

A longitudinal study of children's outcomes in a residential special school

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Abstract

This paper presents the findings of a longitudinal study of the Mulberry Bush School (MBS), a therapeutic residential special school which provides an integrated approach to education and care for children aged between five and thirteen years. The study examined children's progression in four key outcomes: socioemotional development, behaviour, educational achievement and attachment representations. Four cohorts were followed over a six-year period (23 = boys; 13 = girls), each cohort for a consecutive three-year period, which approximates to the children's time at the MBS. Findings indicate that children showed significant improvements in their socio-emotional, behavioural and academic development during their time at the MBS. In the case of children's attachment representations, the picture is more mixed, either because progress is less obvious or because the evidence is inconclusive. This is only to be expected of the vulnerable and severely traumatised children who make up the MBS population. The importance of the improvements reported on in this study stems from the fact that they were achieved in the face of the exceptional disadvantages and challenges that characterise the lives of all children who attend the MBS. This is testimony to their achievement, and to the potential of the residential special school as a therapeutic learning environment.

A longitudinal study of children's outcomes in a residential special school

In the UK, there were 277 residential special schools in January 2014, with over 6,000 children in residence, down from 8,700 in 2005 (The Office of the Children's Commissioner, 2014). Most of the children who attend residential special schools have experienced severe adversity and disruption in their lives and have a wide range of complex and multiple special needs and disabilities (The Office of the Children's Commissioner, 2014). For many, placement in a residential school is often considered the only option. Given their challenges, there is a valid concern about the progression of these children and young people during and after their stay at a residential school.

Previous research examining the outcomes of children who attend residential special schools has been mixed. A recent report examining looked after children in England, for example, found that young people living in residential special schools experienced significantly worse educational outcomes compared to those with the same characteristics in mainstream schools (Sebba et al., 2015). An international meta-analysis, on the other hand, showed medium to large effect sizes of improved internalising and externalising problem behaviours for youth in residential schools (Knorth, Harder, Zandberg, & Kendrick, 2008). The authors found that residential programmes applying behavioural-therapeutic methods and focusing on family involvement showed the most promising short-term outcomes, but there was very little available evidence on long terms outcomes of residential care.

The potential effectiveness of residential schools is of critical concern. Their legitimacy is often considered by the public and policy-makers on the basis of the outcomes evidenced for children and young people (Kendrick, 2007). Nevertheless, there is very little quantitative data examining the development of children and young

people at residential special schools. To help fill this gap, this longitudinal case study investigates changes in children's developmental outcomes during their stay at the Mulberry Bush School (MBS) in Oxford, England.

The MBS is a therapeutic residential school which, for nearly 70 years, has provided an integrated approach to education and care for children aged between five and thirteen years. All the children have severe emotional and behavioural difficulties; they are highly traumatised, and they are likely to have experienced neglect, abuse or a complex family breakdown. Children are referred to the MBS from all around the country by local authorities. At the time of referral, most of the children will have been placed with foster or adoptive parents, or in children's homes; many will have had several disrupted foster placements and will have been excluded from school. They are likely to have been supported by a range of services including Child and Adolescent Mental Health Services (CAMHS) and for some, psychiatric inpatient provision, Social Care, pupil referral unit, home tutoring and other local specialised education provisions. For many children it is when they start school that their underdeveloped social, emotional and behaviour difficulties come to the fore.

In 2008, the MBS commissioned the UCL Institute of Education (UCL IOE) to conduct a longitudinal study of its provision, with UCL IOE and MBS personnel supporting practitioners to gather data during the whole of the data collection phase. The entire research project spanned eight years (2008 to 2016). The pilot year (2008-2009) focussed on collecting and examining preliminary data in order to finalise the research framework for the study. Data for the study were gathered between 2009 and 2015. The last year of the project (2015-2016) focussed on the completion of the final report. Here we report the findings of this study with particular focus on the changes in children's socio-emotional development, behaviour, educational achievement and

attachment during their stay at the MBS. We also describe a few anonymous case studies so as to provide brief portraits of the children who attend MBS.

