ADHD. Invariably, the twin with ADHD had experienced respiratory problems at birth. This was not found in DZ twins. (Our Australian Twin ADHD Project is extensively described in Levy and Hay [14].)

While ADHD itself has a major genetic component, it is easy to see how any increased problems with attention and impulsivity in twins could be due largely to their unique family situation, never being able to concentrate on one thing because of the constant interference from the other twin and having to get in quickly, if the adult is going to attend to them rather than their co-twin. Indeed, focussing on these two aspects of behaviour in the preschool can be the basis for diminishing if not eliminating one of the key twin-singleton differences. Their behaviour is adaptive for the multiple birth family but not the school situation. While attentional difficulties and language problems are more common in boys in general, twin boys can be at a double disadvantage, though to avoid a self-fulfilling prophecy it is important to emphasise male twins who are high achievers.

Sadly, subsequent Australian National Surveys have not identified who is a multiple, though this has been done in the UK in the Performance in Primary Schools Study (PIPS). In the UK Study [15], any twin-singleton differences were much less and it would be useful to know if this were related to the UK cohort being younger, to the measures used or to differences in the management of multiples between these cohorts born some 12 years apart.

3. Twin versus individual

How can the balance of being a twin and also an individual be achieved?

Multiple birth children are not able to develop personally, socially and emotionally in the same way as singletons. There is always the co-multiple(s) present for direct comparison and competition. Although siblings are compared and rival each other trying to establish dominance, the relationship may be more intense for multiples and fuelled by parents and relatives with such comments as “Who is doing better at school?” Much of our earlier work focussed on the extent of such comparisons. Even something as basic as asking “Which twin is the firstborn?” establishes stereotypes of differences between the twins, even in the current absence of much difference in perinatal outcome with birthorder. Hay [16] provides an even more extreme example from twins born in the 1970s in Australia when it was routine to send one twin home first to give the parents some experience before sending home the second. Even in the absence of any significant perinatal health differences between the twins, the one who came home first was

perceived at adolescence to be “better” on many measures of self-esteem and behavioural development.

If one multiple birth child is always compared to the detriment of the other, he or she may lose self-esteem and opt out. The children themselves may become over concerned with comparing themselves, looking for differences to indicate that one is better than the other. Both adults and children need to consider the positive aspects of each child. This may be difficult if one child always seems to achieve more. If one receives an award and the other does not, it can be hard to reward one whilst consoling the other. Multiples may need help to understand that life is not fair and that they can not always be treated in the same way or have the same. Teachers and parents can help by praising each child for their achievements and helping multiple birth children to be pleased when their co-multiple has success. Parents and schools must also realise the unintended consequences of such actions as putting both twins in for a competitive place at a selective entry school and what will happen if one gets in and the other just misses out.

If the children are placed in context with their peers, a bigger picture may help to understand that comparison is not just with one’s co-multiple(s). It is important for teachers to arrange separate parental consultations for each child. Both parents and teachers need to focus on the individual child’s learning and progress within the class, avoiding negative comparisons with his or her co-multiple(s). Paradoxically, the opposite problem can arise when the other twin has a disability with more emphasis being placed on that twin and her/his successes than those of the co-twin [13]. A good example is provided by the finding of high rates of internalizing problems in the co-twin (and to a lesser extent the non-twin siblings) of twins who have ADHD [17]. In this case, the problem can be the co-twin’s embarrassment in school over the behaviour of the ADHD twin.

Central to personal, social and emotional development is an awareness and understanding of self with the development of a positive self-image. By school age, children place themselves in categories such as age, size and gender, referring to qualities and characteristics as well as to appearance. However, for multiple birth children, there is the additional category of ‘twin’, ‘triplet’ or more. Their concept of self and their development as an individual is inextricably linked with how far they and others perceive them to be a unit. Some multiple birth children are so dependent on each other that they are unable to function as individuals.

