Fibonacci and the Golden Section

By Graham Connelly

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The title of this article might sound like the name of a band, but what has it to do with the education of children and young people in residential care? Stick with me, but first I need to explain that Fibonacci was a 13th century Italian mathematician who discovered an infinite sequence (1, 1, 2, 3, 5, 8, 13, 21, 34, ...) whereby successive numbers are derived from adding the previous two in the series. The ‘golden section’, or number, discovered by ancient Greek scholars, is calculated from the formula (1 + √5)/2 which works out at about 1.6. It turns out that the Fibonacci sequence and the golden section are related. Divide each number in the sequence by the one before it (1/1=1, 2/1=2, 3/2=1.5, 5/3=1.666, ..., 8/5=1.6, 13/8=1.625) and the ratio levels out around 1.6. But digress from my main topic. A recent news release from the Scottish Government landed on my desk. The release said that 52 per cent of care leavers in Scotland had at least one pass at Standard Grade foundation level or better in 2006-7, an increase of one per cent on the previous year, and the proportion gaining both English and maths at this level (a ‘Closing the Opportunity Gap’ target) remained unchanged at 34 per cent. Minister for Children and Early Years, Adam Ingram, said: ‘There’s nothing inevitable about young people who are looked after coming behind their peers in terms of qualifications and the statistics out today are disappointing.’

So, what are we to make of this apparently disappointing news? Well, three things need to be acknowledged immediately. First, we need to be careful not to see these particular statistics as a measure of the quality of care provided. Without going into the complications of how the figures are compiled, they represent a ‘snapshot’ sample of all young people aged 16/17 looked after by a local authority on the census date of 31st March and who subsequently left care. Secondly, considerable efforts have been made by the previous administration, the present Scottish Government, local authorities and dedicated professionals to address a very difficult – and deeply shameful – social problem. Thirdly, as Hare and Bullock1 have pointed out, there is a danger that the ‘shock therapy’ of poor attainment statistics ‘will merely reinforce negative stereotypes of looked after children that not only insult them as individuals but also make it virtually impossible for them to make their way in the world.’ The work by the Social Work Inspection Agency (SWIA), which resulted in a series of influential reports under the general heading of Extraordinary Lives2, included a report based on the positive experiences of adults with care backgrounds. The authors identified five factors which emerged in the life stories of their interviewees:

1. Experiencing stability;
2. Being given high expectations;
3. Receiving encouragement and support;
4. Being able to participate and achieve.

What is striking about these factors is that they boil down to one general characteristic – high quality relationships. There is nothing implicit here about qualifications of carers, or detailed knowledge of the school curriculum, or specialist knowledge of school subjects. There is, however, consistent research evidence indicating that the quality of residential care is best where a unit has a clear ethos and where that ethos can be articulated by staff members who believe they are engaged in a noble purpose. A case study was provided by Gallagher and colleagues3 in a paper in which they described a unit with an ethos centred on valuing education. The key elements of the unit’s policy on education were set out in a set of policies and practices, one of which is shown here for illustration.

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<th>Policy</th>
<th>Practice</th>
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<td>Establish expectations of children in regards to education</td>
<td>Gave children clear and consistent messages as to what was required of them in terms of their own education; used reinforcement and sanctions to support these messages.</td>
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It is clear that a number of things need to happen if educational attainment, and therefore attainment, are to improve and the Scottish Government report Looked After Children: We Can and Must Do Better4 has established a clear agenda for eight working groups with a very simple message: ‘The problems are deep rooted and difficult but not impossible to deal with.’

There is a lot happening, such as government-funded projects in 20 local authorities, including Inverclyde’s Children’s Champions’ pilot, and funding to improve understanding of the role of corporate parents. Other work includes improving data collection and transfer, the development of a web site, revision of training materials and providing clearer guidance for school designated senior managers (DSMs). Space permits me to elaborate on only one aspect. National Assessment data show that looked after children fall behind other children in reading, writing and mathematics and that the gaps are evident at an early age, when systematic intervention would make a huge difference. The deficits are greatest for children looked after at home and for those in residential care. And yet these children are vulnerable to the twin evils of missing out on being assessed and also receiving no effective support.

1 Adoption & Fostering 30 (4): 26-36, 2006
2 http://www.scotland.gov.uk/News/Releases/2006/09/14091356
5 Photos: A glimpse of the Summer Academy programme at Strathclyde University, for S3’s who show potential. This includes some LAAC. Daily coach travel from various Strathclyde regions is organised.