Method

School context

The children are resident in school for 38 weeks of the year, although, in addition to school holidays, they return home for weekends, usually once every three weeks. Average age on admission is just over nine years and the average planned stay is three years. The average age on leaving is 11 years, 10 months. Upon arrival the children join the Assessment House (where they are introduced to the structures, rules and boundaries of the school) and the Foundation Class (where they are supported to become part of a group and to re-engage with learning in a classroom situation). The Assessment House has a high staff-to-child ratio to enable high levels of individual attention to be given to the needs of each child (three adults for every six children, as compared with three adults for every eight children in the MBS generally). Details about the relationships established at this stage are used to inform a 'treatment plan' for each child; that is, a plan devised and overseen throughout the child's stay by the child's treatment team, a team which includes a key worker, teacher, therapist, family network practitioner and house manager.

The assessment period lasts for about three months, after which the children move to one of three parallel houses, where they usually remain until they leave the school. When they are ready they also move from the Foundation Class to one of two parallel 'middle stage' classes, and some children will later move to the 'top stage' class. Each class and house has an average of six children with a maximum of eight; classes usually have three staff members (plus a volunteer) and a team of staff is attached to

each house. During the period of research the school used National Curriculum levels to measure academic progress.

The school places a strong emphasis on the social and emotional aspects of learning and development and the psycho-dynamically based therapeutic milieu characterises the school environment. Additionally, some children receive individual and group therapy which includes music therapy, drama therapy or psychotherapy (Onions, 2013). The school retains its psychoanalytic roots based on the founding work of Barbara Dockar-Drysdale (1968), which was influenced by Donald Winnicott (1970). The school's core principles are taking a psychodynamic approach, having a reflective culture and working collaboratively. These principles inform the therapeutic work throughout the school and form the basis of the high-quality treatment environment centred on group living and learning across the school community. This relationship-based milieu is where the therapeutic work takes place. Staff are supported to reflect on the impact of the work and to develop their understanding of the conscious and unconscious processes that take place in their professional relationships with the children and each other.

The stories of Fay and Tommy illustrate the traumatic early life experiences that are common to many of the children who arrive at the Mulberry Bush School.

Fay's Story

Fay was typical of many of the children who are referred to the school, with a traumatic history, including inconsistent and neglectful parenting, leading to early years' trauma, no internal working model of consistent attachment, and multiple foster placement breakdowns. Her birth mother was a drug addict and from an early age Fay

was sexually abused by her mother's pimp. Fay's mother was imprisoned for six years for murdering Fay's abuser, which Fay witnessed. Fay went into foster care at the age of four and her challenging and highly sexualised behaviour meant that placements broke down quickly. Her behaviours served to enact and communicate her lack of trust and secure attachment, as well as her ongoing distress. Also, and typically for children at the MBS, Fay struggled to enter the education system due to being unable to cope socially and emotionally. She was soon not in school, receiving the bare minimum of educational input, which placed increasing strain on foster placements. There was therefore a real risk of another placement breakdown at the point of her referral to MBS.

Tommy's Story

A report by the Child and Adolescent Mental Health Service (CAMHS) described Tommy as 'emotionally immature and extremely controlling'. His parents had Tommy when they were very young and during his infancy and young childhood they had a highly conflicted and violent relationship. Although they had managed to work things out Tommy appeared to be suffering from witnessing domestic violence and their relationship difficulties. Tommy had been violent towards his parents and younger sister, and was also violent and aggressive with staff and pupils at school. His parents reported his behaviour as uncontrollable: he was verbally abusive to staff at school and threatened a dinner lady with a knife before climbing a high wall saying he was going to jump off. The school did not consider itself equipped to meet his high levels of need, and his parents reported that they could not manage his behaviour without significant intervention.