The relationship between multiple birth children varies from those who seem distinct, independent individuals to those who only seem to be able to function as a couple or unit. Based on Pat Preedy’s work with parents of multiples, their teachers and principals [18] and many years experience as a school principal, as well as extensive reviews of the literature including that on families’ views of growing-up as a twin [19], the following classification of three ‘types’ of multiples was developed. While there is no scale to assess which twins fall into which category and no real data on the proportions of twins in each group, every parent, teacher and more mature twin will relate to this grouping. Given the rate of twins in the population, there is need for the development of some more formal assessment tool that

could be used to determine how discrete and common these categories actually are. The popular literature on very unfortunate twin pairs [20] would argue for there being many “closely coupled” pairs and this seems to have shaped the views of many teachers on the need for separation of twins in school (Fig. 1).

4. Together or apart?

Unique to twins and higher multiples is the issue of whether or not they should be in the same class. Is there any evidence as to whether this is good or bad?

Given the growing multiple birth rate and the fact this is an issue for all such families, it is amazing that so little has been done to answer the question of whether, why and when twins or higher multiples should be in the same or different classes. And this is not a new issue. In 1966, Koch [21] referred sardonically to the idea among teachers that, with twins having spent their life together since conception, they could adjust easily to being in separate classrooms. There have been two large studies of parent and teacher views of separation in schools, firstly in Australia [22] and subsequently using similar questionnaires in the UK [18]. Apart from parental request, the most common reason for separation in both countries was “to develop individuality”. Our extensive searches of the literature have found no evidence for separation in school as a means of achieving this. There are pathological cases such as the Gibbons twins [20] whose closeness was such that only the death of one twin “freed” the other, but no data on the vast majority of multiples. And it would be unlikely that there would be one simple solution for all multiples. Table 1 summarises three issues from the Australian and the UK studies, namely general factors to consider in being together or separate and thirdly some issues about when separation may become most appropriate for particular twin pairs.

Until recently, what limited data that exist on the effects of separation were based on children who were already

together or apart [22], so it is not clear whether any problems were the cause of the separation or the consequence. Two recent studies in the UK and the Netherlands have followed twins since early in their development and well before separation, so groups can be matched before separation. The TEDS study in the UK [23] sensibly took into account that twins separated early may be those with profound differences in ability or disability. Even after this, those separated early (at age 5 and just starting school) had more internalising problem behaviours and this was more likely to continue for MZ pairs. In Australia, our data indicate separation at this age is unusual [22], but the TEDS study also looked at those separated for the first time the next year and found more internalizing and reading problems in the MZ pairs, despite having shown no differences on earlier assessments.

The results of the Dutch data [24] are more complex, though giving the same message. There were some differences even before separation, which make it more difficult to identify what is specific to this decision. By age 12, there were minimal differences between the groups. There are two ways to view this result. Is the measure they used, the widely used Child Behavior Checklist, which screens for psychopathology the right one to use here? Or does it mean there is simply no advantage in separation and that as the authors say (p. 390) “the decision about classroom separation should be based upon what parents think is best for themselves and for their twins”. Certainly, there is no evidence separation is necessarily better and more thought needs to be given as to which twins may benefit from being together or apart.

Putting multiple birth children into separate classes requires careful consideration and consultation with parents as most multiple birth children have had little or no experience of separation prior to starting school. Generally, multiples who are ‘mature dependents’ cope with all school situations and are happy together or apart. Children who are ‘closely coupled’ may benefit from separation but can find this traumatic if school is the

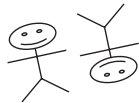
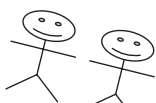
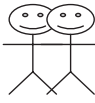
“Extreme Individuals”	“Mature Dependents”	“Closely Coupled”
 <p data-bbox="397 1527 624 1804">Multiple birth children who find their relationship with each other restrictive to such a degree that they may fight, deny their multiple birth relationship sometimes polarizing to opposite extremes in order to establish their own identities.</p>	 <p data-bbox="639 1527 963 1625">These are multiple birth children who enjoy their relationship with each other functioning effectively both as multiples and as individuals.</p> <p data-bbox="639 1655 938 1753">They are able to pursue their own interests and friendships without resenting or over-competing with their co-multiple(s).</p> <p data-bbox="639 1783 948 1923">If they happen to have the same interest or talents as their co-multiple(s) they still pursue that course aware that being an individual sometimes means doing the same as your co-multiple(s).</p>	 <p data-bbox="984 1527 1211 1881">Multiple birth children who act as though they are a couple or unit and are mostly treated by other people as one unit. The children may respond to both names interchangeably and be unable to recognise their own mirror image. They have few or no friends outside of their twinship and may combine to be a powerful unit.</p>

Figure 1 Recognising the three types of twins.