Sample

The study followed four cohorts over six years, each cohort for a consecutive three-year period, which approximates to their time at the MBS. Cohort 1 included children who started at the MBS at some point between September 2009 and July 2010 (n = 11); Cohort 2 included children who started at the MBS at some point between September 2010 and July 2011 (n = 8); Cohort 3 included children who started at the MBS at some point between September 2011 and July 2012 (n = 6); and Cohort 4 included children who started at the MBS at some point between September 2012 and July 2013 (n = 11). There were a total of 36 children in the study (23 = boys; 13 = girls).

In terms of sample characteristics, 19 children first came to MBS with the label 'not able to be educated', nine had attended day special schools, three were heavily supported in mainstream primaries, two were attending part time education, two were home-tutored and one came from a psychiatric unit. The average age of the children upon arrival was nine years, with a range of six to eleven years. Most of the children were White British (n = 25); two were Black Caribbean, one African, one Roma, one British/Eritrean and six 'mixed' ethnicity. Thirteen of the children lived with their birthparents, while fourteen of the children lived with a foster carer; six were adopted and three lived in residential care. Of the children who lived with their birthparents, seven lived with their mothers, while four lived with both their mothers and fathers and two lived with their fathers. While the majority of the children have had statements of special educational needs from their local authority (now known as Education, Health and Care Plans) for emotional and behavioural difficulties (n = 29), seventeen children were also designated by the school as having Additional Special Educational Needs (ASEN). These children had been identified as having additional barriers to learning over and above the social, emotional and behavioural reasons for referral, and therefore

were deemed to need educational interventions in addition to the specialist teaching provision in the classroom.

Data Collection

Throughout the school year, children are referred and admitted to the school (from seven to eleven children per year). Data were collected by MBS staff at set times following their admission. Baseline measures were completed in the first term of children's arrival, whilst annual measures were completed once per year. When both baseline and annual measures were collected, baseline measures were collected during the child's first term at the MBS, whilst Year 1 measures were collected approximately six months later, with subsequent measures collected annually. The project was approved by the UCL IOE Research Ethics Committee. Parents, carers and all those with responsibility for the children gave written consent for their data and case studies to be included.

Measures

Boxall Profile is an externally validated assessment devised by The Nurture Group Network (Bennathan & Boxall, 1996). There are two distinct sections of the Boxall Profile: Developmental Strands (i.e., factors that support development) and the Diagnostic Profile (i.e., factors that inhibit development). Developmental Strands include two subcategories (a) Organisation of Experience (i.e., gives purposeful attention, participates constructively, connects up experiences, shows insightful involvement, and engages cognitively with peers) and (b) Internalisation of Controls (i.e., is emotionally secure, is biddable and accepts constraints, accommodates to others, responds constructively to peers, maintains internalised standards). The Diagnostic Profile includes three subcategories: (a) Self Limiting Features (is disengaged, is self-negating), (b) Undeveloped Behaviour (i.e., makes undifferentiated attachments, shows

inconsequential behaviour, and craves attachment and reassurance), and (c) Unsupported Development (i.e., avoids/rejects attachment, has undeveloped/insecure sense of self, shows negativism towards self, shows negativism towards others, wants, grabs and disregarding of others). There are 34 questions in each section (where, 4 = like this to a marked extent, 3 = like this at times, 2 = like this to some extent, 1 = only slightly or occasionally like this, 0 = not like this or cannot be observed). In this study, we examined children's mean score on Developmental Strands (alphas = .79 and .93 for the first and last terms, respectively) and the Diagnostic Profile (alphas = .72 and .84 for the first and last terms, respectively).

Academic Progress Indicators is an annual assessment by teachers regarding levels of attainment according to National Curriculum levels. Skill areas are Science, English and Maths. English is divided into three subtests including 1) Reading, 2) Writing and 3) Speaking. Maths is divided into four subtests including 1) Number, 2) Shape, Space and Measurement, 3) Data Use and Application and 4) Data Handling. Scores range from 3 to 27, with a maximum score of 27 indicating sufficient progress in meeting the government targets for children at the end of primary school. Progress between each sub-level of the national curriculum is represented by 3 points at Level 1 and 2 points at all other levels. An average ability child in a mainstream school is expected to make between 2 and 4 points progress per academic year.

Aggression and Anti-Social Tracking is an annual assessment of the number of incidents per year according to three subcategories: 1) Aggressive incidents: physical aggression towards others – children and staff; 2) Anti-Social incidents: racism; bullying; self-harm; damage to property and the environment; and 3) Physical intervention: this is when physical intervention needs to be used to ensure everyone is kept safe.

Story Stem Assessment Profile (SSAP) is a validated standardised procedure that measures a child's mental representations of their attachments and relationships (Hodges & Steele, 2000). The SSAP asks the children to respond to a set of narrative story stems where they are given the beginning of a 'story' highlighting everyday scenarios with an inherent dilemma. Children are then asked to 'show and tell me what happens next?' This allows some assessment of the child's expectations and perceptions of family roles, attachments and relationships, without asking the child direct questions about their family which might cause them conflict or anxiety. There are four constructs, which were analysed separately: a) Defensive-Avoidant, b) Secure, c) Insecure and d) Disorganised. It is completed by one of the psychotherapists during the first term after a child has started at MBS and then again two years later. Care is taken to ensure inter-rater reliability during training since different children might be assessed by a different therapist in the therapy team. Reliability (of at least 85%) is achieved through initial training and continuing moderation meetings.

Missing Data and Analytic Strategy

There are some measures with missing data. For the annual measures (i.e., Academic Progress Indicators and Aggression and Anti-Social Tracking), there are some children who stayed a shorter time and thus have less data collected on them. On average, children who stayed at MBS for a shorter period of time were significantly older on their arrival than those who stayed for a longer period of time, $F(1, 35) = 29.93$. In the sample, there were three children who stayed two years or less (Mean age on arrival = 10.83, SD = .09), 17 who stayed between two and three years (Mean age on arrival = 9.31, SD = .93), 15 who stayed between three and four years (Mean age on arrival = 8.47, SD = 1.46), and one who stayed more than four years (age on arrival = 7.50). For the SSAP, there were 27 children who completed both assessments and nine

who did not complete the first and/or last assessments. There were no significant differences in children's gender, age on arrival or ASEN between children who completed both assessments and those who did not. There were also no significant differences in either their first or last SSAP compared to those who completed both assessments. For the Boxall Profile, there were no missing data.

Since the Boxall Profile and SSAP have two measurements, paired t-tests were used. Since Aggression and Anti-Social Tracking and Academic Progress Indicators have annual measurements, linear mixed models were used. Linear mixed models examine linear change, even for individuals who have missing data. This is ideal for the annual measurements as children have different numbers of data points based on their length of stay. We analysed up to three years' of data for each child. As the sample size is larger for the annual measures, we were able to examine a number of covariates: gender, age on arrival and ASEN.

Results

Boxall Profile

There were statistically significant differences between the first and last term's scores for the Developmental Strands (i.e., factors that support development), $t(35) = -4.15, p < .001$, and Diagnostic Profile (i.e., factors that limit development), $t(35) = 2.03, p < .05$). Children had a higher average score in the Developmental Strand in their last term (Mean = 2.64, SD = .57) compared to their first term (Mean = 2.28, SD = .38) and a lower average score in the Diagnostic Strand in their last term (Mean = 2.16, SD = .45) compared to their first term (Mean = 1.95, SD = .53).