Table 1 Common issues from the Australian [22] and the UK [18] studies of ‘twins in school’

General reasons for putting multiples in separate classes:

- The children are able to operate as individuals within the class situation;
- The teacher is more likely to compare the multiple child against the peer group instead of his or her co-multiple(s);
- The multiple birth child is able to operate without his or her co-multiple telling, particularly if he or she is in trouble;
- The multiple birth child has an opportunity to make friends and socialise as an individual.

General reasons for keeping multiples together in the same class:

- Multiple birth children may need the support of each other particularly if they have not experienced separation prior to school; even if multiple birth children are comfortable when separated, they may need to be able to check up on what the other is doing;
- If one child is dominant, the dominant child may lose confidence as he or she no longer has his or her co-multiple(s) to organise;
- The children may be compared more at home particularly if the teachers are very different and one child appears to be making more progress;
- The teachers are less likely to understand how the children operate as multiples e.g. being upset if one is ill or in trouble.

Multiple birth children are likely to benefit from separation when:

- One child is markedly more able than the other;
- One child perceives himself or herself as failing;
- There is markedly similar progress with one child levelling up or down so that they can keep together;
- There is disruptive behaviour where multiples form a “fatal combination”;
- One or both children are dependent, unable to mix or relate with other children;
- There is intense competitiveness so that the child’s main goal is to keep up with or beat their co-multiple(s);
- One or both children polarise (go to opposite extremes);
- There is lack of privacy where one multiple birth child constantly reports to parents about the activities and progress of the other.

first real experience of being apart from each other. Children who are ‘extreme individuals’ usually hate being in the same class or group but may benefit from working together in some situations.

Before deciding whether to separate multiple birth children, parents and teachers need to meet to discuss the development and experiences of the children. The questionnaire designed by Pat Preedy (in www.twinsandmultiples.org) provides a useful framework for assessing the children both as individuals and as multiples. If one or more of the children is upset, parents and teachers should discuss how they will support the children and the circumstances under which the decision will be reversed.

The issue of separation is really one for primary schools, as in secondary schools there is such a diversity of courses and options that separation may well happen by default. However one interesting issue has been observed [15]. Multiples may feel pressured to take different courses or even to choose different careers. Doing the same as your co-twin or higher multiple is seen to be denying your individuality. In reality, it may be the opposite for multiples who have been brought-up in the same home, exposed to the same values and experiences and share similar abilities and aptitudes.

5. School policy

Once it has been acknowledged that multiples and their parents are a group needing special consideration, it is important to give them a place in school policy. While attitudes are changing in Australia and Europe, there has long been a definite position in the USA [25] with little indication of change in the intervening 11–12 years [26]. Frequently, twins are stereotyped as being too close and strict policies are implemented without any evidence base. The fact that the Minnesota State legislature found it necessary in 2005 to pass a law that parents should be the ones to ultimately decide if twins or higher multiples should be in the same class is both progressive but a concern, both because of the need for such a ruling and also because it fails to take into account the many issues in deciding whether or not to separate.

There is a framework school policy available at www.twinsandmultiples.org, which guides schools to have a flexible approach, assessing and meeting the needs of the children as individuals, while also taking into account the special multiple relationship. The key message is that with understanding and where necessary support, multiple birth children can make good progress in school enjoying and celebrating the fact that they are twins or higher multiples.

A developing aspect of policy is the work by Tamba on teacher training resources. Few trainee teachers have any information on multiples, except perhaps in a lecture on genetics and twin studies. As more multiples are born and more with disabilities are included into regular schools, then it becomes more vital that information on the particular issues of multiples are included in the curriculum.