Academic Progress Indicators

Figure 1 shows the children's progression in Science, English and Mathematics during their stay at MBS. For Science, there was a statistically significant increase

across time, $F(3, 123) = 7.63, p < .001$), from Baseline to Year 3. As shown in Figure 1, students progressed 1.8 points from Baseline to Year 1, 2.7 points from Year 1 to Year 2 and 2.8 points from Year 2 to Year 3. Therefore, children's progression in Science was within the expected range from Year 1 to Year 2 and Year 2 to Year 3, but slightly below the expected range from Baseline to Year 1. There were no statistically significant differences in children's progression according to their gender, age on arrival or ASEN.

For English, children had statistically significant increases in their scores on Reading, $F(3, 136) = 7.69, p < .001$, Writing, $F(3, 136) = 9.09, p < .001$, and Speaking, $F(3, 136) = 7.43, p < .001$, from Baseline to Year 3. On average, students progressed 3.0 points from Baseline to Year 1, 3.1 points from Year 1 to Year 2 and 3.0 points from Year 2 to Year 3. Therefore, progression in English was within the expected range from Baseline to Year 1, Year 1 to Year 2 and Year 2 to Year 3. There were no statistically significant differences in children's progression according to their gender, age on arrival or ASEN.

For Mathematics, children had statistically significant increases in their scores on Number, $F(3, 136) = 9.51, p < .001$, Shape, Space and Measurement, $F(3, 136) = 9.26, p < .001$, Data Use and Application, $F(3, 136) = 10.44, p < .001$ and Data Handling, $F(3, 136) = 11.18, p < .001$, from Baseline to Year 3. On average, students progressed 2.5 points from Baseline to Year 1, 3.6 points from Year 1 to Year 2, and 2.4 points from Year 2 to Year 3. Therefore, progression in Mathematics was within the expected range from Baseline to Year 1, Year 1 to Year 2, and Year 2 to Year 3. There were no statistically significant differences in children's progression according to their gender, age on arrival or ASEN.

Aggression and Anti-Social Tracking

Figure 2 shows children's scores in Aggression, Anti-Social Activities and Physical Intervention from Year 1 to Year 3. There was a statistically significant decrease in Aggression, $F(2, 103) = 3.18, p < .05$, and a marginally significant decrease in Anti-Social Activities, $F(2, 103) = 2.38, p < .10$ (see Figure 2). There were no significant differences in the rate of change according to children's gender, age on arrival or ASEN. Furthermore, there were no significant changes in Physical Intervention.

SSAP

Figure 3 shows children's average scores on the SSAP constructs at their first term and last term. There were no statistically significant differences (where $p < .05$) for Defensive-Avoidant, Insecure, Secure or Disorganised construct scores between children's first and last terms at the MBS. However, there was a marginally significant decrease in the Defensive-Avoidant construct, $t(1, 26) = 1.83, p < .10$, and marginally significant increases on the Secure, $t(1, 26) = -1.08, p < .10$, and Insecure, $t(1, 26) = -1.85, p < .10$, constructs from children's first to last terms.

Discussion

Our research provides encouraging evidence of the impact of the MBS on the social-emotional, behavioural and academic development of the children who attend the school. There was notable progress in each of these domains. In the case of children's attachment style, the picture is more mixed, either because progress is less obvious or because the evidence is inconclusive. This is only to be expected of the vulnerable and severely traumatised children who make up the MBS population. In general, the improving outcomes found amongst the children in our study provide significant evidence of the effectiveness of the distinctively therapeutic environment, education

and care that the school provides to all its pupils. We now highlight the statistically significant trends in each of the developmental domains.

Social Emotional Development

Children had higher scores on the Developmental Strands (i.e. supporting factors) and lower scores on the Diagnostic Profile (i.e. inhibiting factors) of the Boxall Profile in their last term as compared to their first term, indicating an improvement during their time at the MBS. When they leave MBS, as compared with when they first arrived, children appear to have a greater capacity to organise their own experience, to give something their purposeful attention and to achieve better internalised control, which includes achieving more in the way of emotional security. In addition, after three years at the MBS, children appear to engage in fewer of the behaviours that inhibit their involvement in the life of the school; this includes being less disengaged, less likely to crave reassurance, and less likely to behave negatively in ways that reflect on themselves or others. This is a very positive finding, which reflects the children's increasing ability to self-regulate their behaviours and emotions.

Behavioural Development

Children's improving behaviour during their time at the MBS also means that they are involved in significantly fewer aggressive incidents; that is, fewer incidents of physically hurting others. There was also a marginally significant decrease in their engagement in anti-social activities; such as bullying and self-harm. There was no significant change in the use of physical intervention. However, it is important to note that, on the whole, the use of physical intervention is low throughout the children's time at the MBS. We would suggest that, as children's relationships and trust in adults develops over time, they become less likely to respond to stress and anxiety through aggression and are more able to use adult support appropriately. Certainly, children

frequently give evidence of greater internalised control, fewer limiting behaviours, less aggression and fewer anti-social incidents during their time at MBS.

Zak's story illustrates the background to and development of high levels of aggression that some of the children might have experienced, and also the process of receiving and accepting support which allows for the development of internalised control.

Zak's Story

Zak and his twin sister were neglected by their birth parents and taken into care when they were six months old. They were adopted when they were two but Zak found it very difficult to settle in the adoptive home. He also knew that his mother had met and married someone else with whom she had two children. Zak could be a loving brother and son, but would become violent and aggressive for no apparent reason; afterwards he could be remorseful and self-harming. His adoptive family were at breaking point. The milieu group therapy environment helped Zak slowly to develop his trust in adults, and he began to feel safe to express his angry and confused feelings. Zak's acts of aggression – their frequency and intensity – were a constant source of concern to staff, who were frequently required to intervene physically to prevent further occurrence or any escalation. As a result he was given a clear, consistent and robust plan to keep himself and others safe, which included anger management and relaxation techniques. The adults with whom he had developed trusting relationships were very important in helping Zak to follow his plan. His parents were also included in thinking about and using the plan. Clear boundaries and consistent, supported reparative opportunities have enabled Zak to learn that it is possible for him to make things better after the angry and aggressive incidents. He was able to invest in this plan

and over time learned how to control his extreme feelings. By the end of his placement weeks would pass without any incident or the need for physical intervention.

Academic Development

Amongst the most positive outcomes are the children's academic achievement scores in Science, English and Mathematics. In almost all subjects, children made as much progress as would be expected of their peers in mainstream schools. In view of the exceptional difficulties that all children at MBS have to deal with, this is striking evidence of the positive impact of the school learning environment on children's academic development. Furthermore, younger children and those with ASEN made as much progress over time in Science, Reading, Writing and Speaking in English; Shape, Space and Measurement; and Data Use and Application in Mathematics than older children and those without ASEN. In general, our evidence suggests that the teaching of children at the MBS is effective for all children, including children whose overall level of academic achievement is lower than it is for their MBS peers.

Petra's story illustrates how gradual re-integration into school life, with sustained support from staff and reduced levels of anxiety, can enable a child to make significant progress.

Petra's Story

Petra joined the Foundation Stage class where she was helped to enjoy her learning again, having plenty of opportunities, support and encouragement to work and play cooperatively with her peers. She had experienced exceptional disadvantage and needed reliable scaffolding from staff to take advantage of these opportunities. After a year she moved to the Middle Stage class where expectations of pupil's behaviour, learning and application are gradually increased. Petra could still become

noisy and easily distracted, and she would frequently distract other children, but at the same time she made good progress and was able to move to the Top Stage about a year before she left the school. During this last year she successfully participated in a weekly visit to a local mainstream primary school, supported by staff from the Mulberry Bush.