6. Higher multiples

What are the particular issues for triplets, quads and more, where disability is more common?

The extent of information on the needs of higher-order multiples is very modest. The population-based survey of England and Wales [27] emphasised the diversity among these families. With the high rates of disability among triplets and especially quads [13], many of these families are not just coping with children born at the same time, but with ones very different in ability and prognosis. Thus, the combinations of who should be in the same class, far less in the same school are complex. While based on younger triplets, the recent sophisticated structural analyses by Feldman et al. [28] are very informative. They demonstrate that medical differences between the children at birth need to be considered in relation to maternal input and other

influences on the outcome. Thus, every set of triplets is going to pose a unique challenge to the school they attend and this may be the main message. Data on quads and more are even rarer and the book by Clay [29] provides a unique insight into the educational needs of these children by one of the foremost researchers into reading and related abilities. Since she wrote this, there have been many more higher multiples born and there is an urgent need for a follow-up. These families are still rare and international collaboration may be needed to achieve enough numbers for meaningful analysis in terms of policy development.

7. Research needs

What further research is needed, especially around why twins are separated and which pairs benefit from separation or being kept together?

The recent UK and Dutch studies have been very important in providing the first evidence that keeping twins together may be beneficial or at least not detrimental. The effect size is modest and so the next question is to determine what are the characteristics of those twins who do benefit from being together or being apart. The Dutch study did recognise the “partially separated” group, namely those who had been separated but who were back together again. They did not have enough data to identify the basis on which this happened, but the existence of a sizeable group in this category is consistent with the Australian study [22] where close to 25% of children were back together in the same class for some time after separation. Understanding “unsuccessful” separations may be key to future initiatives.

There is probably no need for specific research initiatives to identify the particular needs of multiple birth children. There are now many extensive genetic studies using twins such as TEDS where the data can be used to address issues specific to the twins. Even routinely publishing along with the genetic analyses, the mean scores of the twins on standardised assessments would rapidly provide extensive data. At the same, time there is increasing use of standardised assessments, e.g. PIPS in the UK and many state-based initiatives at different years in Australia. Simply asking the question “Are you a twin or higher multiple?” would preserve the child’s anonymity but provide very extensive data on multiple birth children in the 21st century.

As the numbers of multiple births continues to increase, then more thought needs to be given to strategies at many levels, from the management and outcome of multiple pregnancies through to parent and teacher education. With the increasing emphasis on evidence-based practice, then the focus is going ever to be more on what is best for a specific multiple birth family. There is no longer a question as to when twins should start school or whether they should be separated—rather which twins should start school when and which ones benefit from separation?

Key guidelines: twin children’s needs at school

- Recognising the potential developmental delays of pre-term multiples and taking these into account in deciding when they should start school.

- Stressing the importance of comparing multiples with peers rather than with each other, of identifying when competition becomes unhealthy and of recognizing how differences between twins may be exaggerated by parents, teachers and peers.
- While some academic delays are more common in multiples especially boys, emphasizing to all that these are not inevitable and developing ways to handle the associated distractibility and impulsivity.
- Developing an approach to separation to different classes or schools that takes into account the unique circumstances of each family and includes a procedure for deciding when to reverse the decision to separate or keep together.
- Creating a school policy for multiples, recognizing their prevalence and specific circumstances.

Research directions: how to further research on multiples at school

- Better norms on physical and behavioural development to identify the extent to which and when preterm multiples “catch-up” with singletons.
- Routine identification of multiple birth status in all large-scale school assessment programs to provide better data on potential twin–singleton differences.
- More longitudinal studies to identify the benefits or otherwise of separation or keeping multiples together in class with some focus on twins back together in the same class after previously being separated.
- Given the perception of twins as often being too closely coupled, there is need for data on how common this actually is and whether separation in school can resolve the problem.
- A coordinated program to determine the school outcome for triplets and higher multiples. The low prevalence of these children means such a study may have to be international, but is assisted by the enthusiasm and networking of higher-order multiple support groups in so many countries.

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