Developing Relationships

We did not find evidence of statistically significant changes in the scores of children's attachment constructs during their time at the MBS. There was, however, a marginal decrease in their scores on the defensive-avoidant scale, and there were marginal increases in secure and insecure scores in the children's last term at the school, as compared with the first term. These findings may be more significant than they appear. For the children who make up the vulnerable and severely traumatised MBS population, forming any secure attachments can prove to be a lifelong process. They may never have had any reliable attachment figures, so the differences observed here, although marginally significant, are encouraging nevertheless. It is not surprising that children's insecure constructs increase only marginally; as they mature children develop their understanding of what has happened to them and more clearly recognise the often grim reality of their early lives. As Defensive-Avoidant constructs begin to decrease, they are then able to make more use of the therapeutic milieu; that is, when their defences are not so high as they once were they can risk investing in more meaningful relationships with staff.

Since the SSAP provides assessment of children's attachment representations, however, we are not able to offer any global judgements about children's attachment styles. What we can say is that it is likely that what is being captured in our data are children's emotional reactions to transitions, endings, separation and loss, and whatever corrective experiences are included in the therapeutic milieu offered by the

school must interact with and take their place alongside the children's many previous traumas. This complex area of the children's lives deserves further investigation.

Limitations and Conclusions

There are several important limitations to this study. First, there are some missing data within each measure, which limits the consistency of the size of the sample base between measures. This will not invalidate tests of difference or change, but it may undermine the generalisability of the findings. Furthermore, the analytic sample in this report is small, which reduces the likelihood of obtaining statistically significant results. It is also important to keep in mind that the term "significance" is relative. For instance, non-significant statistical results may nevertheless reflect indicative or substantive changes in children's individual lives.

In conclusion, children at the MBS arrive with few academic attainments and low and patchy levels of academic experience, having also met with severe disruption to their social and emotional development. The importance of the improvements reported in this study stems from the exceptional disadvantages and challenges that characterise the children who attend the MBS, and the impressive progress they often make in spite of this. This is testimony to their achievement, and to the effectiveness of MBS as a therapeutic learning context. On a wider scale, these positive findings suggest that residential special schools have the potential to benefit children's development through psycho-dynamically informed therapeutic provision.

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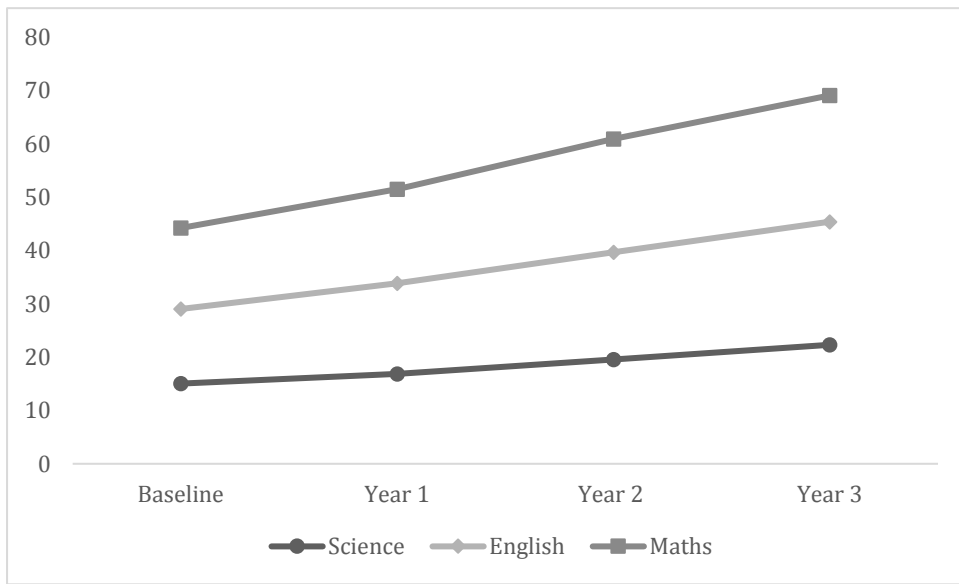


Figure 1. Academic Progress Indictors from Baseline to Year 3.

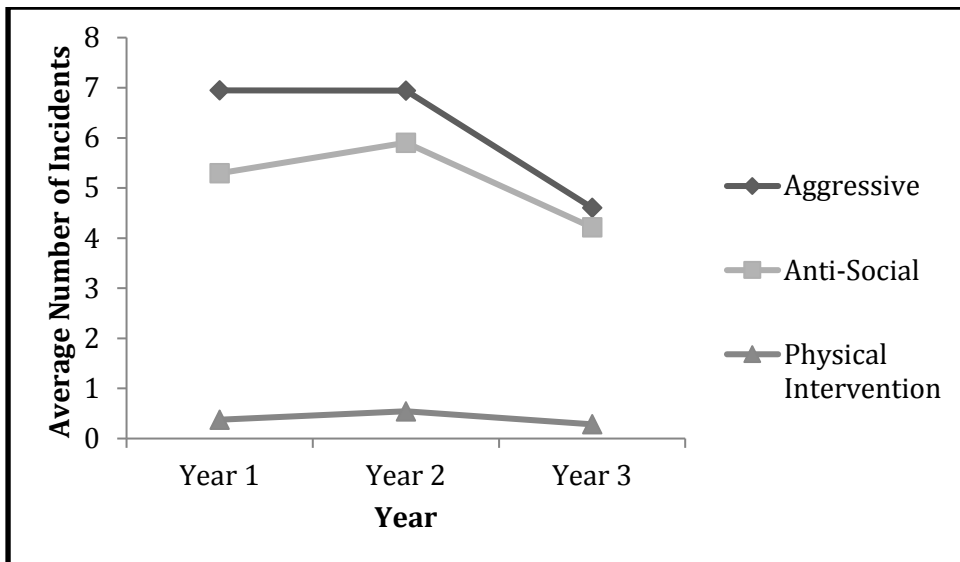


Figure 2. Aggression and Anti-Social Tracking from Year 1 to Year 3.

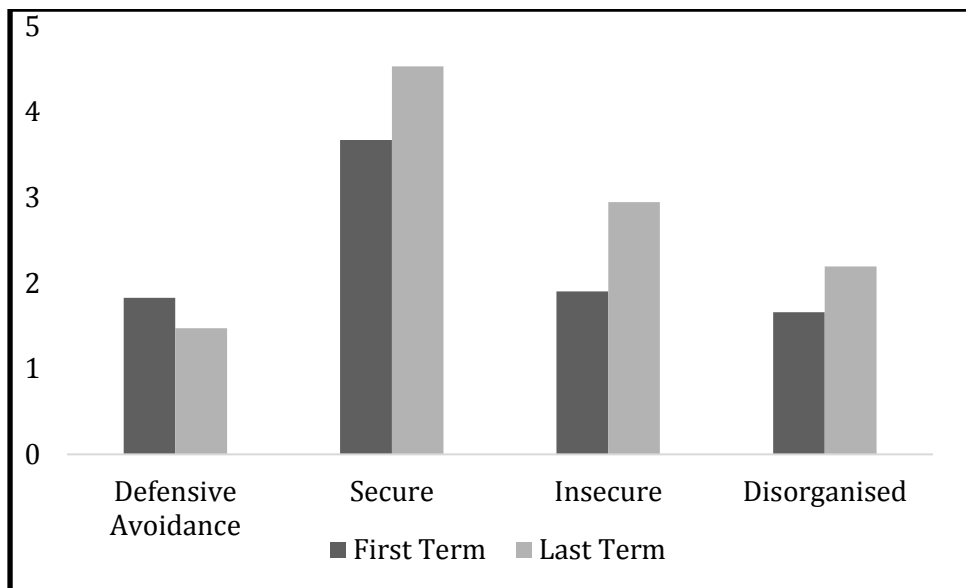


Figure 3. Story Stem Assessment Profiles at first term and last term.